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Our ref	*Your ref*	*Date*
-		10th January 2014

Dear Hannah

Consultation on the methodology for assessing the equity market return for the purpose of setting RIIO price controls.

I am writing on behalf of Western Power Distribution (South Wales) plc, Western Power Distribution (South West) plc, Western Power Distribution (East Midlands) plc and Western Power Distribution (West Midlands) plc in response to the above consultation of 6th December 2013.

Background

On November 22 2013 Ofgem published its assessment of the UK electricity distribution networks business plans. All four WPD networks were fast-tracked by Ofgem, but no other network has been fast-tracked from any of the other DNO groups.

Ofgem are consulting on the methodology for assessing the equity market return in RIIO-ED1 in the light of the recent position taken by the Competition Commission ("CC") in its provisional determination for Northern Ireland Electricity ("NIE").

Ofgem have pointed out the potentially significant implications of any revisions to the cost of equity for financeability and other aspects of the plan.

The CC decision for NIE provided a point estimate for WACC of 4.1% (see appendix 4a); a level that is similar to the one implied in DNO business plans. However, Ofgem has identified a "*material underlying difference in approach*" between the CC's estimate of equity market returns and the estimates adopted historically by Ofgem.

The main part of our response to the Consultation is set out in the summary arguments below. Our response also includes:

- Further discussion of issues related to the questions raised in the Consultation (Appendix 1)
- Discussion paper from NERA including responses to Ofgem's specific questions in the consultation (Appendix 2)
- Estimate of WACC for all UK DNO groups on the provisional CC basis for NIE (Appendix 3)

Summary arguments

Introduction

On 1 July 2013 WPD published its business plan for RIIO-ED1; a further development of the draft plan for stakeholder consultation published in March 2013. Included in the WPD business plan is a Weighted Average Cost of Capital ("WACC") of 4.24% comprising a cost of debt, set at 2.92% real (on Ofgem's direction), and a real cost of equity of 6.7%, based on a debt to RAV ratio of 65% (see paragraph 2.1 of SA-07 Supplementary Annex - Financing the Plan).

On 8th November 2013 the CC published their draft determination on NIE's price control (PR5). Part of the decision relates to the WACC to be used in PR5. The WACC calculated by CC for NIE is 4.1%; based upon a real cost of debt of 3.4% and a real cost of equity of 4.8% with a debt to RAV ratio of 50%. Although we have concerns about the CC's approach to setting WACC, these are not the main subject of this response. Some of these concerns are discussed in the report by NERA attached as Appendix 2 and by Frontier Economics' response to the provisional determination that were summarised at the Ofgem workshop on 7th January by Phil Burns of Frontier Economics.

Cost of equity cannot be dealt with in isolation from the cost of debt

It is not possible to deal with the cost of equity in isolation, but only as part of a consideration of the WACC as a whole as has been clearly identified by CC for example in paragraph 13.103 of their report for NIE. This is because: (a) values of debt and equity are related as claims on the same underlying assets and (b) robust WACC estimates require consistency in parameters between debt and equity.

This is also intuitively correct because it is the cost of the WACC that customers bear and any change that lowers one element of the WACC but increases WACC overall costs customers more.

The overall WACCs for NIE and WPD are very similar with a difference of 14bp, but there are significant differences in both the cost of debt and cost of equity as a result of the methodology used by CC and also because NIE has a Debt/RAV ratio of 50% while WPD has a debt/RAV ratio of 65%.

WPD's expected WACC in RIIO-ED1

Under the RIIO framework the cost of debt is not set at a fixed level ex-ante. Rather, the cost of debt is adjusted each year to the next 10 year average level of the relevant iBoxx indices[1] as adjusted for expected inflation.[2]

The 2.92% used in the WPD business plan was the calculated value as at 31 October 2012 (as specified by Ofgem). However, the cost of debt that will actually be used to set allowed revenues during the RIIO-ED1 period is forecast in our business plan as being an average of 2.25% (see paragraph 9.32 of SA-07 Supplementary Annex - Financing the Plan)

Taking the forecast cost of debt into account the average actual WACC on which allowed revenues will be based is therefore not 4.24% but 3.8%. (See Appendix 4b)

