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RIIO-ED1: Draft determinations for the slow-track electricity distribution companies

Financial Issues

Supplementary annex to RIIO-ED1 overview paper

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Overview:

This supplementary annex provides further detail on the financial aspects of our draft determinations for the slow-track electricity distribution companies for the next price control, RIIO-ED1, which will cover the eight-year period from 1 April 2015 to 31 March 2023.

The document is aimed at those seeking a detailed understanding of certain financial aspects, where we consider more detailed analysis is helpful. Stakeholders should refer to the Overview as the primary document for these draft determinations.

Associated documents

RIIO-ED1: Draft determinations for the slow-track electricity distribution companies – Overview
https://www.ofgem.gov.uk/publications-and-updates/riio-ed1-draft-determinations-consultation-slow-track-electricity-distribution-companies

RIIO-ED1: Draft determinations for the slow-track electricity distribution companies – supplementary annexes

- Assessment of the RIIO-ED1 re-submitted innovation strategies
- RIIO-ED1 business plan expenditure assessment
- RIIO-ED1 draft determinations Financial Model
- RIIO-ED1 draft determinations detailed figures by company
- RIIO-ED1 draft determinations PWC advice on Ofgem's financeability assessment
- RIIO-ED1 Glossary

The overview and supplementary annexes can be found on our website at the following link:
https://www.ofgem.gov.uk/publications-and-updates/riio-ed1-draft-determinations-consultation-slow-track-electricity-distribution-companies

Decision to fast-track Western Power Distribution
https://www.ofgem.gov.uk/ofgem-publications/86375/fast-trackdecisionletter.pdf

Assessment of RIIO-ED1 business plans and fast-tracking
https://www.ofgem.gov.uk/ofgem-publications/84600/assessmentofriio-ed1businessplansletter.pdf

Timing of decision on electricity distribution networks' revenue for 2015-16
https://www.ofgem.gov.uk/ofgem-publications/86768/ed1revenuechangedecision.pdf

Decision on our methodology for assessing the equity market return for the purpose of setting RIIO-ED1 price controls
https://www.ofgem.gov.uk/publications-and-updates/decision-our-methodology-assessing-equity-market-return-purpose-setting-riio-ed1-price-controls

Strategy Decision for RIIO-ED1 – Overview
https://www.ofgem.gov.uk/publications-and-updates/strategy-decision-riio-ed1-overview

Contents

1. Introduction

1.1. This document accompanies the RIIO-ED1 Draft Determinations Overview document which reports our draft determination for electricity distribution network operators (DNOs) for the next price control, RIIO-ED1. This price control will cover the eight-year period from 1 April 2015 to 31 March 2023.

1.2. This document is a supplementary annex which sets out further detail on key financial elements of the package for DNOs where we consider further detail is helpful or necessary. It is aimed at network companies, investors and those who require a more in-depth understanding of the proposals, but should be read in conjunction with the Overview document.

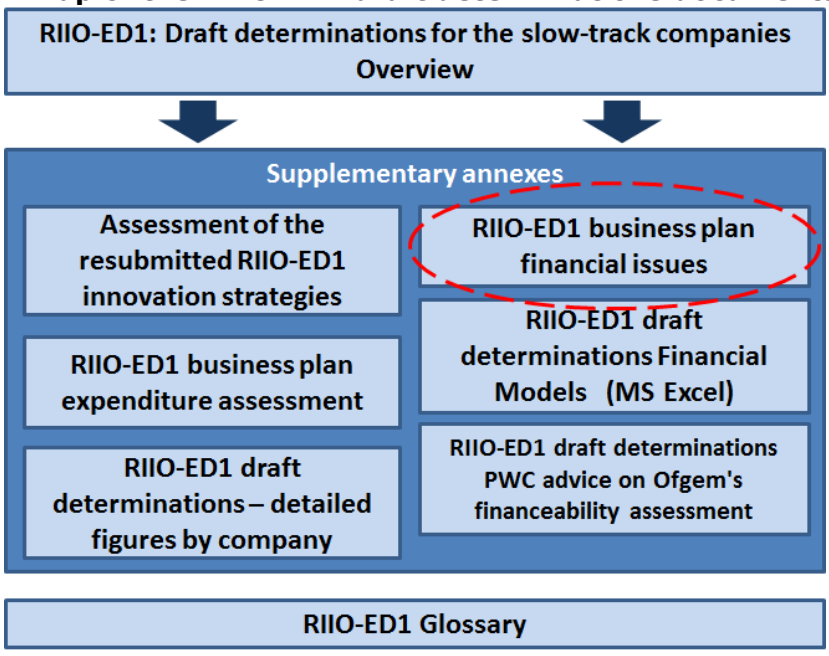
1.3. The Finance chapter (Chapter 5) of the overview document lists our consultation questions. We do not ask any questions in this annex.

1.4. The remaining chapters provide further detail on our allowances for the cost of capital and on financeability. They also provide descriptions of our Annual Iteration Process, our approach to modelling tax and our approach to setting and reviewing allowances for pension costs.

1.5. We include in Appendix 1 a table of proposed Price Control Financial Model variable values. These would be incorporated into the DNOs' licences.

1.6. Figure 1.1 below shows all the RIIO-ED1 documents we have published today. There are links to all these documents in the 'Associated Documents' section at the top of this document.

Figure 1.1: Map of the RIIO-ED1 draft determinations documents



2. Allowances for the cost of capital

Chapter Summary

How we assess the components of the DNOs' cost of capital

Summary of preceding decisions

2.1. In our strategy decision, we decided to:

- set notional gearing in light of the companies' assessments of the overall risk of their business plans
- set the cost of debt assumption in the allowed return based on a 10-year simple trailing average index (with provision for companies to justify modifications in exceptional circumstances). To update this allowance annually during the price control. To use an average of the iBoxx GBP Non-Financials indices of 10+ years maturity with credit ratings of broad A and broad BBB. To deflate the indices by 10-year breakeven inflation data published by the Bank of England
- make no adjustments in the index for debt issuance fees, liquidity management fees, new issue premia or the inflation risk premium
- set an indicative range for the cost of equity of 6.0-7.2 per cent (post-tax real).

2.2. In our 17 February 2014 decision on equity market return methodology we decided to give greater weight to the influence of current market conditions in relation to the equity market return. We decided on a central reference point for assessing DNOs' cost of equity, including for our 28 February 2014 fast-track determination, of 6.0 per cent.

Notional gearing

2.3. We said in our strategy decision that DNOs had the opportunity to assess the overall risk of their business plans at the time of fast-track submissions. We requested that they make realistic and well-justified proposals for notional gearing. All DNOs proposed a notional gearing assumption of 65 per cent, consistent with our assumptions for DPCR5 and RIIO-GD1.

2.4. Our draft determinations proposals will change the overall risk profile. As we explain in paragraph 2.31, our proposed modifications to the cost of debt index will substantially reduce exposure to market interest rate uncertainty. Other things being equal, this might point to higher levels of gearing being acceptable. On the other hand, reductions in our cost of equity allowances and further pressure on financial metrics caused by an increase in the RPI inflation environment point to lower levels of gearing.

2.5. We believe we should set cost of capital allowances to be consistent with maintaining comfortable investment grade credit ratings. Gearing is a key driver.

2.6. While it is possible that maintaining comfortable investment grade credit ratings may require some degearing, our cost of capital allowances are no longer materially dependent on our gearing assumption. In Table 2.1 we show how a 20 per cent reduction in gearing has little effect on the weighted average cost of capital (WACC).[1] (It is a pre-tax analysis).

Table 2.1: Effect of gearing on the WACC

Using CC cost of equity estimate translated to the DNOs

	65% gearing	**45% gearing**
Gearing	65.0%	45.0%
Market return	6.50%	6.50%
Risk-free rate	1.50%	1.50%
Equity risk premium	5.00%	5.00%
Asset beta	0.38	0.38
Debt beta	0.10	0.10
Implied equity beta	0.90	0.61
Cost of equity	6.00%	4.53%
Provisional cost of debt estimate	2.60%	2.60%
Weighted average cost of capital	3.79%	3.66%

2.7. Corporation tax rates have fallen significantly in recent years. This means that the supposed tax shelter benefits available from interest are lower. Our analysis suggests that the overall impact of gearing on cost of capital and tax allowances is likely to be broadly neutral.

2.8. We retain a notional gearing assumption of 65 per cent for the purpose of assessing cost of capital allowances and modelling the financial positions of the companies. It is up to companies to manage their actual gearing levels.

[1] Note that this analysis does not compute the effect of a reduction in the debt beta estimated by the Competition Commission. We consider such a reduction in the debt beta would have a broadly equal and opposite effect on the cost of equity and cost of debt and can therefore be ignored.

Allowed return on equity

2.9. We estimated the real post tax cost of equity for DNOs at 6.0 per cent per annum in our 17 February 2014 decision. We explain in our overview document why this is still valid. In particular, we explain why it is necessary to consider our allowances for the cost of equity and cost of debt together to ensure they provide an overall package of returns that are consistent with the DNOs' risk environment.

2.10. In this section we address some specific issues that DNOs have raised in their business plan submissions.

2.11. Our estimate in our 17 February decision had been informed by the provisional determination for Northern Ireland Electricity Limited (NIE) published by the Competition Commission (CC) in November 2013. The CC issued its final determination in March 2014, published by the Competition and Markets Authority in April 2014. Its cost of equity estimate for NIE in its final determination was 5.0 per cent, at the top end of its range of 3.4 to 5.0 per cent.

2.12. Drawing from the CC's analysis in its final determination, we have translated its estimated range for NIE's cost of equity to the DNOs, as shown in Table 2.2 below.

Table 2.2: Translation CC cost of capital estimate to the DNOs
References are to the CC final determination

	Northern Ireland Electricity Limited				**DNOs**	
	CC range[1]		*Regeared to 65%*[2]		*GB beta (-0.02)*[3]	
	Low	*High*	*Low*	*High*	*Low*	*High*
Gearing	45.0%	45.0%	65.0%	65.0%	65.0%	65.0%
Market return	*5.00%*	*6.50%*	*5.00%*	*6.50%*	*5.00%*	*6.50%*
Risk-free rate	*1.00%*	*1.50%*	*1.00%*	*1.50%*	*1.00%*	*1.50%*
Equity risk premium	*4.00%*	*5.00%*	*4.00%*	*5.00%*	*4.00%*	*5.00%*
Asset beta	*0.35*	*0.40*	*0.35*	*0.40*	*0.33*	*0.38*
Debt beta	*0.05*	*0.05*	*0.10*	*0.10*	*0.10*	*0.10*
Implied equity beta	*0.60*	*0.69*	*0.81*	*0.96*	*0.76*	*0.90*
Cost of equity	*3.38%*	*4.93%*	*4.26%*	*6.29%*	*4.03%*	*6.00%*

[1] *Table 13.11. CC determination of WACC is at top of its range, with a CoE of 5.0% which reflects a rounding up of equity beta to 0.7. The CoE figure of 4.93% is consistent with its overall WACC assessment of 4.1% taking account of NIE's cost of debt of 3.1%.*

[2] *Table 13.13, see also paragraph 13.175(c) which explains why CC adjusted debt beta for regeared CoE.*

[3] *Paragraphs 13.181 and 13.183 of CC determination identify a NI-GB differential. Ofgem's beta assumptions for DPCR5 and RIIO-GD1 are equivalent to an asset beta of 0.38.*

2.13. Our 6.0 per cent estimate for the DNOs is at the top of the range of 4.0 to 6.0 per cent in the table above. This is consistent with the CC's assessment for NIE, which was also at the top of its range.

