2015-2023

RIIO-ED1 **BUSINESS PLAN**

SA-07 Supplementary Annex – Financing the plan

June 2013 (Updated April 2014)

WESTERN POWER DISTRIBUTION

Serving the Midlands, South West and Wales

SA-07 Financing the plan
Contents

1 Introduction

1.1 This document is a Supplementary Annex to the Western Power Distribution (WPD) Business Plan for the eight year period from 1st April 2015 to 31st March 2023.

1.2 It describes the how the plan will be financed and the financial parameters required by WPD.

1.3 It relates to the financing for all four WPD distribution licences of West Midlands, East Midlands, South Wales and South West.

1.4 The eight year period aligns with the next regulatory price control review period, known as RIIO-ED1; the first for electricity distribution to be determined using Ofgem's Revenue = Incentives, Innovation and Outputs framework. The Business Plan, Supplementary Annexes, detailed cost tables and financial models form the submission under RIIO-ED1 to the regulator Ofgem (Office for Gas and Electricity Markets), who will use the information to determine allowed revenues.

Structure of this document

1.5 We appreciate that the readers of the WPD Business Plan suite of documents will range from regulatory experts and well informed stakeholders through to new customers who may have had little previous knowledge of WPD.

1.6 This document is aimed at readers who require a more detailed understanding of how the Business Plan will be financed during RIIO-ED1. A less detailed description can be found in the main Business Plan Overview document.

1.7 This document is subdivided into the following sections:

Chapter	Title	Content
2	Business Plan financial assumptions	A summary of the key financial assumptions used within the Business Plan
3	Sources and uses of cash	A summary of where the cash will come from to deliver the Business Plan
4	Business financing objectives	A description of the key financial objectives we intend to achieve to meet our financing requirements
5	Credit ratio limits	A description of both the target key credit ratios and a year on year forecast of the key credit ratios for each of the four licences.
6	Existing financial commitments	A view of the current debt commitments of WPD as at 31 March 2013.
7	Availability of capital	A review of the different debt markets available to WPD.
8	Cash flow risk and volatility	An overview of the risk assessment made of the cash flow profile of WPD through the RIIO-ED1 period
9	Allowed returns (cost of capital)	A review of the cost of capital components, including cost of debt, cost of equity and gearing.
10	Evolution of the regulatory asset value	The approach taken for additions to the RAV including capitalisation and depreciation.
11	Related party costs	A summary of the inter group banking facility agreement
12	Taxation	A summary of the tax modelling undertaken within the Business Plan.
13	Business rates	A summary of the business rate forecast used within the Business Plan.
14	Pensions	A summary of the WPD pension schemes and modelling undertaken for the Business Plan.
15	Impact on customers' bills	A summary the impact on customers' bills and the impact on suppliers.
16	Revenue request for RIIO-ED1	An overview of how our revenue request for each year of the RIIO-ED1 period has been calculated.
17	Appendices	A number of appendices with additional information or containing links to supporting reports

2 Summary of Business Plan financial assumptions

2.1 The key assumptions used in the Business Plan are discussed within the document and are shown in the table below, together with the comparative values as used for DPCR5:

Key financial assumptions	RIIO-ED1	DPCR5
WACC (real):		
Cost of debt (pre-tax)	2.6%	3.6%
Cost of equity	6.4%	6.7%
Gearing (leverage)	65%	65%
WACC: Vanilla	3.9%	4.7%
Regulatory Slow / Fast Pot Capitalisation Ratio	80% / 20%	85% / 15%
Capital Recovery Period	Transition to 45 years by end of RIIO-ED1	20 years
IQI Incentive Ratio	70%	50%

3 Funding required: Sources and uses of cash

3.1 The Business Plan incorporates our best view of our future expenditure. Our work and investment in the network during the RIIO-ED1 period will require funding. This funding will largely come from revenues but will also require new capital to be raised. The following table shows the sources and uses of cash during RIIO-ED1 for our four DNOs (assuming inflation of 2.8%):

Sources and Uses of Cash in RIIO-ED1 (nominal £m)									
	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Total
Sources of Funds									
Revenues	1,480.7	1,544.8	1,532.3	1,587.2	1,643.8	1,703.4	1,767.2	1,834.1	13,093.4
New debt	205.0	201.7	178.7	190.0	196.7	214.3	269.0	284.2	1,739.5
Debt refinancing	0.0	0.0	0.0	0.0	0.0	150.0	0.0	700.0	850.0
Reinvested equity return	108.5	85.4	136.4	160.7	159.8	168.5	128.1	134.5	1,082.0
Total Sources of Funds	**1,794.2**	**1,831.9**	**1,847.4**	**1,938.0**	**2,000.2**	**2,236.1**	**2,164.2**	**2,952.8**	**16,764.9**
Uses of Funds									
Pass through costs	-144.8	-149.2	-169.5	-191.6	-218.2	-225.4	-232.7	-240.9	-1,572.3
Operating costs	-268.7	-285.0	-293.4	-305.2	-314.1	-325.0	-327.0	-341.1	-2,459.4
Capex	-717.9	-731.3	-694.5	-736.6	-743.7	-787.0	-822.3	-855.2	-6,088.5
Tax	-85.4	-66.5	-63.0	-53.5	-51.5	-51.5	-54.0	-56.2	-481.5
Pensions	-218.1	-223.0	-227.9	-232.9	-238.3	-244.2	-249.6	-255.2	-1,889.2
Interest	-211.5	-220.4	-234.5	-244.7	-252.3	-261.1	-275.4	-288.8	-1,988.7
Equity return	-147.8	-156.6	-164.7	-173.4	-182.3	-191.8	-203.3	-215.4	-1,435.4
Maturing debt	0.0	0.0	0.0	0.0	0.0	-150.0	0.0	-700.0	-850.0
Total Uses of Funds	**-1,794.2**	**-1,831.9**	**-1,847.4**	**-1,938.0**	**-2,000.2**	**-2,236.1**	**-2,164.2**	**-2,952.8**	**-16,764.9**

3.2 To fund the core expenditure costs detailed in the Expenditure chapter and to be able to pay our tax, pension and interest costs we have to raise over £1.7bn of new debt during RIIO-ED1. This is after taking into account the revenues we are requesting and our intended dividend payments. We also have to refinance £850m of existing debt.

3.3 A further £1,082m will be invested by our shareholder reinvesting the equity return allowed by Ofgem.

4 Business financing objectives

4.1 This section sets out how we intend to provide funding for our plan, what the cost of that funding will be and what the risks associated with the financing are. In order to do so we:

- explain the credit ratio limits we are required to meet in order to have access to debt capital;
- set out our existing financial commitments;
- consider the general availability of capital;
- set out our view of the costs of both debt and equity capital;
- consider the risks associated with our cashflows and how that might affect the financeability of our plan.

4.2 The key factors that we use to measure the financeability of the plan are the credit ratio limits that we must meet and the Return on Regulatory Equity (RORE).

4.3 As part of the process of assessing the financeability of our plan we have consulted our core banking group and also some of our key investors. The questionnaires sent to both groups and a summary of their responses, set out on an anonymous basis, can be found in appendices 1 to 4.

5 Credit ratio limits

5.1 WPD's financial strategy is to maintain good investment grade credit ratings, i.e. ratings of at least BBB (Standard and Poor's (S&P) and Fitch) and Baa2 (Moody's).

5.2 The ratings assigned by the credit rating agencies to WPD depend partly on our key financial credit ratios but also the credit ratios of our ultimate owners, PPL Corporation. More details concerning PPL Corporation can be found at www.pplweb.com. Our credit ratio limits have therefore been selected from the generic ratios used by credit rating agencies for DNOs to maintain at least BBB/Baa2 ratings. Each rating agency uses a slightly different methodology to rate companies (see Appendix 5). However, the fundamental key financial ratios used will be common to all the rating agencies. The Moody's methodology is the most explicit in terms of ratios (although this only accounts for 40% of the weighting of their rating). We therefore aim for credit ratios at all four DNOs, in the long run, that are as least as good as those in the Baa values as set out in the table below (based on the Moody's key credit metrics):

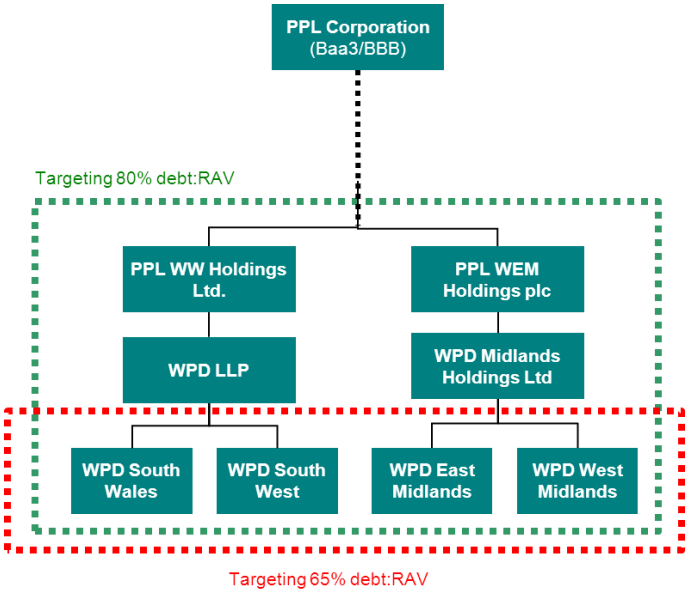
Financial Ratio	A	Baa
Funds from operations (FFO) to Interest	≥3.5x – 5.0x	≥2.5x – 3.5x
FFO/Net debt	≥12% – 20%	≥8% – 12%
Post maintenance interest cover ratio (PMICR)	≥2.0x – 4.0x	≥1.4x – 2.0x
Retained cash flow (RCF)/Capex	≥1.5x – 2.5x	≥1.0x – 1.5x
Net debt/Regulated asset value (RAV) (excluding pension deficits)	≤60%	65%

5.3 In addition to these metrics we also consider other ratios that are important in managing the financial structure of the business. These include regulatory ratios and those required under different bond and bank facilities.

- Earnings before interest, tax, depreciation and amortisation (EBITDA)/Interest cover;
- Regulatory Equity/EBITDA;
- Regulatory Equity/Regulatory earnings (Profit After Tax).

5.4 The overall leverage of the WPD UK Group is targeted at no more than 80% Debt/RAV with the DNO leverage limited to 65% (as illustrated below). The holding companies do not invest in the network and they carry out no operational business. Therefore, as investment is made in the network and the regulatory asset base increases, the DNO debt will rise while the holding company debt will remain relatively constant. It is therefore possible that the levels of debt between holding companies and DNOs may need to be reset from time to time to keep within the targets we have adopted. This is because the holding company debt will remain the same until a new issuance of debt at one of the holdings companies occurs.

5.5 In order to remain within the overall credit ratios targets as shown above, dividends will be reinvested or foregone to ensure that new equity does not need to be raised, i.e. we do not expect there to be any need for market issues of equity because any additional equity will be added by the shareholder reinvesting or not receiving their return on equity.



5.6 The forecast credit ratios for each of our DNOs for RIIO-ED1 are set out below. (These take into account the assumptions and conclusions reached later in this section; particularly those in relation to asset lives.):

West Midlands (y/e March)	2016	2017	2018	2019	2020	2021	2022	2023
FFO/Interest Cover	3.4 x	3.5 x	3.3 x	3.3 x	3.2 x	3.2 x	3.2 x	3.1 x
FFO/Net Debt	13.5%	13.8%	12.1%	12.0%	11.6%	11.6%	11.4%	11.2%
PMICR	1.0 x	1.1 x	0.8 x	0.8 x	0.7 x	0.7 x	1.0 x	1.0 x
RCF/Capex	69%	70%	71%	71%	70%	69%	64%	63%
Net Debt/RAV (excluding pension deficits)	65%	65%	65%	65%	65%	65%	65%	65%
EBITDA/Interest Cover	3.8 x	3.9 x	3.6 x	3.5 x	3.5 x	3.5 x	3.4 x	3.3 x
Regulatory Equity/EBITDA	2.5 x	2.5 x	2.8 x	2.9 x	3.0 x	3.0 x	3.0 x	3.0 x
Regulatory Equity/Regulatory Earnings	6.2 x	6.3 x	7.9 x	8.2 x	8.7 x	8.7 x	8.8 x	9.2 x

East Midlands (y/e March)	2016	2017	2018	2019	2020	2021	2022	2023
FFO/Interest Cover	4.4 x	4.2 x	3.5 x	3.4 x	3.3 x	3.3 x	3.4 x	3.3 x
FFO/Net Debt	15.8%	15.7%	12.9%	12.4%	11.9%	11.9%	11.9%	11.6%
PMICR	1.5 x	1.5 x	0.9 x	0.8 x	0.7 x	0.8 x	1.1 x	1.1 x
RCF/Capex	66%	68%	72%	72%	72%	70%	63%	63%
Net Debt/RAV (excluding pension deficits)	65%	65%	65%	65%	65%	65%	65%	65%
EBITDA/Interest Cover	4.9 x	4.7 x	3.9 x	3.6 x	3.6 x	3.6 x	3.6 x	3.6 x
Regulatory Equity/EBITDA	2.5 x	2.5 x	2.8 x	2.9 x	3.0 x	3.1 x	3.1 x	3.1 x
Regulatory Equity/Regulatory Earnings	5.8 x	6.0 x	8.2 x	8.8 x	9.4 x	9.4 x	9.3 x	9.7 x

South Wales (y/e March)	2016	2017	2018	2019	2020	2021	2022	2023
FFO/Interest Cover	2.7 x	3.0 x	2.8 x	2.8 x	2.8 x	3.0 x	3.2 x	3.1 x
FFO/Net Debt	10.4%	11.4%	10.2%	10.0%	9.9%	10.0%	10.2%	9.9%
PMICR	0.2 x	0.4 x	0.5 x	0.6 x	0.6 x	0.7 x	0.8 x	0.9 x
RCF/Capex	66%	66%	63%	60%	61%	59%	59%	58%
Net Debt/RAV (excluding pension deficits)	65%	65%	65%	65%	65%	65%	65%	65%
EBITDA/Interest Cover	3.3 x	3.4 x	3.0 x	3.0 x	3.0 x	3.2 x	3.4 x	3.4 x
Regulatory Equity/EBITDA	2.7 x	2.8 x	3.1 x	3.2 x	3.2 x	3.3 x	3.3 x	3.4 x
Regulatory Equity/Regulatory Earnings	8.1 x	8.7 x	11.7 x	12.7 x	13.3 x	12.6 x	11.4 x	11.5 x

South West (y/e March)	2016	2017	2018	2019	2020	2021	2022	2023
FFO/Interest Cover	4.4 x	4.6 x	4.1 x	4.0 x	3.9 x	3.6 x	3.4 x	3.4 x
FFO/Net Debt	13.1%	13.5%	12.3%	11.9%	11.6%	11.1%	10.9%	10.6%
PMICR	0.9 x	1.0 x	0.8 x	0.8 x	0.7 x	0.7 x	1.1 x	1.1 x
RCF/Capex	89%	90%	92%	95%	93%	93%	86%	85%
Net Debt/RAV (excluding pension deficits)	65%	65%	65%	65%	65%	65%	65%	65%
EBITDA/Interest Cover	5.2 x	5.1 x	4.5 x	4.4 x	4.3 x	4.0 x	3.8 x	3.7 x
Regulatory Equity/EBITDA	2.7 x	2.8 x	3.0 x	3.1 x	3.1 x	3.2 x	3.2 x	3.3 x
Regulatory Equity/Regulatory Earnings	7.0 x	7.5 x	8.7 x	9.3 x	9.9 x	10.6 x	10.7 x	11.0 x

5.7 It is notable that for most ratios each of the DNOs passes the threshold for Baa rating, albeit that the amount of headroom has reduced from DPCR5. In certain years in all four DNOs the PMICR ratio is below the level that is stated above by Moody's as being within the Baa range. However by adjusting the asset lives and maintaining the capitalisation at DPCR5 levels as detailed below, the ratios do start to recover towards the end of the period.

6 Existing financial commitments

6.1 The existing fixed rate debt and nominal weighted average cost of debt (coupons) as at 31 March 2013 are set out below:

Amount	Maturity	Coupon
WPD West Midlands plc		
£250 million	2025	6.00%
£800 million	2032	5.75%
WPD East Midlands Plc		
£250 million	2040	6.25%
£106 million*	2043	2.671% + RPI
£700 million	2023	5.25%
WPD South Wales plc		
£150 million	2020	9.25%
£225 million	2037	4.80436%
£200 million	2040	5.75%
WPD South West plc		
£250 million	2027	5.875%
£129 million*	2053	1.541% + RPI
£147 million*	2056	1.541% + RPI
£200 million	2040	5.75%

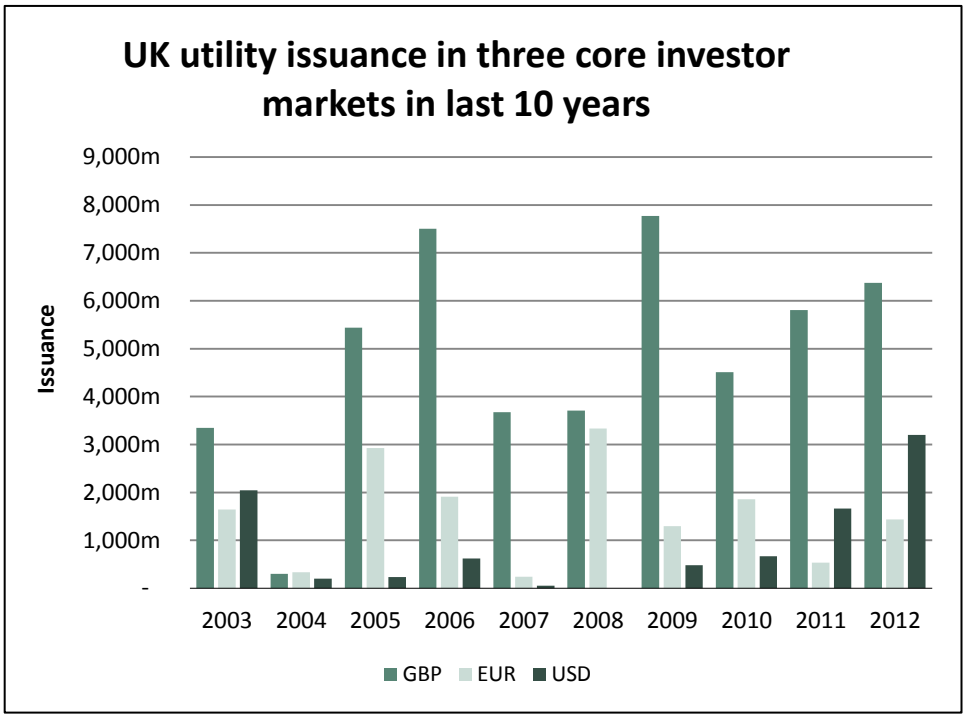
(*Index linked to RPI - RPI assumed at 2.8%)

6.2 In addition as at 31 March 2013 there was £34m of debt at floating rates in the capital structure of the DNOs.

6.3 As at the same date the total debt within the four DNOs was £3,441m. The nominal weighted average cost of this existing debt, assuming inflation at 2.8% is therefore 5.68%, with the average weighted maturity being 2033 (20 years). Based upon this inflation rate the real cost of the existing debt is 2.88%.