Significant differences between NIE and WPD in setting WACC

NIE's cost of debt is set ex-ante as the weighted average cost of existing debt and debt to be issued during their five year price control period. That is, the cost of debt is set up front for the duration of the control period (or less as in the case of NIE. As a result, NIE's customers bear the risk that the actual cost of debt is different to forecast. For example, if NIE were to issue debt that was too expensive (out of market), then customers would pay the additional cost either as part of existing embedded debt or as part of embedded debt set at subsequent price reviews based on the actual cost of debt issued at the time. Cumulatively and over time, if, for whatever reason, NIE's cost of debt was out of market, or more than the iBoxx indices (or any other measure), customers would pay the additional cost.

WPD's cost of debt is set formulaically ex-post facto based on the 10 year average of the relevant iBoxx indices. So, in WPD's case the risk of the cost of debt being different to forecast is borne by investors and not by customers. Using the same example, if WPD were to issue debt that was too expensive (out of market), then investors and not customers would bear the additional cost. Cumulatively, in the long run, if for whatever reason, DNOs' cost of debt is more than the iBoxx indices then it is investors who bear the cost.

Therefore, relative to WPD's RIIO-ED1 business plan, CC's provisional determination for NIE transfers risk from investors to customers. This transfer of risk is manifested in a higher cost of debt for NIE and a lower cost of equity.

Further, because the transfer creates a lower risk for investors in NIE than those in WPD, NIE's WACC should be *lower* than WPD's whatever methodology is used to calculate the WACC for both companies.

However, on the contrary, when CC's methodology is used to calculate a WACC for WPD the resulting midrange WACC for WPD is 3.8%, as set out in Appendix 4c. This approximates to the same WACC as WPD forecasts to use for allowed revenues in RIIO-ED1 and gives NIE a WACC that is 30bp *higher* than WPD's.

Overall therefore, CC's decision confirms that the WACC that WPD expects during RIIO-ED1 is efficient and reasonable.

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[1] These indices are benchmarks relating to liquid investment grade bonds

[2] Ofgem have determined that the cost of debt will be calculated from a 10 year rolling average of real rates that will be determined from the arithmetical average of the greater than 10 years A rated and BBB rated non-financial iBoxx indices. From this the implied 10 year gilt inflation break evens, as published by the Bank of England, will be deducted.

The cost of equity and cost of debt used by CC in setting WACC for NIE are set on a different basis reflecting the transfer of risk from investors to customers in NIE. If Ofgem were to adopt CC's cost of equity methodology they would also need to adopt the cost of debt methodology to produce a consistent and rational WACC. However to do so would be to change from something that works, to an untested methodology, but without any noticeable change for customers, other than customers taking on cost of debt risk.

Appendix 1

The issues discussed further in this appendix, are the RIIO framework, market volatility and mean reversion:

The RIIO framework

Ofgem's WACC methodology is a critical part of Ofgem's RIIO framework.

Ofgem's RIIO framework and the framework set by the Utility Regulator in Northern Ireland ("UR") are significantly different. RIIO was specifically designed to find the regulatory system that best enables GB electricity network companies to meet their investment challenges which are of an unprecedented scale and significantly different (in both scale and nature) than that faced by NIE. As assessed by Ofgem:

"*Britain's gas and electricity industries are facing their greatest challenge since the construction of the national grid and the conversion to North Sea gas. The network companies will need to invest an estimated £32bn by 2020 to deliver the networks required for the low carbon economy and to maintain secure, reliable supplies. This is a near doubling of the expenditure seen over the last twenty years and is 75 per cent of the existing RAV of £43bn*"[3].

Two key features of the RIIO framework are:

- The focus on longer term investment horizons and certainty; and
- Ensuring financeability.

Both of these objectives are designed to attract investment in the sector.

The focus on longer term horizons is demonstrated in the RIIO framework through emphasis on transparency and predictability as well as through setting longer price control periods (extended from five to eight years).

In terms of financeability, RIIO was to ensure that "*efficient delivery of outputs is financeable by committing to published principles for setting a weight average cost of capital (WACC)-based allowed return to reflect the cash flow risk of the business over the long term*"[4].

If Ofgem change their approach to the cost of equity in favour of the one that seems to be suggested by CC's decision at this final stage of the RIIO-ED1 process, it would go against the RIIO principles of long-term visibility and predictability of the RIIO regime.