2.14. A number of DNOs argued that it is not appropriate to take one component of the CC's assessment of the WACC for NIE in isolation, and that its allowance for NIE's cost of debt is an important context for its assessment of the cost of equity. The CC made allowance for NIE's full cost of embedded debt.

2.15. As we describe below, we propose to modify our cost of debt index. In our analysis, we have looked at how our proposed index provides for the DNOs' forecast cost of debt. We considered both the cost of embedded debt and the cost of new debt under a range of future interest rate scenarios. Our analysis indicates that this modified approach significantly reduces the sector's exposure to market interest rate uncertainty. This protection is not available to NIE under the CC's ex ante cost of debt allowance approach.

2.16. Our modified cost of debt index provides DNO investors with a significantly enhanced financial risk profile compared with regimes that use ex ante cost of debt allowances such as NIE's. This implies our estimate of the DNOs' cost of equity should be below the equivalent for NIE (ie less than 6.0 per cent). We noted in our 17 February decision that our cost of equity estimate would have been lower but for our concerns that some DNOs' interest rates would materially diverge from their cost of debt allowances if interest rates stayed low. Our redefined cost of debt index addresses this issue. But this additional headroom in our cost of equity estimate offsets a small forecast under-provision in our redefined cost of debt allowances discussed below in paragraph 2.47. Our proposed cost of equity allowance for the slow-track draft determinations is therefore the same as our minded to position, at 6.0 per cent.

Characterisation of our cost of equity assessment

2.17. Our 17 February decision recognised that the risk premium within our cost of equity estimate may be only partly explained by beta risk.[2] In particular, we explained that this was one of the issues which we plan to explore over the RIIO-ED1 period in preparation for future RIIO price reviews. Until that work is carried out, we believe it is not meaningful to characterise our cost of equity estimate conventionally with a single beta assumption as this would over-simplify our assessment.

Proportionality with WPD

2.18. A number of DNOs argued that our cost of equity estimate for our slow-track decision should relate to the 6.4 per cent cost of equity estimate in the business plans for the fast-tracked DNOs owned by Western Power Distribution (WPD).

2.19. We were clear in our November 2013 fast-track assessment that we used our estimate of the cost of equity (6.3 per cent) to assess the DNOs' business plans. We recognised that WPD's cost of equity estimate of 6.7 per cent exceeded

[2] We noted that observed market betas for comparator companies are lower than the equity beta range we adopted in our strategy decision. This implied that a DNO's cost of equity would be more sensitive to the risk-free rate than would normally be implied by a beta assumption close to 1.0.

our benchmark, but taken together with other aspects of its business plans which represented positive consumer value against our benchmarks, we concluded that WPD's business plans represented value for money overall for consumers.

2.20. At the time of that decision we announced that we would review our methodology for estimating the equity market return. Our 17 February decision reduced our estimate of the cost of equity to 6.0 per cent. This was a reduction of 0.3 per cent from our 6.3 per cent benchmark. We invited WPD to make a similar reduction.

2.21. Some DNOs argue that we could have asked WPD to reduce its cost of equity estimate to 6.0 per cent. They argue our requested reduction of only 0.3 per cent to 6.4 per cent indicates that we accepted WPD's revised estimate of 6.4 per cent as its cost of equity. By extension, they argue, our estimate for the slow-track DNOs of 6.0 per cent would be discriminatory.

2.22. We disagree. We said we would assess DNOs' fast-track business plans as a whole, implying that we would not cherry-pick the positive components. We made it clear that we would not negotiate on individual components. The purpose of this commitment was to encourage companies to put forward their best proposals.

2.23. The CC's provision determination for NIE in November 2013 represented material new information. If we had not allowed WPD to adjust its plan to reflect our revised methodology, which we had not signalled at the time of our strategy decision, would have undermined the integrity of the fast-track process. Asking WPD to go further and align its cost of capital estimate with ours would have cherry picked the positive components of WPD's plans in conflict with our commitment.

2.24. Our cost of equity estimate for slow-track DNOs is aligned with our cost of equity estimate for WPD and how we assessed its business plans. We had marked its proposals down for the fact that its estimate was 0.4 per cent higher than our assessment, but this was offset by other positive aspects of its plans.

Cost of debt

2.25. We explain in our overview document why we are proposing a redefined cost of debt index. In this section, we provide more details behind our analysis and address other specific cost of debt issues raised by the DNOs in their business plan submissions.

Creating a low cost of debt environment: ring fencing

2.26. We design our regulatory regime to create the conditions for cost effective finance. We recognise that minimising financing costs leads to enduring benefits for consumers through lower energy bills.

2.27. We create these conditions by building important protections into our licences and building important principles into our price control processes. These should interact to create an especially safe environment for lenders and bondholders.

2.28. The protections, our ring fencing licence conditions, are designed to protect consumers, but they do this in large part by providing important protection to lenders and bondholders against the risk of imprudent financing or distribution decisions. They are central to our primary objective to protect the interests of current and future consumers and we will not hesitate to enforce them if necessary.

2.29. At the core of the ring fence regime is a requirement for a licensee to take all appropriate steps within its power to ensure that at all times it maintains an investment grade issuer credit rating. This objective is reinforced by other ring fence provisions that limit the activities of the licensee, require licensee boards to include two directors that are and remain sufficiently independent from its parent group (according to criteria set out in the condition) and prohibit any indebtedness, giving of security or guaranteeing any liability of another person for non-qualifying reasons without our consent. They also provide for a cash lock-up between the licensee and its affiliates when its investment grade credit rating is at risk.

2.30. While ring fencing provisions do not eliminate default risk for lenders, they do preclude or protect against imprudent decisions relating to a licensee's financing. These protections are supported by the principles we adopt in our price control processes, principles of better regulation and a commitment to objective, evidence-based judgements.

Redefinition of the cost of debt index

2.31. When we launched RIIO in 2010, we made "a commitment to remunerating efficiently incurred debt costs"[3]. In light of our established practice of using a benchmark basis for cost of debt allowances and our rationale for introducing an index being that it creates a better benchmark, this commitment only applies at the sector level. For RIIO T1 and GD1 we tested candidate index specifications against the forecast cost of debt, including actual embedded debt, for notional companies that broadly reflected those in the relevant sectors.

2.32. Our testing for RIIO-T1 and GD1 recognised one company's exceptional circumstances, circumstances which were exogenous to the company's own financing decisions. A benchmark basis for cost of debt allowances creates incentives for better financing decisions and it would be inconsistent to allow company-specific financing decisions to influence allowances for that company.

[3] Paragraph 12.21, 'Handbook for implementing the RIIO model', 4 October 2010.

2.33. We specified cost of debt allowances for RIIO-T1 and GD1[4] using a 10-year trailing average of blended A/BBB iBoxx non-financial corporate 10+ year bond daily yields, with daily data deflated at the forward interest yields implied by the difference between nominal and index-linked 10-year gilt yields on the relevant day.

2.34. In our strategy decision, we decided to adopt the same 10-year trailing average basis, although we stated that we would adopt different approaches if they were both robust and justified in light of DNOs' exceptional circumstances.

2.35. In their March 2014 business plan submissions, a number of DNOs provided evidence that their circumstances were exceptional and others argued that the 10-year trailing average did not reflect the maturity profile of debt across the electricity distribution sector.

2.36. DNOs' debt is dominated by fixed rate, fixed term debt and we calculate their debt currently has an average term of about 21 years.

2.37. We have applied the testing principles we adopted for our RIIO-T1 and GD1 decisions. We extended the test to consider the results under a wide range of interest rate scenarios, with nominal iBoxx benchmark rates falling as low as 4 per cent to rates rising rapidly to 8 per cent per annum. We used these forecasts to compute the effect of different index specifications on cost of debt allowances.

2.38. For comparison, we forecast DNOs' actual debt costs using the same iBoxx interest rate scenarios as a proxy for the cost of new debt. We used detailed information on embedded debt bonds and loans held by DNOs to forecast the interest costs on embedded debt. We drew from the Price Control Financial Model (PCFM) to derive net debt movements[5], and thereby the requirements for new debt to fund net investment and refinance maturing embedded debt. In building up the cost of embedded debt, we recognised the costs of credit wrapped debt where appropriate and recognised 0.2 per cent for issuance costs and other fees, the same assumption adopted by the CC in its final determination for NIE.

2.39. We tested a wide range of candidate index specifications by varying the trailing average lengths. We compared forecasts of cost of debt allowances with forecasts of DNOs' actual costs of debt for the sector as a whole, consistent with the approach we took for RIIO-T1 and GD1.

2.40. As well as considering absolute differences, we considered the sensitivity of those differences to market interest rates. Low levels of sensitivity would indicate low levels of investor exposure to market interest rate uncertainty.

[4] We specified a different index basis for one transmission operator that had a forward asset growth profile that substantially diverged from the gradual growth assumption consistent with a trailing average basis for an index.

[5] We model forecast debt movements for DNOs on the basis of a 5 per cent dividend payout rate of regulatory equity for DNOs on a notional basis (65 per cent gearing, debt costs equal to allowances). The actual dividend rate that would be appropriate will depend on relative debt costs, performance, net investment and desired levels of gearing.

2.41. We found that trailing average periods that extend trombone like from a fixed starting point until they reach about 20 years provided the lowest sensitivity to interest rates. Fixed trailing average periods would expose investors to more uncertainty. We consider that a trombone index would therefore have significant advantages in terms of limiting investor risk and improving financeability. This kind of risk reduction would be of value to investors.

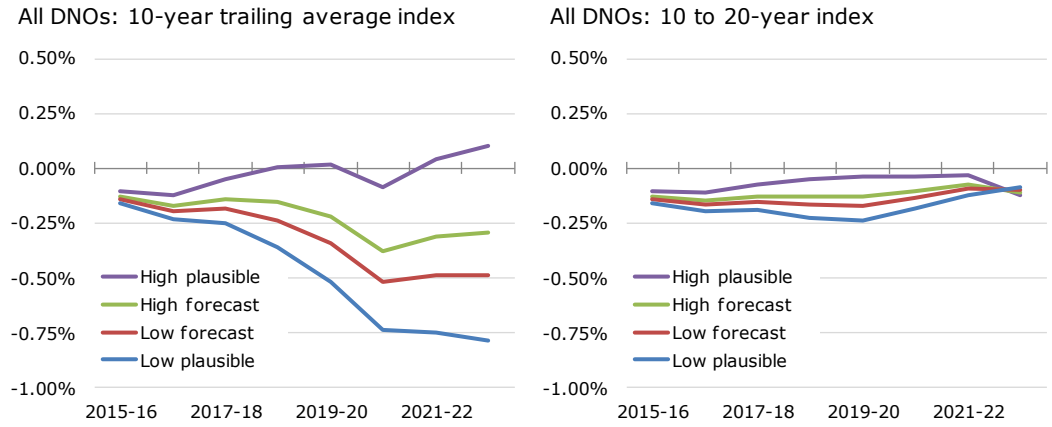
2.42. The 10-year index in particular would expose DNOs to relatively high levels of risk, and an expectation of significant under provision for DNOs' forecast cost of debt towards the second half of the RIIO-ED1 period except under the highest market interest rate scenarios. We concluded that the 10-year index specification does not meet the required standard.