7 Availability of capital

7.1 The total amount of capital to be raised by the WPD DNOs during RIIO-ED1 is £2.6bn. Significant capital markets however exist in the UK, the United States and in Europe that ensure that relative to the size of the markets, the capital to be raised is modest and financeable. To illustrate this, the chart below shows the amounts of debt raised by utilities in the three principal markets over the last 10 years. In 2012 alone over £10bn of funding was provided to UK utilities.



Source: RBS

7.2 In comparison in 2012 the total corporate issuance in these three markets, including the above utility issuances, totalled some £1.6 trillion, with the average over the last five years also being over £1 trillion.

7.3 The WPD group has the UK's largest electricity distribution network and we need to raise approximately £325m per annum over the RIIO-ED1 period. This represents just over 0.03% of all corporate issuance in the three core markets per annum and only 0.45%, 0.06% and 0.09% of the annual Sterling, US and Euro markets each year of the price control period (based upon the average corporate issuance over the last five years in each market).

7.4 The WPD DNOs also maintain committed bank facilities through a syndicate of banks. These facilities give WPD access to over £800m of immediately available funding. This funding is used to help finance the company between debt issuances and is also a source of finance if significant immediate expenditure was required, such as repairing the network after widespread catastrophic damage caused by a storm. Once WPD has utilised approximately 50% of these funds we would look to re-establish the quantum of facility by undertaking a bond issuance.

7.5 WPD will look to continue to maintain committed facilities of approximately 10% of its RAV.

7.6 Included within the questionnaires sent to our core banks and bond investors were questions that related to the availability of capital. The general consensus was that funding of this magnitude would be available to WPD unless there was some period of general market inaccessibility due to severe widespread market reluctance to purchase debt (which would generally be temporary and short in duration). Appendices 3 and 4 show a summary the responses received from the banks and bond investors.

8 Cash flow risk/volatility

Cash flow timing issues

8.1 Based upon the current Ofgem assumptions for the RIIO-ED1 period the cash flow profile of the WPD DNOs shows significant deterioration unless some compensating adjustments are made.

8.2 This deterioration is a result of delays in cashflow caused primarily by:

- the adoption of 45 year lives for assets acquired after 1st April 2015;
- the inclusion of non-operational capital expenditure (capex) and business support costs in the core expenditure (totex) pot that were previously treated as 100% fast money in DPCR5 i.e. incurred and recovered within the same regulatory period.

8.3 In order to stabilise the credit ratios over time we have assumed a constant gearing percentage of 65%. Using this gearing ratio, the anticipated cost of the debt to be issued during RIIO-ED1 and the cost of existing debt, we have calculated the risk of not meeting the minimum requirements of investment grade over the RIIO-ED1 period. The analysis shows that some adjustment will be required to improve cashflow.

8.4 The adjusting actions considered were to either reduce asset lives from 45 years to a phased transition approach over the RIIO-ED1 price control period, and/or to reduce the capitalisation percentage from 80% (the percentage equivalent to the DPCR5 amount capitalised given the changes in the definition of totex for RIIO-ED1); either of these possible actions have the effect of stabilising the credit ratios.

8.5 We engaged NERA Economic Consulting to conduct risk assessments and risk modelling of our cashflows on our behalf (see appendices 6 and 7 for more information). NERA's work has led us to conclude that phasing-in the introduction of a 45 year asset life during RIIO-ED1 is sufficient to stabilise credit ratios. This appears an appropriate course of action because it is a transitional measure to deal with a potential problem that is itself transitional. Changing the capitalisation ratio from the proportion of costs capitalised in DPCR5 is unnecessary. The application of a transitional approach for asset lives from the current life of 20 years to the intended life of 45 years is also consistent with the approach taken for the majority of the businesses in the RIIO-GD1 and RIIO-TD1 price control reviews.

Cash flow risk

8.6 The primary aim of the work undertaken by NERA was to develop a risk modeling framework that is applicable throughout the RIIO-ED1 price control period that could be amended as more information became known. The key tool used was a "Monte Carlo" simulation model. Taking the existing WPD financial model as a starting point, the NERA model was built on by randomising key inputs, assuming that they followed particular statistical distributions. These randomised input assumptions were then fed into the WPD financial model to calculate the key ratios and measures of financial performance. The model allowed the calculations to be repeated over several thousand iterations to derive statistical distributions around these key financial parameters. By examining these distributions we have been able to address some of the issues that the changes in RIIO-ED1 have created and identify what may need to be changed in order to achieve the financial ratios consistent with Ofgem's assumed credit ratings. See appendix 8 for more information on the method adopted.

8.7 The results of NERA's work are set out in appendix 6 and based on their conclusion we are confident that we will be able to maintain our current credit ratings throughout RIIO-ED1 if the proposed increase in assets lives is phased in over the eight year period.

9 RIIO-ED1 allowed returns (cost of capital)

Cost of debt

9.1 There are two separate costs of debt to be considered in the Business Plan – the actual cost of debt to WPD and the Ofgem allowed cost of debt.

9.2 In order to determine the financeability of the plan we need to estimate the nominal cost of our future debt issuance. The cost of the future issuance together with the cost of the existing debt portfolio is used to determine the interest costs when we calculate the projected financial ratios for RIIO-ED1.

9.3 The cost of debt is also part of the Weighted Average Cost of Capital (WACC) that is used to set allowances. (The WACC is the combined cost rate of funding calculated using a pre-tax cost of debt and post-tax cost of equity weighted by notional gearing.)

9.4 Ofgem will determine the allowed cost of debt, used in setting allowances, based on a 10 year trailing average bond selection (the iBoxx) less the implied 10 year gilt inflation break evens published by the Bank of England.

9.5 In setting allowances for RIIO-ED1, Ofgem will initially use a 10 year trailing average of iBoxx, with an assumed cost of debt for RIIO-ED1 of 2.6%. Actual allowances will be based on the 10 year trailing average of the iBoxx values calculated as at the 31st October each year. The method of calculation is discussed further below.

9.6 Further details as to the composition of the index, the methodology being adopted, the risks relating to debt issuance and the approach WPD plan to take are given in appendix 9.

Overview of approach to estimating the nominal cost of future WPD debt issued

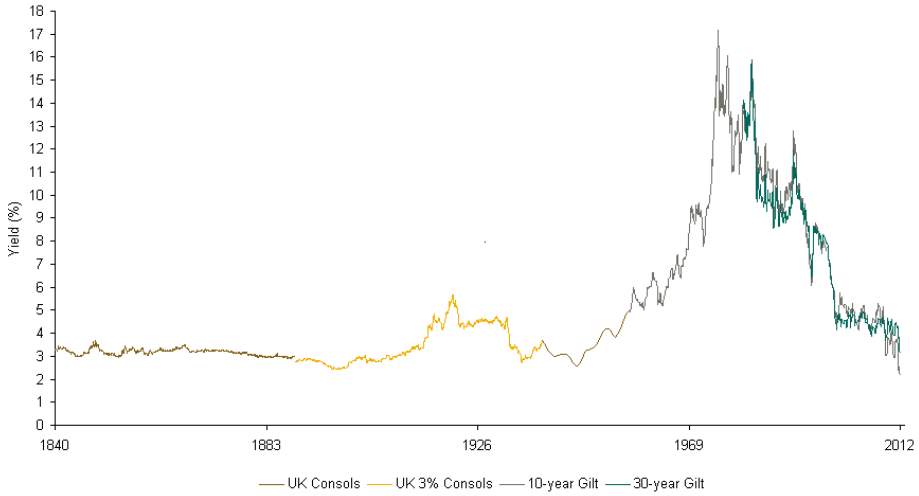
9.7 In order to determine what the cost of the debt will be for the new debt that we will issue we have used the current 20 year gilt yield and have then added a credit spread. This is the process by which new debt is priced when issued and is therefore the best approach to take to calculating a nominal cost of debt. This nominal cost of debt is then adjusted by an implied inflation rate to create a real cost of debt.

9.8 Below are the steps we have taken to calculate the cost of the debt we plan to issue.

Cost of debt to be issued – gilt yields

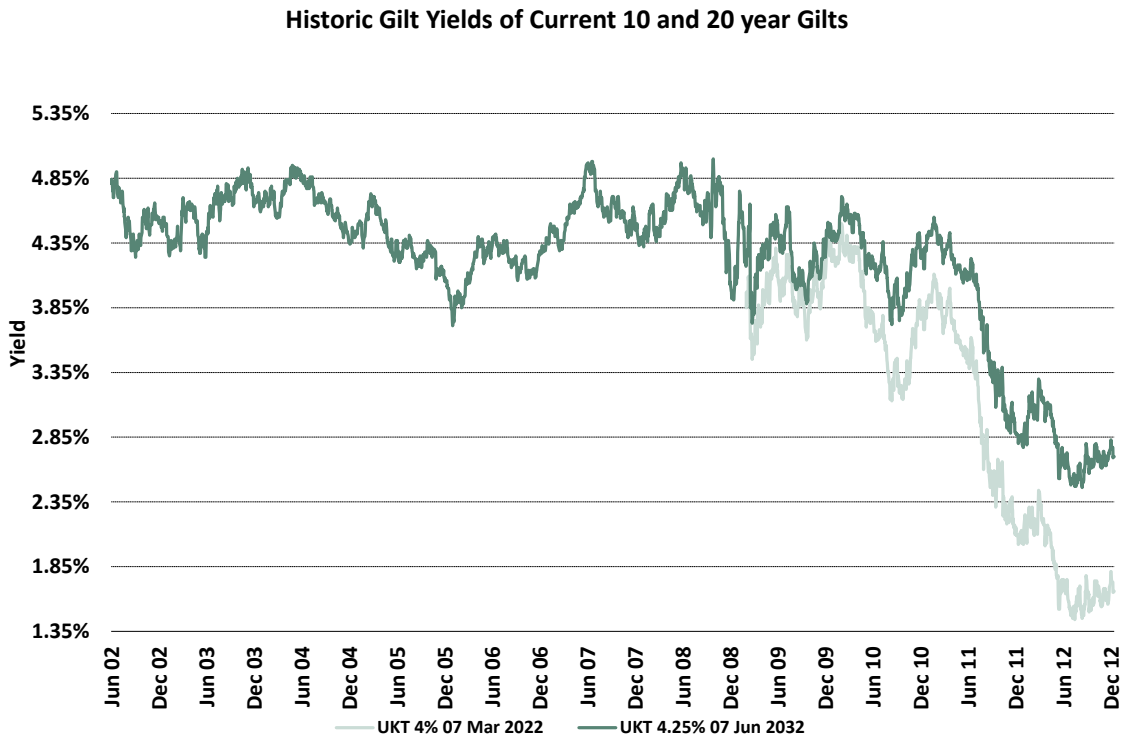
9.9 In setting the cost of debt we use the 20 year gilt yield because although Ofgem's RIIO-ED1 cost of debt is based on a 10 year trailing average of the iBoxx indices we believe using a 20 year maturity better balances refinancing risk and yield i.e. asset lives from 2015 will be increasing towards 45 years for regulatory purposes. Financing assets on a 10 year basis would mean refinancing each asset approximately 3 times during its life rather than once on a 20 year basis. Also the average maturity of the debt used within the current iBoxx indices is 22 years for the A rated debt and 17 years for the BBB. Therefore an overall average of 20 years aligns with these maturities.

9.10 It should be noted that gilt yields are currently at near all-time lows as the chart below, demonstrates.



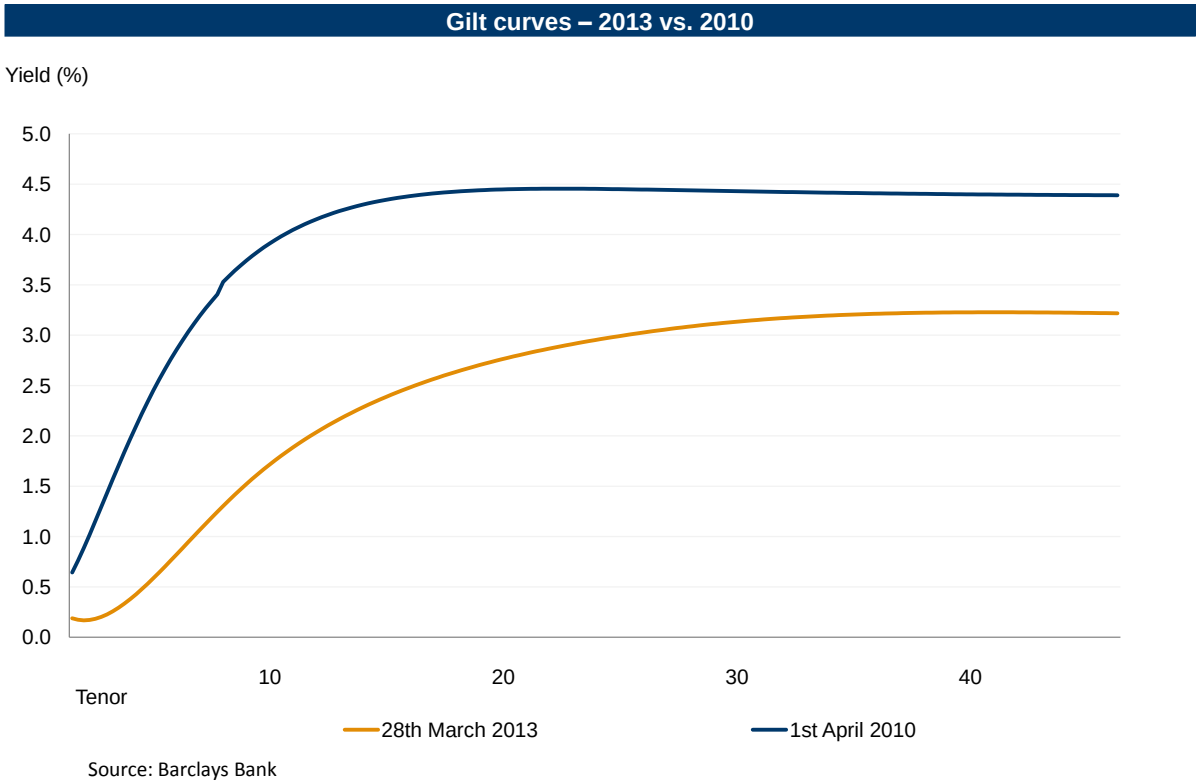
Source: England Yield of Consols, NBER Macrohistory Mar-1888 to Dec-1938, British Historical Statistics by B.R. Mitchell; Primark Datastream, RBS Gilts 1987 to current

9.11 A more detailed view of the last ten years is shown below:



Source: RBS

9.12 Below are the yields that were applicable for different gilt maturities as at 28th March 2013 and those at the start of the DPCR5 price control period.



9.13 The 20 year gilt yield (officially known as UKT 4.25% 07 June 2032) on which our cost of debt is largely based was 2.7345% on 28 March 2013. This is 132 basis points (1.32%) more than the 10 year gilt yield (UKT 4.0% 07 March 2022) and 37 basis points (0.37%) less than the 30 year gilt yield.

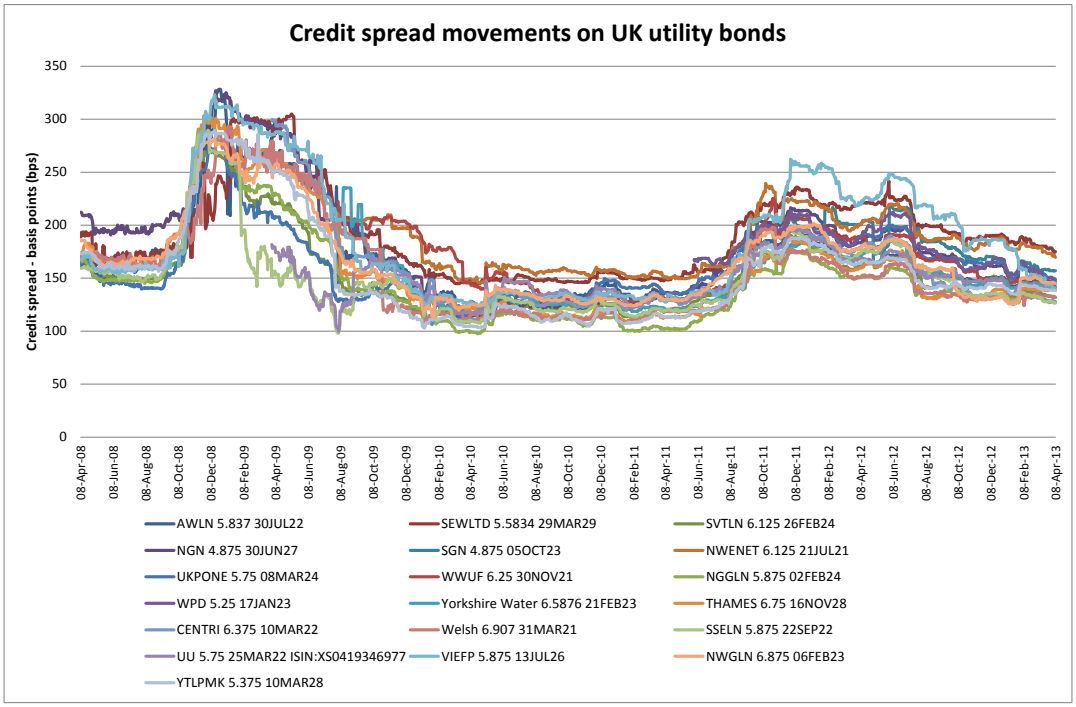
9.14 The respective yields at the start of the DPCR5 price review were 3.918%, 4.445% and 4.479% for the 10, 20 and 30 year gilts. A downward movement of between 140 and 230 basis points (depending upon which tenor you look at) has therefore occurred since that point in April 2010.

9.15 If gilt yields rise during RIIO-ED1 then, to the extent that credit spreads are not lowered to offset the rise, the cost of the debt we will issue will also rise.

9.16 Given that gilt yields are at historically low levels it is more likely that they will rise rather than fall over the course of RIIO-ED1. There is therefore a risk that DNOs will need to fund any shortfall in the allowed cost of debt for a considerable period of time. NERA have calculated this shortfall having an NPV of less than £17million over the RIIO-ED1 period, with a maximum loss limited to £65million (at 95% probability). See appendix 10 for more detail on the cost of debt modelling.