[3] Ofgem, *RIIO: A new way to regulate energy networks, Final decision*, October 2010
[4] Ibid.

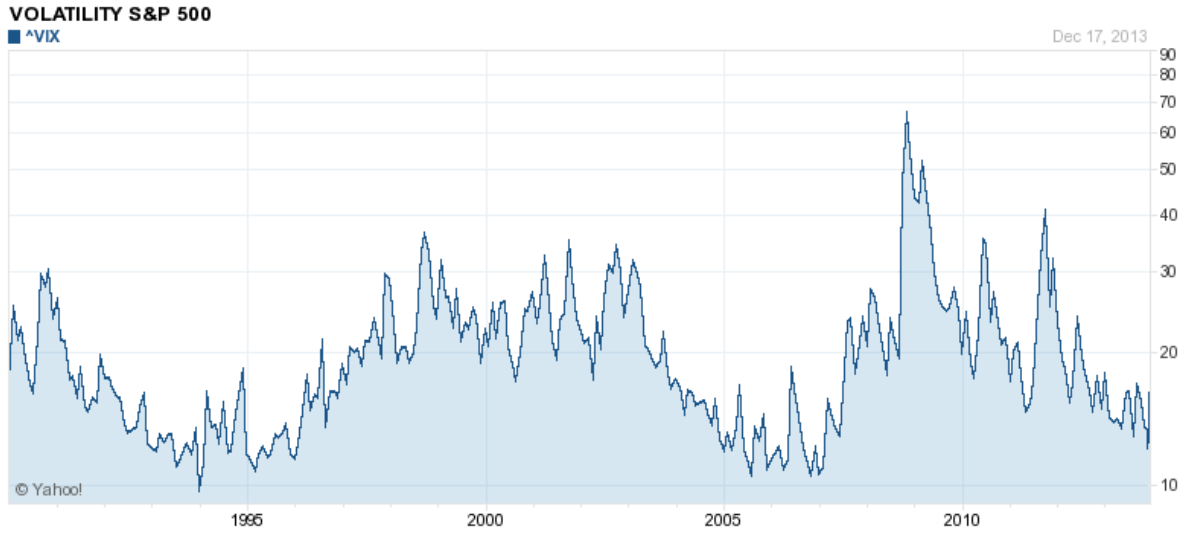
Market volatility

When markets are highly volatile short terms future levels are harder to predict with any certainty although long run estimates are less likely to be affected.

The CC in their determination suggest that long-run averages are relevant only to the extent they inform cost of capital in the future over the period under consideration (para 13.6).

Markets are currently volatile. Vix is a measure of market volatility stated as an index. The Vix index has only recently been adopted by the FTSE, and as such not enough historical data is available to take a long term average. The Vix range shown in figure 1 is therefore for the US S&P 500,which can be considered a reasonable proxy for the FTSE (given both are large mature markets with similar levels of exposure to the financial market crisis in 2008).

Figure 1 S&P 500 volatility



Source: Source: Yahoo finance: http://finance.yahoo.com/echarts?s=%5EVIX+Interactive#symbol=^vix;range=5y;compare=;indicator=volume;charttype=area;crosshair=on;ohlcvalues=0;logscale=off;source=undefined

