
RIIO-ED2 cost of debt and financeability

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1 Introduction

Scottish & Southern Electricity Networks (SSEN) Distribution has asked Oxera Consulting LLP (Oxera) to undertake modelling of the allowed cost of debt mechanism and financeability of the notional and actual company in RIIO-ED2 under different scenarios as specified in the Ofgem business plan guidance for RIIO-ED2.¹ The analysis will be submitted to Ofgem alongside the SSEN business plans due to Ofgem in July 2021.²

As SSEN Distribution owns two networks, Scottish Hydro Electric Power Distribution plc (SHEPD) and Southern Electric Power Distribution plc (SEPD), the analysis presented in this report has been undertaken for both of these networks individually.

The report is structured as follows.

- Section 2 provides our assessment of the allowed cost of debt index against the forecast cost of debt for SSEN in RIIO-2.
- Section 3 provides our review of the financeability of the SSEN business plan on a notional and actual company basis.
- Appendix A1 presents supplementary data relating to the cost of debt analysis.
- Appendix A2 provides supplementary data relating to the financeability analysis.

¹ Ofgem (2021), 'RIIO-ED2 Business Plan Guidance', 22 April.

² SSEN Distribution owns two networks—Scottish Hydro Electric Power Distribution plc and Southern Electric Power Distribution plc. The analysis presented in this report will be undertaken for both of these networks individually.

2 Cost of debt assessment

This section provides scenario analysis for the cost of debt index against the forecast cost of debt for both of SSEN's networks in RIIO-ED2.

2.1 Approach

The 17-year trailing average of the iBoxx £ Utilities 10+ index proposed in the Sector Specific Methodology Decision (SSMD) document is modelled under the base case, high- and low-interest-rate scenarios for RIIO-ED2.^{3,4}

The Ofgem allowance is compared against the forecast cost of debt for a notional electricity distribution company over RIIO-2. We assumed that this notional company finances its opening RAV in RIIO-2 with an embedded debt book that has an interest rate equal to the 17-year trailing average of the iBoxx £ Utilities 10+ index. The opening notional debt is subsequently partially refinanced in each year of RIIO-2 to track the 17-year trailing average. We assumed that any changes in RAV in a given year of RIIO-2 are financed at a rate equal to the average Utilities index in that specific year. In this way, we test whether the proposed allowance is sufficient to fund the issuance of new debt for a notional electricity distribution company under a number of interest-rate scenarios.

We then compare the Ofgem allowance against forecasts for the all-in cost of debt for SEPD and SHEPD, where the cost of debt is composed of debt raised prior to RIIO-2 based on SSEN's actual embedded debt book, as well as forecast new debt issued during RIIO-2.

Subsequently, we compare the 25bp allowance for transaction costs proposed by Ofgem⁵ to SEPD and SHEPD's estimated additional costs associated with issuing debt (where additional costs are estimated to range between 25bps and 45bps).

2.2 Main findings

Our main finding is that when transaction costs are higher than Ofgem's assumption, the current cost of debt mechanism is insufficient to fund the cost of debt for the notional company in the high-interest-rate scenario for either network, as well as in the base case for SEPD.

When considering the actual embedded debt book, the current cost of debt mechanism proposed by Ofgem is sufficient to allow for the recovery of efficient debt costs.⁶ However, in the high-interest-rate scenario, there is minimal headroom to accommodate any further increases in interest rates compared to those assumed in the scenario.

This suggests that the Ofgem cost of debt proposal only provides the minimum funding required for the cost of debt in RIIO-ED2.

³ Ofgem (2021), 'RIIO-ED2 Sector Specific Methodology Decision: Annex 3 Finance', 11 March, para. 2.45.

⁴ See Ofgem (2021), 'RIIO-ED2 Sector Specific Methodology Decision: Annex 3 Finance', 11 March, Table 2, p. 45 for the interest-rate scenarios suggested by Ofgem.

⁵ Ofgem (2021), 'RIIO-ED2 Sector Specific Methodology Decision: Annex 3 Finance', 11 March, para. 2.45.

⁶ The results of this analysis are presented in Appendix A1.