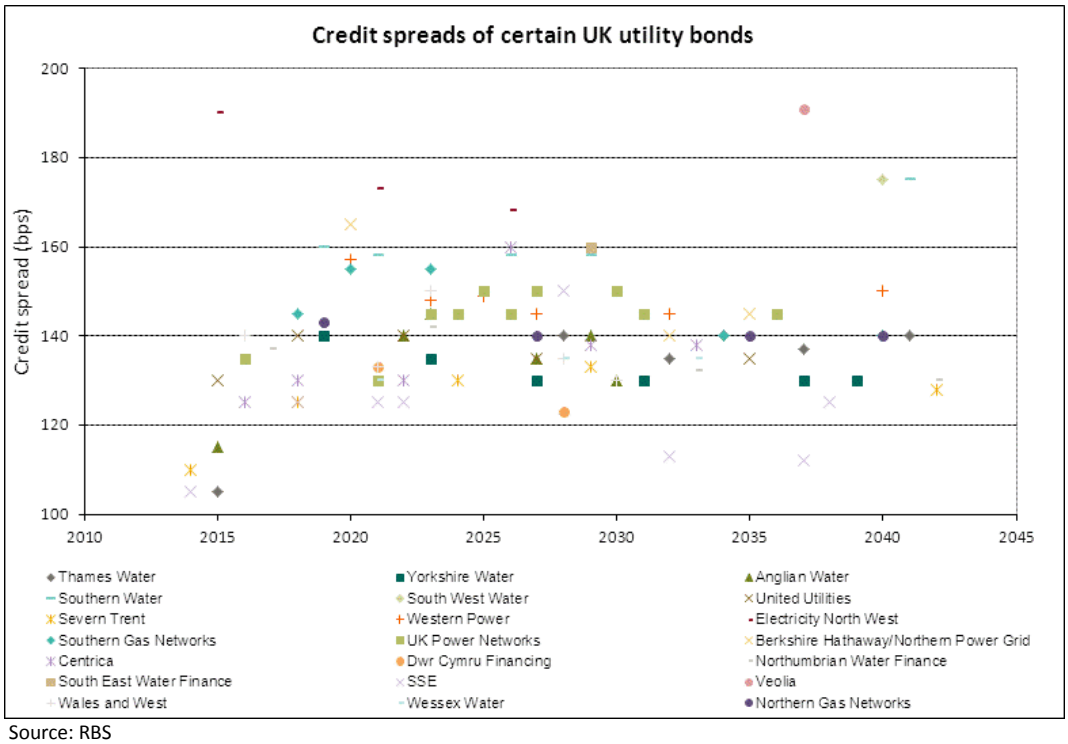
Cost of debt – credit spread

9.17 The credit spread is the amount of yield investors require, over and above the benchmark gilt, in order to buy a bond. Over the past few years credit spreads have been volatile as is demonstrated below:



Source: RBS

9.18 Credit spreads also vary between companies and individual bonds, sometimes between bonds issued by the same company or between companies in the same group, and as well as between sectors and by rating, as the chart shows below.



Source: RBS

9.19 This is because the credit spread is a direct reflection of the desirability of a bond at a point in time given market conditions as well the demands of individual investors' portfolios. In general unless there is a lack of supply investors will only enter the market if the bond yield is above a certain level, therefore when gilt yields are low credit spreads tend to increase.

Calculating the nominal cost of debt

9.20 In setting a nominal cost of debt for the Business Plan we have assumed a credit spread of 160 basis points (bps). This is the same spread as the existing WPD 2032 bond but with a new issuance premium of 10 basis points added. This spread would be representative for the same market in which we have chosen the corresponding gilt (20 years), and is therefore consistent in producing a cost of debt.

9.21 In determining the financeability of the plan we have therefore assumed a cost of debt of 5.5% nominal based on the average yield level observed for the 20 year gilt over the last 5 years (3.80%) plus the credit spread of 170 (160 +10) basis points as stated above.

9.22 The existing WPD DNO debt totals some £3.4bn and has an average maturity of 20 years, with an average interest rate payable of 5.68%. £850m of this existing debt matures within the RIIO-ED1 period and will need to be replaced with new debt. However an additional £1.74bn will need to be raised giving a total debt portfolio of £5.2bn at the end of the price control period. At that point in 2023 the average nominal cost of debt will be approximately 5.54%, with the average over the 8 year period being 5.60%.

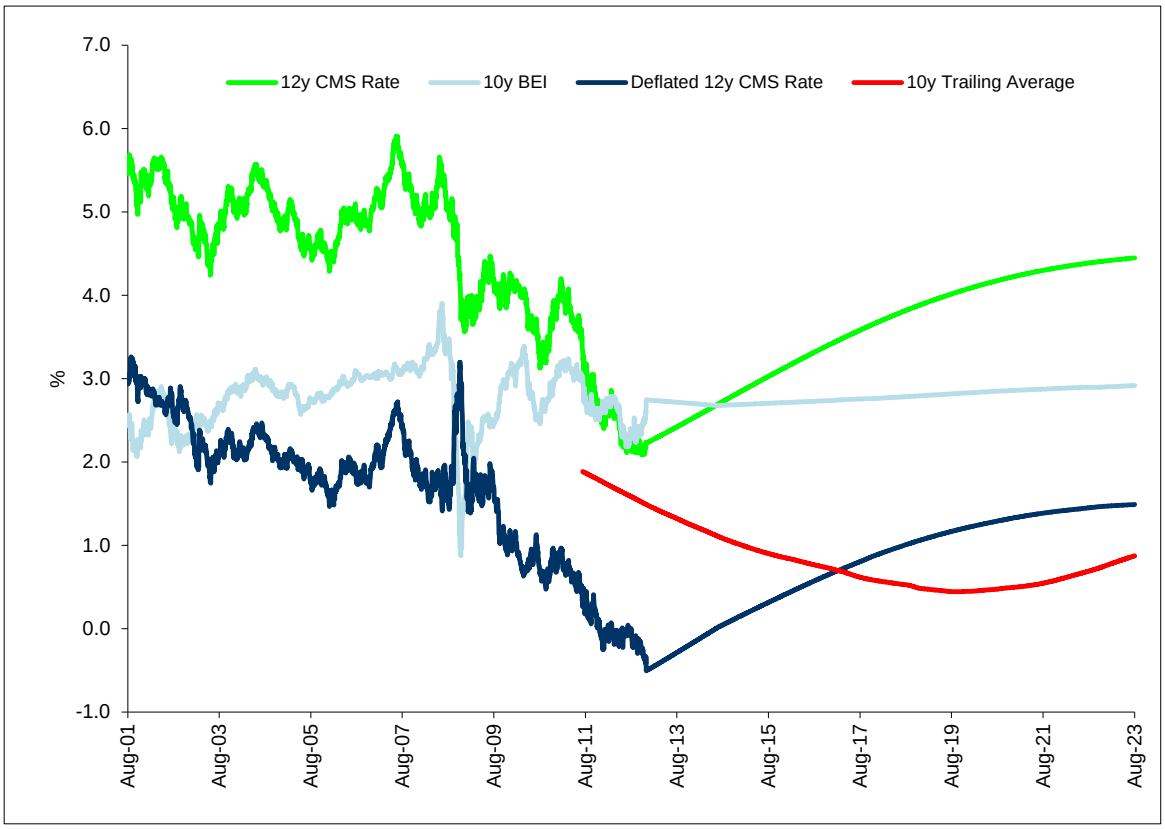
Calculating the real cost of debt used to set allowances

9.23 Under the RIIO framework, the cost of debt component of the WACC is adjusted annually to be the daily average of the last 10 years' yields on a selection of corporate bonds with maturities of greater than 10 years with the iBoxx bond index. The results are then adjusted for inflation, by deducting the implied 10-year gilt inflation break evens published daily on the Bank of England website, to produce the real cost of debt within the WACC.

9.24 The future iBoxx index levels are difficult to forecast because there is no forward curve for the iBoxx indices. Therefore, in order to calculate WPD's DNOs revenues for the RIIO-ED1 period we have asked two banks, The Royal Bank of Scotland (RBS) and Lloyds, to estimate what the iBoxx rates would show for the RIIO-ED1 period and to adjust the results for inflation.

9.25 RBS have used swap rates as a proxy of the iBoxx inputs and believe the 12 year constant maturity swap (CMS) represents a closely correlated alternative based on the implied forward swap curve. Below is a chart showing the forward projections using this calculation. Swap rates will be lower than iBoxx rates because they incorporate less of a credit risk than the corporate bonds included in the iBoxx calculation. RBS estimate that the credit spread required to reflect a 10 year maturity is approximately 140bps. If it is assumed that this was maintained at a constant level then the notional cost of debt would be the CMS plus the credit spread, i.e. CMS plus 1.4%.

9.26 The CMS forecast rates from RBS are shown below, where the deflated 12 year CMS rate is calculated as the 12 year CMS rate less break-even inflation. These deflated rates are then used together with historic information to produce the forecast RIIO-ED1 10 year trailing average before the addition of the 140bps credit spread.



Source: RBS

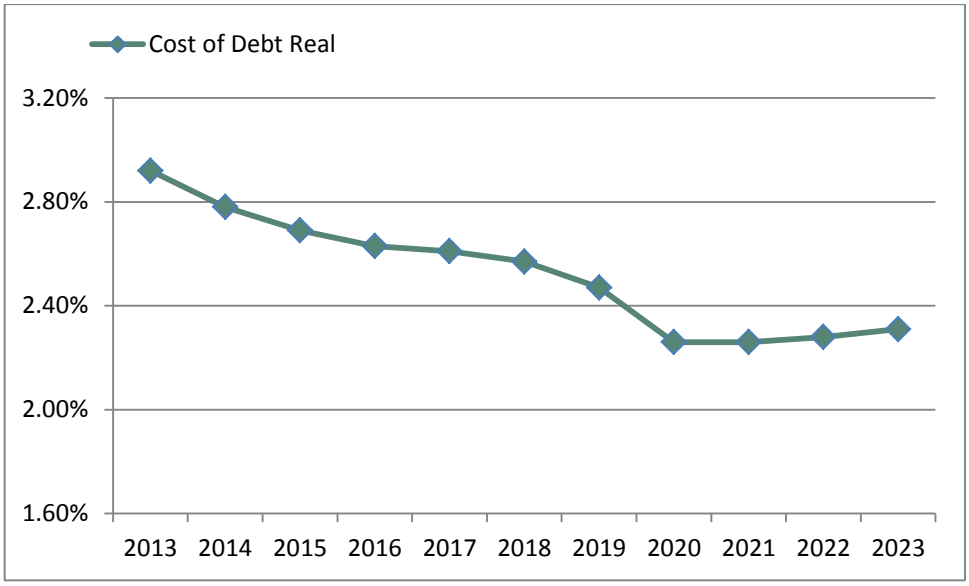
9.27 Lloyds similarly consider that constructing a forward curve for the Real Cost of Debt is cumbersome due to the complexities in modelling a forward iBoxx and Government liability curve. However, by applying a number of simplifying assumptions Lloyds use the 20 year swap rate as a proxy for the iBoxx, and both swap markets and index linked gilts to convert the nominal curves to real. In outline the method is to:

9.28 Assume benchmark maturity is 20 years i.e. the 20 year swap rate is modelled forward to form the nominal interest rate benchmark. This is based on the average duration of the iBoxx indices being approximately 22 and 17 years for the A and BBB rated indices respectively.

9.29 To this is added a credit spread to give a 'proxy' iBoxx yield. For the purposes of this representation a spread of 183bps has been assumed which is the average iBoxx A and BBB yields minus the 20 year nominal swap rate in 2012.

9.30 The nominal iBoxx settings can be determined on any given day; however for ease of presentation the below shows the 20 year swap rate at the beginning and the end of each calendar year and simply takes the average and then adds the credit spread to give an annual iBoxx setting.

9.31 Finally the forward implied inflation rate must be determined that would 'make real' the index setting. This is calculated again by taking the implied inflation rate at the beginning and end of each calendar year and taking the simple average of the two. A further adjustment to this rate is necessary as the inflation rate as implied by the gilts and the swap markets tend to be different. For 2012 the differential between the 10 year implied gilt inflation and the nominal swap inflation was 38bps and this is the implied level used below:



Source Lloyds Bank

9.32 Following the work performed by RBS and Lloyds we have used the results to calculate an estimated average annual cost of debt by taking the midpoint between the two forecasts as shown below (including credit spread). These values have been used in our financeability studies to assess the financeability of our Business Plan.

Bank Cost of Debt Forecast	2015	2016	2017	2018	2019	2020	2021	2022	2023
RBS	2.33	2.19	2.04	1.93	1.86	1.87	1.93	2.07	2.25
Lloyds	2.69	2.63	2.61	2.57	2.47	2.26	2.26	2.28	2.31
Average	**2.51**	**2.41**	**2.33**	**2.25**	**2.17**	**2.07**	**2.10**	**2.18**	**2.28**

These annual points have been calculated by taking the average of the data at the start and end of each of the respective years.

9.33 The above calculations and forecasts include numerous assumptions. Therefore to enable comparability between DNOs Business Plans we have used the most recent valid data point that has been calculated for the cost of debt, namely 2.6%. We have utilised this figure within each year of the RIIO-ED1 finance plan to produce the forecast figures.

RIIO-ED1 Cost of Debt Forecast	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Rate used in Financing Plan	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6

9.34 NERA have also looked at whether WPD would benefit from moving towards a more "weighted" debt indexation mechanism, based on actual/expected CAPEX / RAV, rather than a straight trailing average. However, they have found that the effect would be extremely small and that a ten year trailing average is considered a good index to use. (See appendix 11 for more detail).

Auxiliary costs of purchasing debt

9.35 Ofgem state that since DNOs have traditionally been able to outperform the cost of debt then there is sufficient differential to cover any auxiliary costs. These auxiliary costs could include:

- debt Issuance costs;
- liquidity management fees;
- embedded debt costs – previously efficient debt costs being higher than the iBoxx rate (if interest rates continue at low levels);
- inflation risk premium;
- EMIR regulations;
- Impact of Basel III regulations;
- Impact of Solvency II regulations;
- Procyclicity of returns.

9.36 NERA Economic consulting have looked at the so called 'Halo effect', where it is considered that utility companies benefit from a market bias, or 'halo', that allows them to issue debt more cheaply than the other similarly rated corporates and therefore justifies not allowing for issuance costs to be included in the cost of debt calculation. Their conclusion is that such an effect does not exist for DNOs and debt issuance occurs at the same price level as other corporates. (See appendix 12).

9.37 As many of these costs are derived from interacting with bank counterparties we have been in discussion with many of our relationship banks regarding this issue. We consider that we have always incurred certain auxiliary costs relating to debt issuance and do not believe that this will change in the future. There are however certain European regulations that have recently been adopted by the UK that have the potential to increase cost in particular areas. We consider that banks will pick up some of this additional cost and any cost that is subsequently passed on will not be significant.

9.38 No additional funding is required to cover these auxiliary costs.

Cost of equity

9.39 The recent history of regulatory determinations on the cost of equity is set out in the table below:

Component	DPCR5	RIIO-GD1	NGG	NGEG
Gearing	65%	65%	62.5%	60%
Risk-free rate	2.0%	2.0%	2.0%	2.0%
Equity risk premium	5.25%	5.25%	5.25%	5.25%
Equity beta	0.90	0.90	0.91	0.95
Cost of Equity	**6.7%**	**6.7%**	**6.8%**	**7.0%**

9.40 The question to determine for the Business Plan is whether there is any compelling reason to suppose that any of the estimates used to calculate the components of the Cost of Equity should be different for WPD either because market facts have changed or because there are risk factors we face that companies covered by earlier determinations do not.

9.41 Taking each of these components in turn:

Gearing – 65%

9.42 Reducing the gearing from 65% would increase costs for customers because the WACC would rise as a greater part of the business would be financed by expensive equity (compared to debt financing). However, the gearing assumption would need to be reduced if there were pressure from either Credit Rating Agencies to reduce gearing below 65% in the licenced entities in order to maintain ratings or if shareholders were being forced to inject capital or forego dividends in order to reduce the gearing below 65% because debt financing was not available.

9.43 There is currently no pressure from credit rating agencies to reduce gearing in order to maintain investment grade credit ratings for DNOs and through enquiry with the banks and debt investors (as can be seen in appendices 3 and 4), there does not appear to be a shortage of debt financing over the foreseeable period.

9.44 The work undertaken by NERA for WPD concludes that, if all else remains equal, there is insufficient volatility in the cashflows for RIIO-ED1 to justify a reduction in the gearing level for RIIO-ED1.

9.45 WPD does not have access to the decisions of other companies or investors. However, there is no evidence to suggest that there is pressure to reduce gearing at licenced entities. There is no publicly available evidence of very recent transaction in the sector, but investors in pure distribution groups i.e. WPD, NPG, UKPN and ENW may also have additional holding company debt, which is supported by the DNO. The additional debt in some cases has needed additional credit support in the form of for example parent company guarantees, credit wraps (effectively a guarantee from an insurance company), or additional debt covenants (effectively mortgaging the shares in the DNOs).

9.46 There is no evidence to suggest that the gearing level should be lowered from 65%.

9.47 We consider that raising the level above 65% could have a negative impact on DNO's ratings or ability to raise debt at a reasonable cost without special conditions.

9.48 We therefore use a 65% gearing level within our Business Plan, consistent with RIIO-GD1/T1 and DPCR5.

Risk-free rate – 2.0%

9.49 The risk-free rate is the theoretical rate of return of an investment with no risk. The risk-free rate represents the interest that an investor would expect from an absolute risk free investment over a specified period of time. The return on Government bonds is normally taken as a good proxy for the risk free rate because the likelihood of default by the Government in meeting its obligation is considered incredibly low.

9.50 Ofgem's calculation methodology in their March 2013 Strategy decision document uses an approach that is in line with WPD's rationale. The 10 and 20 year gilts (as shown above) demonstrate the movement in the nominal gilts yields. Similar to the Ofgem method if inflation over this period of 2.8% is deducted from these figures then the 20 year gilt gives an average of 1.5% and the 10 year gilt 0.4%. (The average yield of the 10 year gilt of 0.4% is based upon only 4 years of data as it is referenced to the current 10 year gilt that was issued in February 2009. The Ofgem calculated rate for 10 year gilt incorporates the former Government 10 year debt instrument that existed prior to that date and had a higher yield. If this past data is taken into account then the figures would more closely align with Ofgem's.)

9.51 Work undertaken by NERA has shown that they believe the risk free rate is within a range of 1.2% to 2.1% (See appendix 13).

9.52 On this basis WPD agree with the Ofgem risk free rate. Based upon the recent Transmission and Gas Distribution Review and also on the level as used in DPCR5 a level of 2.0% is appropriate.

Equity risk premium – 5.25%

9.53 The equity risk premium is the additional return than an investor would expect over and above the risk free rate. The excess return compensated the investor for taking a higher risk than the risk free rate will provide and this acts as an incentive (and compensation) for an investor to buy into equity.

9.54 Calculating this premium, especially at time of financial uncertainty, is difficult. The approach that Ofgem has taken in its strategy document is practical and the range of 4.75% to 5.50% is reasonable.

9.55 NERA have undertaken some analysis of this area and consider that a range of 5.0% to 5.5% is appropriate (see appendix 13).

9.56 Based upon the above, the RIIO-T1 and RIIO- GD1 final proposals, and the value used in DPCR5, a level of 5.25% is the right equity risk premium.