2.43. Of the different trombone specifications, we found that a trailing average period that starts at 15 years, as proposed by ENWL, would have the effect of over providing for DNOs' forecast cost of debt.

2.44. A trombone index starting with a trailing average period of 10 years would slightly underprovide for DNOs' forecast cost of debt before taking account of any headroom in the 'halo effect' we describe from paragraph 2.57. Our modelling indicates the risk characteristics of this index specification are positive, representing nearly a ten-fold reduction in risk exposure compared to either the 10-year index or an ex ante cost of debt allowance.

2.45. The following chart shows the results of our analysis comparing the effects of the revised index specification to the 10-year index.

Figure 2.1: Forecast cost of debt allowances less forecast debt costs



2.46. In isolation, an allowance that underprovides for the cost of debt could not be justified. However, we recognise that the allowances for the cost of debt and the cost of equity need to be considered together. Our analysis of the halo effect from paragraph 2.57 indicates that there is some headroom in our cost of debt allowances. Since we assume companies will take on new debt at benchmark rates while the evidence suggests the market rates them better than benchmark, our analysis is liable to overstate DNOs' cost of new debt.

2.47. We consider that any remaining under provision in the cost of debt is balanced by the headroom in our cost of equity estimate, which we discuss above in paragraph 2.16.

Distortions in forward inflation rates

2.48. Following submission of its business plans, NPg provided arguments and evidence that the measure of forward inflation we use to deflate nominal benchmark bond yields to construct the cost of debt index creates significant distortions. This would make our cost of debt index artificially understate the real cost of debt.

2.49. It cites evidence that there was a significant change in the shape of long end inflation forward curves in about 2007 that have been sustained since. It argues that forward implied RPI inflation rates rising towards 4.0 per cent are difficult to reconcile to the UK's inflation targeting regime unless we assume either a failure in that regime or the presence of distortions in forward inflation measures.

2.50. The two principal distortions NPg refers to are:

- distortions in the market for index-linked gilts that suppress index-linked yields and thus overstate forward inflation measures
- a premium that investors require to compensate for the inflation risk inherent in nominal gilts, which would be picked up in forward inflation measures.

2.51. Regulators and network operators have debated whether there are distortions in the market for index-linked gilts, recognising that low levels of liquidity might increase yields and excess demand from pension funds might suppress them. NPg does not offer any material new evidence on the factors that might cause distortions to overstate forward inflation and acknowledges that it is not clear whether any of the factors could explain a step change in 2007.

2.52. NPg's evidence points more plausibly to an increase in the inflation risk premium. In particular, it cites evidence that option-based measures of inflation uncertainty increased after 2007.

2.53. It is possible that forward inflation measures are distorted by an inflation risk premium. The question for us is whether any such premium should be reflected in an increased cost of debt allowance.

2.54. A DNO issuing conventional debt would certainly suffer the additional cost of an inflation premium in its interest payments. However, the DNO is financing an asset, the RAV, which is mechanically indexed using the RPI. Investors in the RAV, taking both debt and equity investor together, are fully protected from inflation risk. This suggests there should be no inflation premium overall.

2.55. If the market infers a positive inflation risk premium for conventional debt, then the market should also infer a negative inflation risk premium for the equity. An investor in the company's bonds could in principle perfectly hedge the associated inflation risk by investing in an appropriate proportion of the

company's equity, or the equity in any other company with a RAV. There is no net inflation risk exposure to the market as a whole. It would be unreasonable to allow for a higher overall WACC on account of an inflation risk premium and impose additional costs on consumers for any inflation risk in the financing of an inflation-proofed asset.

2.56. We conclude that it is reasonable for us to deflate nominal bond yield benchmarks using unadjusted forward inflation measures. Overall WACC allowances will not be distorted.

The halo effect

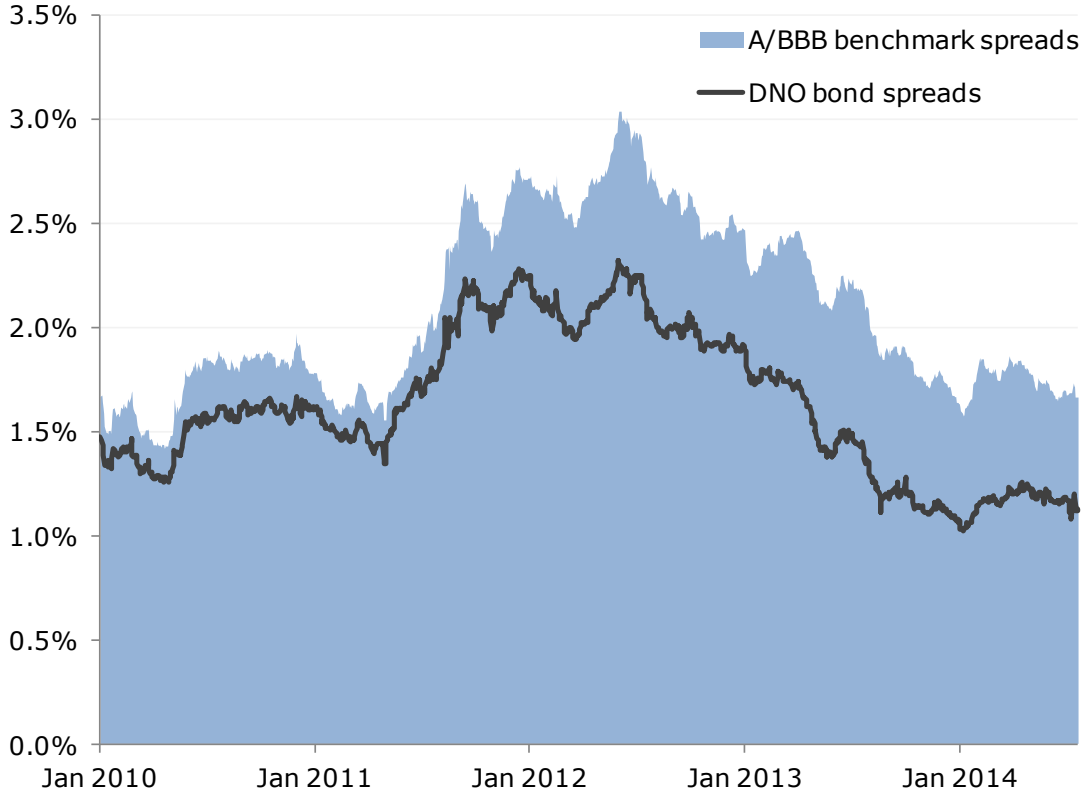
2.57. In our RIIO-T1 and GD1 decision, we concluded that there was no need to adjust the cost of debt index to allow for issuance costs and other fees. This is because we observed that network industry bond yields tended to be lower than the benchmark yields we use in our cost of debt index. This is commonly known as the halo effect.

2.58. We committed to reviewing this issue for RIIO-ED1.

2.59. Most of the DNOs' embedded debt is in the form of traded bonds. We derived a list of these bonds from the embedded debt information submitted by the DNOs. We excluded bonds which DNOs had indicated benefitted from credit wrapping to avoid distorting our analysis. We then compared the daily yields derived from market trading to the daily iBoxx benchmark data we use to construct the cost of debt index (average of A and BBB 10+ years non-financial corporates). We consider this comparison most directly identifies the halo effect. Although we recognise our population of DNO debt excludes debt that has matured before now, we do not think this should distort our analysis.

2.60. The following chart shows the average spreads against gilts for the DNOs' bonds and the iBoxx benchmark data. Looking at spreads will not distort the measure of the halo effect since we use the same gilt yields to calculate spreads for both bonds and the benchmark. It also allows us to combine information about nominal and index-linked bonds since we can compare nominal yields against the benchmark directly and index-linked yields against the deflated benchmark, using the same deflating method we adopt for our cost of debt index.

Figure 2.2: Comparison of DNO to benchmark bond spreads



Source: Bloomberg, Markit iBoxx

2.61. We estimate issuance costs and other fees represent about 0.2 per cent per annum, which is the additional fees allowance the CC provided to NIE in its March 2014 final determination.

2.62. The chart shows the halo effect has been rather larger than 0.2 per cent since part way through 2011. The existence of a halo effect indicates that the bond market rates DNO debt more highly than debt issued by other companies with the same credit ratings.

2.63. We conclude there is no need to make an upward adjustment to the cost of debt index to provide for issuance costs and other fees. We also conclude that our use of iBoxx benchmark data for the cost of debt index provides some headroom in our cost of debt allowances.

3. Financeability

Chapter Summary

How we assess DNOs' ability to finance their activities.

Our approach to assessing financeability

3.1. Our principal objective is to protect the interests of existing and future consumers. In carrying out its functions in accordance with the principal objective, the Authority must also have regard to the need to secure that licence holders are able to finance the activities which are the subject of obligations on them. This means that, in setting price controls, we should have regard to the ability of network companies to secure financing in a timely way and at a reasonable cost in order to facilitate the delivery of their regulatory obligations.

3.2. This is also in the interests of consumers. It is important that the regulatory framework does not provide excessive returns, reward inefficiency or create moral hazard.

3.3. We generally equate financeability with an ability to maintain an investment grade credit rating. The first stage of our financeability assessment is therefore to consider how our proposed price controls will affect credit ratings. To do this, we draw from the rating agencies' methodologies.

3.4. We see value in extending our analysis to consider more directly how resilient DNOs' capital structures are to plausible downside scenarios, even if a DNO has to limit its distributions to shareholders through a period of sustained underperformance.

Impact on credit ratings

3.5. As in previous reviews, and consistent with our strategy decision, we have analysed the positions of the DNOs in terms of their credit ratings. We have regard to the metrics used by all the main rating agencies and, because it is well documented, we are able to simulate the methodology currently used by Moody's. Moody's is currently reviewing its methodology and we anticipate we will have regard to its revised methodology before our final determination in November 2014. We consider Moody's current methodology remains a useful basis for our assessment.

3.6. The rating agencies use a range of metrics and assessments to inform their rating decisions. Moody's ascribes a 40 per cent weighting to financial ratios, including a 15 per cent weighting each to the ratio of net debt to RAV and to adjusted interest cover ratio, also known as the post maintenance interest cover

ratio (PMICR). It gives 60 per cent weighting to more judgement-based assessments on matters ranging from the company's ownership model to the complexity of the capital programme. Within this 60 per cent, it gives 15 per cent weighting to the stability and predictability of the regulatory regime.