2.3 Modelling of the cost of debt mechanism

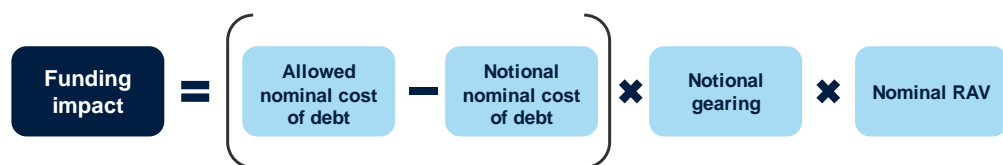
2.3.1 Methodology used to model the cost of debt mechanism

In its draft business plan for RIIO-ED2, SSEN proposes a 17-year trailing average of yields on the iBoxx £ Utilities 10+ index, in line with Ofgem's proposals at RIIO-ED2.⁷

We have modelled the proposed SSEN cost of debt mechanism and its forecast notional cost of debt under several future interest-rate scenarios.⁸ We have also modelled the proposed SSEN cost of debt mechanism and SSEN's forecast actual cost of debt under several future interest-rate scenarios (see Appendix A1.2).

The impact is presented as the forecast £m difference in value (i.e. cost of debt * notional gearing * RAV) between the expected allowance and the cost of debt (see Figure 2.1).⁹

Figure 2.1 Measuring the funding of debt costs (£m, nominal terms)



Note: The expected allowed cost of debt is based on interest-rate projections and the cost of debt indexation mechanism. The notional cost of debt represents the bundled effective interest rate of the embedded and new debt. The notional electricity distribution company is assumed to have opening notional debt in RIIO-2 that carries an interest rate equal to the 17-year trailing average of the iBoxx £ Utilities 10+ index. The opening notional debt is subsequently partially refinanced in each year of RIIO-2 to track the evolution of the 17-year trailing average. New debt is raised to match any changes in RAV, and is assumed to be raised at a rate equal to the average Utilities index for that specific year. Both cost of debt rates are expressed in nominal terms. The notional gearing working assumption is in line with Ofgem's methodology (i.e. 60% for RIIO-ED2). Nominal RAV is estimated as the simple average of the opening RAV and NPV-neutral closing RAV. The latter is estimated using the relevant one-year WACC discounting factor.

Source: Oxera.

The interest rate on cash and cash equivalents is assumed to be zero.¹⁰

The expected allowed cost of debt is based on interest-rate projections that are taken as inputs into the cost of debt indexation mechanism. We undertake the following steps in forecasting the cost of debt indexation mechanism.

1. We calculate the forward curve for 10-year UK gilts, with a cut-off date of 29 January 2021.¹¹

⁷ For the cost of debt assessment, SSEN provided Oxera with the business plan for SEPD and SHEPD, which included the embedded cost of debt and the planned profile of refinancing and issuance of new debt to finance CAPEX in RIIO-ED2.

⁸ We assumed that the notional company funds its opening RAV in RIIO-2 with an embedded debt book that has an interest rate equal to the 17-year trailing average of the iBoxx £ Utilities 10+ index. The opening notional debt is subsequently partially refinanced in each year of RIIO-2 to track the 17-year trailing average. We assumed that any changes in RAV in a given year of RIIO-2 are financed at a rate equal to the average Utilities index in that specific year.

⁹ Results expressed in CPIH-real % terms are presented in Appendix A1.1

¹⁰ This is in line with the SSEN business plan assumption for RIIO-ED2.

¹¹ This is in line with Ofgem's cut-off date for the SSMD. See Ofgem (2021), 'RIIO-ED2 Sector Specific Methodology Decision – Annex 3 Finance', 11 March, para. 2.39.

2. We calculate the spreads of the iBoxx 10-year+ Utilities index over 10-year UK gilts for the past three years.¹² The average tenor of the bonds in this index is 20 years, based on remaining time to maturity.
3. We combine the spread from step 2 with the forward curve from step 1 to estimate the future spot cost of debt.
4. We use this forecast of the spot or prevailing cost of debt—and, where possible, the actual outturn data of the iBoxx 10-year+ Utilities index—to forecast the cost of debt indexation mechanism.

