

## NORTHERN IRELAND ELECTRICITY RP5 PRICE CONTROL REFERENCE UR PAPER ON COST OF CAPITAL AND FINANCEABILITY

### Introduction

1. This paper introduces and summarises the issues arising on this RP5 price control reference in relation to NIE T&D's cost of capital and financeability.
2. This paper is structured into two parts. The first part considers the constituent elements of the calculation of NIE T&D's cost of capital. The second part considers whether NIE T&D's activities would be satisfactorily financeable.

### The constituent elements of NIE T&D's cost of capital

3. As is well known, the estimation of a cost of capital involves the calculation of five parameters: gearing ( $g$ ); cost of debt ( $K_d$ ); the risk-free rate ( $R_f$ ); the equity-risk premium (ERP); and the equity beta, i.e.:

$$WACC = g \cdot K_d + (1 - g) \cdot (R_f + \beta \cdot ERP)$$

4. These elements are considered in turn below.

### Gearing

5. In the FD, we calculated NIE T&D's cost of capital based on a gearing level of 50% to be broadly consistent with NIE T&D's actual financing mix at the start of RP5.<sup>1</sup>

### Cost of debt

6. We consider that the cost of debt allowance should reflect NIE T&D's actual observed cost of debt and projections of the cost of debt that it may need to issue in the coming price control period.<sup>2</sup> In the FD we calculated that the average interest rate that NIE

---

<sup>1</sup> [FD §§12.24-12.27.](#)

<sup>2</sup> [FD §12.18.](#)

T&D pays on its £575m of existing borrowings is 6.5%. After adding 15 basis points for fees, the all-in cost of debt was calculated to be 6.65%.<sup>3</sup> In our view, that also provides adequate allowance for any new debt that NIE T&D needs to issue in RP5.<sup>4</sup>

7. Finally, we deducted forecast inflation over RP5 of 3.15% per annum. This was consistent with the latest Office of Budget Responsibility forecast for RPI inflation at the time of our determination. The resulting real cost of debt allowance was 3.39%.
8. As the Commission will be aware, our approach of measuring the actual cost of embedded debt and considering the likely cost of new debt in the price control period is consistent with the approach that the Commission has taken in previous regulatory price control inquiries.<sup>5</sup>
9. We nevertheless consider that the figure that we arrived at in the FD is conservative, and that it may be appropriate, following further investigation by the Commission during this inquiry, to allow a *lower* cost of debt. In particular, we consider that the Commission ought to investigate (i) whether NIE T&D's current ownership arrangements increase the cost of embedded debt; and (ii) whether, in light of recent downward shifts in yields across the UK debt markets, the cost of new debt that NIE T&D will need to raise in RP5 is likely to be lower than we allowed for in our FD.
10. In relation to the first issue, we note that the interest that NIE T&D is paying on £400m of bonds issued in 2011 is materially higher than the interest being paid by GB DNOs who went to the market at a similar time. The table below provides the relevant benchmarking:

---

<sup>3</sup> [FD](#) §12.23. For the detailed calculations, see [DD](#) §§16.12-16.13.

<sup>4</sup> [FD](#) §12.21.

<sup>5</sup> See, for example, [Bristol Water Appendix](#) N §§45-46 and the precedents cited therein.

**Table 1: NIE and GB DNOs Bonds issued in 2011**

Date of issue	Issuer	Amount	Maturity	Coupon	Rating	Price at issue
17/05/11	WPD (West Midlands)	£800m	2032	5.75%	Baa1/BBB	98.809
27/05/11	NIE T&D	£400m	2026	6.375%	A-/BBB+	99.898
08/07/11	SP Distribution	£350m	2026	5.875%	A3/A-	99.22