3.7. We have referred to these judgement-based assessments in Moody's most recent ratings for each DNO to inform our simulation of its methodology.

3.8. The table below lists the main financial metrics we monitor in our credit rating assessment, together with the threshold we interpret as being the minimum (or maximum) consistent with an investment grade credit rating.

Table 3.1: Financial metric thresholds

Financial metric	*Threshold*
FFO interest cover ratio	2.5 min
Adjusted interest cover ratio, or PMICR	1.4 min
FFO / Net Debt	8% min
RCF / Net Debt	5% min
Net Debt / RAV	80% max
RCF / Capex	0.5 min
Regulated equity / EBITDA	5.5 max
Regulated equity / PAT	18 max
Dividend cover ratio	1.0 min

3.9. Our central assessment, consistent with the approach we set out in our strategy decision, is based on the notional debt position of the DNOs and on the assumption that they neither outperform nor underperform our cost and output assumptions. This basis assumes that each DNO's debt position is consistent with our notional gearing assumption of 65 per cent and its cost of debt is consistent with our cost of debt allowances. The rationale behind this approach is that it is for the DNO and its owners to resolve any issues it may have if its debt position is materially out of line with this standard or if it underperforms.

3.10. For this review, we have extended this analysis to take into account DNOs' actual embedded debt and the relationship between its forecast debt costs and cost of debt allowances under a wide range of possible future interest rate scenarios. We further analyse the resilience of DNOs' capital structures to plausible downside performance scenarios, which we discuss in more detail below.

3.11. We find that, with the exception of the PMICR, all other financial metrics indicate investment grade ratings for all DNOs under both the notional and actual debt basis, with only one of these metrics (Regulated equity / PAT) temporarily breaching the threshold for one year, for one company, under two of our four interest rate scenarios.

Table 3.2: Conventional financial metrics, results of analysis

Financial metric	*Threshold*	*Worst company, worst year, worst scenario*	*Worst company, average year, worst scenario*
FFO interest cover ratio (interest expense)	2.5 min	2.73	3.05
FFO interest cover ratio (cash interest)	2.5 min	3.00	3.23
FFO / Net Debt	8% min	11%	13%
RCF / Net Debt	5% min	8%	10%
Net Debt / RAV	80% max	69%	67%
RCF / Capex	0.5 min	0.57	0.69
Regulated equity / EBITDA	5.5 max	3.01	2.73
Regulated equity / PAT	18 max	18.71	14.66
Dividend cover ratio	1.0 min	1.10	1.79

3.12. By contrast, the results of the PMICR are generally poor across the sector, averaging a little over 1.2 across the sector and across all interest rate scenarios compared with our threshold of 1.4. We have analysed the reasons for this.

3.13. The PMICR is a measure that broadly compares returns, calculated on a real basis, to interest costs, calculated on a nominal or cash basis. The ratio is as a result sensitive to the level of allowances for the cost of equity and to the level of inflation, measured in RPI terms.

3.14. As we discussed in our 17 February 2014 decision on our equity market return methodology[6], a change in the data collection routines for the RPI has artificially increased the measured RPI inflation rate, which means investors benefit more from the RPI-based indexation of the RAV. We accordingly reduced our cost of equity estimates to ensure that investors do not receive double benefit. The combination of a reduction in the allowed cost of equity and an increase in levels of RPI cause the PMICR to be systematically lower.

3.15. Our assessment is that this reduction is not necessarily in proportion with any deterioration in financial risk. However, it is the prerogative of the rating agencies to determine their rating methodologies and it would not be appropriate for us to anticipate any change in the thresholds they use.

3.16. Our simulation of Moody's rating methodology on this basis indicates a risk of a one-notch downgrade for many of the DNOs as a consequence of lower than threshold PMICR. All DNOs are currently rated no worse than BBB+ (Standard & Poor's and Fitch) or Baa1 (Moody's), so there would need to be a three-notch downgrade to take any DNO out of investment grade.

[6] https://www.ofgem.gov.uk/sites/default/files/docs/decisions/decision_on_equity_market_return_methodology.pdf

3.17. We asked PwC to review our calculations of PMICR and our application of PMICR to Moody's rating methodology for a sample DNO. We are publishing PwC's advice letter, 'Ofgem's financeability assessment for RIIO-ED1 in the context of low observed Post Maintenance Interest Cover Ratios', together with these Draft Determinations.

3.18. We have reflected on how we should respond to this deterioration in the PMICR. We have rejected any idea of adjusting how we measure or interpret PMICR. The rigidity of the PMICR metric means that there are only three ways to improve it:

- we give investors higher cost of capital allowances
- the company secures additional returns through our incentive mechanisms
- the company reduces the burden of its interest costs through de-gearing.

3.19. We cannot justify giving investors higher cost of capital allowances to improve a financial metric. While we can facilitate financeability in present value neutral ways so that consumers are properly protected, it will generally be for companies to ensure their capital structures are fit for purpose.

3.20. We expect all DNOs will aim to outperform and secure additional incentive returns. Our aim in assessing costs and outputs is to achieve a balance between the expectation of outperformance and underperformance.

3.21. It will be for the DNOs and the rating agencies to evaluate whether the issues revealed by low PMICR should lead to lower levels of gearing, tolerance of lower credit ratings or further evolution in rating methodologies.

3.22. Depending on the outcome, we may wish to adjust our gearing assumptions at the next price control review, RIIO-ED2. We consider DNOs should continue to manage their financial structures to be consistent with at least comfortable investment grade ratings, in the BBB+ to A- range. We explain from paragraph 2.3 that, now that corporation tax rates are relatively low, the lower gearing levels that may result do not necessarily lead to higher overall costs of capital and tax.

3.23. For this review, we conclude that our draft determinations are consistent with investment grade credit ratings and, subject to our further analysis of financial resilience discussed below, do not cause undue difficulty to any DNO in maintaining its ability to finance its activities.

3.24. We believe our proposals and the approach we have taken to this review create significant positive factors that will help inform rating agencies' assessments. We have not taken these factors into account in our credit ratings assessment above. These factors are:

- our redefined cost of debt index substantially reduces exposure to market interest rate uncertainty
- we have enhanced our financeability analysis by taking more explicit account of actual embedded debt issues, ensuring our assessments are robust to a wide range of future interest rate scenarios and analysing more directly the

resilience of DNOs' capital structures to plausible downside scenarios (see below).

Financial resilience

3.25. We have sought to gain further insight into the financial resilience of DNOs by developing a measure of financial resilience which is constructed in a similar way to the PMICR. We call this measure $PMICR_G$.

3.26. We provide a technical description of the thinking behind $PMICR_G$ in Appendix 1.

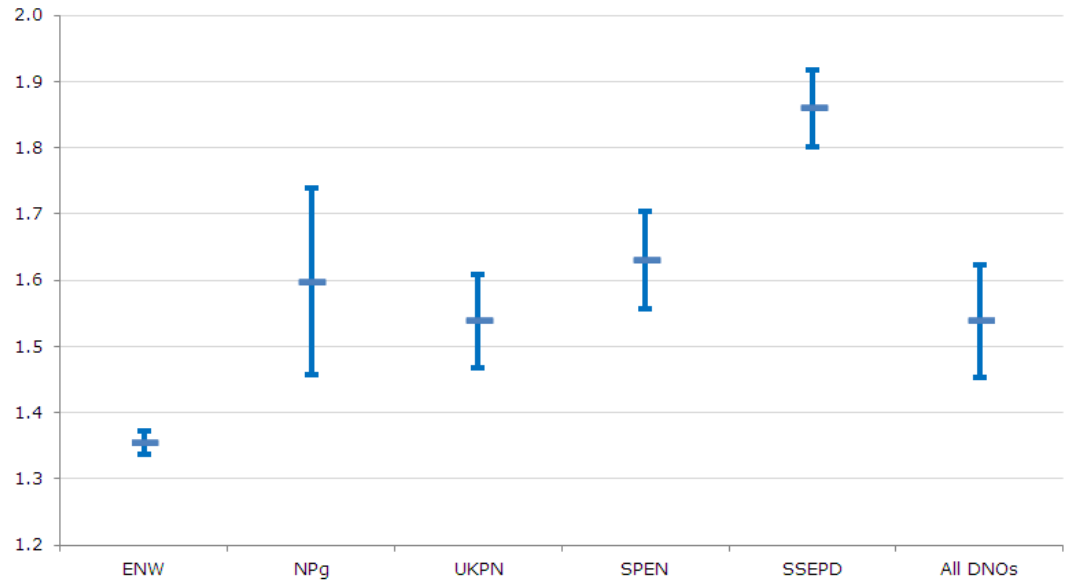
3.27. The difference between $PMICR_G$ and PMICR relates to the capital maintenance concepts that lie behind them. Rather than choosing whether the numerator should represent cash flows after maintaining the real value or nominal value of capital, $PMICR_G$ computes the cash flows after maintaining the quality of a company capital structure. Its capital maintenance concept remains cash-based and is relevant to all classes of lenders and bondholders. We have found it helpful in identifying the level of headroom a company has to maintain a benchmark level of capital quality.

3.28. We describe in Appendix 1 how we have calibrated a threshold for $PMICR_G$. We consider a threshold consistent with plausible RoRE downsides of 4 per cent per annum over RIIO-ED1 is appropriate. This means a $PMICR_G$ threshold of 1.4.

3.29. We have calculated $PMICR_G$ across the RIIO-ED1 period for all DNO groups on an actual embedded debt basis and under a wide range of future interest rate scenarios for both the cost of debt index and the costs of new debt. In this way, we take into account the principal financial risks. The $PMICR_G$ threshold therefore only needs to take account of RoRE downsides arising from pre-financing performance. We describe our RoRE analysis further below.

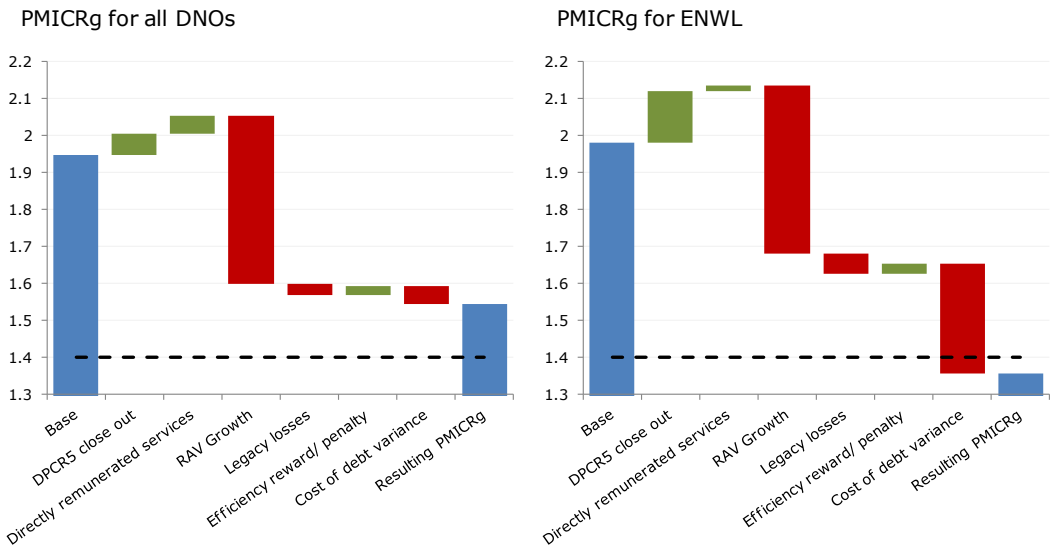
3.30. The results of our $PMICR_G$ analysis are shown in the chart below, with the vertical bars indicating the ranges for the metric under different interest rate scenarios.