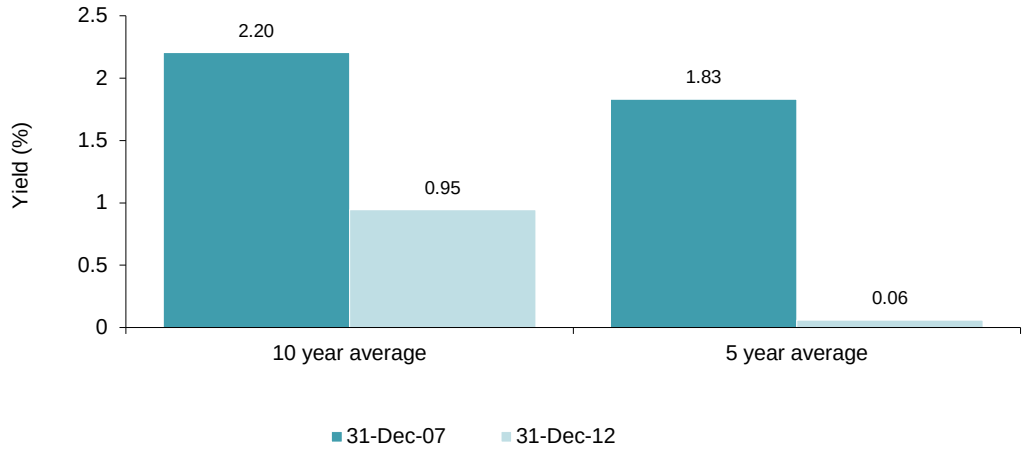
High levels of volatility can be explained by the fact the economy has recently gone through the financial crisis, yields on government bonds are artificially suppressed as a result of quantitative easing and the new financial regulations which place restriction on how funds (pension and insurance) can build their portfolio.

As such it is likely that there may be significant movements in the market over the period of the RIIO price control.

In the period of a RIIO price control (eight years), the movement in markets can be substantial. Although the recent past and short term averages are not necessarily good predictors of short term trends in the future, they can be used to show potential volatility.

The market has been volatile over the last eight years. Figure 2 demonstrates the movement in yield rates over the period of a RIIO price control. The figure also demonstrates the increased movement over the five year average (97%) in comparison with a ten year average (58%) showing increased volatility using short term data.

Figure 2 Different in yield rates over eight year period - based on 5 year Index linked (month end observations)



Source: Source: Bank of England
http://www.bankofengland.co.uk/boeapps/iadb/index.asp?Travel=NIxIRx&levels=1&XNotes=Y&Nodes=X4051X4052X4066&SectionRequired=I&HideNums=-1&ExtraInfo=true&A4077XBMX4051X4052X4066.x=9&A4077XBMX4051X4052X4066.y=10

There is a high probability that markets will move significantly in the near future. Using short term data, where rates are historically low, to predict the future in times of high volatility means that estimated parameters are more likely to be incorrect.

Mean reversion

Mean reversion is an extensively documented phenomenon in market trends. That is, there is evidence that particular, short-term market conditions tend to change back to long-term averages over time.

In general, long term averages of historical data should therefore be a better estimate of expected returns than short term data. As a consequence, CC's focus on contemporary market evidence is not as robust as Ofgem's existing approach for estimating the equity market return in RIIO-ED1**.**

In their estimate of the equity market return CC has put significant emphasis on contemporary market evidence, in particular reflecting the 5-year period since the credit crunch. As part of their reasoning for placing greater reliance on forward-looking data, CC states "a forward-looking expectation of a return on the market of 7 per cent does not appear credible to us, given economic conditions observed since the credit crunch and lowered expectations of returns".

This approach is materially different from the approach to the equity market return used historically by Ofgem and other regulators, which is primarily based on long-term assessment of historical data. Ofgem stated in their Consultation document: "*The CC's position contrasts with Ofgem's long-standing approach which has been informed by a 2003 study jointly commissioned by the economic regulators*", pointing to the influential Smithers Report[5].

[5] 'A Study into Certain Aspects of the Cost of Capital for Regulated Utilities in the U.K.', Stephen Wright, Robin Mason and David Miles, Smithers & Co, February 2003

In setting their price controls, regulators need to make decisions at a particular point in time which are required to be relevant to extended periods of time. One of the key reasons why they traditionally rely on long-term averages of market data for estimating their forward-looking parameters is the well documented tendency for mean reversion in asset returns. That is, there is evidence that particular, short-term market conditions tend to change back to long-term averages over time, as shown for a range of asset categories i.e. realised returns fluctuate over time because investors demand higher compensation during times of economic stress but in a long run returns revert to the mean value.

There is an extensive body of literature supporting mean reversion, for example De Bondt and Thaler (1985)[6] were the first to document the tendency for mean reversion. Based on U.S. individual firm-level data, they show stock prices do not follow a random walk, but contain a strong mean reverting component. Fama and French (1988)[7] report mean reversion in U.S. equity market using long –horizon regressions. Poterba and Summers (1988)[8] document evidence for mean reversion using the variance ratio test using long-term data for the U.S. and seventeen other countries. Balvers, Wu, Gilliland (2000)[9] find strong evidence of mean reversion in relative stock index prices based on the evidence from 18 countries during the period 1969-1996. Wright (2004)[10] points out that in the US non-financial corporate sector there is a strong tendency for mean reversion based on 100 years of data.