Source: FT.com and Bloomberg

11. We are aware of suggestions in rating agency reports that NIE T&D's credit quality might have been weakened by its parent company's lower credit rating.<sup>6</sup> If that is the case, it is possible that some of the premium in the above table is a result of NIE T&D's current ownership arrangements. The Commission may need to consider whether it is in the public interest (within the meaning of the Commission's statutory duties) for customers in Northern Ireland to have to pay more for their electricity as a result of those arrangements.
12. In relation to the second issue, it will of course be a matter for the Commission to investigate current developments in debt markets (including developments that post-date the FD) and their implications for the rates that NIE T&D should be able to obtain over the RP5 period.
13. The Commission will also need to consider NIE T&D's submissions in relation to the cost of debt. In that regard, NIE T&D argues that the allowed cost of debt should be set to (i) Ofgem's current RIIO cost of debt of around 3% (calculated as the trailing average of two IBoxx indices over ten years, adjusted for expected inflation over the same ten-year period); (ii) plus 30 bps "headroom" to reflect uncertainty; (iii) plus an uplift of 100 bps to reflect the higher borrowing costs that NIE T&D says are faced by

---

<sup>6</sup> See, for example, [Reuters report of 17 May 2012](#), *Fitch puts Northern Ireland Electricity's senior unsecured rtg on RWN*.

Northern Ireland utilities relative to GB utilities. This calculation results in a real cost of debt of 4.3%.<sup>7</sup>

14. We consider that NIE T&D's estimated cost of debt is far too high. It is effectively asking customers to pay it £114 for every £100 that NIE T&D currently pays to its lenders.<sup>8</sup> We can see no logical reason for NIE T&D to be remunerated in that way. It appears that NIE T&D's analysis is affected by a "pick'n'mix" error caused by combining a base cost of debt from one source (Ofgem's 10 year trailing average calculation) and a calculation of an NIE T&D premium using a completely different base number (the prevailing yields on bonds that have a similar credit rating to NIE T&D's bonds).<sup>9</sup>

#### Risk-free rate, equity-risk premium and expected market return

15. In the FD, we drew on established regulatory precedent, including Commission inquiries from the period 2007-2010, to identify the generic market parameters for use in the CAPM model. We selected a 2% real risk-free rate and a 5% equity-risk premium, giving an expected market return of 7%.<sup>10</sup>
16. Given that those figures, merely reflect previous positions taken by the Commission and other regulators, we would expect that the Commission will want to update its estimates given recent developments. There are two particular issues that merit attention in this inquiry:
- (a) First, quantitative easing in the UK and other western economies has brought the return on risk-free assets down to unprecedentedly low levels. It seems unlikely that the expected return on risky assets would have remained constant in the

---

<sup>7</sup> [NIE T&D's Response](#) to the Utility Regulator's Draft Determination, Ch 12 §§3.7-3.10.

<sup>8</sup> NIE's implied nominal cost of debt is:  $(1 + \text{real cost of debt}) \times (1 + \text{inflation}) - 1 = (1 + 0.043) \times (1 + 0.0315) - 1 = 7.59\%$ . This compares to an actual, observable all in cost of debt of 6.65%. The ratio of 7.59% to 6.65% is 1.14.

<sup>9</sup> See, for example, the Commission's Determination of 31 August 2010 in [Carphone Warehouse v Ofcom](#) §2.392 for another illustration of the "pick'n'mix" error in practice.

<sup>10</sup> [FD](#) §12.34.

face of this action. Although it is obviously a matter for the Commission to investigate, it seems to us that it is likely that the cost of equity financing has moved lower over the timescales that are relevant to RP5.

- (b) Second, forecasts of RPI-measured inflation (but not CPI-measured inflation) have shifted up recently as a result of technical changes that the ONS has made to its measurement of prices. This means that indexation of NIE T&D's RAB in line with RPI will be worth more than would have been the case prior to 2010. By deflating NIE T&D's nominal cost of debt we took account of this higher inflation. But the FD calculation of NIE T&D's real cost of equity took no account of the faster indexation of NIE T&D's RAB. Whether some adjustment ought to be made is a matter that the Commission ought to investigate on this reference.

### NIE T&D's beta

17. In the FD, our analysis of NIE T&D's beta started with a comparison of NIE T&D's exposure to systematic risk with that of GB regulated utilities. We took the view that NIE T&D had approximately the same exposure to systematic risk as those businesses. Using the data that were available to us at the time, we identified a range of asset betas for listed GB utilities with similar risk exposures to NIE T&D of 0.4 to 0.425. We adopted a beta of 0.42 (i.e. close to the top of that range).<sup>11</sup>
18. In the context of a full Commission inquiry in light of more up to date data, however, it may be that the Commission can produce a more refined estimate. We are especially conscious that more recent empirical estimates of beta for GB listed utility companies are currently substantially lower than the 0.42 figure adopted in the FD.<sup>12</sup>

---

<sup>11</sup> [FD](#) §12.35. See [DD](#) §§16.24-16.33 for our detailed reasoning.