Figure 3.1: Ex ante $PMICR_G$ ranges for DNO groups



With a threshold of 1.4, we consider the $PMICR_G$ ranges are consistent with our benchmark levels of financial resilience for all DNO groups except for ENWL. Our analysis, illustrated in the following charts, indicates that the principal cause of this deficiency is the company's high cost of embedded debt.

Figure 3.2: Comparison of $PMICR_G$ drivers for ENWL and all DNOs



3.31. In Section 5 of our overview document we invite ENWL to consider a range of options for improving its financial resilience with a view to proposing a plan to us.

3.32. One way for it to improve its financial resilience would be for it to reduce its debt burden. We note that one of the judgement-based factors in Moody's

rating methodology is the ability and willingness of the company to improve its leverage.

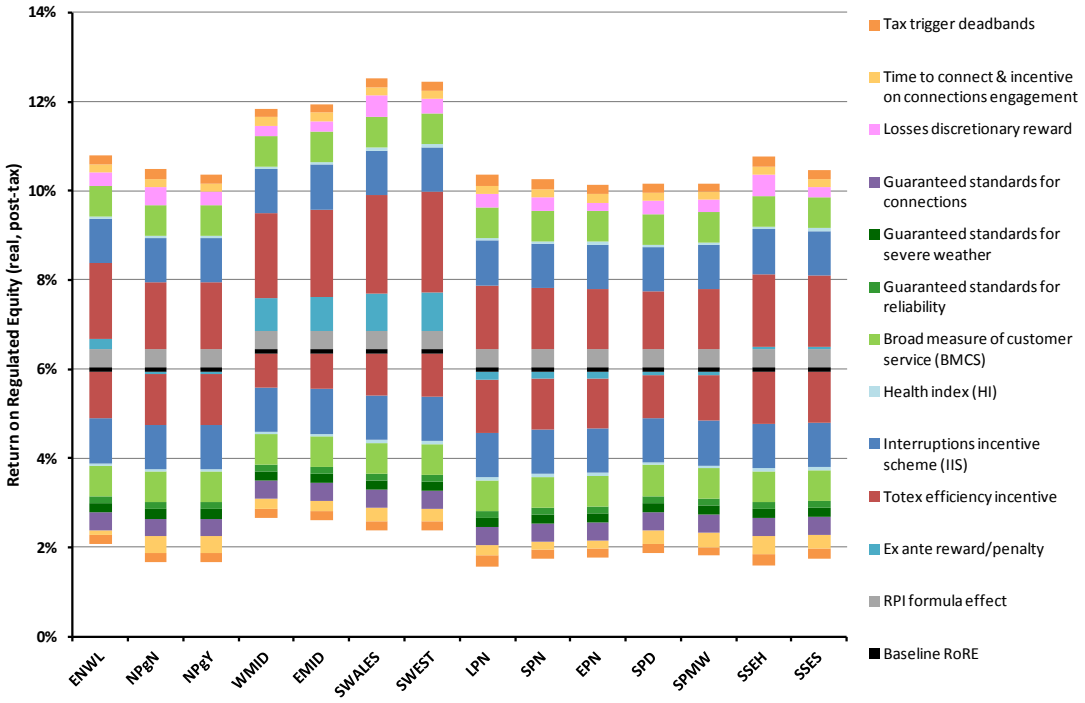
3.33. We state in our overview document that we would be prepared to make a present value neutral adjustment to the company's settlement if we conclude it is the interest of consumers. Financial resilience would be improved by reducing RAV growth and, consequently, the amount of equity required to finance it. This could be achieved in a present value neutral way.

Return on regulatory equity (RoRE)

3.34. To inform our assessment of how much downside resilience is reasonable; we have analysed uncertainty in returns on regulatory equity, RoRE.

3.35. The following chart indicates the ranges that we see as plausible:

Figure 3.3 Estimated RoRE ranges for RIIO-ED1



3.36. We have considered a number of evidence sources for each component of RoRE uncertainty. We have reviewed evidence provided by DNOs in their business plan submissions and RoRE performance in the first three years of DPCR5. We will shortly receive DNOs' annual returns for 2013-14 and will update our analysis before our final determinations in November 2014.

3.37. A key driver of the RoRE range is the potential for underperformance or outperformance for totex. A number of DNOs have presented evidence to suggest that our historical estimate of plus or minus 10 per cent for outturn totex, overstates the plausible range. We have looked at this with the performance to date in DPCR5 and consider a range of plus or minus 7.5 per cent is realistic. This

translates to a range for RoRE uncertainty from totex of plus or minus 1.4 to 1.9 per cent.

3.38. The chart also includes the increase in annual RPI relative to underlying cost inflation we highlighted in our 17 February decision. This would be reflected in higher RAV indexation to the benefit of investors.

3.39. In light of our discussion in Section 4 the Overview document on relative price effects (RPEs), we are mindful of the potential impact of uncertainty in RPEs on our estimated ranges for RoRE uncertainty. We expect to review our estimates of RoRE uncertainty following our planned consultation on RPEs before final determinations.

3.40. Recognising there is some judgement involved in assessing how plausible the extremes of these ranges are, we consider that resilience to sustained RoRE underperformance of 4 per cent per annum is an appropriate benchmark.

Treatment of prior period issues: rebates and legacy losses

3.41. A number of DNOs presented their views on whether or not we should exclude cash flows relating to prior periods from our financeability analysis. Some DNOs argued we should exclude all cash flows relating to prior periods so we can judge the RIIO-ED1 period in isolation. Other DNOs argued we should include them as to do otherwise would be unrealistic and inconsistent. DNOs were concerned that we would either overstate or understate financeability issues.

3.42. In principle, financeability is a real world question around whether or not a company has the cash flows and the underlying economics to sustain investor confidence and thereby maintain access to finance. We are aware that rating agencies can exclude between-year under and over recoveries from their analysis and we are concerned to ensure our financeability testing errs towards caution.

3.43. There are two particular prior period factors. The first is adjustments to allowed revenues in RIIO-ED1 in respect of our 21 March 2014 decision regarding legacy losses.[7] Some DNOs had anticipated adjustments and have deliberately under recovered revenues during the DPCR5 period in anticipation. The second is revenue consequences in RIIO-ED1 of the revenue adjustments in 2014-15 that the DNOs agreed with the government to accelerate reductions in household energy bills from our RIIO-ED1 review. Arrangements for these revenue consequences vary between DNOs but are generally accounted for as a revenue under-recovery brought forward from DPCR5.

3.44. We have structured our financeability analysis to recognise both legacy losses and the consequences of the 2014-15 revenue adjustments. In both cases, we consider these are revenue timing adjustments required of DNOs and therefore have the substance of adjustments to allowed revenues. We have erred

[7] https://www.ofgem.gov.uk/ofgem-publications/86757/decisiononclosingoutdprc4lossesmechanism-mar-14.pdf

towards caution by disregarding the reversal of any prior period revenue under recoveries in respect of legacy losses. We have also separately modelled the effects of disregarding the 2014-15 revenue adjustments and found that it would not alter our overall financeability assessment.

Modelling cost of debt allowances in the PCFM

3.45. For the calculation of base revenues, we have adopted a cost of debt assumption of 2.6 per cent. At the time of our final determination, we will adjust this assumption to align with the cost of debt for 2015-16 which we will calculate using data up to 30 October 2014. Thereafter, we will update to the outturn cost of debt index each year under our annual iteration process.

3.46. Our financeability analysis, however, is not based on this 2.6 per cent cost of debt assumption. We have instead used a wide range of future interest rate assumptions for the computation of both the cost of debt index and DNOs' forecast costs of debt and derivation of our financial metrics.

Revenue profiling

3.47. We asked all DNOs to specify appropriate revenue profile in a way that we could apply to our draft determination revenues. The profiles they specified are reasonable, so we applied them. We devised this method of determining revenue profiles after recognising that DNOs will not otherwise have an opportunity to inform their profiles before allowed revenues are fixed for 2015-16 on the basis of draft determinations.

Asset lives and capitalisation rates

3.48. The capitalisation rates we use determine the split between expenditure that is recovered when it is incurred (fast money) and how much is recovered in future years (slow money). The asset life assumptions we use determine the period over which that deferred recovery takes place.

3.49. Asset life assumptions and capitalisation rates have neutral effects on the present value of cash flows available to companies. They do have intergenerational effects that change the balance between the amounts that existing and future consumers must pay. Our primary duty relates to both existing and future consumers.

3.50. Changes to asset life assumptions or capitalisation rates that would facilitate lower cost financing while remaining consistent with a fair allocation of costs over time may be to the benefit of consumers, taking both existing and future consumers together.

3.51. In our strategy decision, we decided to apply an average expected economic asset life of 45 years for new electricity distribution assets, with straight-line depreciation. The new asset life will only apply to new investment

from the commencement of RIIO-ED1 on 1 April 2015. Existing assets will continue to use a 20-year asset life.

3.52. The DNOs have all proposed transition arrangements for asset lives from 20 to 45 years in equal steps over the eight years of RIIO-ED1 to assist financeability. We consider their proposals are sensible.

3.53. Consistent with our strategy decision, we asked DNOs to justify their proposed capitalisation rates in their business plans. They propose capitalisation rates that range from 68 to 80 per cent, which they have justified using a range of accounting and financeability bases.

3.54. We generally accept the DNOs' proposals. As we discuss in paragraph 3.31, we are inviting one company, ENWL, to propose a plan to improve its financial resilience. This could include adjustments to asset life assumptions or capitalisation rates. If we consider adjustments will benefit consumers, we would accept them.

4. Annual Iteration Process for the Price Control Financial Model

Chapter Summary

Describes the Annual Iteration Process for the ED1 Price Control Financial Model

Overview

4.1. Under RIIO we do not wait until the end of the price control period to update various values in the settlement. Our Annual Iteration Process for the ED1 Price Control Financial Model (PCFM) means we can remodel base revenue allowances annually using an updated set of 'PCFM Variable Values'. As a result:

- adjustments such as those for the Totex Incentive Mechanism, will be applied in a timely manner rather than being 'logged up' until the next price control
- the need for complex algebra on the face of the licence will be reduced making price control mechanisms more accessible to a range of stakeholders.

4.2. The Annual Iteration Process applies to Base Demand Revenue, which is the main component of Allowed Revenue. Some components of Allowed Revenue, including some incentive adjustments, are dealt with separately from Base Demand Revenue and so are outside the scope of the Annual Iteration Process. Allowed Revenues are calculated in accordance with the licence.