The 2013 edition of the DMS report, cited by the Competition Commission, also analyses the mean reversion phenomenon and states that there is tendency for mean reversion both in equity and bond markets, basing their analysis on the UK and US data [11].

Taking into account considerable volatility of contemporary market conditions and the effect of mean reversion, long term averages of historical data constitute a more appropriate estimate of expected returns than short term data. Therefore CC's focus on contemporary market evidence might not be an appropriate approach for estimating the equity market return in RIIO-ED1, the framework that will set the cost of equity for DNOs in a much longer horizon, i.e. up until 2023.

As pointed out by Ofgem in their Consultation document, adopting CC's approach in the RIIO-ED1 price review "*would have the effect of reducing allowances for the cost of equity*". Because the RIIO-ED1 parameters are set ahead of time and for a longer time horizon, over which returns are likely to revert to their mean values, there is a risk that fixing the allowed equity market return on the current low level might create a downward bias.

The Competition Commission's NIE determination also underlines the importance of recognising mean reversion stating in paragraph 13.6 that "*Asset prices and/or yields*

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[6] DeBondt, Werner, and Richard Thaler. "Does the Stock Market Overreact?" Journal of Finance 40 (1985), pp.793-805

[7] Fama, Eugene F. and Kenneth R. French. "Permanent and Temporary Components of Stock Prices." Journal of Political Economy 96 (1988), pp.246-273

[8] Poterba, James M. & Summers, Lawrence H., 1988. "Mean reversion in stock prices: Evidence and Implications," Journal of Financial Economics, Elsevier, vol. 22(1), pages 27-59

[9] Balvers, R., Wu, Y. and Gilliland, E. (2000), Mean Reversion across National Stock Markets and Parametric Contrarian Investment Strategies. The Journal of Finance, 55: 745–772

[10] Wright, Stephen H., Measures of Stock Market Value and Returns for the U.S. Nonfinancial Corporate Sector, 1900-2002. Review of Income and Wealth, Vol. 50, No. 4, pp. 561-584, December 2004

[11] Credit Suisse Global Investment Returns Yearbook 2013, written by: Dimson, Marsh and Staunton, p. 24

may have a tendency to revert to a longer-run mean value and, if so, past levels are relevant to estimating the expected level over the relevant period".

Historically, CC has supported mean reversion and long-term approach. In the 2007 Heathrow Airport Competition Commission determination the Commission stated that "*markets can be volatile and it would be unwise to place too much reliance on just the most recent figure. For example, BAA updated its estimate of the RFR during the course of the inquiry from 1.75–2.0 per cent to 2.6–3.0 per cent because of market movements*".[12] Furthermore the Commission noted that the period 2003-2006 was an "*unusual period*".

However, in the NIE determination the CC's judgement related to a price control period that was already in progress and soon to reach the mid period of the price control, meaning that the Competition Commission had greater certainty over the accuracy of their determination, because part of the price control period is in the past. In this respect the Competition Commission's NIE judgement is unique and might not be the relevant precedent for the RIIO price review, which does not end until more than a decade from now.

Because the end of the NIE price control is considerably closer than the end of RIIO ED1 there is arguably less need to consider the possibility of a mean reversion or to weight it is a smaller factor in WACC determination. However it is more relevant to consider mean reversion for the RIIO ED1 price control, which will finish almost 10 years from now.

[12] Competition Commission report: BAA Ltd - A report on the economic regulation of the London airports companies (Heathrow Airport Ltd and Gatwick Airport Ltd), Appendix F, Paragraph 52

Appendix 2

NERA response on behalf of WPD.pdf

Appendix 3

Estimate of WACC for all UK DNO groups

WPD has estimated the WACC for the various UK DNO groups, using CC's approach in its November 2013 provisional determination for NIE.