<sup>12</sup> See, in particular, Ofgem, [RIIO-ED1 Strategy Decision Document: Financial issues](#), 4 March 2013, §2.81, which notes a significant drop in equity betas for listed GB utilities in the past year compared with the previous three years. The RIIO Reviews Financeability Study ([http://www.ofgem.gov.uk/Networks/Trans/PriceControls/RIIO-T1/ConRes/Documents1/9\\_RIIO\\_Financeability\\_Study\\_dec12.pdf](http://www.ofgem.gov.uk/Networks/Trans/PriceControls/RIIO-T1/ConRes/Documents1/9_RIIO_Financeability_Study_dec12.pdf)) analysed the drivers behind this reduction and suggested the emerging levels represent underlying systematic risks in the utility sectors)

19. Moreover, we consider that this inquiry provides a good opportunity for a more detailed investigation of the overall level of NIE T&D's exposure to systematic risk, especially in light of the risk reducing mechanisms proposed by in the FD (subject to any modifications to that approach proposed by the Commission in this investigation). Some of the features that we incorporated into the FD suggest that benchmarking NIE T&D's beta against GB regulated businesses would show that NIE T&D were offered an excessively high cost of capital. In particular, each of the following aspects of the FD seem to us to reduce systematic risk relative to Ofgem's and Ofwat's regulatory frameworks:

- (a) our capex proposal insulates NIE T&D from virtually all risk (unit cost and volume) associated with the large and uncertain investments that may be required for smart metering and infrastructure relating to new renewable energy generation (i.e. Fund 3 investments);<sup>13</sup>
- (b) we treat a high proportion of NIE T&D's opex items as "uncontrollable" and therefore dealt with on a pass-through basis than is typically the case in other regulated industries;<sup>14</sup>
- (c) we allow for a "Dt" process whereby NIE T&D is free to seek additional allowances at any time during the price control to adjust for unforeseen developments;
- (d) our proposal to "true-up" any difference between NIE T&D's allowances for pension deficit repair costs and its actual pension deficit repair contributions going forward;<sup>15</sup> and

---

<sup>13</sup> These items are included in Fund 3. See our paper on capex for details.

<sup>14</sup> See our paper on opex for details.

<sup>15</sup> See our paper on pensions for details.

- (e) the shortening of RP5 to, in effect, a 4-year regulatory period as a result of the late issue of our determination and the subsequent timings for the CC's report, compared to an 8-year regulatory period for the GB networks.
20. In contrast, NIE T&D argues that there are certain "*NI specific factors*" that increase its cost of equity relative to GB utilities.<sup>16</sup> The premise for NIE T&D's argument in that regard is that there is a Northern Ireland utility debt premium (as to which, see above). From that premise, NIE T&D argues that it can be inferred that there is a Northern Ireland utility equity premium of a similar magnitude.
21. We consider that NIE T&D is mistaken on this issue. Any risk factors that are specific to Northern Ireland, or to Northern Ireland utilities, are by their nature diversifiable and so do not need to be compensated by higher expected rates of return. As the MMC put it in its 1997 inquiry report:

"2.55. NIE argued that the CAPM method could only produce a range of figures within which the true cost of capital would fall. It was necessary to look at other factors in determining where within the range the required rate of return lay. These factors included the particular risks faced by NIE, including those arising from the political situation in Northern Ireland.

2.56. We consider that no separate allowance should be made for the risk factors to which NIE drew attention. To the extent that the risks are specific to NIE they are diversifiable, that is an investor can diversify risks by acquiring a portfolio of different shares, and therefore should not be reflected in the cost of capital. This includes risks arising from the political situation in Northern Ireland. To the extent that the risks are not diversifiable, that is they apply to the whole equity market but may affect NIE more (or less), they are reflected in the estimated value of beta."