Equity beta – 0.90

9.57 The equity beta is a measure of an equity share's volatility in relation to the equity market. The market is given a beta of 1.0 and individual shares are ranked according to how much they deviate from the market. Shares with a beta higher than 1.0 are considered more risky than the market as a whole and those with a beta of less than 1.0 are less risky than the market as a whole.

9.58 As no pure UK DNO groups or companies shares are traded on any equity market the equity beta has to be estimated by econometricians or by looking at the next closest comparators i.e. the listed shares of water companies and large electric utilities such as National Grid or SSE.

9.59 Equity betas are difficult to use as a prediction of the future as they are largely based upon past performance of a company's shares and does not readily incorporate new corporate information.

9.60 NERA have looked at the asset beta of the DNOs that can be turned into as equity beta (see appendix 13 for the NERA paper and appendix 14 for the calculation). Their predicted range of equity betas is 0.95 to 1.10.

9.61 For DPRC5 and RIIO-GD1 the equity beta used was 0.90.

9.62 On the basis of the above the Ofgem range of 0.90 to 0.95 is reasonable. For the Business Plan we have adopted the lower end of the range of 0.90.

Cost of equity – 6.4%

9.63 Several studies undertaken by econometric consultants, including those First Economics, Oxera and NERA, show how the cost of equity components can be provided (see Appendix 13 for NERA report). The studies produce ranges of values for each component which are tabulated below as calculated by NERA:

Component	Low	High
Risk-free rate	1.2%	2.1%
Equity risk premium	5.00%	5.50%
Equity beta	0.95	1.10

9.64 Ofgem have suggested the ranges set out below:

Component	Low	High
Risk-free rate	1.7%	2.0%
Equity risk premium	4.75%	5.50%
Equity beta	0.90	0.95

9.65 Taking the lowest and highest from each line the total ranges produced are these:

Component	Low	High
Risk-free rate	1.2%	2.1%
Equity risk premium	4.75%	5.50%
Equity beta	0.90	1.10

9.66 The DPCR5 result and the RIIO-ED1 proposals both fall comfortably within these ranges. We do not believe there are any specific factors to distinguish WPD or any other DNO in a way that would require the studies to be reworked.

9.67 It could be argued that the mid-point of each range should be taken. However, if the range is acceptable then each point on the range should also be acceptable and consistency with both DPCR5 and RIIO-ED1 is more important in assuring investors that the regulatory environment is stable.

9.68 We initially used a cost of equity in our Business Plan for RIIO-ED1 of 6.7%, which is the same as used in both DPCR5 and RIIO-GD1; this updated plan assumes a 6.4% cost of equity in line with Ofgem's decision to fast track Western Power Distribution document dated 28th February 2014.

Equity injections

9.69 WPD do not propose to have any equity injections during the RIIO-ED1 period.

9.70 Since WPD will not be issuing any equity, there will not be a need for any ex-ante allowance to cover the cost of issuing equity.

9.71 In order to remain within the overall credit ratios targets, dividends will be reinvested or foregone to ensure that new equity from our ultimate parent does not need to be raised, i.e. we do not expect there to be a need for any market issued equity because any additional equity will be added by the shareholder not receiving their return on equity.

Weighted average cost of capital

9.72 The Weighted average cost of capital or WACC is the return that a company is required to earn on its asset base in order meet the financing obligations of those assets e.g. bond interest payments, shareholder dividends, bank interest, etc.

9.73 In this document we have used the assumptions in Ofgem's decision to fast track Western Power Distribution document. This gives a real WACC as shown below:

	RIIO-ED1 WACC
Cost of debt (Pre-tax)	2.6%
Cost of equity (Post-tax)	6.4%
Gearing (leverage)	65%
WACC (Vanilla)	3.9%

Credit rating scenarios/sensitivities

9.74 We have used NERA Economic Consulting to test the Business Plan to ensure that we can achieve credit ratios that are consistent with a 'comfortable investment grade' credit rating (i.e. in the BBB to A range). The plan has been tested under a range of reasonable scenarios with differing assumptions being applied within numerous Monte-Carlo simulations. We have tested that the Business Plan is consistent with achieving a range of returns on regulatory equity ("RORE") with the lowest RORE value being the equivalent to the cost of debt and the highest value being in the low double digits (both figures are in real post-tax terms).

9.75 The results of this work can be seen in appendix 6. This demonstrates that WPD remain within the range of investment grade but without achieving ratios that could be considered excessively strong at customers' expense.

9.76 We have also asked the credit rating agencies to review our Business Plan and they have informally indicated they consider WPD to be able to maintain its level of credit rating.

Stakeholder evaluations

9.77 In order to assess the impact of the changes in RIIO-ED1 on WPD we have undertaken a round of meetings with banks and debt investors, along with accompanying questionnaires (see appendices 1 and 2). The purpose of these meetings and the questionnaires was to better understand the external risks that WPD may face e.g. market risk, pricing risk, liquidity risk, tenor risk.

9.78 The results of the questionnaire are summarised in appendices 3 and 4.

10 Evolution of the regulatory asset value (RAV)

10.1 This section sets out the approach we have taken in the Business Plan for additions to the regulatory asset value (RAV). The main factors discussed below are:

- Capitalisation ;
- Depreciation (including transitional arrangements).

Capitalisation

10.2 Under the RIIO framework, a fixed proportion of core expenditure costs (totex) are added (capitalised) to RAV in order to ensure all DNOs face equal incentives in choosing between operating and capital solutions. The percentage of core expenditure costs capitalised reflects the expected share of each DNO's capital expenditure in total costs, to ensure that current and future consumers bear a fair share of costs.

10.3 In DPCR5 all core expenditure costs, with the exception of business support costs and non-operational capital expenditure, are capitalised at a rate of 85% (known as "slow pot") and 15% funded in the year they are incurred (known as "fast pot"). Business support costs and non-operational capital expenditure are treated entirely as fast pot.

10.4 For RIIO-ED1 any outstanding boundary issues have been removed and now all core expenditure costs, including business support costs and non-operational capital expenditure, are included in the capitalisation process and will have the same capitalisation rate applied to them.

10.5 We consider that a capitalisation rate of 80% for all core expenditure costs for our four DNOs is appropriate in RIIO-ED1. This rate approximates to the same capitalisation regime as experienced in the DPCR5 price review period:

- in DPCR5 pension deficit payments were treated as fast pot. We are assuming that pension deficit payments are also treated as fast pot in RIIO-ED1;
- the combined amount of 20% core expenditure cost and pension deficit payments treated as fast pot in RIIO-ED1 is close to the amount in DPCR5.

10.6 WPD does not consider that any fundamental changes have occurred in the business to materially alter the capitalisation rate. It could be argued that a decrease in the capitalisation percentage could help cash flow in the short term that inefficient businesses may require. Whereas an increase in the capitalisation rate may be preferred by investors, owners and other stakeholders who wish to see actual growth in the regulatory asset base and therefore the value of the business.

10.7 In our business risk modelling we have looked at different capitalisation rates in order to better understand how these would impact WPD's finances and credit ratings. Through this process we have concluded that more fast money (using a lower capitalisation rate) would help ratios in the short term and provide strong credit metrics, but this would be to the detriment of customers who would be paying more for little or no real gain.

Depreciation including transitional arrangements

10.8 The proposed asset lives arrangement in the RIIO-ED1 price control period are for all new electricity assets to be depreciated over 45 years, whilst all existing assets continue to be depreciated over the current lives of 20 years.

10.9 As part of the Business Plan risk modelling we have looked at the movement in the asset lives and how they impact on the financeability of the WPD companies.

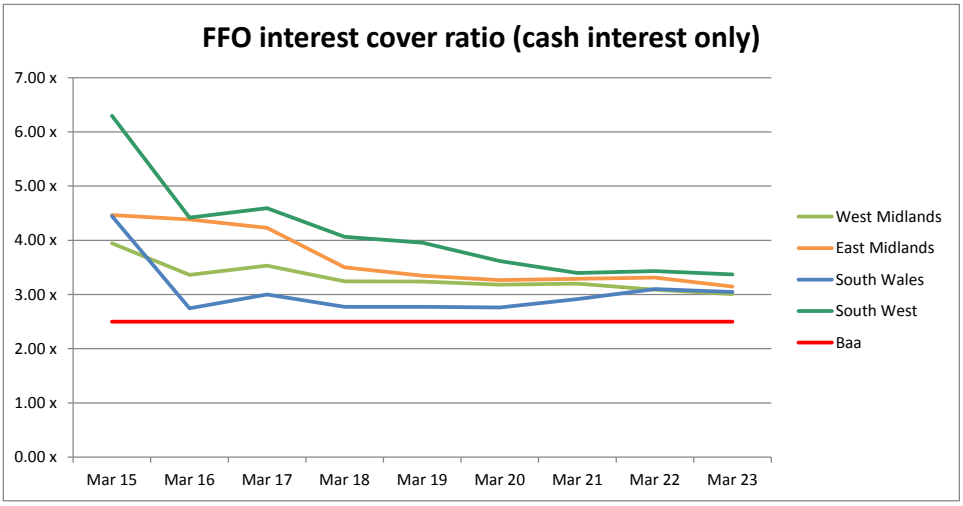
10.10 Regulatory asset lives should be more closely aligned with their economic lives; however an immediate transition causes a financial shock to WPD's credit ratings. (See appendix 6).

10.11 We have undertaken financial modelling looking at other potential options, such as having 35 year asset lives for additions in the RIIO-ED1 period only and then moving to the 45 year asset lives in subsequent periods. (See appendix 6).

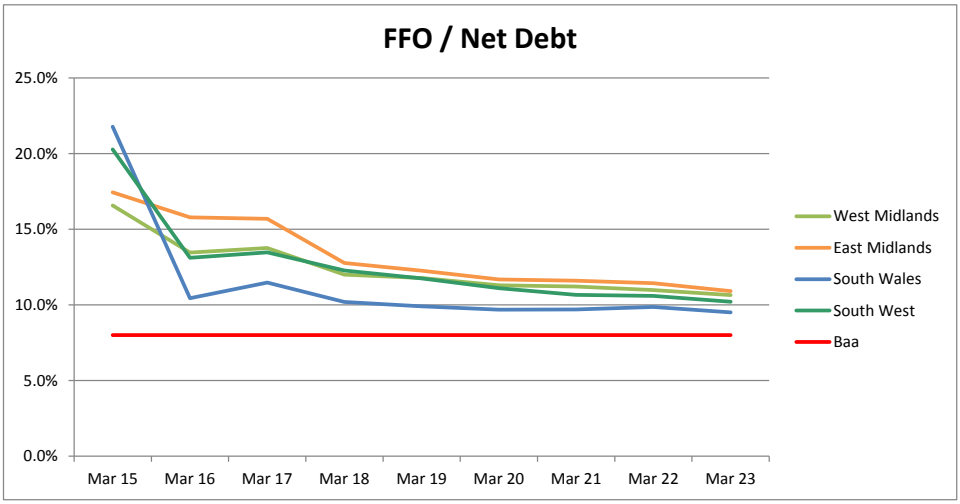
10.12 We consider that a transitional approach over the eight years of the RIIO-ED1 period is most appropriate. This will be done on a straight line basis moving from 20 years at the end of the DPCR5 period to 45 years at the end of the RIIO-ED1 period, creating an average of just under 35 years over the period. The transition is the same as that used in NGET's final proposals.

10.13 As can be seen below, we have modelled the transitional approach and it does assist the credit metrics (compared to a straight move to 45 years). The improvement is sufficient to enable WPD to maintain its investment grade credit rating rather than strongly outperform the metrics, therefore demonstrating that the requirement is not excessive.

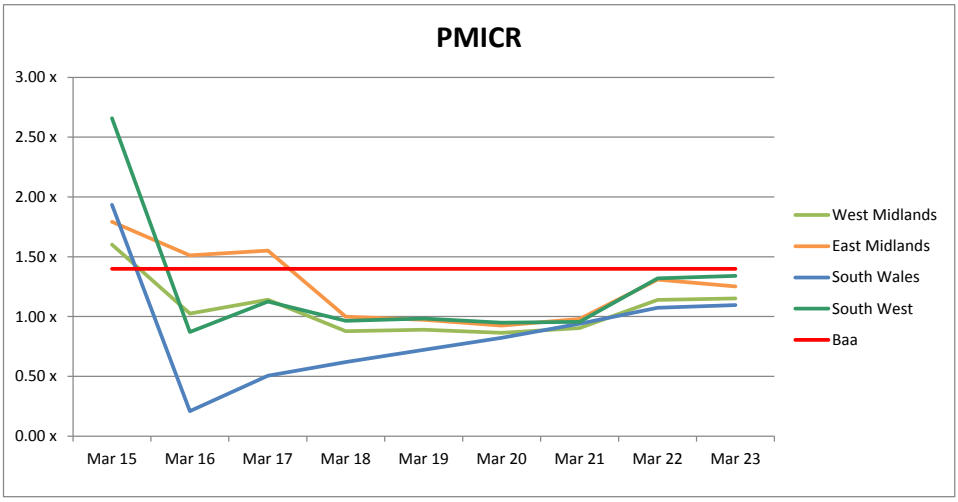
10.14 The straight move to a 45 asset life at the start of RIIO-ED1 gives the below metrics:



Source: WPD

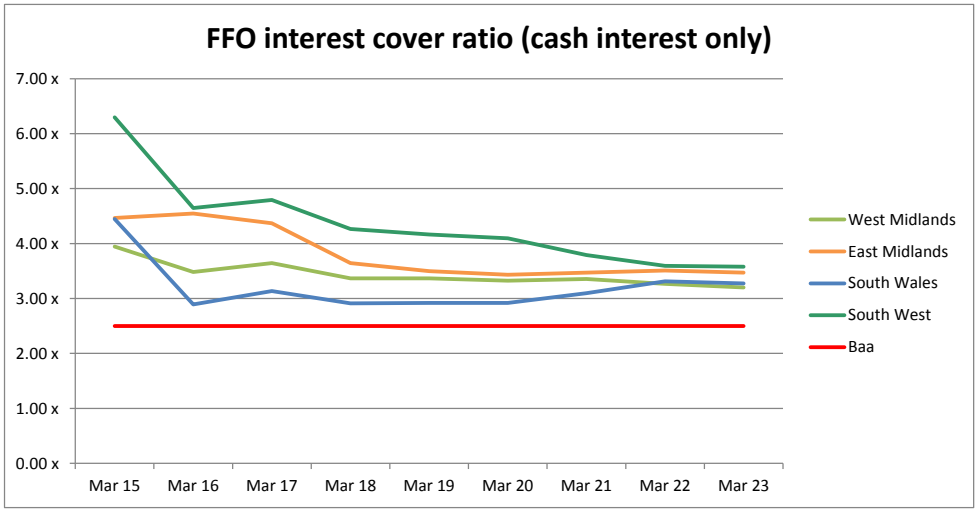


Source: WPD

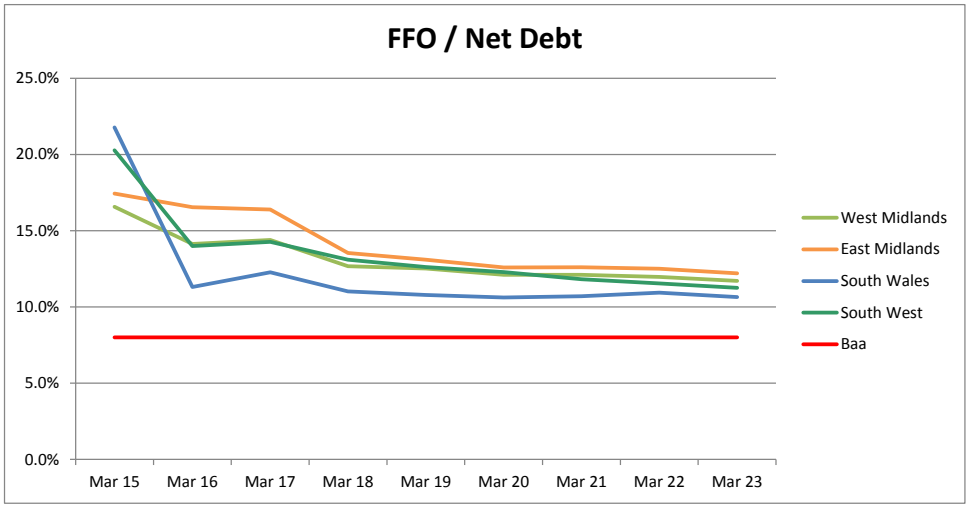


Source: WPD

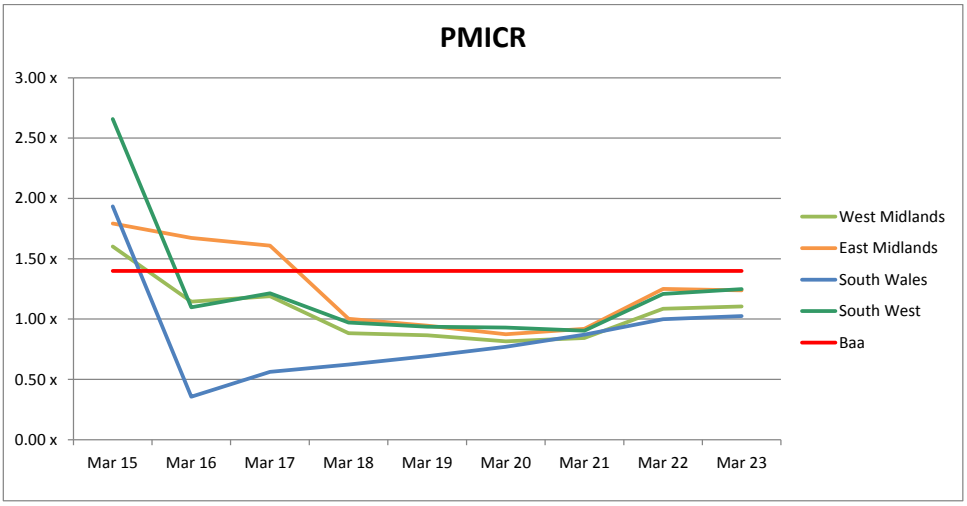
10.15 As can be seen below the transitional move to 45 years improves the metrics overall:



Source: WPD



Source: WPD



Source: WPD

10.16 In RIIO-T1, the price control for transmission companies, transitional arrangements are in place whereby SHETL, SPTL and NGET respectively have 16, 8 and 8 year transitional periods on new assets, with all three having a gradual increase in asset lives from 20 to 45 years.

10.17 We have adopted the NGET transitional arrangement which has a linear increase in asset lives from 20 to 45 years within one price control period:

Asset life applied to assets acquired in each year of RIIO-ED1								
2015/16	**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**Average**
23.1	26.3	29.4	32.5	35.6	38.8	41.9	45.0	34.1

10.18 This equates to an average asset life for new assets (i.e. slow pot additions) in RIIO-ED1 of just over 34 years, which we have rounded up to 35 years. We require this transitional arrangement in order to ensure we achieve credit ratios that will maintain a minimum credit agency rating of BBB/Baa2 for our four DNOs.