4.3. Opening Base Revenue Allowances will still be printed in the licence, but will be updated by a "MOD_t" term calculated under the Annual Iteration Process. A simplified formula illustrating this is set out below:

Base Demand Revenue for year t =

Opening Base Revenue Allowance for year t + MOD for year t

4.4. The PCFM Variable Values and the methodologies under which they can be revised for each Annual Iteration Process will be specified in the special conditions of the licence and in the ED1 Price Control Financial Methodologies ('the methodologies') set out in the ED1 Price Control Financial Handbook ('the handbook'). The handbook, including the methodologies, and the PCFM (collectively called the ED1 Price Control Financial Instruments) will form part of CRC 4A (Governance of ED1 Price Control Financial Instruments) and will be subject to modification rules set out in that condition. The governance regime for the ED1 Price Control Financial Instruments will be similar to the regime already in place for the price control financial instruments incorporated into Special

Condition 2A of the Gas Transporter Licence[8] for the RIIO-GD1 price control arrangements.

4.5. Arrangements set out in CRC 4C (Price control update provisions for WPD) will provide for the handbook and the PCFM to be updated for Fast-track licensees on a one-off basis, so that they are appropriately aligned in terms of content and functionality with those of non-Fast-track licensees.

The ED1 Price Control Financial Model

4.6. The PCFM for each DNO[9] will be developed from the spreadsheet workbook model used to calculate values for the RIIO-ED1 draft and final determinations. However, the components of the determination models not required for the purposes of the Annual Iteration Process and calculation of the value of MOD_t (such as financeability analysis content) will be omitted from the PCFM. As noted above, the PCFM will form part of CRC 4A and consequently will be

- included in the proposed licence modifications to implement the RIIO-ED1 price control arrangements
- subject to the formal modification regime referred to in paragraph 4.4.

4.7. The PCFM will operate in constant 2012-13 prices[10] and the value for the term MOD produced by each Annual Iteration Process will be in that price base. Indexation will be applied in the formula for the licensee's Base Demand Revenue, which combines the Opening Base Revenue Allowance with the value of MOD.

4.8. The PCFM has been designed to be as user friendly as possible. Although we run the Annual Iteration Process, the intention is that the PCFM will be useful to licensees and other stakeholders as:

- a tool for revenue sensitivity and associated analysis
- a source of information on key price control values such as indicative RAV values and projected totex amounts.[11]

However, the PCFM is inevitably a complex model and, accordingly, the handbook will include terms of reference for an ED1 Price Control Financial Model Working Group of licensee representatives to work with Ofgem on the development of the PCFM.

[8] Link to example Special Conditions of the Gas Transporter Licence (Northern Gas Networks Ltd): https://epr.ofgem.gov.uk//document/Download/28015.

[9] Each DNO will have a separate licence, PCFM and associated Price Control Financial Handbook. These will all have content that is common across DNOs. For convenience in this document we refer to them in the singular rather than plural.

[10] Except for some internal tax value calculations which use a form of nominal pricing based on RPI forecast values embedded in the PCFM.

[11] Information in the PCFM should always be considered together with information in the licence and in price control decision documents to obtain a full picture.

The ED1 Price Control Financial Handbook

4.9. The handbook for each DNO will contain a description of the Annual Iteration Process, an overview of the methodologies, and chapters containing the methodologies for revising each of the PCFM Variable Values. It will also contain a Glossary of terms used.

ED1 Price Control Financial Methodologies

4.10. The methodologies will set out the basis on which each of the PCFM Variable Values specified in the licence is to be revised and the Regulatory Years to which revised values are to apply. They will also outline the purpose and effect of the revisions.

4.11. The balance of methodological content between the relevant special condition and the associated handbook chapter will vary depending upon the nature of the underlying scheme or mechanism which may involve, for example:

- the use of a specified formula to implement a driver mechanism
- a facility for the DNO to make applications for price control adjustments to be reviewed by us
- a detailed methodology in the handbook supporting a concise specification in the licence.

4.12. A table of PCFM variable values will be included in chapter 2 of the handbook.

Legacy price control adjustments

4.13. As far as possible, price control adjustments relating to the outgoing DPCR5 price control will be closed-out and included as fixed input values in the modelling of Opening Base Revenue Allowances for each DNO. However, a number of adjustments will need to be completed during the RIIO-ED1 price control period. These adjustments will be completed as legacy price control adjustments under methodologies in the handbook and factored into revisions of the PCFM Variable Values.

The Annual iteration process

4.14. Each Annual Iteration Process for the PCFM will use revised PCFM Variable Values to produce a value for the term MOD. The value of MOD can be positive or negative.

Temporal conventions

4.15. References to Regulatory Years in special conditions relating to the Annual Iteration Process and in the handbook may be absolute or relative, depending on the context.

4.16. References to Regulatory Years using a subscript 't' designation are made relative to the Regulatory Year for which a particular value for the term MOD is being calculated. For example, in a context where MOD_t applied in the formula for Base Demand Revenue in 2017-18, a reference in the same context to Regulatory Year t-1 would mean 2016-17 and so on.

4.17. In contrast, a reference to, for example, 'the EDE value for 2017-18' would mean the EDE value[12] in the 2017-18 column of the PCFM Variable Values Table for the licensee contained in the PCFM.

Calculation of the value of MOD

4.18. Each calculation of the term MOD for Regulatory Year t (that takes place by 30 November in Regulatory Year t-1 under the convention above) will bring forward the incremental effect of all revisions to PCFM Variable Values for Regulatory Year t and earlier that have been made since the preceding Annual Iteration process. The effects of revising PCFM Variable Values for Regulatory Years earlier than Regulatory Year t will be subject to a time value of money adjustment (at the RIIO-ED1 WACC for the licensee).

4.19. Once a value for MOD has been directed for a particular Regulatory Year it is not revised as a result of subsequent Annual Iteration Processes. Instead, as noted in paragraph 4.18, the effects of revising PCFM Variable Values for Regulatory Years earlier than Regulatory Year t are brought forward to the calculation of the value of MOD for Regulatory Year t.

4.20. Where, under the provisions of a CRC or methodology, a PCFM Variable Value is revised for a Regulatory Year later than Regulatory Year t, that value will have indicative status only in the PCFM – ie it will not impinge on the calculation of MOD_t. This is without prejudice to the 'determined' status of that value under the terms of a special condition if applicable.

Timetable

4.21. The requirements for the Annual Iteration process will be set out in CRC 4B (Annual Iteration Process for the ED1 Price Control Financial Model). This will specify:

- that the first Regulatory Year in which there will be an Annual Iteration Process will be Regulatory Year 2015-16 for the purpose of determining the value of the term MOD for Regulatory Year 2016-17
- that the last Regulatory Year in which there will be an Annual Iteration Process will be Regulatory Year 2021-22 for the purpose of determining the value of the term MOD for the licensee for Regulatory Year 2022-23
- the steps comprising the Annual Iteration Process

[12] EDE values are the PCFM Variable Values relating to allowances for Pension Scheme Established Deficit repair.

- the deadline of 30 November in each regulatory Year t-1, by which the authority will have made required revisions to PCFM Variable Values and directed a value for MOD_t.

4.22. Each of the special conditions that provides for the revision of PCFM Variable Values will require us to give DNOs at least 14 days' notice of the proposed revisions. However, this will not be a consultation, since the basis for the revision of the values will already have been specified in the licence and the methodologies.

4.23. The other cut-off dates that will normally apply in respect of the Annual Iteration Process are:

- 30 September for modifications to the handbook and PCFM (under the regime referred to in paragraph 4.4)
- 31 October for data to be used in the determination of revised PCFM Variable Values.

4.24. The timetable outlined above, and in particular the deadline of 30 November for the direction of MOD_t reflects:

- the time needed to process information submitted by licensee DNO under the methodologies – most regulatory information is required to be submitted by 31 July following the end of each Regulatory Year
- the need for licensee DNO to be aware of the value for MOD_t in time to publish indicative use of system charges for Regulatory year t under licence requirements.

4.25. It is open to us to direct the value of MOD_t earlier than 30 November in Regulatory Year t-1 if the requirements summarised above have been completed.

4.26. CRC 4B contains a provision for there to be an interim value for MOD_t in the unlikely event that we do not direct a required value by 30 November in a Regulatory Year t-1. In that circumstance, an updated value for MOD_t would be directed as soon as practicable.

4.27. As noted in paragraph 4.21, the last Annual Iteration Process during the ED1 price control will take place by 30 November 2021 to calculate a value for MOD for Regulatory Year 2022-23 – the last year of RIIO-ED1. Some financial information (for example relating to levels of actual expenditure by the licensee in the last two years of the price control period) will not be available in time to include in the last Annual Iteration Process. In that case, the methodologies will confirm that the adjustments will be taken into account in the RIIO-ED2 price control arrangements.

Record keeping and transparency

4.28. Copies of the latest versions of the handbook and PCFM will be maintained in the RIIO-ED1 area of the Ofgem website with appropriate version designations. Copies will also be retained in our records.

5. Taxation

Chapter Summary

How tax allowances will be calculated each year.

5.1. We have modelled tax and set provisional allowances based on the methodology in our strategy decision with limited exceptions explained below. Tax allowances are calculated each year under our Annual Iteration Process.

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

Applicable tax regime

5.3. We will apply the UK standard tax rules that have passed into legislation by the time of the draft determination.

5.4. We model tax based on the policy of the Financial Reporting Council (FRC) for future financial reporting in the UK.

5.5. All capital allowances are assumed to be claimed at rates in line with current legislation and, except for deferred revenue, as claimed in the year the expenditure is incurred.

Regulatory tax losses

5.6. In line with our treatment in DPCR5, where tax losses arise we do not give affected network companies negative tax allowances. We log up the tax value of any tax losses as calculated on a regulatory basis and deduct them from forecast tax allowances when the timing differences that led to the loss reverses.

5.7. 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.

5.8. In any year that a company does not have a tax liability, we add the amount of any tax clawback (see below) to its regulatory loss position.

Modelling of capital allowances

5.9. We use capital allowance pools 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, being interests in land, and buildings following the abolition of the Industrial Buildings Allowance regime.

5.10. The annual allowance for deferred revenue follows the statutory depreciation rates.

Capital allowance tax pools

5.11. In our strategy decision, we proposed moderating the attribution of expenditure to capital allowance pools, applying generic tax pools followed by a reset to actuals at the end of the price control. The proposed use of generic tax pools was the main area of disagreement in the responses. As we describe in the Overview document, we now consider it more appropriate to use the capital allowance pools of each DNO and to continue using those pools consistently throughout the economic life of the assets.

5.12. We will reset the opening regulatory capital allowance pool balances to actual levels at the start of RIIO-ED1 but thereafter propose to roll tax pools forward on a notional basis into RIIO-ED2. In this way, we ensure consumers benefit from tax relief in respect of all expenditure they have funded.