---

<sup>16</sup> NIE T&D's Response to the Utility Regulator's Draft Determination, [Appendix](#) 12A1, pp 31-33.

The allowed cost of equity

22. In the FD, we proposed that the allowed cost of equity should be set equal to risk-free rate + equity beta x equity-risk premium.<sup>17</sup> As the Commission explained in *Bristol Water*, any other allowance for capital costs would either result in an overcharge for customers or in the company being unable to finance its activities.<sup>18</sup>
23. In contrast, NIE T&D argued during the consultation process that, as a starting point, it should be *allowed* to earn the average return on equity that DNOs in GB *expect* to earn under the 2009 electricity distribution price control set by Ofgem.<sup>19</sup> According to NIE T&D, any other approach would adversely affect NIE T&D's ability to compete with GB DNOs in the capital markets.<sup>20</sup>
24. We consider that NIE T&D's approach is wrong in principle. The expected returns for GB DNOs on which NIE T&D relies exceed the GB DNOs' cost of capital by a considerable margin. That reflects the payout of Ofgem incentive mechanisms in the 2010-15 control period for:
- (a) reductions in losses in the previous 2005-10 control period; and
  - (b) submitting honest and accurate business plans in the 2009 periodic review.<sup>21</sup>

---

<sup>17</sup> [FD pp 90-97.](#)

<sup>18</sup> [Bristol Water Appendix N §2.](#)

<sup>19</sup> See NIE T&D's Response to the Utility Regulator's draft determination, [Appendix 12A1](#), p 1, for a summary of NIE T&D's approach to the cost of capital issue. In addition, NIE T&D argued that an *upwards* adjustment should be made to that expected return on regulated equity to reflect various factors that distinguish Northern Ireland from GB. That argument is addressed above in the context of our assessment of NIE T&D's cost of debt and its beta.

<sup>20</sup> NIE T&D's Response to the Utility Regulator's Draft Determination, [Appendix 12A1](#), sections 2.1.1 to 2.1.2.

<sup>21</sup> See Ofgem document 144/09, [Electricity Distribution Price Control Review Final Proposals](#), 7 December 2009 ("DPCR5"), Ch 4 for Ofgem's analysis of its incentive system and the returns earned by GB DNOs. See in particular §§4.21-4.22, which makes clear that in the same way

25. NIE T&D was not subject to the same incentive system. It has not done the things that the GB DNOs did to earn their extra profits. Nor was it at risk of being *penalised* under that system in the event that it failed to satisfy the criteria set by Ofgem. In the absence of an incentive system such as that operated by Ofgem, there is no justification for requiring customers to pay NIE T&D more than its cost of capital.
26. In any case, the mere fact that the 14 GB DNOs expect to earn more than their cost of capital has no implications for NIE T&D's ability to finance its activities. It is not the case that there is a narrow and specific class of investors that are willing to provide capital only to UK DNOs. UK DNOs have access to the same capital markets as other UK firms (regulated and unregulated) and indeed other firms around the world. So long as NIE T&D earns its cost of capital, it should not have any difficulties in accessing capital markets. That is why we consider that the right regulatory approach to this issue is to estimate NIE T&D's actual cost of capital.

### **Conclusion on NIE T&D's cost of capital**

27. The overall cost of capital estimated in the FD was 4.55% on a vanilla WACC basis, reflecting a gearing of 50%, a cost of debt of 3.39% real, a risk free rate of 2%, an equity risk premium of 5%, and an asset beta of 0.42 (which translated into an equity beta of 0.74 and a post-tax cost of equity of 5.7%). For the reasons given above, we now consider that estimate to be conservative (in particular in light of the more recent evidence set out above), and it may be that the Commission is able to produce a more refined, and lower, estimate. A striking illustration of just how conservative our proposal was can be found in Western Power Distribution's recently published draft RIIO-ED1 Business Plan for 2015-2023, in which the company proposed that Ofgem should allow a vanilla WACC of 3.8%.<sup>22</sup>
28. NIE T&D's case is, in summary, that (i) it should be allowed a cost of debt in excess of its actual cost of debt; and (ii) its shareholders should be allowed to earn a return that

---

that DNOs can earn rewards that result in them earning more than their WACC, they can also suffer penalties that result in them earning *less* than their WACC.