11 Related party costs

11.1 All four of the WPD DNOs are part of the same corporate group. For reasons of efficiency, the DNOs operate as an integrated distribution business, with most corporate functions centralised in one of the DNOs (primarily South West). That DNO provides services to the other DNOs, the costs of which are charged to those other DNOs on an arm's length basis.

11.2 WPD also operates a single banking system with Western Power Distribution (South West) plc acting as the banker for the rest of the Group. Therefore any monies received from third parties or payable to third parties in the normal course of business use the South West bank account. Any monies outstanding to or from South West are recognised within the ledger of the respective company and interest is charged on a monthly basis. In line with licence requirements these 'trading balances' are repaid from time to time.

11.3 If money is to be loaned to another group company i.e. not a DNO, it has to first meet the regulatory requirements as a permitted company and then the terms of the loan will be made on an arms' length basis at the prevailing market rate. E.g. LIBOR or the Bank of England Base rate plus a market margin.

11.4 For each of the above related party cost transfers WPD has robust guidelines in place that have been reviewed by legal counsel to ensure they meet legal requirements as well as the regulatory ones. Appendices 15 and 16 respectively show the inter-group facility agreement and the related WPD policy respectively.

12 Taxation

Basis of tax modelling

12.1 We have modelled tax using the principles set out in current UK tax legislation and based on profits that have been calculated according to International Financial Reporting Standards.

12.2 Following the announcement by the Chancellor in March 2013 that the corporation tax rate will reduce to 20% with effect from 1 April 2015, we have used this rate in modelling the tax charge in the Business Plan.

12.3 Capital allowances have been claimed at the rates as set out in current legislation. Tax allowances for capital expenditure that is treated as deferred revenue expenditure for tax purposes are calculated at 2% of cost assuming a 50 year life on average. Ofgem in their modelling treat these assets as having an average life of 45 years for tax purposes.

12.4 Tax for price control purposes is on a cash basis so we have ignored deferred tax.

Allocation of expenditure to capital allowances pools

12.5 Total expenditure has been allocated to the various tax pools on the basis of the pattern of spend for each individual DNO rather than using a generic pattern as adopted by Ofgem.

12.6 This basis of allocation gives a more representative calculation of the cash tax payable for each company compared with a generic allocation set by Ofgem as each company has historic differences and associated expenditure profiles.

12.7 The March 2013 closing pool balances as used in the regulatory accounts for that period have been rolled forward to 31 March 2015 using the forecast of expenditure split in the Business Plan.

Generic versus specific attributions to tax pools

12.8 Ofgem will determine generic attributions to capital allowance pools based on an analysis of the Business Plans as submitted and apply these to all DNOs including those recommended for the fast-track approach.

12.9 We do not have the information needed to perform a generic allocation because companies' Business Plans have not yet been submitted.

12.10 The use of generic pools based on the Business Plans to 2023 may not reflect the actual tax cost if:-

- Companies' plans are not accurate, and
- Companies do not have a homogenous asset acquisition strategy if, for example, they purchase rather than lease vehicles.

12.11 We have used our actual attribution to tax pools based on the expenditure forecast.

Timing of tax payments

12.12 Ofgem have proposed moving from modelling tax cash flows on a tax statutory basis to modelling cash flows on the basis of the change incurred in the year. Under the statutory basis, half the tax is paid in the year the liability arises with the other half due in the following year. Ofgem will consider a compensating adjustment where a DNO forecasts that it will be materially disadvantaged.

12.13 Using Ofgem's formula for calculating the effect as set out in Table F14a in the Financial Issues ED1 Business Plan data tables, the excess to be considered for adjustment is:-

- WPD South West £9.28m
- WPD South Wales £7.84m

12.14 We have made this adjustment in WPD South West and WPD South Wales. There is no excess for WPD East Midlands or WPD West Midlands.

Adjustments following Ofgem review

12.15 Following the review by Ofgem of WPD's Business Plan, the associated Business Plan Data Templates and the Price Control Financial Models (PCFM), changes were made to the tax allowance to align with the final PCFM. These changes relate to tax pool allocation categories, tax allowance calculations and implied interest calculations.

13 Business rates

13.1 We have assumed that the next revaluation will take effect in England and Wales in 2017/18, and that rateable values will increase in line with projected RAV increases. We have also assumed that the same transitional relief mechanism will apply as for the 2010 revaluation i.e. first year cap of 12.5% increase, second year 17.5% and third year 20%.

13.2 Our forecast assumptions follow the approach recommended by Gerald Eve (chartered surveyors and commercial property consultants) in their letter to WPD dated 16th April 2013 which is attached in appendix 17.

13.3 The full impact of the next forecast revaluation is to increase business rates by 17% in RIIO-ED1 period; as detailed below by DNO:

Annual business rates (£m)									
	2015/16	**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**Total**
West Midlands	25.7	25.7	29.0	34.0	40.4	40.4	40.4	40.4	276.0
East Midlands	34.0	34.0	38.2	44.9	52.9	52.9	52.9	52.9	362.7
South Wales	15.1	15.1	19.1	19.1	19.1	19.1	19.1	19.1	144.8
South West	14.4	14.4	16.2	19.0	20.6	20.6	20.6	20.6	146.4
WPD Total	**89.2**	**89.2**	**102.5**	**117.0**	**133.0**	**133.0**	**133.0**	**133.0**	**929.9**

13.4 We will endeavour, as in previous revaluations, to ensure that business rate charges made on the four WPD DNOs are minimised in the next revaluation review.

14 Pensions

Business context

14.1 In 2003, Ofgem set out their pension principles for the treatment of pension costs and applied these through three successive price control reviews – covering electricity distribution, gas and electricity transmission and gas distribution. Following a detailed review of the pension schemes of all of the price controlled energy networks in 2008 and 2009, Ofgem published their conclusions in DPCR5 Final Proposals applying solely to electricity distribution.

14.2 In 2010, Ofgem published a further document 76/10 dated 22 June "Price Control Treatment of Network Operator Pension Costs under Regulatory Principles".

14.3 In December 2012, Ofgem published an open letter consultation on their proposed Pensions Deficit Allocation Methodology (PDAM). The letter made it clear that Ofgem's funding commitment does not cover the cost of future service of those employees still active in the scheme after the relevant cut-off dates for each price control, i.e. the incremental deficit, or that related to non-regulated activities. The PDAM was formally introduced by Ofgem on 12th April 2013.

Pension defined benefits costs - General

14.4 WPD has prepared a forecast of its pension costs for the WPD and Central Networks Groups defined benefit (DB) schemes – the two schemes where there is an element relating to the distribution business. These are both groups within the Electricity Supply Pension Scheme (ESPS). Both DB schemes are closed to new members.

14.5 The forecasts are based on the most recent Actuarial Valuations (WPD Group as at 31/03/10 and Central Networks Group as at 30/06/11) rolled forward to 31/12/12. The updated roll forward valuation has been prepared and certified by the scheme actuary in accordance with the guidelines set out in Appendix 6, paragraph 1.38 of the RIIO-ED1 Strategy Decision Document. The reports can be found in Appendices 18 and 19.

14.6 The projected deficits based on independent actuaries' estimates calculated in accordance with the above for our two schemes at 31st December 2012 are:

- WPD Group £893m (of which £881m is 31 March 2010 deficit)
- Central Networks Group £577m (of which £570m is 31 March 2010 deficit)

14.7 The pension deficit repair payments to be made in our plan relating to the deficits referred to above are set out in the table below:

Deficit repair payments (existing deficit) (£m)					
	CN Group of ESPS		WPD Group of ESPS		
	West Midlands	East Midlands	South Wales	South West	WPD Total
DPRC5 Annual Average	21.0	20.6	21.4	34.5	97.5
RIIO-ED1 Annual Average	31.4	30.8	35.8	57.8	155.8
RIIO-ED1 Total (8 years)	**250.9**	**246.2**	**286.3**	**462.6**	**1,246.1**

14.8 It should be noted that markets have been very volatile between 31 March 2012 and 31 March 2013 and so there may be a material variance between the forecasts determined on a "Roll-Forward" basis and the actual outturn of the 2013 actuarial valuations. Any differences

between the forecast and the actual outturn valuation will be taken into account in the 2014 Reasonableness Review prior to setting the RIIO-ED1 pension allowances.

14.9 It should be noted that the above forecasts will be subject to the DPCR5 true-up process and the Annual Iteration Process as set out in appendix 6 of the RIIO-ED1 Strategy Decision Documents (26d/213) and in subsequent triennial actuarial valuations.

14.10 All pension costs are reported on a cash basis, i.e. cash payments of contributions, Pension Protection Fund (PPF) levies, pension scheme administration costs and deficit funding by the licensee.

14.11 The pension costs are projected as required in the Instructions for Completing ED1 Financial Issues Business Plan Data Templates.

14.12 The projected ongoing pension costs from 1st April 2015 onwards are included in our plan are set out below:

Ongoing pension costs – Final salary schemes (£m)					
	CN Group of ESPS		WPD Group of ESPS		
	West Midlands	**East Midlands**	**South Wales**	**South West**	**WPD Total**
DPRC5 Annual Average	10.4	9.8	7.4	11.9	39.5
RIIO-ED1 Annual Average	8.5	8.5	7.1	11.3	35.4
RIIO-ED1 Total (8 years)	**67.8**	**67.6**	**57.1**	**90.5**	**283.0**

Derivation of pension defined benefits costs

14.13 Having determined the projected ongoing deficit based on the 31 December 2012 updates it is assumed that at the 31 March 2013 valuations the Trustees will be consistent with each scheme's Statement of Funding Principles and/or Statement of Investment Principles. (See appendices 20 and 21.)

14.14 The Business Plan assumes that the projected ongoing deficit as at 31 March 2013 will be repaired over 10 years from 1st April 2014 which is the period agreed with the Trustees and accepted by the Pension Regulator (TPR) in the deficit recovery plan relating to the June 2011 CN Group Inaugural Triennial Valuation.

Reporting of pension defined benefits costs

14.15 Projected payments related to the former Electricity Association (EASL or EATL) pension liabilities are excluded from the Pensions section of this Business Plan and as they are not pension costs of the distribution business. They are reported as atypical operating costs in the main Cost RIG tables.

14.16 We report total pensionable pay of active members employed in the distribution business of the primary DB scheme only. Defined Contribution (DC) pension costs are discussed below.

14.17 WPD does not operate a salary sacrifice system. Employee contributions do not therefore include a salary sacrifice element and are projected in millions of Pounds Sterling (£m). It should be noted that the £m might not necessarily equate to "Total Pensionable Pay in £m x Employee Contribution Rate (expressed as a percentage)" because some employees – e.g. employees who joined after the schemes were closed or those with over 40 years' service but who are under normal retirement age do not pay employee contributions.

14.18 We break down the total normal employer's contributions for the relevant scheme to show ongoing costs, PPF levy and scheme administration costs.

14.19 The Business Plan does not include any pension related severance costs.

14.20 The Business Plan does not include making direct payments for pension hedging and contingent asset costs.

14.21 The Regulatory Fraction is the proportion of the company's pension scheme funded through the price control mechanism and is applied to the deficit at 31 March 2010 (The Established Deficit). The regulatory fraction is calculated in accordance with the PDAM.

14.22 Overall this means that subject to the Reasonableness Review, subsequent valuations and the annual iteration process, 78.6% of the WW Group 2010 deficit and 80.9% of the CN Group 2010 established deficit will be funded through allowed revenues. Similarly, 91.6% of the WW Group Incremental Deficit and 93.4% of the CN Group Incremental Deficit will be funded through allowed revenues.

14.23 The Incremental Deficit is the portion of the deficit relating to the period since 31 March 2010). Funding requirements of the incremental deficit for DB schemes have been calculated on the roll-forward basis in accordance with the PDAM dated 12 April 2013. Copies of the Scheme Actuary's Report and certificates are included in Appendices 22 and 23.

14.24 The Established Deficit is attributed to each licensee and the regulatory fraction is applied. The DNO element of the Incremental Deficit is then attributed to each licensee and treated as part of totex and attributed across cost categories – e.g. DUoS and non-DUoS. The method of attribution is taken from the Costs and Volumes tables consistent with the attribution of ongoing pension costs.

Pensions defined contribution schemes

14.25 The employer's cash contribution for the primary DC scheme, the WPPS 2010 Section is also included the Business Plan. The contribution rates into the scheme vary and so we have used an average contribution percentage based on the 31 December 2012 actuals that is adjusted to reflect (1) the replacement of ESPS members by members of the DC scheme as ESPS members retire and (2) the projected rise in total employees according to the operational requirements projected elsewhere in this Business Plan.

14.26 The defined contribution pension costs included in our plan are set out below:

Ongoing pension costs – Defined contribution schemes (£m)					
	West Midlands	**East Midlands**	**South Wales**	**South West**	**WPD Total**
DPRC5 Annual Average	0.7	0.8	0.2	0.4	2.1
RIIO-ED1 Annual Average	2.1	2.1	0.7	1.0	5.9
RIIO-ED1 Total (8 years)	**16.9**	**16.9**	**5.2**	**8.3**	**47.3**

Pension Protection Fund levies

14.27 We have estimated the PPF Levies for the CN and WPD Groups for 2013/14 in line with the PPF's most recent guidance as at 31 December 2012. We assume that ESPS PPF Levies remain constant at 2.4% for WPD and 1.7% for CN. These payments are included in the employer's contribution to ongoing expenses.

14.28 Each pension scheme's administration costs remain a constant fraction of pensionable pay as determined in the most recent actuarial valuations.

14.29 In line with current ESPS practice, investment management fees and expenses are included in the expected return on assets (ERoA) assumed for each scheme.

Derivation of pension defined benefits allowances

14.30 Having determined the Ongoing Deficit based on the 31/12/12 update in each scheme, we then subtract the Incremental Deficit.

14.31 The appropriate Regulatory Fraction is then applied to the balance to determine the Established Deficit and in accordance with the guidance set out in DPCR5 and the June 2010 Pension document we use Ofgem's Factors Method to determine the Annual Allowance in 2012/13 money assuming a funding period of 12 years from 1st April 2013 and a discount factor of 2.6%. This plan includes allowances for 8 of these 12 years (the RIIO-ED1 period) as shown previously in this document, and will be subject to review and possible variation, as previously stated.

14.32 The projected Annual Allowance for the Established Deficit is then allocated to "Fast Money" and the projected cost of funding the Incremental Deficit is allocated to totex.

14.33 It should be noted that after the submission of WPD's Business Plan in June 2013, Ofgem applied an adjustment to the RIIO-ED1 Pension Deficit Repair Allowance included in our plan. This adjustment was made to the Established Deficit before the application of the Factors Method described above, and is therefore included in the Annual Allowance for the RIIO-ED1 period.

De-risking and contingent assets

14.34 De-risking is assumed to occur within the scheme by increasing the level of liability matching assets as the funding level improves.

14.35 WPD does not envisage the use of Contingent Assets for de-risking purposes and accordingly no allowances are being sought.

True-ups

14.36 True-ups in respect of DPCR5 to date have been agreed with Ofgem (subject to the 2014 Reasonableness Review) and the results included in the plan.

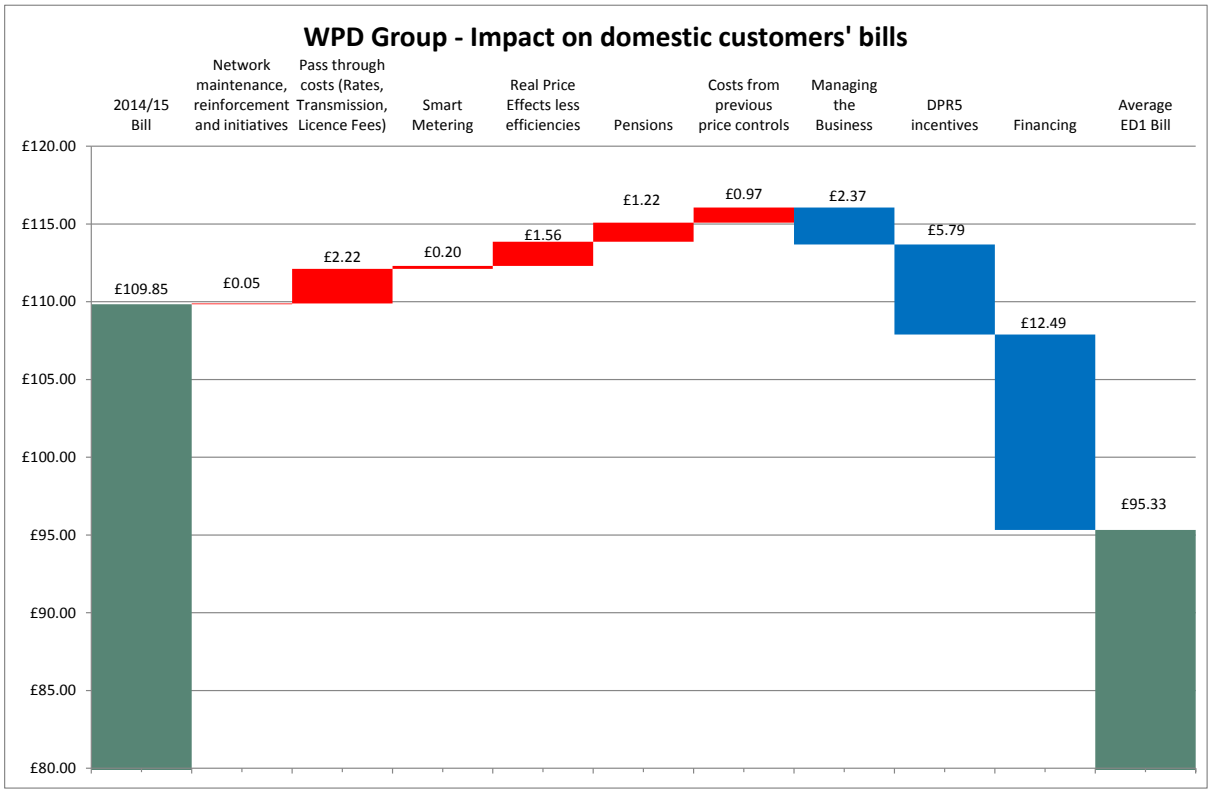
15 Impact on customers' bills

15.1 Within this Business Plan we set out detailed forecasts for the costs of carrying out the plan and the financing costs we incur to enable us to do so.