It is our understanding that Ofgem used a conceptually similar approach to forecast the cost of debt indexation mechanism in the RIIO-2 SSMD document. We can confirm that our estimates of the Ofgem allowance are in line with the cost of debt working assumption in the SSMD.¹³

We have also tested the sensitivity of our results to alternative scenarios (the high- and low-interest-rate scenarios) for future interest rates. We did this by applying deviations to our forward curve. The high and low scenarios assume a $\pm 1\%$ change in the forward curve in each year, which subsequently impacts the forecast of the iBoxx 10-year+ Utilities index.¹⁴ This allows us to see the impact of scenarios when debt yields do not follow the same path as predicted by the forward curve.

2.3.2 Results

The impact on funding in RIIO-ED2 under the Ofgem allowed cost of debt mechanism in each future interest-rate scenario is presented in Table 2.1 below (in nominal £m terms) for both SEPD and SHEPD.¹⁵

Positive values indicate that the allowance is forecast to be above the cost of debt; negative values indicate that SSEN is forecast to be underfunded. The results show that prior to making any adjustments for additional borrowing costs, the allowance is forecast to be above the cost of debt in all interest-rate scenarios modelled, albeit with minimal headroom in the high-interest-rate scenarios.

The results show that the current proposal for calibration by Ofgem is the minimum requirement to ensure that the allowance covers the cost of debt, subject to any interest rate changes over the forthcoming business plan process to the Final Determinations in December 2022.

¹² Ofgem typically calculates a three-year average spread of the iBoxx index over gilt rates to be used for forecasting the iBoxx index. For example, see Ofgem (2020), 'Final Determinations - WACC Allowance Model for RIIO-T2/GD2'.

¹³ For Ofgem's forecast, see Ofgem (2021), 'RIIO-ED2 Sector Specific Methodology Decision – Annex 3 Finance', 11 March, Table 3.

¹⁴ These interest-rate scenarios are suggested by Ofgem. See Ofgem (2021), 'RIIO-ED2 Sector Specific Methodology Decision: Annex 3 Finance', 11 March, Table 2, p. 45.

¹⁵ Results expressed in CPIH-real % terms, as well as results using SEPD and SHEPD's embedded debt book, can be found in Appendix A1.

Table 2.1 Outperformance/underperformance by notional network in RIIO-ED2 (nominal £m)

	SEPD			SHEPD		
	Base	High	Low	Base	High	Low
CoD allowance (excl. additional costs)	76.81	80.67	72.95	41.35	43.50	39.21
Notional CoD	73.46	80.02	66.89	38.94	43.13	34.74
Outperformance	3.36	0.65	6.06	2.42	0.37	4.47

Note: The low- and high-interest-rate scenarios reflect the annual funding impact in RIIO-2, subject to a ± 100 bp deviation from the nominal forward curve. The RIIO-ED2 proposed allowance does not include any allowance by Ofgem for additional costs (set at 25bps).

Source: Oxera analysis.

We have also presented these results expressed in CPIH-real % terms in Table A1.1 of Appendix A1.1.

2.4 Additional costs of borrowing

In the SSMD, Ofgem proposed an allowance of 25bps for additional costs of borrowing.¹⁶ However, in this section, we undertake an assessment of additional costs of borrowing, taking into account the following costs associated with issuing debt.

1. New issue premium—the iBoxx indices are based on yields derived from bonds trading in the secondary market, whereas investors in new issues may require a premium over the prevailing secondary market rates.
2. Cost of carry—debt is typically raised in tranches, with cash held on deposit until needed for CAPEX. This creates a cost of carrying the debt on the balance sheet until the cost of debt allowance is increased in line with RAV growth.
3. CPI indexation costs—we understand from SSEN that the cost of debt allowance does not fully compensate for the transition of the price control from RPI to CPI/CPIH indexation.
4. Transaction costs—these costs include underwriting fees, bond advisory fees, auditor fees, rating agency fees, etc. that are incurred upfront as well as on an ongoing basis.
5. Liquidity/RCF cost—this measures the cost of maintaining revolving credit facility (RCF), including the commitment fee, as well as the cost to draw-down on these facilities.

SSEN provided us with the following ranges for these costs, as shown in Table 2.2.

¹⁶ Ofgem (2021), 'RIIO-ED2 Sector Specific Methodology Decision: Annex 3 Finance', 11 March, para. 2.45.