<sup>22</sup> Western Power Distribution, [2015-2023, RIIO-ED1 Business Plan - Draft Business Plan for stakeholder consultation - March 2013](#), p 142.

is *higher* than its actual cost of equity because Ofgem has permitted GB DNOs to earn extra profits as a reward for their good behaviour on various metrics that do not apply to NIE T&D. As explained above, our view is that point (i) is flawed on the grounds that customers should not be required to pay more than £1 for every £1 that NIE pays to its lenders. We consider that point (ii) is wrong in principle: a regulated company should (absent the application of incentive programmes) be allowed to earn its actual cost of capital and no more.

29. A summary of our proposal in the FD and NIE T&D's position is as follows.

**Table 2: Cost of capital UR Final Determination and NIE T&Ds submission.**

	<b>UR Final Determination</b>	<b>NIE T&amp;D's submissions</b>
Gearing	0.5	0.6
Nominal interest costs	6.65	
Expected inflation	3.15	
Real cost of debt (%)	3.4	4.3
Risk-free rate (%)	2.0	
Market return (%)	7.0	
Asset beta	0.42	
Equity beta	0.74	
Post-tax cost of equity (%)	5.70	7.7
Vanilla WACC (%)	4.55	5.7

### **Application of the cost of capital**

30. There is one further technical matter that merits the Commission's attention. In the FD, we calculated NIE T&D's allowed return as:

$$\text{Allowed return} = \text{average RAB} \times \text{WACC}$$

31. The Commission has tended use the following formula in previous inquiries to ensure that the utility's internal rate of return on cash flows is as close as possible to its WACC:

$$\text{Allowed return} = \text{average RAB} \times (\text{WACC} / (1 + 0.5 \times \text{WACC}))^{23}$$

32. Should the Commission adopt the same approach in this case, that would naturally result in a lower revenue allowance for NIE T&D.

---

<sup>23</sup> See, for example, [Bristol Water Appendix N](#), Annex 7 §3.

### NIE T&D's financeability

33. The starting point for our approach to the financeability of NIE T&D is our statutory duty to secure that licence holders are able to finance their regulated activities. We consider that we must therefore ensure that NIE T&D is given a revenue allowance that covers NIE T&D's (efficient) opex and its cost of (efficiently deployed) capital over time. The Commission will of course reach its own view of NIE T&D's claims for opex and capex allowances, and the cost of capital issues summarised above, during this inquiry. The purpose of this section of this paper is to consider any other impediments to NIE T&D's ability to finance its activities. It therefore takes as given the findings made on the other issues in the FD. Our analysis of financeability may therefore also evolve over the course of this inquiry to reflect any changes that the Commission proposes to the various elements of the price control.
34. The approach that we took to assessing the financeability of NIE T&D in the FD was to model the financial ratios that credit rating agencies consider to be important.
35. The model assumed that:
- (a) NIE T&D's initial level of gearing at the start of RP5 was 50%;
  - (b) NIE T&D's costs in RP5 would match the assumptions that we made when setting NIE T&D's revenue entitlement; and
  - (c) NIE T&D would pay dividends in line with its allowed real return on equity (i.e. 5.7% per annum) on the equity financed portion of its RAB.
36. We wanted ultimately to understand whether NIE T&D would maintain a solid investment-grade credit rating in RP5. We met with rating agencies and obtained what we understood to be threshold values<sup>24</sup> for an A-/BBB+ rating (consistent with the current Fitch and S&P ratings on NIE's publicly traded bonds). These values were:

---

<sup>24</sup> Please also see Paragraph 4.9 and Figure 4.1 of Ofgem's March 2011 [RIIO-T1 and GD1 Financial issues paper](#)- specifically Moody's thresholds.