15.2 Over RIIO-ED1 our charges reduce by an average of 13.2% before inflation.

Impact on customers' bills

15.3 The change in bills is driven by a number of key areas of expenditure. This is shown for domestic customers in the chart below for our four DNOs combined:



Source: WPD

15.4 For our four DNOs the detailed impact on both domestic and business customers' bills is shown below:

How this will impact domestic customer bills

In 2012/13 prices

WPD West Midlands	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Percentage change in distribution costs	n/a	-10.2%	0.9%	-5.4%	1.0%	1.0%	1.0%	1.0%	1.0%
Annual change in £'s	n/a	-£10.29	£0.81	-£4.97	£0.88	£0.87	£0.88	£0.89	£0.89
Total distribution charge	£101.17	£90.88	£91.69	£86.72	£87.60	£88.47	£89.35	£90.24	£91.13

WPD East Midlands	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Percentage change in distribution costs	n/a	-8.2%	0.9%	-4.1%	1.0%	1.0%	1.0%	1.0%	1.0%
Annual change in £'s	n/a	-£7.26	£0.74	-£3.34	£0.78	£0.78	£0.80	£0.81	£0.81
Total distribution charge	£88.11	£80.85	£81.59	£78.25	£79.03	£79.81	£80.61	£81.42	£82.23

WPD South Wales	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Percentage change in distribution costs	n/a	-22.7%	0.9%	-1.2%	1.0%	1.0%	1.0%	1.0%	1.0%
Annual change in £'s	n/a	-£28.73	£0.89	-£1.19	£1.01	£0.97	£0.99	£0.98	£1.02
Total distribution charge	£126.28	£97.55	£98.44	£97.25	£98.26	£99.23	£100.22	£101.20	£102.22

WPD South West	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Percentage change in distribution costs	n/a	-17.0%	0.9%	-0.5%	1.0%	1.0%	1.0%	1.0%	1.0%
Annual change in £'s	n/a	-£23.35	£1.06	-£0.58	£1.17	£1.15	£1.16	£1.17	£1.18
Total distribution charge	£137.52	£114.17	£115.23	£114.65	£115.82	£116.97	£118.13	£119.30	£120.48

WPD Total (weighted average)	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Percentage change in distribution costs	n/a	-13.4%	0.9%	-3.3%	1.0%	1.0%	1.0%	1.0%	1.0%
Annual change in £'s	n/a	-£14.69	£0.87	-£3.14	£0.94	£0.94	£0.94	£0.95	£0.96
Total distribution charge	£109.85	£95.16	£96.03	£92.89	£93.83	£94.77	£95.71	£96.66	£97.62

Notes

1 Revenues are profiled on a "Po/x basis"; revenues fall in 2015/16 and thereafter increase by 1.0% in real terms other than for DPCR5 IIS
2 DPCR4 losses excluded because of uncertainty
3 Smart metering included
4 K factor included in 2014/15
5 DPCR5 tax trigger impact included in 2014/15 and thereafter zero
6 DPCR5 IIS included in 2014/15, 2015/16 and 2016/17 and thereafter zero
7 IFI and LCNF included for DPCR5; NIA and NIC excluded for RIIO-ED1
8 Domestic bill represents Profile 1

How this will impact business customer bills

In 2012/13 prices

WPD West Midlands	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Percentage change in distribution costs	n/a	-10.2%	0.9%	-5.4%	1.0%	1.0%	1.0%	1.0%	1.0%
Annual change in £'s	n/a	-£24.79	£1.95	-£11.97	£2.11	£2.11	£2.10	£2.14	£2.16
Total distribution charge	£243.71	£218.91	£220.86	£208.89	£211.01	£213.12	£215.22	£217.36	£219.52

WPD East Midlands	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Percentage change in distribution costs	n/a	-8.2%	0.9%	-4.1%	1.0%	1.0%	1.0%	1.0%	1.0%
Annual change in £'s	n/a	-£18.30	£1.87	-£8.44	£1.97	£1.98	£2.00	£2.03	£2.04
Total distribution charge	£222.01	£203.71	£205.58	£197.14	£199.11	£201.09	£203.10	£205.13	£207.17

WPD South Wales	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Percentage change in distribution costs	n/a	-22.7%	0.9%	-1.2%	1.0%	1.0%	1.0%	1.0%	1.0%
Annual change in £'s	n/a	-£85.85	£2.66	-£3.58	£3.04	£2.91	£2.94	£2.94	£3.04
Total distribution charge	£377.44	£291.59	£294.25	£290.67	£293.70	£296.61	£299.55	£302.49	£305.54

WPD South West	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Percentage change in distribution costs	n/a	-17.0%	0.9%	-0.5%	1.0%	1.0%	1.0%	1.0%	1.0%
Annual change in £'s	n/a	-£51.77	£2.34	-£1.29	£2.60	£2.54	£2.57	£2.60	£2.63
Total distribution charge	£304.88	£253.11	£255.45	£254.16	£256.76	£259.31	£261.88	£264.48	£267.10

WPD Total (weighted average)	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Percentage change in distribution costs	n/a	-13.4%	0.9%	-3.3%	1.0%	1.0%	1.0%	1.0%	1.0%
Annual change in £'s	n/a	-£36.94	£2.18	-£7.91	£2.37	£2.35	£2.36	£2.39	£2.42
Total distribution charge	£276.37	£239.44	£241.62	£233.71	£236.09	£238.43	£240.80	£243.19	£245.61

Notes

1 Revenues are profiled on a "Po/x basis"; revenues fall in 2015/16 and thereafter increase by 1.0% in real terms other than for DPCR5 IIS
2 DPCR4 losses excluded because of uncertainty
3 Smart metering included
4 K factor included in 2014/15
5 DPCR5 tax trigger impact included in 2014/15 and thereafter zero
6 DPCR5 IIS included in 2014/15, 2015/16 and 2016/17 and thereafter zero
7 IFI and LCNF included for DPCR5; NIA and NIC excluded for RIIO-ED1
8 Business bill represents Profile 3

Impact on suppliers

15.5 The revenues that we will recover from suppliers are detailed in accordance with DCUSA DCP66A tables. They will be updated every quarter and published separately. http://www.dcusa.co.uk/Public/Documents.aspx?t=10

15.6 WPD understand that charging volatility is a key issue for suppliers and that suppliers seek stable and predictable pricing structures with longer charge notification periods. WPD support the recommendations of Ofgem's October 2012 decision in relation to measures to mitigate volatility arising from the price control settlement. As part of our plan we have therefore clearly set out the evolution of revenues and charges in an industry common format. We have committed to updating and publishing this information every three months.

15.7 Through our work with suppliers we are aware of other proposals in addition to those in the Ofgem decision document requiring longer notice periods for charges. We are willing to work with suppliers and Ofgem on this issue and look forward to discussions that investigate the merits of an approach whereby the industry fixes its DUoS prices further in advance of price application so that we can better understand if the transfer of risk from suppliers to distribution businesses is in the best interests of both suppliers and end use customers.

16 WPD's revenue request for RIIO-ED1

16.1 In the Business Plan we have explained and shown forecasts for the following:

- core expenditure - capital expenditure, network operating costs and indirects;
- pensions – normal and deficit contributions;
- rates and licence fees;
- transmission exit charges;
- financing costs - cost of debt and cost of equity.

16.2 Our core expenditure costs (totex costs) are split between fast pot and slow pot as previously explained under "Funding the Business Plan":

- fast pot costs incurred in RIIO-ED1 are recovered in RIIO-ED1;
- slow pot costs incurred in RIIO-ED1 are spread over a number of years (known as RAV depreciation) to reflect the long term value of network assets.

16.3 Our customer bills are therefore made-up of the following items:

- fast pot costs (including normal pensions);
- depreciation (including normal pensions) on RIIO-ED1 slow pot costs;
- depreciation on previous price control slow pot costs;
- pensions deficit repair payments (including true-up from previous price controls);
- rates and licence fees;
- transmission exit charges;
- tax payments;
- financing costs.

16.4 In addition customer bills may also be adjusted for the following items:

- The fast track reward is included in our plan;
- DPCR5 IQI incentive/cost true-up: our plan takes into account variances between slow pot allowances and actual expenditure in DPCR5 that will be dealt with in RIIO-ED1;
- DPCR5 incentives: our plan does *not* include rewards such as IIS earned in DPCR5 but paid in RIIO-ED1;
- RIIO-ED1 incentive rewards such as IIS are *not* included in the plan;
- DPCR4 losses incentive: our plan does *not* include any reward or penalty for the close-out of the DPCR4 losses mechanism which now seems likely to be settled in 2015/16 and 2016/17 although the amount has yet to be determined.

16.5 We have also considered how our revenues are profiled over the RIIO-ED1 period. WPD would prefer that customers receive a significant one-off reduction in charges in year one of RIIO-ED1 (2015/16) rather than gradually spreading the reduction over a number of years, in order to provide more stability in our charges. Following consultation with our owner we have profiled our revenues so that a there is a one-off reduction of 13.8% in 2015/16 followed thereafter by an increase of 1.0% per annum before inflation for the remainder of the RIIO-ED1 period.

16.6 In total our revenue for RIIO-ED1 included in the Business Plan is £10.4bn in 2012/13 prices as detailed in the table below:

WPD Revenue Requirement in RIIO-ED1 (£m in 2012/13 prices)

West Midlands	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Total
Fast Pot Costs	52.1	52.1	50.6	51.5	53.1	54.1	53.6	54.1	**421.2**
Depreciation on Slow Post Costs (RAV)	169.5	173.1	174.9	176.5	177.2	178.2	162.7	161.6	**1,373.6**
Pension Deficit Repair Payments	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	**165.7**
Rates and Licence Fees	28.3	28.3	31.3	36.5	42.7	43.4	41.8	41.8	**294.1**
Transmission Exit Charges	12.7	13.0	13.2	13.2	13.5	14.1	14.1	14.1	**108.0**
DPCR5 IQI Incentive/Costs True-up	1.2	1.2	1.3	1.3	1.4	1.5	1.5	1.6	**11.0**
Financing Costs	74.7	76.1	77.3	78.5	79.7	81.1	82.8	84.9	**635.1**
Taxation Payments	18.0	17.9	17.7	16.8	15.5	15.2	15.9	15.9	**133.0**
Fast Track Reward	6.5	6.5	6.3	6.4	6.6	6.8	6.7	6.8	**52.6**
Total - Unprofiled Revenues	**383.7**	**389.1**	**393.3**	**401.5**	**410.5**	**415.0**	**399.8**	**401.5**	**3,194.4**
Revenue Profiling	2.1	0.4	0.1	-4.1	-9.1	-9.6	9.6	11.9	**1.4**
Total - Profiled Revenues	**385.8**	**389.6**	**393.4**	**397.4**	**401.4**	**405.3**	**409.4**	**413.4**	**3,195.8**

East Midlands	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Total
Fast Pot Costs	57.0	55.7	49.6	50.5	49.9	51.9	54.5	53.0	**422.2**
Depreciation on Slow Post Costs (RAV)	161.1	166.4	170.1	171.1	171.7	171.7	153.3	154.3	**1,319.6**
Pension Deficit Repair Payments	20.4	20.4	20.4	20.4	20.4	20.4	20.4	20.4	**163.3**
Rates and Licence Fees	36.7	36.8	40.6	47.6	55.3	56.0	54.4	54.4	**381.6**
Transmission Exit Charges	10.5	10.5	10.9	10.9	11.6	11.9	12.6	13.8	**92.9**
DPCR5 IQI Incentive/Costs True-up	3.5	3.6	3.8	4.0	4.2	4.3	4.5	4.8	**32.6**
Financing Costs	71.1	73.5	75.2	76.3	77.5	78.7	80.6	83.0	**615.9**
Taxation Payments	16.2	15.8	15.6	14.6	13.2	13.2	13.4	13.3	**115.3**
Fast Track Reward	7.1	7.0	6.2	6.3	6.2	6.5	6.8	6.6	**52.8**
Total - Unprofiled Revenues	**383.7**	**389.8**	**392.4**	**401.6**	**410.0**	**414.6**	**400.5**	**403.4**	**3,196.2**
Revenue Profiling	2.3	0.0	1.2	-4.0	-8.5	-9.1	9.1	10.2	**1.1**
Total - Profiled Revenues	**386.0**	**389.8**	**393.6**	**397.6**	**401.5**	**405.5**	**409.6**	**413.7**	**3,197.3**

South Wales	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Total
Fast Pot Costs	29.4	29.4	28.0	29.8	27.3	27.4	26.4	26.9	**224.6**
Depreciation on Slow Post Costs (RAV)	83.9	85.0	78.7	78.0	76.6	75.7	75.1	74.5	**627.6**
Pension Deficit Repair Payments	21.6	21.6	21.6	21.6	21.6	21.6	21.6	21.6	**172.9**
Rates and Licence Fees	16.3	16.3	20.1	20.3	20.1	20.5	19.7	19.7	**153.0**
Transmission Exit Charges	8.5	8.5	8.5	8.6	8.6	8.6	8.6	8.8	**68.8**
DPCR5 IQI Incentive/Costs True-up	2.3	2.4	2.5	2.7	2.8	2.9	3.1	3.2	**21.9**
Financing Costs	32.2	33.4	34.7	36.1	37.6	38.8	40.1	41.3	**294.2**
Taxation Payments	7.5	7.2	6.3	5.8	5.9	5.8	6.1	6.1	**50.8**
Fast Track Reward	3.7	3.7	3.5	3.7	3.4	3.4	3.3	3.4	**28.1**
Total - Unprofiled Revenues	**205.4**	**207.6**	**204.0**	**206.6**	**204.0**	**204.7**	**204.1**	**205.5**	**1,641.8**
Revenue Profiling	-6.7	-7.0	-1.5	-1.9	2.7	4.0	6.7	7.4	**3.7**
Total - Profiled Revenues	**198.7**	**200.6**	**202.5**	**204.6**	**206.7**	**208.7**	**210.8**	**212.9**	**1,645.5**

South West	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Total
Fast Pot Costs	43.0	43.0	42.1	42.9	42.1	42.6	42.6	44.6	**342.9**
Depreciation on Slow Post Costs (RAV)	111.7	115.4	117.7	119.0	120.2	120.9	109.1	109.1	**923.1**
Pension Deficit Repair Payments	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2	**281.3**
Rates and Licence Fees	16.3	16.3	17.8	20.8	22.1	22.7	21.4	21.4	**158.9**
Transmission Exit Charges	8.7	8.7	8.7	8.7	9.2	9.2	9.2	9.2	**71.8**
DPCR5 IQI Incentive/Costs True-up	4.3	4.5	4.7	4.9	5.1	5.4	5.6	5.9	**40.4**
Financing Costs	47.5	49.7	51.8	53.8	55.7	57.6	59.8	62.3	**438.2**
Taxation Payments	11.6	11.0	10.3	9.2	8.7	8.3	8.5	7.9	**75.5**
Fast Track Reward	5.4	5.4	5.3	5.4	5.3	5.3	5.3	5.6	**42.9**
Total - Unprofiled Revenues	**283.6**	**289.2**	**293.5**	**300.0**	**303.6**	**307.1**	**296.7**	**301.2**	**2,375.0**
Revenue Profiling	3.3	0.4	-1.1	-4.5	-5.3	-5.8	7.6	6.1	**0.7**
Total - Profiled Revenues	**286.9**	**289.6**	**292.4**	**295.4**	**298.4**	**301.3**	**304.3**	**307.3**	**2,375.7**

WPD Combined	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	Total
Fast Pot Costs	181.5	180.3	170.4	174.7	172.4	175.9	177.1	178.6	**1,410.9**
Depreciation on Slow Post Costs (RAV)	526.1	540.0	541.4	544.6	545.7	546.4	500.2	499.5	**4,243.9**
Pension Deficit Repair Payments	97.9	97.9	97.9	97.9	97.9	97.9	97.9	97.9	**783.1**
Rates and Licence Fees	97.6	97.8	109.8	125.2	140.3	142.5	137.2	137.2	**987.6**
Transmission Exit Charges	40.4	40.7	41.3	41.5	43.0	43.9	44.6	45.9	**341.5**
DPCR5 IQI Incentive/Costs True-up	11.2	11.7	12.3	12.9	13.5	14.1	14.8	15.5	**105.9**
Financing Costs	225.5	232.8	239.0	244.7	250.5	256.3	263.3	271.4	**1,983.5**
Taxation Payments	53.4	51.9	49.9	46.4	43.3	42.5	43.8	43.3	**374.6**
Fast Track Reward	22.7	22.5	21.3	21.8	21.6	22.0	22.1	22.3	**176.4**
Total - Unprofiled Revenues	**1,256.4**	**1,275.7**	**1,283.3**	**1,309.7**	**1,328.1**	**1,341.5**	**1,301.1**	**1,311.6**	**10,407.4**
Revenue Profiling	1.0	-6.2	-1.2	-14.6	-20.2	-20.6	33.0	35.7	**6.9**
Total - Profiled Revenues	**1,257.4**	**1,269.5**	**1,282.0**	**1,295.1**	**1,308.0**	**1,320.9**	**1,334.1**	**1,347.3**	**10,414.3**

17 Appendices

Appendix A1 - Relationship bank questionnaire

17.1 We have asked 10 of our key relationship banks for feedback on certain aspects of our Business Plan, especially in relation to the cost of debt.

17.2 These banks not only assist us in market debt issuance but they also provide committed bank facilities to us that can be used on a daily basis to provide short term funding between bond issuances..

17.3 These organisations have a diverse range of experts that deal with debt markets on a daily basis, review credit ratings and assess companies' creditworthiness as well as having excellent understanding of other financial instruments such as derivatives.

17.4 It is therefore useful to gain this additional insight to help gain assurance over the robustness of our financial assumptions.

17.5 The questionnaire used can be downloaded from the WPD website using this link http://www.westernpower.co.uk/docs/About-us/Stakeholder-information/Our-future-business-plan/Supporting-Financing-plan/Bank-investor-questionnaire.aspx

Appendix A2 – Key bond investor questionnaire

17.6 In additional to the relationship bank questionnaire we have also undertaken non-deal roadshows in both London and Edinburgh to engage with our bond investors.

17.7 Many of these investors have already invested in WPD debt but we wanted to share our thoughts on RIIO-ED1 with them and then ask for feedback in the form of this questionnaire.

17.8 As this group of stakeholders will be important in the financing of the business their answers have helped to refine the financing plan.

17.9 The questionnaire used can be downloaded from the WPD website using this link http://www.westernpower.co.uk/docs/About-us/Stakeholder-information/Our-future-business-plan/Supporting-Financing-plan/Bond-investor-questionnaire.aspx

Appendix A3 – Relationship bank questionnaire responses

17.10 A summary of the responses received from our relationship banks are given in this document.

17.11 Where common answers have been given they have been collated.

17.12 All answers are shown on a no names basis. http://www.westernpower.co.uk/docs/About-us/Stakeholder-information/Our-future-business-plan/Supporting-Financing-plan/Bank-investor-responses.aspx

Appendix A4 – Key bond investor questionnaire responses

17.13 A summary of the responses received from our relationship banks are given in this document.

17.14 Where common answers have been given they have been collated.

17.15 All answers are shown on a no names basis. http://www.westernpower.co.uk/docs/About-us/Stakeholder-information/Our-future-business-plan/Supporting-Financing-plan/Bond-investor-responses.aspx

Appendix A5 - Credit rating agency methodologies

17.16 This appendix contains details of how the three key credit rating agencies, Moody's, Standard and Poor's and Fitch rate corporate organisations such as WPD. Details are given as to both the qualitative and the quantitative analysis that is performed and details of any key financial ratios that are used to help derive the credit ratings of the business they are rating. Where available, details of the methods used to rate WPD specifically are given.

17.17 A grid is provided at the end of the appendix that provides details how the agency's individual ratings can be aligned.

Moody's methodology

17.18 Moody's use four factors in order to determine the credit rating of a company. These factors all receive a different weighting.