Table 2.2 Costs associated with issuing debt

Costs of issuing debt	Basis points (bp)
New issue premium	7
Cost of carry	9–19
CPI indexation costs	6
Transaction costs	7
Liquidity/RCF cost	9
Total	38–48

Source: Cost assumptions provided by SSEN.

Based on the information provided by SSEN, we have assumed a range of 25–45bps for additional costs of borrowing. As Ofgem has proposed an allowance of 25bps, this means that there are between 0bps and 20bps of additional costs that remain unfunded.

Table 2.3 below presents the funding impact for the Ofgem allowed cost of debt mechanism net of these other costs, expressed in nominal £m.¹⁷ Under the high-interest-rate scenario for both networks, as well as the base case for SEPD, the allowance is insufficient to fund the notional cost of debt when high transaction costs are assumed.

Table 2.3 Average annual funding impact in RIIO-2 under different cost of debt mechanisms net of costs not covered by the cost of debt mechanism (0–20bps) (nominal £m), notional

	SEPD			SHEPD		
	Base case	High-interest-rate scenario	Low-interest-rate scenario	Base case	High-interest-rate scenario	Low-interest-rate scenario
Outperformance prior to additional costs	3.36	0.65	6.06	2.42	0.37	4.47
Additional borrowing costs not covered by Ofgem allowance	0–4	0–4	0–4	0–2.16	0–2.16	0–2.16
Outperformance/underperformance	(0.64)–3.36	(3.35)–0.65	2.06–6.06	0.26–2.42	(1.79)–0.37	2.31–4.47

Note: The impact on funding is reported on a per annum nominal (£m) basis. The low- and high-interest-rate scenarios reflect the annual funding impact in RIIO-2, subject to a ±100bps deviation from the nominal forward curve.

In addition, based on the Ofgem criteria at RIIO-GD2, SHEPD is likely to be eligible for a small company premium. This is because SHEPD's change in RAV over RIIO-ED2 is forecast to be £917m, at an average of £183m per year. Multiplied by 60% notional gearing would give average annual debt issuance at c. £110m, below Ofgem's threshold of £150m debt issuance on average per annum for awarding a small company premium to gas distribution networks in RIIO-GD2.¹⁸

¹⁷ Results expressed in CPIH-real % terms, as well as results using SEPD and SHEPD's embedded debt book, can be found in Appendix A1.

¹⁸ Ofgem (2021), 'RIIO-2 Final Determinations – Finance Annex (REVISED)', February, para 2.62.

3 Financeability assessment

This section provides our review of the financeability of the SSEN business plan and Ofgem's approach to financeability assessment, as described in the RIIO-2 business plan guidance of 22 April¹⁹ and the SSMD document of 11 March.²⁰

This section is structured as follows.

- Section 3.1 outlines our approach to modelling financeability.
- Section 3.2 summarises the main findings.
- Section 3.3 explains the assumptions underlying the notional and the actual company, and outlines the expenditure in the base and the uncertainty mechanism spend scenarios.
- Section 3.4 discusses our analysis of the financeability of the notional company using the SEPD and SHEPD financial models.
- Section 3.5 discusses our analysis of the financeability of the actual company using the SEPD and SHEPD financial models.
- Appendix A2 provides further details of our financeability metrics analysis.

3.1 Approach

We assess the financeability of both the **notional** and the **actual** company.²¹

- The **notional** company is assessed by using Ofgem's proposed 17-year trailing average and assuming that 25% of the company's debt is index-linked (linked to CPIH), as set out in the cost of debt working assumption in the SSMD. However, as discussed in section 2, the proposed 17-year trailing average may not be sufficient to cover the cost of debt for a notional company plus issuance costs across all interest-rate scenarios.²²
- The **actual** company is assessed based on SSEN's expected actual cost of debt in RIIO-ED2, which includes both the embedded debt and new debt raised during ED2, where the cost of new debt is modelled based on the projected one-year average interest rates on Utilities iBoxx instead of the allowed 17-year trailing average.²³ The net debt to RAV remains constant at 60% throughout RIIO-ED2 for the actual company.

3.2 Main findings

The main findings from our financeability analysis for the notional and the actual company, assuming 0.25% outperformance (i.e. 4.65% CPIH-real equity return) and assuming no outperformance (i.e. 4.40% CPIH-real equity return), are as follows. We understand that if 0.25% outperformance is not realised in

¹⁹ Ofgem (2021), 'RIIO-ED2 Business Plan Guidance', 22 April.