- (a) debt-to-RAB ratio: <75%; and
  - (b) post-maintenance interest cover: >1.4 times.
37. We ran the model to see if NIE T&D would stay within these thresholds during the period to 2016/17<sup>25</sup>. The model showed that under plausible assumptions about the scale of NIE T&D's capex, NIE T&D would *not* stay above the PMICR ratio threshold of 1.4 *if* it were to seek to finance the whole of that capex entirely through new borrowing. We therefore sought to analyse why that was the case.
38. We identified two reasons for the weakness in NIE T&D's cashflow.
- (a) The first was the difference between the *real* cost of capital that NIE T&D was to be permitted to earn and the *nominal* interest payments that NIE T&D pays on its bonds (which are not index-linked). As noted above, the nominal cost of debt that we estimated for RP5 was 6.65%, but the real cost of debt allowed in the FD was 3.4%. The difference between those two numbers falls to be paid to NIE T&D through the indexation of its RAB in line with RPI-measured inflation. That difference gives rise to strain on interest cover calculations.
  - (b) A second was the natural limit to a business' capacity for financing capex through borrowing. Given the extent of NIE T&D's proposed capex for RP5, if it were to finance that capex through borrowing alone it would reach that limit.
39. Having regard to these two issues, we took the view that customers ought to bear some of the burden of resolving that weakness in cashflow. However, we also considered that NIE T&D could not reasonably expect us to 'backfit' allowed revenues in a way that ensured that interest cover would always remain at acceptable values at any level of borrowing, especially at a time when the company was expanding significantly the size of its asset base. We noted, in particular, that normal companies do not fund expansion exclusively through borrowing, but instead use a mix of equity and debt financing.

---

<sup>25</sup> When we tested NIE T&D's financeability, we aimed for more stringent thresholds, specifically <70% gearing and >1.5 times PMICR coverage.

40. To distinguish between weakness in interest cover caused by the real/nominal mismatch and weakness in interest cover caused by natural exhaustion of the capacity for financing capex through borrowing, we produced a run of the financial model that included only Fund 1 (i.e. asset replacement and refurbishment) and Fund 2 (i.e. load related) capex.<sup>26</sup> This run showed interest cover falling just below threshold values. We decided in its FD that it should advance £9m of revenue from RP6 to RP5 to restore ratios in this run to an acceptable level.
41. We then took the view that the additional strain on ratios that Fund 3 capex (i.e. large and uncertain projects such as renewables related investment and smart metering) might cause, could best be addressed by NIE T&D funding the expansion of its business via equity contribution – i.e. dividend retention or a one-off equity injection from the shareholder. It was acknowledged in our FD that NIE T&D might incur some costs in obtaining new equity. We undertook to allow such costs, if efficiently incurred, to be recovered from customers at the next price control review
42. As noted above, it will obviously be necessary for the Commission to conduct its own appraisal of NIE T&D's financeability in light of the Commission's own calculations of opex, capex, cost of capital, etc. In the course of that appraisal, the Commission will want to consider afresh whether bringing forward future revenues during this price control to assist with any cash flow difficulties is the best way of satisfying the Commission's public interest objective.
43. Moreover:
- (a) The Commission may want to investigate whether NIE T&D's starting level of gearing (i.e. approximately 50%) is appropriate; in much the same way as the Commission investigated the historical causes of Bristol Water's gearing level during the recent *Bristol Water* price control inquiry.<sup>27</sup> If any such investigation were to reveal that avoidable shareholder distributions had added to NIE T&D's debts, thus limiting the business' capacity to fund new capex through borrowings

---

<sup>26</sup> See our paper on capex for an explanation of these funds

<sup>27</sup> [Bristol Water Appendix O](#), §§45-46.

in the current period, that may call into question the justification for allowing revenues to be brought forward now.

- (b) The Commission may also want to investigate whether NIE T&D's decision not to issue index-linked debt (which, as noted above, results in its PMICR being sensitive to inflation) was appropriate. In that regard, both Ofwat and Ofgem assume that an efficient regulated company's balance sheet would contain some amount of index-linked debt.

#### Conclusion on financeability

- 44. NIE T&D has not, in its (brief) response to the FD, responded in any detail to the financeability analysis that we conducted, or to the proposal that revenues should be brought forward to address any short term cash flow difficulties. No doubt it will do so in the course of this inquiry. Whatever approach the Commission ultimately takes to dealing with any cash flow issues, however, we consider that if NIE T&D is allowed an efficient level of Opex and is compensated for its actual cost of efficiently deployed capital, then it should be possible to satisfy NIE T&D's financing obligations without adding significantly to the burden on customers in Northern Ireland.