Tax treatment of incentives

5.13. Incentive revenues which do not form part of base revenues are on a pre-tax basis (ie it is not intended that they give rise to further revenues in respect of the tax charge on the revenues). Incentives relating to totex, through the application of the relevant sharing factor, are specified on a post-tax basis. The financial model calculates appropriate tax allowances for annual iteration.

Treatment of directly remunerated services

5.14. No allowance or relief for tax is modelled in respect of directly remunerated services costs and revenues.

Tax clawback for excess gearing

5.15. We will continue with the DPCR5 tax clawback mechanism for excess gearing with any clawback adjustments applied annually as part of the Annual Iteration Process. This will apply an ex post adjustment, to claw back from licensees any additional tax relief they obtain from gearing above our notional gearing level.

5.16. 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. If 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 detailed process is set out in the RIIO-ED1 PCFM Handbook in issue for WPD. Where notional interest varies from that initially modelled at final determination, due to changes to the cost of debt index, the tax trigger tool will take that into account when undertaking these trigger tests.

5.17. We will spread outstanding adjustments arising from the DPCR5 tax clawback evenly over the eight years of RIIO-ED1 on an NPV neutral basis.

Tax trigger

5.18. We will continue with the tax trigger mechanism introduced in DPCR5, updating the amount of the dead-band. This has the effect of adjusting tax allowances for changes in the tax regime. The detailed process will be set out in the financial handbook.

Business rates

5.19. We will treat business rates as pass-through costs together with our licence fee.

5.20. For the purposes of setting the base price control revenue allowances, business rates are those from the 2010 valuations. For the previous DPCR5 price control, there was a mechanism that enabled companies to recover the difference between the actual and assumed costs. For RIIO-ED1 we are introducing the approach to business rates applied to transmission and gas distribution. This allows a revision of business rates following revaluations provided that the Licensee has used reasonable endeavours to minimise the amount of the prescribed rates.

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

6. Pensions

Chapter Summary

How we assess and review pension costs.

Summary of strategy decision

6.1. Our strategy decision outlines our decision to continue with the methodology set out in DPCR5 Final Proposals, Price Control Treatment of Network Operator Pension Costs (22 June 2010) and RIIO-GD1 and T1 Strategy - Financial Issues Supplement (March 2011).

6.2. We consider ongoing pensions costs separately from the costs of repairing deficits between the assets and liabilities of defined benefit pension schemes.

6.3. We provide for the costs of ongoing pensions, including scheme administration and Pension protection Fund (PPF) levy costs, as part of our overall totex assessment. We provide for the repair of established deficits through a separate cycle of reviews following triennial actuarial valuations of the relevant schemes. We undertake these reviews for DNO schemes together with schemes operated by the transmission network companies and the gas distribution networks.

Pension Scheme Established Deficit (PSED) funding

6.4. Our strategy decision established our commitment to funding the efficient repair costs of DB pension scheme deficits for pre 31 March 2010 service, ie 'established deficits'.

6.5. The PSED is the pension deficit attributable to the distribution business for pensionable service up to and including 31 March 2010 (the cut-off date).

6.6. RIIO-ED1 includes provisional allowances for PSED repair in Opening Base Revenue. These allowances are the opening Established Deficit (EDE) values in the PCFM. Opening EDE values are based on modelling assumptions and parameters from the beginning of the price control period and are updated as part of the Annual Iteration Process.

Pension Scheme Established Deficit determination

6.7. We will determine the PSED using:

(i) the triennial actuarial valuation

(ii) the allocation of schemes' assets and liabilities using the Pension Deficit Allocation Methodology (PDAM)[13]

(iii) bilateral discussions in the event that Ofgem and the licensee agree that an alternate PSED would be more appropriate

(iv) the Reasonableness Review which could exceptionally result in adjustments to the PSED figure.

Established Deficit (PSED allowances)

6.8. The allowance for repair of the PSED is the EDE. Opening allowances are based in the PCFM and will these be updated during the Price Control Period as part of the AIP.

6.9. The scheme's EDE values are set at/revised to levels intended to allow the licensee to clear its PSED (by making payments to the pension scheme) over a 15 year period, which began on 1 April 2010 (immediately following the cut-off date) and ends on 31 March 2025.

6.10. The setting of EDE allowances will include adjustments relating to the licensee's actual PSED repair payments history compared to its allowances and possibly adjustments resulting from Reasonableness Reviews.

Reasonableness Review

6.11. We will perform a reasonableness review in 2014, and every 3 years afterwards. To perform the review we will collect a Scheme Valuation Data Set (including a full or updated actuarial valuation, statement of funding principles and statement of investment principles) in respect of each defined benefit scheme. The resulting report will specifically consider:

- the value of the PSED
- existing adjustment factors affecting EDE that or PSED that were put in place following previous reasonableness reviews
- any need for additional adjustment factors.

6.12. The review will assist us to assess: valuation assumptions and any outliers; reasonableness of pension costs; efficiency and reasonableness of member benefits; and whether scheme governance and risk management are adversely affecting consumer funding.

[13] Energy Network Operators' Price Control Pension Costs - Regulatory Instructions and Guidance: Triennial Pension Reporting Pack supplement including pension deficit allocation methodology ("Pension RIGs")
http://www.ofgem.gov.uk/Networks/Documents1/NWO%20Triennial%20Pension%20RIGS%20supplements%20v1.0%2012Apr13.pdf

6.13. The outcomes of the 2014 review will inform our determination of the reset of allowances from 1 April 2015, the true up of DPCR5 and any other network operator (NWO) legacy pension costs.

6.14. We will only introduce new adjustment factors or extend the scope of existing adjustment factors if the review uncovers significant differences in a scheme's funding arrangements relative to comparators, that are both detrimental to consumers and attributable to the NWO.

6.15. Before introducing any new adjustment factor or extending any existing adjustment factor, we will carry out further review procedures and consult with licensees.

6.16. If after considering the report, we decide that existing adjustment factors that were put in place following a prior Reasonableness Review, should continue or be discontinued, it will notify the licensee.

Resetting allowances during the RIIO-ED1 price control

6.17. The licensee's allowances for repair costs will be updated during the price control period to reflect:

- information contained in pension scheme actuarial valuation reports
- licensee's updated or agreed PSED
- licensee's actual repair payments' history
- the outcomes of the reasonableness review.

6.18. In 2014 we will undertake a reasonableness review and true-up and reset revenues from 1 April 2015. Allowances are intended to be updated twice during the price control period, after the two triennial valuations / reasonableness reviews. This process can be undertaken at different times if a triennial valuation or the reasonableness review is delayed.

6.19. The process will be repeated every three years. We do not intend to true up at the end of each price control period. The outcome of the review will also inform our true-up of DRCR5 and any other NWO legacy pension costs.

6.20. The revised EDE values feed into recalculated base revenue in the PCFM through the Annual Iteration Process and are 100 per cent fast money.

Funding ongoing pensions costs

6.21. We no longer set specific allowances for ongoing pension costs. Pension costs for service after 31 March 2010 (post cut-off) are dealt with as totex expenditure in the RIIO-ED1 price control.

True up for ongoing pension costs during DPCR5

6.22. DNOs are entitled to a true-up of the difference between the ongoing pension costs included in the DPCR5 Revenue Allowances and the actual payments made for post cut-off service and administration costs. We have provided for this true up in these draft determinations based on actual for the first three years and forecasts for the final two years.

6.23. Outstanding adjustments relating to actual expenditure for 2013-14 and 2014-15 which have not been taken into account in the licensee's Opening Base Revenue Allowances will be applied with the DPCR5 Pension True-up legacy adjustment.

Appendix 1 – Post Maintenance Interest Cover Ratio

Introduction

A1.1 The rating agencies recognise that some of the conventional accounts-based credit metrics have limited relevance for network businesses regulated under RAV-based regimes. This is mainly because the regulators' methods for remunerating investment through depreciation allowances are structurally different from conventional methods of accounting for depreciation under UK GAAP or IFRS. Regulators allow for inflation on an indexed cost basis and have sometimes adopted accelerated or deferred depreciation allowance profiles.

A1.2 Cash-based metrics remain relevant, but measures that use conventional accounting measures of assets and profit become problematic. So, the agencies tend to use the RAV as a measure of capital employed rather than using statutory accounting balance sheet information. Two of the agencies, Moody's and Fitch, have adapted their metrics further by taking account of regulatory depreciation in an interest cover ratio. The ratio is known either as an Adjusted Interest Cover Ratio (AICR) or a Post Maintenance Interest Cover Ratio (PMICR).

A1.3 The PMICR is structured as an adjusted cash-based metric, although it can also be thought of as, or closely related to, a regulatory earnings-based metric. Its calculation uses a pre-interest FFO (funds from operations) interest cover, but with the numerator adjusted for regulatory (RAV) depreciation.

$$PMICR = \frac{FFO + interest - RAVdepreciation}{interest}$$

A1.4 The rating agencies account for the interest in the denominator on a cash basis (interest payments) or an historical cost expense basis (interest payments plus indexation uplift). Ofgem uses a notional cash basis for its forward-looking financeability analysis, assuming a notional gearing ratio, assuming a company's real interest rates equal its cost of debt allowances and assuming a notional proportion of index-linked debt.

A1.5 For financial modelling purposes, the PMICR can be reconciled to the following expression:

$$PMICR = \frac{WACC}{g \cdot (n \cdot CoD_{Real} + (1-n) \cdot CoD_{Nominal})} + OP$$

where g is the gearing ratio of debt to RAV, n is the proportion of debt that is index-linked (or zero, on an interest expense basis) and OP is a function

of out/under-performance, in-period profiling, returns on activities outside the price control and adjustments relating to prior periods.

A1.6 To understand the main dynamics of the PMICR, we can ignore OP.

Conceptual underpinnings

A1.7 The purpose of the PMICR, as with other interest cover ratios, is "to enable credit analysts to assess the recurring sustainable profitability or operating cash generation of a company in comparison with its interest obligations".

A1.8 Usual cash-based measures, such as EBITDA or FFO, do not recognise that some of that cash generation is needed to maintain the operating capability or economic value of the assets. To remedy this deficiency, the two agencies make an adjustment to the numerator of an FFO-based interest cover ratio to take account of the cash needed for capital maintenance. This would enable comparisons of interest coverage between businesses with different levels of capital intensity.

A1.9 The February 2007 Fitch paper discusses a number of different capital maintenance concepts.

A1.10 In an ideal world, credit analysts would like to deduct the amount of capital expenditure which relates to asset maintenance (rather than enhancement or expansion) from the numerator. However, identifying the amount of capital expenditure that relates to maintenance is not always easy. An alternative is to consider 'economic capital maintenance expenditure' (ECME), the expenditure that is required to maintain the economic value of the relevant network, the RAV.

A1.11 Fitch notes that "preservation of the value of the RAV is of importance to holders of long-dated bonds who need to ensure that there is sufficient value in the business for their principal to be repaid, usually refinanced when due". It argues that holders of index-linked bonds would be interested in maintaining the real value of the RAV, since the principal due on their bonds increases with inflation. On the other hand, holders of nominal debt would be more interested in maintaining the nominal value of the RAV. Fitch identifies that the most relevant definition of ECME is nominal RAV depreciation (i.e. allowed depreciation less annual indexation on the RAV). However, it explains it has not used this definition because the real maintenance method is more prudent and because most utilities have some index-linked debt in their capital structures.