²⁰ Ofgem (2021), 'RIIO-ED2 Sector Specific Methodology Decision: Annex 3 Finance', 11 March.

²¹ We have considered the credit metrics analysis using accounting form ratios consistent with the credit rating agencies' methodologies, as well as Ofgem's financeability guidance. Our analysis focuses on the accounting form of the metrics based on actual business plan information provided by SSEN for both SHED and SHEPD.

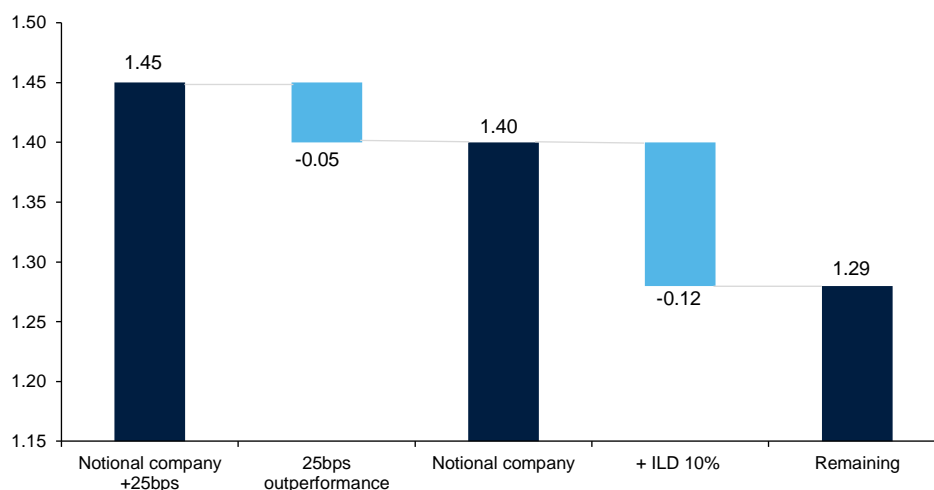
²² The impact of including transaction costs would be to reduce the credit ratios by increasing the interest expense.

²³ We understand that Ofgem's PCFM assumes that new debt, as well as any embedded debt that needs to be refinanced, is raised at the average of the Utilities index in the year such that the overall debt book carries an interest cost equal to the 17-year trailing average. We note that our disaggregated all-in cost of debt approach better approximates the actual cost of raising new debt in the RIIO-2 period.

ED2, Ofgem will reimburse companies up to 0.25% on equity allowance. As such, the main impact of achieving zero outperformance will be on cash flows within ED2.

- Key financeability metrics for the notional SEPD and SHEPD just about meet the BBB+/Baa1 threshold guidance of the credit rating agencies in the base scenario (see Figure 3.1 and Figure 3.2 below). However, the financeability metrics deteriorate under the Ofgem downside scenarios.
- With a 4.65% CPIH-real equity return assumption, AICR is 1.45x for both SEPD and SHEPD, which is in line with Moody's recent guidance on the threshold range for a Baa1 rating (i.e. above 1.4x).²⁴ However, this is below Fitch's guidance threshold of 1.5x to 1.75x for BBB and A ratings respectively.²⁵
- If zero outperformance is assumed, i.e. the CPIH-real equity return is 4.40%, the AICR for both a notional SEPD and a notional SHEPD declines to 1.40x,²⁶ barely in line with Moody's credit rating threshold for a Baa1 rating.
- Further, if 10% index-linked debt is assumed for the notional company, in line with the industry evidence (see section 3.4.2), then the AICR falls to 1.28x for both SEPD and SHEPD, below Moody's Baa1 rating.
- Under the Ofgem scenarios, AICR metrics range between 0.99x and 1.81x for SEPD and 0.98x and 1.82x for SHEPD. For detail, see Table 3.3 to Table 3.9 below. The downside scenarios have credit metrics significantly below the Baa rating thresholds.