- Regulatory environment and asset ownership model (40%)
- Efficiency and execution risk (10%)
- Stability of business model and financial structure (10%)
- Key credit metrics (40%)

Regulatory environment and asset ownership model

17.19 Under the first factor Moody's scores the UK regulatory environment in the Aaa rating category because it is well-established and transparent. Moody's consider that Ofgem has a track record of taking sophisticated and iterative approach including shared financial models. Reflecting the characteristics of the UK electricity distribution sector, where direct ownership of network assets is under licence, DNOs, such as the WPD ones, map to the Aa rating category under the 'Asset Ownership Model' sub-factor.

17.20 Moody's state that under the regulatory framework, DNOs are subject to efficiency targets during the period of the price control and hence map to the A rating category for the Moody's sub-factor 'Cost and Investment Recovery'. Revenue risk is scored Aa as DNOs have very limited exposure to volumes of electricity distributed, with charges able to be adjusted to reflect any over or under-recovery of revenue in later years.

Efficiency and execution risk

17.21 For the second factor Moody's recognise that South wales and the South West have strong operational performance and are ranked higher versus their peers and are part of one of the best groups for cost efficiency. For these businesses Moody's score them in the A rating category. For East Midlands and West Midlands Moody's score these DNOs as Baa, due to

their historic performance. Moody's do however recognise that these networks will benefit from the various synergies and relative efficiency of the wider WPD group.

17.22 In the Moody's sub-category of 'Scale and Complexity of Capital Programme', they map the WPD DNOs to the Ba rating, based upon the expected investment programmes.

Stability of business model and financial structure

17.23 Under the third factor Moody's consider that all four DNOs map to the A rating category under the sub-factor 'Ability and Willingness to Pursue Opportunistic Corporate Activity'. This is because the companies are simple with a single purpose and are focused solely on their core regulated activities of managing and operating the electricity distribution network. In addition, Moody's state that the various regulatory ring-fence provisions offer additional creditor protection. Based upon the expectation that licensees will maintain a conservative financial policy and leverage consistent with the level implied in the allowed return set by the regulator, Moody's assign a Baa rating for the 'Ability and Willingness to Increase leverage' sub-factor for the DNOs. Finally for this category Moody's score the WPD DNOs at Aa for the 'Targeted Proportion of Operating Profit Outside of Core Regulated Activities' sub-factor, given the regulator ring fence provisions limit the level of de-minimis activities.

Key credit metrics

17.24 The final factor is the Key Credit Metrics. In assessing the financial risk of a UK regulated distribution company, Moody's focuses on a number of key ratios including net debt: RAV and the adjusted interest cover ratio (PMICR). This is a Moody's calculation to measure interest cover after deducting RAV depreciation from funds from operations ("FFO"). The gearing levels at WPD's four licenced entities is in the low 60%s or lower which means that the companies are well positioned compared to Moody's expectation for the Baa1 rating category.

17.25 Moody's credit ratio tests for different credit rating levels are shown below:

Rating sub-factor	A	Baa	Ba
3yr adjusted Interest Cover Ratio OR 3yr FFO Interest Cover	≥2.0x –4.0x OR ≥3.5x – 5.0x	≥1.4x – 2.0x OR ≥2.5x – 3.5x	≥1.1x – 1.4x OR >1.5x – 2.5x
3yr Debt/RAV	>45 – 60%	>60 – 75%	>75 – 90%
3yr FFO/Net Debt	≥12 – 20%	≥8 – 12%	≥4 – 8 %
3yr RCF/Capex	≥1.5 – 2.5x	≥1.0 – 1.5x	≥0.5 – 1.0x

(3yr is the average over a three year period)

Standard and Poor's

17.26 Standard & Poor's Ratings Services employs credit analysis, supplemented by quantitative models as appropriate. The analysis follows a systematic framework, called the 'Rating Methodology Profile' tailored to the type of company. Business risk and financial risk are the main elements of corporate and financial institution analysis.

17.27 When assessing business risk, the analysis commonly includes country risk, industry characteristics, competitive position, cost efficiency, and profitability relative to peers. Industry characteristics typically encompass growth prospects, volatility, and technological change, as well as the degree and nature of competition. An organisation's strategy, operational effectiveness, and financial risk tolerance will shape its competitiveness in the marketplace and the strength of its financial profile. Risk management is an increasingly important analytical factor in the financial services sector. Credit, market, and trading risks are assessed. Standard

& Poor's Ratings Services attaches great importance to management's philosophies and policies concerning financial risk.

17.28 Financial risk analysis begins with an evaluation of the firm's accounting principles employed, particularly any unusual practices or underlying assumptions. Key financial indicators generally fall into the following categories: profitability, leverage, cash flow adequacy, liquidity, and financial flexibility. For financial institutions and insurers, critical factors are asset quality, reserves for losses, asset/liability management, and capital adequacy. The specific ratios analysed vary by industry and may include profit margins, return on investment, debt/capital, debt/cash flow, and debt service coverage. Cash flow analysis and liquidity assume heightened significance for firms with speculative-grade ratings ('BB+' and lower). Trends over time and peer comparisons are evaluated.

17.29 Rating Methodology Profile categories may be scored, but there is no precise formula for combining the scores to produce ratings. The analytical variables are interrelated and the weights are not fixed. A company's business-risk profile determines the level of financial risk appropriate for any rating category. A well-positioned firm can tolerate greater financial risk, for a given rating, than a poorly positioned organisation. Two firms with identical financial metrics may be rated very differently to the extent their business challenges and prospects differ.

17.30 The combined risk profile ratings are showing below:

Business and Financial Risk Profile Matrix						
Business Risk Profile	Financial Risk Profile					
	Minimal	Modest	Intermediate	Significant	Aggressive	Highly Leveraged
Excellent	AAA	AA	A	A-	BBB	--
Strong	AA	A	A-	BBB	BB	BB-
Satisfactory	A-	BBB+	BBB	BB+	BB-	B+
Fair	--	BBB-	BB+	BB	BB-	B
Weak	--	--	BB	BB-	B+	B-
Vulnerable	--	--	--	B+	B	CCC+

17.31 These rating outcomes are shown for guidance purposes only. Actual rating should be within one notch (rating) of indicated rating outcomes.

17.32 The Business Risk profile of the four WPD DNOs is considered by Standard and Poor's to be in the 'excellent' category. The main support for this being:

- The stability of most of the WPD group's operating revenues.
- A well established and transparent UK regulatory framework.
- Good operating performance, recognised by Ofgem.

17.33 The Financial Risk profile of the four WPD DNOs is considered to be in the aggressive category. This is based upon the below methodology:

Financial Risk Indicative ratios (Corporates)			
	FFO/Debt (%)	**Debt/EBITDA (x)**	**Debt/Capital (%)**
Minimal	>60%	<1.5	<25%
Modest	45% - 60%	1.5 – 2.0	25% - 35%
Intermediate	30% - 45%	2.0 – 3.0	35% - 45%
Significant	20% - 30%	3.0 – 4.0	45% - 50%
Aggressive	12% - 20%	4.0 – 5.0	50% - 60%
Highly Leveraged	<12%	>5.0	>60%

Fitch

17.34 For Fitch, the two core measures for electricity distribution networks are PMICR and Debt/regulated capital. The ranges of these two measures for different credit ratings are shown below:

Issue Default Rating	Senior Unsecure Rating	Expected Ratio
A-	A	Adjusted PMICR > 1.9x, Debt/RCV <60%
BBB+	A-	Adjusted PMICR 1.6x - 1.9x, Debt/RCV 60%-75%
BBB	BBB+	Adjusted PMICR 1.4x - 1.6x, Debt/RCV 75%-85%
BBB-	BBB	Adjusted PMICR 1.3x - 1.4x, Debt/RCV 85%-90%

Credit Rating Grid

	Moody's		S&P		Fitch		
	Long-term	Short-term	Long-term	Short-term	Long-term	Short-term	
	Aaa	P-1	AAA	A-1+	AAA	F1+	Prime
	Aa1		AA+		AA+		High grade
	Aa2		AA		AA		
	Aa3		AA-		AA-		
	A1		A+	A-1	A+	F1	Upper medium grade
	A3	P-2	A-	A-2	A-	F2	
Targeted credit ratings	Baa1		BBB+		BBB+		Lower medium grade
	Baa2	P-3	BBB	A-3	BBB	F3	
	Baa3		BBB-		BBB-		
	Ba1	Not prime	BB+	B	BB+	B	Non-investment grade speculative
	Ba2		BB		BB		
	Ba3		BB-		BB-		
	B1		B+		B+		Highly speculative
	B2		B		B		
	B3		B-		B-		
	Caa1		CCC+	C	CCC	C	Substantial risks
	Caa2		CCC				Extremely speculative
	Caa3		CCC-				In default with little prospect for recovery
	Ca		CC				
			C				
	C		D	/	DDD	/	In default
	/				DD		
	/				D		

Appendix A6 – Risk modelling scenario outputs

17.35 WPD asked NERA Economic Consulting to perform financial risk modelling.

17.36 Numerous financial scenarios were created for the four DNOs and then these were reviewed under different regulatory parameters such as amending the cost of equity, changing the profile of asset lives, amending the gearing or altering the capitalisation rate.

17.37 The output from these scenarios were in the form of key credit rating metrics shown graphically and measured against the standards expected from the credit rating agencies to be comfortably investment grade.

17.38 This analysis has provided us guidance as to which regulatory parameters would allow us to maintain our investment grade credit ratings without introducing financial inefficiency that would impact the cost to customers.

17.39 The NERA presentation of the risk modelling scenario outputs can be downloaded from the WPD website using this link http://www.westernpower.co.uk/docs/About-us/Stakeholder-information/Our-future-business-plan/Supporting-Financing-plan/NERA-Risk-Modelling-Outputs.aspx

Appendix A7 – WPD risk exposure under the RIIO-ED1 regulatory framework

17.40 This appendix describes the assumptions used to assess WPD's risk exposure under the RIIO-ED1regulatory framework. It describes the statistical distributions of the risk factors that have been simulated and how they feed through into each of the WPD DNO's EBITDA and operating cash flows.

17.41 NERA Economic Consulting undertook this work at the request of WPD. http://www.westernpower.co.uk/docs/About-us/Stakeholder-information/Our-future-business-plan/Supporting-Financing-plan/NERA-WPD-Risk-Exposure-Report.aspx

Appendix A8 – Risk modelling methodology

17.42 Ofgem require DNOs to submit well-justified Business Plans that set out their strategy to manage risks and uncertainties in an efficient way.

17.43 Ofgem also expect DNOs to propose appropriate levels for notional gearing and cost of equity that are consistent with their cash flow risk.

17.44 In order to undertake this risk modelling we engaged NERA Economic Consulting. NERA are recognised specialists familiar with the electricity distribution regulatory framework.

17.45 To perform the work NERA used WPD's cost forecasts and applied Ofgem's proposed regulatory mechanisms to derive statistical distributions for key financeability metrics for the four DNOs. NERA sought input from us in order to create scenarios regarding key regulatory parameters.

17.46 The output from this work has been used as a basis for assessing the overall financeability of the WPD Business Plan.

17.47 The NERA presentation of the risk modelling methodology can be downloaded from the WPD website using this link http://www.westernpower.co.uk/docs/About-us/Stakeholder-

information/Our-future-business-plan/Supporting-Financing-plan/NERA-Modelling-Methodology.aspx

Appendix A9 - Issues associated with the cost of debt allowance

Introduction

17.48 This appendix provides an overview of the key characteristics of the two iBoxx indices that Ofgem propose to use. It shows the diversity of the various A rated and BBB rated businesses that were included in the respective index at 31 March 2013. It also shows the average maturity of the debt within both indices.

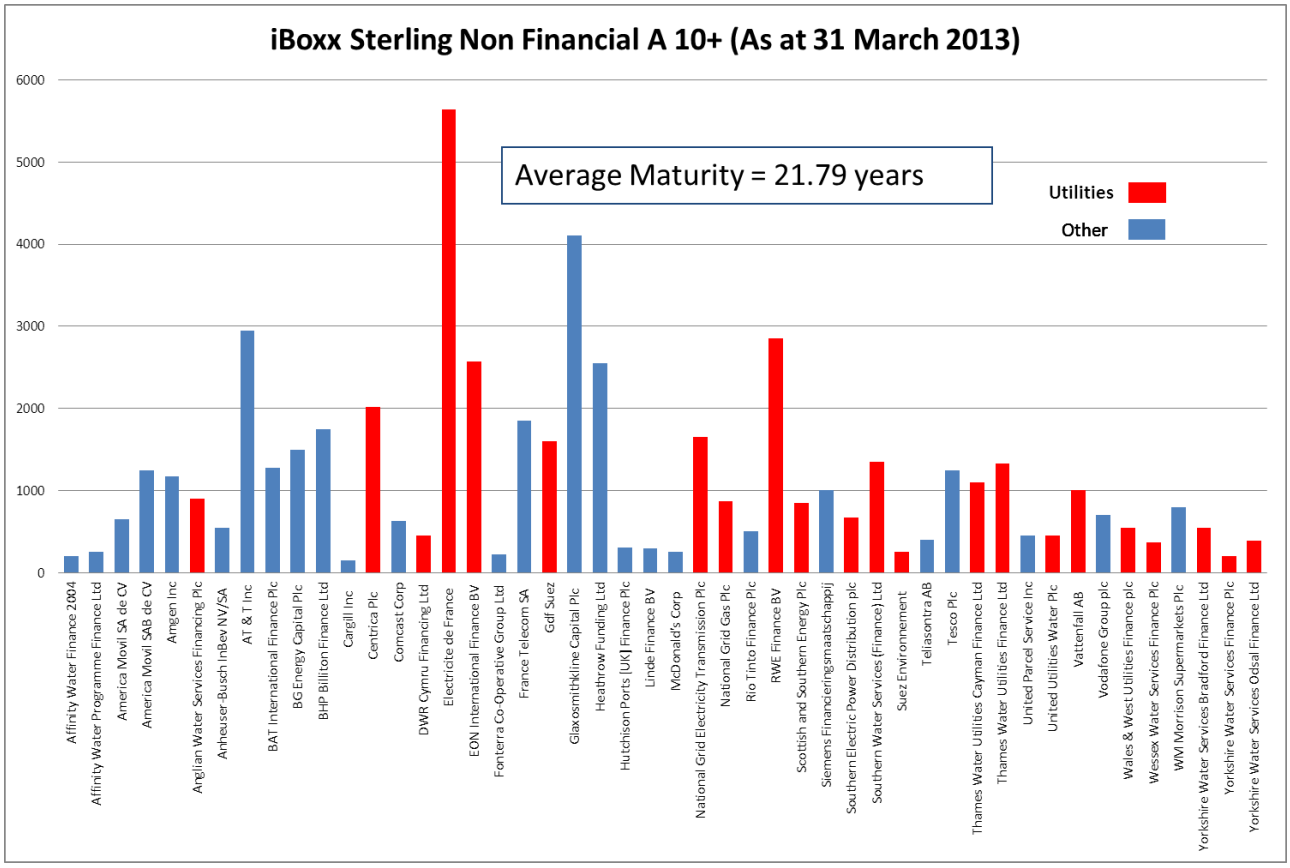
17.49 Details are given as to how the 10 year rolling average used to calculate the cost of debt allowance is derived.

17.50 This appendix also highlights risks that this methodology introduces, such as issuing debt at times of price spikes, or long periods of low rates. Also explained are other risks associated with debt issuance such as interest rate risk, market risk and tenor risk

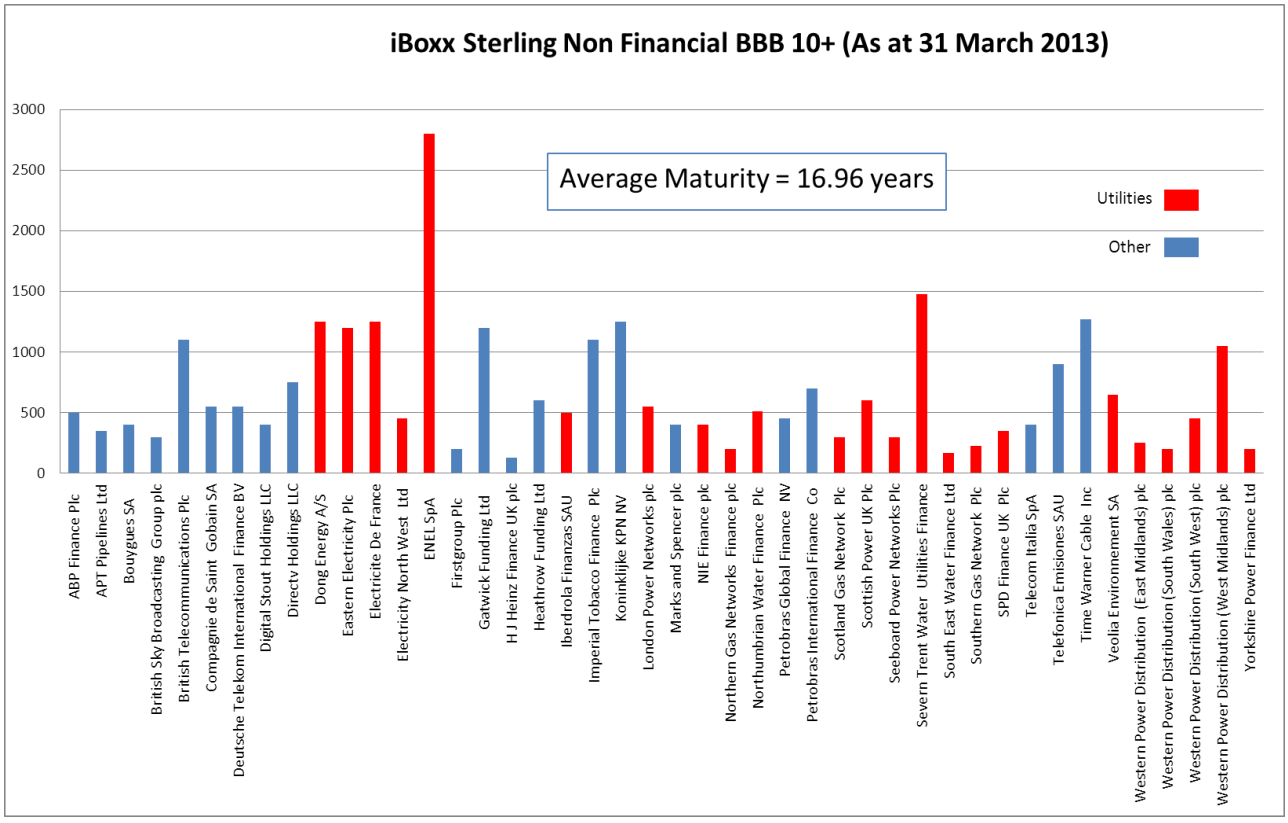
iBoxx indices

17.51 Ofgem have determined that under RIIO-ED1 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 iBoxx A rated and BBB rated non-financial indices less the implied 10-year gilt inflation break evens published daily by the Bank of England. The mechanistic nature of the proposal means the removal of one of the controlling elements that is available to the regulator at each price control. The statutory duty to ensure financeability remains, but gearing assumptions and equity return allowances become the only levers to ensure that the duty is met.