For the cost of equity, we use the same cost of equity (CoE) components as assumed by the CC in its November 2013 NIE determination, but re-geared to a 65% gearing level. The components of the CoE assumed by the CC in its NIE determination are:

- *Risk-free rate*: 1 to 1.5 per cent;
- *Asset Beta*: 0.4 to 0.45;
- *Debt Beta*: 0.1; and
- *Equity risk premium*: 4 to 5 per cent.

This is consistent with the CoE range set out in our recent presentation to Ofgem.

For the cost of debt, the CC set the allowed cost of debt for NIE as the weighted average of embedded and forward looking estimate of cost of new debt. We calculate the cost of debt for each DNO as the weighted average of embedded and forward looking cost of debt, consistent with the DNOs business plan submissions (where available).

Four of the six DNO groups (WPD, Northern Powergrid, ENW and UKPN) report their own estimates of average cost of debt over the RIIO-ED1 period. These are:

- *WPD*: 2.72% real;
- *Northern Powergrid*: 3.1% real;
- *Electricity Northwest*: 3.31% real; and
- *UK Power Networks*: 2.65% real.

For these DNO groups, we use their own estimates of the average cost of debt over the RIIO-ED1 period to calculate the DNO specific WACC.

It is difficult to establish the true cost of debt for both the SSE and SP DNO groups from published sources because a significant part of their debt funding is through intercompany loans.

However based upon current market data SSE's bonds trade approximately 10BPs inside WPD's bonds and SP's bonds trade 30BPs wider than WPD's. We have therefore assumed that the cost of debt can be adjusted relative to the WPD forecast position using these levels of trading.

On the basis that the WPD forecast cost of debt is 2.72% the respective cost of debt for the SSE and SP DNO groups will be:

SSE: 2.72% - 0.10% = 2.62% real; and

SP: 2.72% + 0.30% = 3.02% real.

Table 1 shows the vanilla WACC for each DNO group based on the above methodology. WPD's vanilla WACC lies in the range 3.5%-4.2%, towards the middle of the range for all the DNO groups.

Table 1 Vanilla WACC for UK DNOs Based on CC CoE and DNOs' CoD

	WPD	Scottish Power	SSE	Northern Powergrid	ENW	UK Power Networks
Gearing	65%					
Risk-free Rate	1.0% - 1.5%					
Equity Risk Premium	4 % - 5%					
Total Market Returns	5% - 6.5%					
Asset Beta	0.4 - 0.45					
Equity Beta	0.96 - 1.1					
Cost of Equity	**4.8% - 7.0%**					
Cost of Debt	**2.7%**	**3.0%**	**2.6%**	**3.1%**	**3.3%**	**2.7%**
Vanilla WACC	***3.5% -4.2%***	***3.6%-4.4%***	***3.4% -4.1%***	***3.7% - 4.5%***	***3.8% - 4.6%***	***3.4% - 4.2%***

Source: WPD, NERA Analysis of CC NIE Provisional Determination (November 2013), DNO business plans

Appendix 4

Calculations referred to in the text:

a) NIE's WACC in CC decision (Based on 50% gearing)

	Low		High
Cost of Equity	**4.4%**		**5.2%**
Cost of Debt	**3.4%**		**3.4%**
Gearing	50%		50%
Vanilla WACC	3.9%		4.3%
Vanilla WACC mid-point		**4.1%**	

b) WPD's expected WACC in WJBP (Based on 65% gearing)

Cost of Equity	**6.7%**
Cost of Debt	**2.25%**
Gearing	65%
Vanilla WACC	**3.8%**

c) WPD's WACC on CC basis at 65% Debt/RAV

	Low		High
RFR	**1.0%**		**1.5%**
ERP	**4.0%**		**5.0%**
TMR	**5.0%**		**6.5%**
Asset Beta	**0.4**		**0.45**
Debt Beta	**0.1**		**0.1**
Gearing	**65%**		**65%**
Equity Beta	**0.96**		**1.10**
Cost of Equity	**4.8%**		**7.0%**
Cost of Debt	**2.72%**		**2.72%**
Vanilla WACC	3.5%		4.2%
Vanilla WACC mid-point		**3.8%**	

Should you wish to discuss any aspects of our response please contact Ian Williams (irwilliams@westernpower.co.uk).

Yours sincerely

ALISON SLEIGHTHOLM
Regulatory & Government Affairs Manager