Figure 3.1 AICR for SEPD



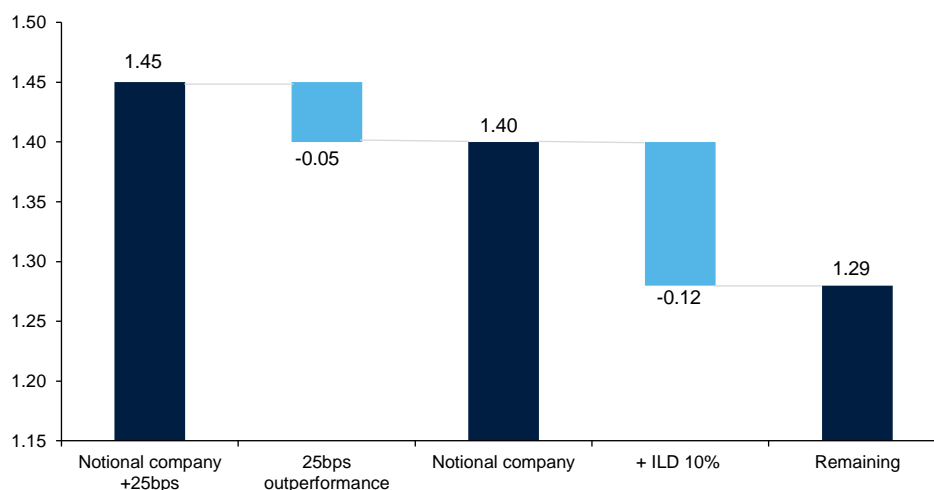
Note: The AICR presented is based on a notional gearing assumption of 60%. If the gearing was maintained at RIIO-ED1 level at 65%, this would lead to a further decline in the AICR.

Source: Oxera analysis, based on SSEN data.

²⁴ Moody's (2018), 'Regulated electric and gas networks – UK. Risks are rising, but regulatory fundamentals still intact', 29 May, p. 4.

²⁵ Fitch (2018), 'Corporate rating criteria Sector Navigators', p. 165.

²⁶ This is in line with the AICR in the PCFM, where AICR is also 1.40x.

Figure 3.2 AICR for SHEPD

Note: The AICR presented is based on a notional gearing assumption of 60%. If the gearing was maintained at RIIO-ED1 level at 65%, this would lead to a further decline in the AICR.

Source: Oxera analysis, based on SSEN data.

- While Ofgem requires companies to model a 3% dividend yield assumption, this is not feasible without significant equity issuance. Companies need to de-gear to achieve a notional gearing of 60% in RIIO-2 (from 65% in RIIO-1). The net equity issuance required to maintain a notional dividend yield of 3% and a gearing of 60% would be around £489m and £360m for SEPD and SHEPD respectively.²⁷ This is in excess of 7% and 11% of the current equity value²⁸ for SEPD and SHEPD respectively.
- In the scenario with increased spend under the uncertainty mechanism (UM), the AICR ratios for both the notional SEPD and the notional SHEPD, are 1.40x. However, the net equity issuance required to maintain a notional gearing of 60% and a dividend yield of 3% is higher. If the gearing is set at 65%, then the notional AICR for both the companies falls to 1.24x, below Moody's threshold for a Baa1 rating of 1.20x.
- In the base scenario, the actual company ratios for both SEPD and SHEPD meet the BBB+/Baa1 threshold guidance of the credit rating agencies.

3.3 Assumptions for notional and actual company and TOTEX scenarios

In the SSMD, Ofgem reiterated that it would primarily rely on the notional company to assess the financeability of the RIIO-2 control. However, it has also asked companies to present an actual financeability assessment of their business plans.

We have used the SSEN financial models as the basis for assessing the financeability of the notional and the actual company.²⁹ Our assumptions have

²⁷ Note that reducing gearing from 65% in RIIO-1 to 60% in RIIO-2 implies that the company would need to inject equity to de-gear in the last year of RIIO-1.

²⁸ Estimated as £489.0m divided by £6655.3m of equity for SEPD. Estimated as £359.5m divided by £3598.4m of equity for SHEPD.

²⁹ We used SSE financial models 'SEPD RIIO-2 Financial Model – Scenario 2 Base Totex 4162m v4' and 'SHEPD RIIO-2 Financial Model – Scenario 2 Base Totex 4162m v4' dated 8 June 2021. We have not undertaken a full audit of the model.

been informed by the latest working assumptions used in Ofgem's own modelling of the notional company, as discussed in the Finance annex of the SSMD (see also Appendix A2).³⁰ The main assumptions underlying the notional and the actual company base case are summarised in Table 3.1 below.