17.52 The make-up of the two iBoxx indices as at 31st March 2013 is shown in the following charts.



Source: WPD



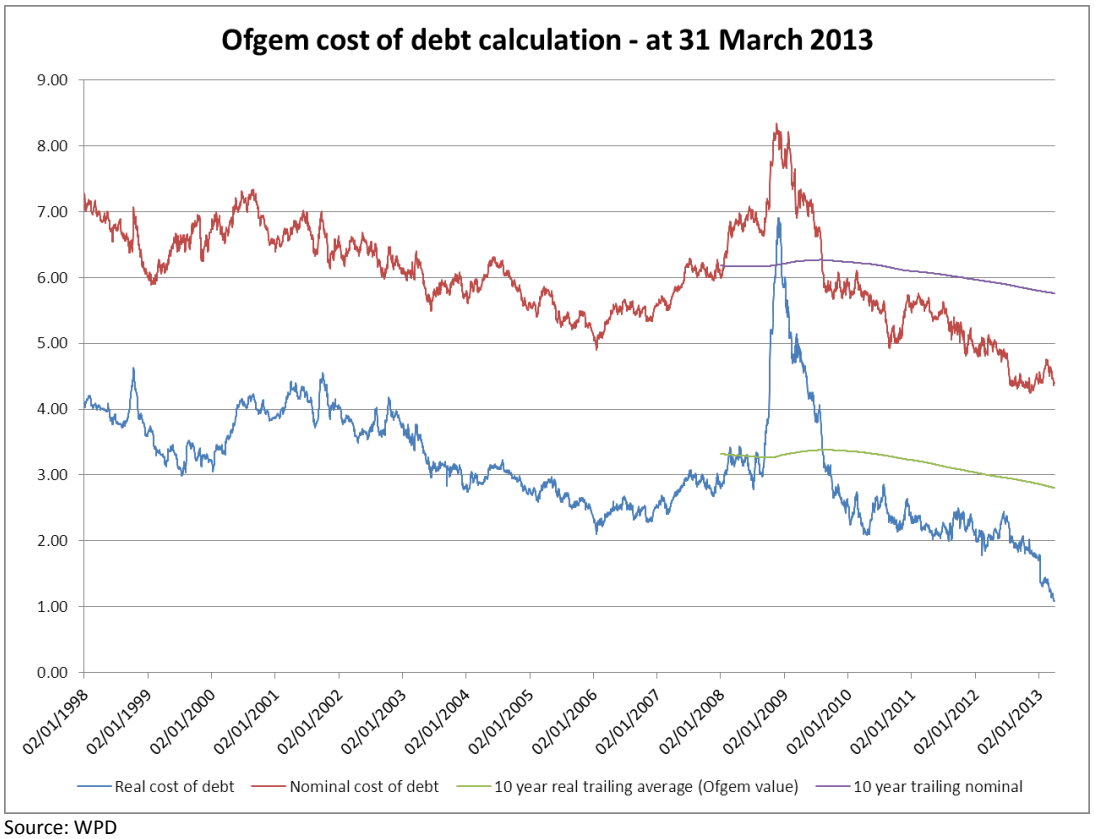
Source: WPD

17.53 The composition of the iBoxx indices will change over time with changes to the underlying corporate profiles. At present utility representation in the indices is approximately 50%. Notwithstanding that uncertainty, the Ofgem methodology should not penalise companies in the long run.

17.54 The proposed index methodology introduces a rolling 10 years of daily price points to be averaged out to generate the nominal cost of debt allowed to be recovered. Logically the match would be to issue 1/2530 (10 years of work days) of a company's debt portfolio on each and every daily setting in the form of 10 year inflation linked debt – this assumes that the cost of debt of the existing portfolio already matches that calculated under RIIO. Clearly this is impractical. The impact of averaging the cost of debt allowance may naturally lead companies to more frequent and smaller quantum issuance of debt and the tenor may be forced to align more with the RIIO-ED1 calculation of 10 years. If this occurs wholesale in the market then investors, who traditionally prefer longer dated debt may expect higher premiums in order to justify them purchasing debt that would not be their preferred choice.

17.55 There is a risk that DNOs lock in significant funding amounts where there are high spikes in rates, an example of which can be seen from the graph below in the 12 month period August 2008 to August 2009.

- If the spike becomes a long term trend, the impact of averaging is that the recovery of such costs will occur, but will take time. If there is a substantial trend higher, coverage ratios may be impacted and ratings at risk.
- Worse still, if the spikes are short lived the impact of averaging means that the company may never fully recover the higher funding costs.



Source: WPD

17.56 The opportunity of benefitting from the downward spikes also exists, but given that rates are currently low, the potential benefits appear to be limited. Also the ability access the market when short term downward spikes occur will create its own financing risk as investors may not wish to purchase debt at such low rates.

17.57 The iBoxx indices do not take account of Index linked bond. These bonds are a useful tool for utilities as they align with revenue streams and regulatory asset growth. However the credit spreads on such bonds have been wider than conventional bond spreads for at least the last 24 months (to March 2013) and are currently some 10 to 20 bps higher. As the index does not capture this extra cost, it will not be included in the creation of the debt allowance.

17.58 Similarly any bonds with maturity duration of less than ten years will also be excluded from the index as will any debt not issued within a sterling market.

17.59 We have investigated the possibility of mimicking Ofgem's cost of debt to establish if WPD could swap the coupon on existing debt obligations so as to match the profile of Ofgem's debt allowances during RIIO-ED1. We have discussed this with our relationship banks and it has proved to be difficult to achieve a necessary high degree of correlation and meet the accounting requirements for derivatives.

17.60 In the absence of workable derivatives the RIIO-ED1 method of calculating debt allowances therefore could incentivise DNOs to issue an average of 10% of their forecast debt level each year in order to minimise risk. The costs of redemption make such an approach too expensive to refinance existing debt prior to maturity.

17.61 We have assumed that going forward financing will be spread as evenly across RIIO-ED1 as we can. The WPD proposal is to issue benchmark bonds, preferably in the sterling arena, and then potentially tapping these as required. Existing committed bank facilities will be used to cover any shortfall in financing in intervening periods between debt issuance and also if market timing is not appropriate. Alongside this proposal we would seek to enter into interest rate swaps in order to provide a higher degree of certainty of debt cost and also to be able to take advantage of favourable movements in the market prior to actual debt issuance.

17.62 This approach offers a simple and transparent methodology. Any additional issuance costs incurred via this process should be minimal. Also this approach allows us to manage our portfolio without being locked into a complex financing structure.

17.63 The above proposed approach should assist in mitigating some of the risks that the RIIO-ED1 cost of debt calculation introduces, as can be seen below.

17.64 **Interest rate risk.** To the extent that interest rates remain low, historically issued debt will become relatively expensive, particularly once the higher historical settings drop out of the index. Should interest rates rise dramatically causing debt costs to rise, the rolling average mechanism within the allowed cost of debt means that it will take a period of time before the rolling average rises sufficiently to recoup these higher borrowing costs. (Ofgem refer to this as embedded debt costs.)

17.65 **Market timing risk.** There is increased market timing risk of future issuances – to the extent that a bond pricing takes place at a time when rates are relatively high before falling again. The index is unlikely to reflect this higher cost of funding.

17.66 **Curve risk.** To the extent that issuance is longer than 10 years, the interest rate environment prevalent at the time of issuance will fall out of the index after 10 years leaving WPD at risk to the rolling average being different to the historic cost of debt.

17.67 **Tenor risk**. The iBoxx indices underlying the cost of debt currently have an average life of 22 and 17 years respectively; the implied inflation and rolling average is 10 years. There is a risk that in order to align with the RIIO-ED1 cost of debt the tenor of debt issued does not align with the requirements of the investor and/or company.

17.68 **Index setting risk.** The index is observed on a spot starting basis, but applied with a lag effect. The lag effect will even out over time, but may cause intra year volatility to those strategies that attempt to replicate a spot setting index.

Appendix A10 – Cost of debt modelling under Ofgem's RIIO-ED1 method

17.69 NERA Economic Consulting undertook a preliminary assessment of the cost of debt modelling under Ofgem's RIIO-ED1 method.

17.70 NERA's modelling uses both historic and forecast information to assess where the allowed cost of debt could move to during the RIIO-ED1 period and how this would impact WPD from both our existing debt portfolio as well as future debt issuances.

17.71 The NERA presentation on their view of the Ofgem method and the impact that this would have on the WPD can be downloaded from the WPD website using this link http://www.westernpower.co.uk/docs/About-us/Stakeholder-information/Our-future-business-plan/Supporting-Financing-plan/NERA-Cost-of-Debt-Modeling.aspx

Appendix A11 – WPD's cost of debt under Ofgem's RIIO-ED1 method

17.72 NERA Economic Consulting has looked at the Ofgem's proposal for a Weighted Cost of Debt Index i.e. the iBoxx index. They have considered the iBoxx index against other measures and concluded as to their usefulness.

17.73 NERA have looked at the 10 year trailing average method and compared it to the actual firms financing costs that are made up of existing embedded debt as well as the cost of future debt.

17.74 They have considered a 5 year trailing average and also a Capex/RAV weighted average to assess how reasonable the 10 year training average method actually is in comparison.

17.75 The NERA presentation on WPD's cost of debt can be downloaded from the WPD website using this link http://www.westernpower.co.uk/docs/About-us/Stakeholder-information/Our-future-business-plan/Supporting-Financing-plan/NERA-Weighted-cost-of-debt-index.aspx

Appendix A12 – Ofgem's estimate of the "Halo Effect"

17.76 NERA Economic Consulting have assessed the so called 'Halo Effect' and how they believe Ofgem has considered it to work (it is considered that utility companies benefit from a market bias, or 'halo', that allows them to issue debt more cheaply than the other similarly rated corporates and therefore justifies not allowing for issuance costs to be included in the cost of debt calculation.)

17.77 The NERA presentation on their view of the Halo Effect can be downloaded from the WPD website using this link http://www.westernpower.co.uk/docs/About-us/Stakeholder-information/Our-future-business-plan/Supporting-Financing-plan/NERA-Analysis-of-Ofgem-s-Halo-Effect.aspx

Appendix A13 – Cost of capital estimation for RIIO-ED1

17.78 NERA Economic Consulting undertook initial estimates and issues facing WPD under the RIIO-ED1 methodology for cost of capital.

17.79 NERA have looked at the various regulatory precedents such as DPCR5, RIIO-GD1 and RIIO-T1. They have also looked at empirical market evidence of the various values used within the proposed cost of capital calculations.

17.80 The analysis assesses the various elements of the cost of capital: the risk free rate; the equity risk premium; the beta of the industry and also the gearing, and then combines these values to calculate an applicable cost of capital.

17.81 The NERA presentation on their view of cost of capital can be downloaded from the WPD website using this link http://www.westernpower.co.uk/docs/About-us/Stakeholder-information/Our-future-business-plan/Supporting-Financing-plan/NERA-Cost-of-Capital-Estimation.aspx

Appendix A14 – Cost of equity (conversion of an asset beta to an equity beta)

17.82 A beta is the measure of the volatility, or systematic risk, of a security of portfolio in comparison to the market as a whole. This is often used in capital pricing models, with a beta of 1 representing a portfolio with the same risk as the market, less than one being less risky and greater than 1 being more risky.

17.83 The asset beta is the beta value that is dependent only on the assets of the company. The asset beta should remain the same no matter what the company's level of debt is. If a firm had no debt then the equity beta should be the same as the asset beta. As a company with no debt is considered less risky (and beta is a measure of risk) then the asset beta will always be less than the equity beta. This is because the equity beta takes the level of debt of the company into account.

17.84 Often the asset beta is shown; however for the Ofgem cost of capital calculation an equity beta is required.

17.85 NERA Economic Consulting carried out analysis on the cost of equity and their report can be downloaded from the WPD website using this link http://www.westernpower.co.uk/docs/About-us/Stakeholder-information/Our-future-business-plan/Supporting-Financing-plan/NERA-Cost-of-Capital-Estimation.aspx

Conversion of asset beta to equity beta

17.86 We have used the Miller formula: $ß_{Equity} = ß_{Asset} / (1\text{-gearing})$ as specified in Miller (1977) for getting from the asset beta to the equity beta.

17.87 Technically speaking, the asset beta can be defined as the weighted average of an equity beta and a debt beta. The full formula is:

$ß_{Asset} = ß_{Equity} * \text{Equity}/ (\text{Equity+Debt}) + ß\text{Debt} * \text{Debt}/ (\text{Equity+Debt})$.

17.88 However, the conventional approach is to assume that the return on debt carries no market risk, i.e. $ß_{Debt} = 0$ and we can rewrite the relationship between the unlevered asset beta and equity beta to:

$ß_{Equity} = ß_{Asset}$ / (Equity/(Equity+Debt)

17.89 or simply:

$ß_{Equity} = ß_{Asset}$ / (1-gearing) where gearing is defined as Debt/ (Equity+Debt).

Appendix A15 – Inter group facility agreement

17.90 This document is the agreement between the various WPD companies (including the DNOs) for use of common bank and treasury facilities in order to ensure compliance with our licence conditions. http://www.westernpower.co.uk/docs/About-us/Stakeholder-information/Our-future-business-plan/Supporting-Financing-plan/WPD-Inter-company-Policy.aspx

Appendix A16 – Inter company policy

17.91 This document outlines the WPD group policy on how inter-business loans are set-up and reported. This policy also represents best practise for all inter business loans or similar agreements to ensure consistent regulatory, accounting and taxation treatment. http://www.westernpower.co.uk/docs/About-us/Stakeholder-information/Our-future-business-plan/Supporting-Financing-plan/WPD-Inter-company-Policy.aspx

Appendix A17 – Business rate assumptions

17.92 Gerald Eve, a partnership of chartered surveyors and property consultants, provided WPD with a forecast business rate report. This report has been used as the basis for calculating the amount of business rates that will be payable by the 4 WPD DNOs up to and during the RIIO-ED1 period.

17.93 The Gerald Eve report can be downloaded from the WPD website using this link http://www.westernpower.co.uk/docs/About-us/Stakeholder-information/Our-future-business-plan/Supporting-Financing-plan/Business-Rates-Assumption.aspx

Appendix A18 – Updated valuation of the WPD Group Electricity Supply Pension Scheme (ESPS)

17.94 This report has been prepared by AON Hewitt, the WPD Pension scheme's actuary. The purpose of this report is to provide an approximate update of the funding position of the Western Power Distribution Group of the Electricity Supply Pension Scheme (the "WPD Group") as at 31 December 2012.

17.95 This report was commissioned by the pension fund trustees and includes information that Ofgem requires in line with the PDAM which is set out in Ofgem's Pension Regulatory Instructions and Guidance dated 12 April 2013.

17.96 The Aon Hewitt report can be downloaded from the WPD website using this link http://www.westernpower.co.uk/docs/About-us/Stakeholder-information/Our-future-business-plan/Supporting-Financing-plan/WPD-Group-of-the-ESPS-Updated-Valuation-as-at-31st.aspx

Appendix A19 – Updated valuation of the CN Group Electricity Supply Pension Scheme (ESPS)

17.97 This report has been prepared by AON Hewitt, the WPD Pension scheme's actuary. The purpose of this report is to provide an approximate update of the funding position of the Central Networks Group of the Electricity Supply Pension Scheme (the "CN Group") as at 31 December 2012.

17.98 This report was commissioned by the pension fund trustees and includes information that Ofgem requires in line with the PDAM which is set out in Ofgem's Pension Regulatory Instructions and Guidance dated 12 April 2013.

17.99 The Aon Hewitt report can be downloaded from the WPD website using this link http://www.westernpower.co.uk/docs/About-us/Stakeholder-information/Our-future-business-plan/Supporting-Financing-plan/CN-Group-of-the-ESPS-Updated-Valuation-as-at-31st.aspx

Appendix A20 – The WPD Group ESPS Statement of Funding Principles

17.100 This document provides details of the statement that ensures that the WPD ESPS Group Trustee meet their statutory objective under section 222 of the Pensions Act 2004.The statutory funding objective is to have sufficient and appropriate assets to cover the Group's technical provisions. These technical provisions are the amounts that will be needed to pay the Group benefits that relate to service up to the valuation date, if the assumptions made are borne out in practice.

17.101 The statement was prepared by the Group Trustee of the Western Power Distribution Group of the Electricity Supply Pension Scheme after obtaining advice for the Scheme Actuary.

17.102 The Aon Hewitt report can be downloaded from the WPD website using this link http://www.westernpower.co.uk/docs/About-us/Stakeholder-information/Our-future-business-plan/Supporting-Financing-plan/WPD-Group-of-the-ESPS-Statement-of-Funding-Princip.aspx

Appendix A21 – The CN Group ESPS Statement of Funding Principles

17.103 This document provides details of the statement that ensures that the CN ESPS Group Trustee meet their statutory objective under s.222 of the Pensions Act 2004.The statutory funding objective is to have sufficient and appropriate assets to covers the Group's technical provisions. These technical provisions are the amounts that will be needed to pay the Group benefits that relate to service up to the valuation date, if the assumptions made are borne out in practice.

17.104 The statement was prepared by the Group Trustee of the Central Networks Group of the Electricity Supply Pension Scheme (ESPS) after obtaining advice for the Scheme Actuary,

17.105 The Aon Hewitt report can be downloaded from the WPD website using this link http://www.westernpower.co.uk/docs/About-us/Stakeholder-information/Our-future-business-plan/Supporting-Financing-plan/CN-Group-of-the-ESPS-Statement-of-Funding-Principl.aspx

Appendix A22 – Inputs for the WPD ESPS Group Pensions Deficit Allocation Methodology

17.106 This document has been prepared for WPD by AON Hewitt, who are the Scheme Actuary of the WPD Group of the Electricity Supply Pension Scheme (ESPS). The document sets out the approach taken to produce the inputs required by Ofgem's Pensions Deficit Allocation Methodology (PDAM) following the Updated Valuation as at 31 December 2012.

17.107 The Aon Hewitt report can be downloaded from the WPD website using this link http://www.westernpower.co.uk/docs/About-us/Stakeholder-information/Our-future-business-plan/Supporting-Financing-plan/WPD-Group-of-the-ESPS-PDAM-Report-as-at-31st-Decem.aspx

Appendix A23 – Inputs for CN Group ESPS Pensions Deficit Allocation Methodology

17.108 This document has been prepared for WPD by AON Hewitt, who are the Scheme Actuary of the CN Group of the Electricity Supply Pension Scheme (ESPS). The document sets out the approach taken to produce the inputs required by Ofgem's Pensions Deficit Allocation Methodology (PDAM) following the Updated Valuation as at 31 December 2012.

17.109 The Aon Hewitt report can be downloaded from the WPD website using this link http://www.westernpower.co.uk/docs/About-us/Stakeholder-information/Our-future-business-plan/Supporting-Financing-plan/CN-Group-of-the-ESPS-PDAM-Report-as-at-31st-Decemb.aspx