A1.12 The denominator in the PMICR is a measure of interest costs. There are similar conceptual alternatives for interest too. It would be possible to account for interest on a cash basis, an expense basis or a real basis. Fitch explains its use of a cash basis as capturing "the basic financial flexibility that an issuer has in meeting interest payments due on its debt" where a company's "index-linked debt positions ... better align the debt service profile to cash flows under the relevant regulatory model." Generally, for our regulatory analysis, we use a notional cash basis that takes account of an assumed (25%) proportion of index-linked debt.

A1.13 The PMICR relates the cash generated after capital maintenance with the interest that must be funded from that cash. We consider the underlying idea is sound, but we describe below some issues that arise from the capital maintenance concept used. These issues lead us to consider a variant of the ratio, $PMICR_G$, that uses a different capital maintenance concept: identifying the cash generated after maintaining the quality of a company's capital structure, with reference to a benchmark gearing ratio, ĝ. The insight behind this variant is that lenders, whether index-linked or nominal, will be equally interested in the ability of a company to maintain the quality of headroom in its capital structure. This metric can be presented as:

$$PMICR_G = \frac{FFO + interest - NetRAVdepreciation - (1 - \hat{g}) \cdot \Delta RAV_{Nominal}}{interest_{expense}}$$

where: *NetRAVdepreciation = RAVdepreciation - RAVindexation*.

A1.14 It can be seen that, broadly, this metric would reconcile to:

$$PMICR_G \approx \frac{WACC + \hat{g} \cdot inflation - (1 - \hat{g}) \cdot e}{g \cdot CoD_{Real} + g \cdot inflation}$$

where *e* is the underlying real rate of enhancement or expansion in the RAV and g is the actual gearing ratio (as opposed to the benchmark ratio, ĝ)

A1.15 To be a strict cash-based metric, non-cash interest would be deducted from both the denominator and numerator.

PMICR sensitivities

A1.16 We have used our high level WACC-based characterisations of the PMICR and $PMICR_G$ (on a strict cash-based basis) metrics to identify how each measure responds to changes in key variables for a typical regulated network business. The following table summarises the results, with the level of change for each variable calibrated to generate deterioration in PMICR of 0.1, except the final variable which is calibrated to generate the same deterioration in $PMICR_G$.

Table A1.1: Analysis of PMICR sensitivities

Variable to change	*Direction*	*Change*	*Deterioration in PMICR*	*Deterioration in $PMICR_G$*
Equity returns	Decrease	0.76%	0.10	0.09
Real interest costs	Increase	0.35%	0.10	0.10
Gearing ratio (actual)	Increase	4.1%	0.10	0.11
Index-linked debt proportion	Decrease	11%	0.10	0.04
RPI inflation rate	Increase	0.47%	0.10	0.03
Capitalised spend less depreciation	Increase	0.84% of RAV	0.00	0.10

A1.17 The first three variables in the table seem to be calibrated reasonably sensibly for both variants. A decrease in equity returns (eg a decrease in cost of equity allowances) or increases in interest costs or the gearing ratio would tend to make a company less financially resilient.

A1.18 A decrease in the proportion of index-linked debt would shift the balance of interest cost from non-cash to cash, and so might have an effect in the short term, but this would be offset by less indexation uplift in the principal of the company's debt. The $PMICR_G$ reflects this offsetting effect.

A1.19 The fifth variable, the RPI inflation rate, has a surprisingly strong effect on PMICR given the regulatory regime is designed to operate in real terms. Increased RPI inflation would tend to increase the denominator in PMICR relative to the numerator, at least in the longer term.

A1.20 This effect is particularly concerning in the light of recent structural changes in the RPI. As we explained in Appendix 2 of our 7 December 2013 equity market return consultation letter and in our 17 February 2014 decision letter, the RPI measure has structurally increased relative to real world price inflation by a statistical artefact and consequently the UK Statistics Authority has de-designated it as a National Statistic. This means that investors will benefit from this artificial increase through the RPI-indexation of the RAV and we have accordingly re-calibrated our assessment of the allowance for the cost of equity in a company's revenues. Taking both the indexation and allowances together, investors will not lose out in broader economic terms. However, there would be significant cash flow effects.

A1.21 We could in principle compensate for these cash flow effects by making additional depreciation allowances or adjusting the capitalisation rate, effectively reversing the artificial component of RPI-indexation. However, even though the net effect would be to leave the company with the economics, cash flows and risk profile that it would have had if no change had been made to the RPI, PMICR would show a marked deterioration. It would reflect the reduced cost of equity allowances and the divergence between nominal debt interest costs and real cost of debt allowances, but it would take no account of the increased RAV indexation

or the potential cash flow compensation through additional depreciation allowances or fast money.

A1.22 The disconnect between the underlying economics, cash flows and risk profile of a company and the PMICR measure in these hypothetical circumstances highlights its potential to give false positive or false negative indications. It is a potential which would seem to be highly relevant in current circumstances.

A1.23 The problem arises from the use of a real terms capital maintenance concept in the numerator and a largely nominal concept in the denominator. It might be argued that a real terms capital maintenance concept is appropriate because the regulatory regime is a real-based regime and the real/nominal mismatch between the revenues and interest costs are a natural consequence. We note, however, that the real terms economic environment for regulated networks is not unique. Indeed, the generality of businesses employing non-financial assets operate in an analogous environment, where the value of their assets (the benefits that flow from employing them) will tend to increase with inflation. For such businesses, conventional post-maintenance interest cover ratios, such as EBIT interest cover, use a nominal capital maintenance concept. It can be seen that the anomaly, the source of the mismatch for regulated networks, is not the economics of regulation but the use of inconsistent capital maintenance concepts in the numerator and denominator of a key credit metric.

A1.24 The $PMICR_G$ naturally resolves these issues. It adopts a capital maintenance concept that remains cash-based and is relevant to all classes of bondholders. It generates a more meaningful statistic, which identifies the level of headroom a company has to maintain a benchmark level of capital quality.

A1.25 The $PMICR_G$ is not used by rating agencies, and so by itself does not directly indicate a credit rating. We therefore monitor the metrics the ratings agencies do use to inform our understanding of how our decisions will affect credit ratings. $PMICR_G$ provides addition insights into the financial resilience of companies which we consider are also relevant.

A1.26 It remains the prerogative of the rating agencies to ascribe credit ratings and we expect they will continue to develop their rating methodologies. While we might expect some of the issues we identify will be pertinent to their analysis, we have no expectation or assumption that they will wish to refer to the $PMICR_G$. We believe the metric does, however, provide us with useful insights for our decisions.

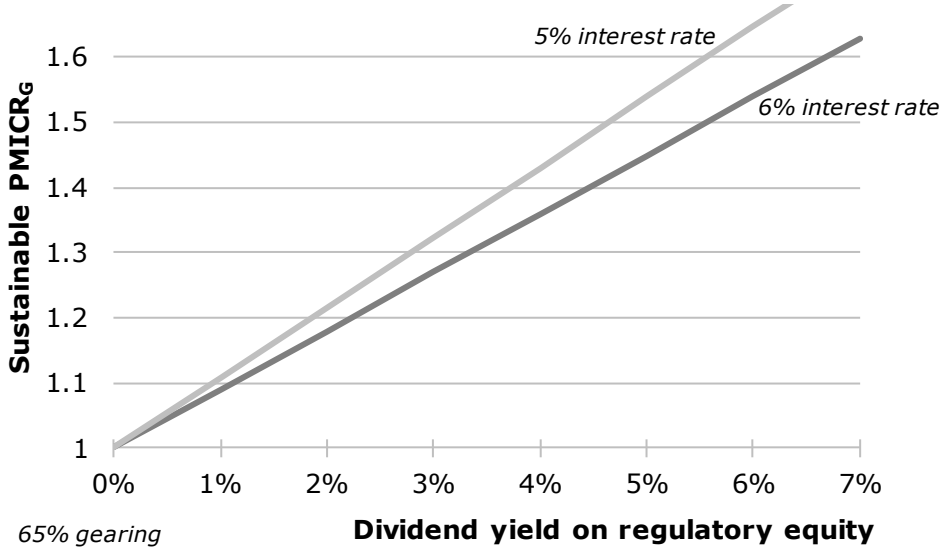
Calibrating a threshold

A1.27 It is useful, when monitoring a financing indicator, to have a threshold level for it that helps indicate when concern or action is warranted.

A1.28 Because the financial maintenance concept behind the $PMICR_G$ indicator relates to a realistic financing objective, of maintaining the quality of a company's capital structure, we can relate possible threshold levels to dividend yields.

A1.29 The following chart shows the relationship between dividend yields on regulatory equity and the levels of $PMICR_G$ that are consistent with sustaining a 65 per cent gearing ratio.

Figure A1: Sustainable dividend yields



A1.30 A company in steady state should be able to distribute its equity returns in full, while a company supporting a growing asset base would naturally distribute at a lower level. The above chart suggests that a steady state company earning a return on regulatory equity close to 6.0 per cent, at current interest rates, may be able to sustain a $PMICR_G$ well above 1.5. A company supporting growth in its asset base at an annual rate of 2 per cent (a fairly typical outlook in the business plans recently submitted by the electricity distribution companies) may only be able to sustain a $PMICR_G$ of more than around 1.4 through outperformance.

A1.31 In principle, because it is not obliged to pay dividends, a company would be able to maintain its capital structure even with a $PMICR_G$ close to 1.0. This may make sense through a period of exceptionally high investment and may be necessary through a period of persistent underperformance. While refraining from paying dividends would not be sustainable longer term, an ex post $PMICR_G$ of 1.0 for a limited period would mean a company could maintain the quality of its capital structure. Lower levels may be acceptable short term if the company has headroom in its capital structure, if there is confidence that the reasons for a poor $PMICR_G$ are temporary and will be offset by better outcomes in later years or if the company is able to raise new equity, eg to help fund a high level of net investment.

A1.32 To inform regulatory decisions, it is helpful to calibrate an ex ante $PMICR_G$ threshold, one that provides headroom to sustain realistic downside scenarios in a company's returns on regulatory equity (RoRE) without having to raise new equity, recognising that those realistic downside scenarios may correlate with difficult environments for new equity issues.

A1.33 Analysis of RoRE uncertainty forms part of Ofgem's analytical toolkit to inform its price review decisions. Some judgement is necessary to interpret the downside of our RoRE analysis but, subject to this judgement being objective and realistic and in light of the chart above, we consider an ex ante $PMICR_G$ threshold of 1.3 would indicate that the company should be capable of sustaining persistent RoRE downsides of about 3 per cent per annum. A level of 1.4 would cover persistent downsides of about 4 per cent.

A1.34 Companies with relatively high debt costs or high net investment levels may show ex ante $PMICR_G$ levels below such a threshold. This would signal to us that action may be required to remain robust to the risk of underperformance. This action may include raising new equity.