Table 3.1 Main assumptions for notional and actual company

Parameter	Notional company assumption	Actual company assumption
Allowed cost of equity	Baseline estimate of 4.4% (real, CPIH) and a high cost of equity scenario of 4.65% (real, CPIH) ¹	Baseline estimate of 4.4% (real, CPIH) and a high cost of equity scenario of 4.65% (real, CPIH) ¹
Allowed cost of debt	RIIO-ED2 17-year trailing average in the base case scenario (same as Ofgem)	Based on the forecast actual cost of debt in RIIO-ED2
Index-linked debt	Comprises 25% of total debt, indexed to CPIH in the base case	10% of total debt of SSEN is RPI-linked in RIIO-ED2. (7.7% for SEPD and 15% for SHEPD).
Interest expense	Equal to the cost of debt (17-year trailing average)	Equal to SSEN actual cost of debt for embedded debt and one-year average iBoxx utilities index for new debt
Gearing	60%. Gearing maintained in line with notional assumption through equity injection(s) ²	60%. Gearing maintained in line with notional assumption through equity injection(s).
Inflation	CPIH of 2.0%	CPIH of 2.0%
Dividend yield	3.0%, in line with Ofgem's allowance for the notional company in RIIO-2	3.0%, in line with Ofgem's allowance for the notional company in RIIO-2
Capitalisation rate	65%. Corresponds to the SSEN rate in RIIO-1, consistent with Ofgem SSMD guidance.	65%. Corresponds to the SSEN rate in RIIO-1, consistent with Ofgem SSMD guidance.
Depreciation	Asset life phased increase to 45 years through RIIO-ED2 for post-vesting assets. ³ We take the CAPEX profile as given in SSEN's model.	Asset life phased increase to 45 years through RIIO-2 for post-vesting assets. ³ We take the CAPEX profile as given in SSEN's model.
Incentives (TOTEX, business plan, outcomes)	No under- or over-performance. This is consistent with the approach in RIIO-1. Only base revenues were considered in Ofgem's financeability assessment then.	No under- or over-performance. This is consistent with the approach in RIIO-1. Only base revenues were considered in Ofgem's financeability assessment then.
Equity issuance transaction costs	5.0%, in line with Ofgem's working assumption	5.0%, in line with Ofgem's working assumption

Notes: ¹ Ofgem has also included a 25bp uplift to the allowed cost of equity due to assumed outperformance of the price control. The base equity return is 4.65% in Ofgem's financeability modelling. ² Net debt is assumed to be at the notional level at the start of RIIO-ED2. ³ We have retained SSEN's modelling of a phased transition to a 45-year asset life in RIIO-ED2 for post-vesting assets. We have used the SSEN bottom-up modelling estimates of depreciation, allowing for differing depreciation policy assumptions over time. We note that Ofgem's guidance for modelling the notional company is to use depreciation rates as a percentage of RAV, based on expenditures at the RIIO-1 average level.

Source: Ofgem (2021), 'RIIO-ED2 Business Plan Guidance', 22 April; (2021), 'RIIO-ED2 Sector Specific Methodology Decision: Annex 3 Finance', 11 March.

³⁰ Ofgem (2021), 'RIIO-ED2 Sector Specific Methodology Decision: Annex 3 Finance', 11 March.

The baseline TOTEX and uncertainty mechanism (UM) expenditure in RIIO-ED2 for SEPD and SHEPD in SSEN's financial model is as follows.

Table 3.2 Total TOTEX and additional UM expenditure for SEPD and SHEPD, £m 2020/21 prices

TOTEX scenario	Apr 2024	Apr 2025	Apr 2026	Apr 2027	Apr 2028	Total RIIO-2
SEPD base case TOTEX	548	554	559	529	528	2,717
SHEPD base case TOTEX	294	323	279	264	250	1,410
SEPD additional UM spend	110	110	110	110	110	552
SHEPD additional UM spend	71	71	71	71	71	353

Note: Values have been rounded.

Source: Oxera analysis, based on the SSEN financial model.

3.4 Financeability analysis of the notional company in RIIO-2

3.4.1 Baseline TOTEX

The averages of the credit metrics for the notional company during RIIO-ED2 are provided in Table 3.3 below, alongside the credit rating agencies' guidance ranges for an investment-grade credit rating.

Table 3.3 Average credit metrics during RIIO-ED2 for the notional company on a 4.4% (CPI, real) cost of equity assumption versus indicative ranges for investment-grade rating from the credit rating agencies

Ratio	Fitch ¹		Moody's		Standard & Poor's ²		Notional company base case (SEPD)	Notional company base case (SHEPD)
	A	BBB	A	Baa	A	BBB		
Debt metrics								
Net debt/RAV (%)	60	70	45–60	60–75	<70	>70	60%	60%
FFO interest cover, including accretion (i.e. total interest expense) (x)*	4.5	3.5	4–5.5	2.8–4			3.91	3.78
FFO interest cover, excluding accretion ³ (i.e. cash interest) (x)*					>3.5	2.5–3.5	4.51	4.35
AICR (x)*	1.75	1.5	1.6–1.8 ⁴	1.2–1.4 ⁴			1.40	1.40
Nominal PMICR (x) ⁵							3.82	3.80
FFO (cash interest)/net debt (%)*			18–26	11–18	>12	8–12	11.46%	10.92%
RCF/net debt (%)			14–21	7–14			9.54%	9.02%

Note: * Ofgem's key credit metrics as per the Finance annex of the SSMD. The ratios are calculated using credit rating agency formulas. ¹ Fitch also considers other financial ratios, including lease-adjusted FFO/debt and lease-adjusted FFO/net debt. These measures have not been explicitly highlighted by Ofgem as measures of interest when assessing financeability. ² Unlike Moody's and Fitch, S&P does not provide indicative ranges. The ranges interact with additional considerations, such as the business risk profile and industry risk. See Standard & Poor's (2013), 'Criteria | Corporates | General: Corporate Methodology', tables 3, 17–19. We have reported the indicative ranges provided by Ofgem during the RIIO-1 period. See Ofgem (2011), 'Decision on strategy for the next transmission and gas distribution price controls – RIIO-T1 and GD1 Financial issues', 31 March, p. 40. ³ Moody's subtracts inflation accretion from FFO and the interest expense to the extent that it is included. Ofgem's approach, which is the same as that used by S&P, includes inflation accretion in the denominator of the FFO interest cover ratio. ⁴ Moody's guidance minimum rating for a Baa2 rating (1.2), Baa1 rating (1.4), A3 rating (1.6), and A2 rating (1.8) from 29 May 2019 commentary. Moody's does not provide a guidance figure for a Baa3 rating. ⁵ Nominal PMICR is a metric estimated by Ofgem and is not used by the credit rating agencies.

Source: Fitch (2018), 'Corporate rating criteria Sector Navigators', p. 165; Moody's (2017), 'Rating Methodology Regulated Electric and Gas Networks, 16 March, p. 19; Moody's (2018), 'Regulated electric and gas networks – UK. Risks are rising, but regulatory fundamentals still intact', 29 May, p. 4; Ofgem (2011), 'Decision on strategy for the next transmission and gas distribution price controls – RIIO-T1 and GD1 Financial issues', 31 March, p. 40.

As shown in Table 3.3, for the notional SEPD and SHED during RIIO-ED2, the AICR (or PMICR) is within Moody's guidance³¹ of 1.4x–1.6x for a Baa1 rating. However, the AICR is below Fitch's guidance of 1.5x for a BBB rating.

³¹ Moody's (2018), 'Regulated electric and gas networks – UK. Risks are rising, but regulatory fundamentals still intact', 29 May, p. 4, Moody's (2021), 'Moody's changes outlook on Electricity North West to stable', 31 March.

FFO interest cover, including inflation accretion, is in line with Fitch's guidance of 3.5x–4.5x for an A/BBB rating for both SEPD and SHEPD. FFO/net debt (including and excluding accretion) is also in line with Moody's guidance for a Baa rating of 11–18% for both SEPD and slightly lower for SHEPD. However, the FFO/net debt ratios deteriorate towards the end of RIIO-2 and are trending towards going below the Baa1 threshold in RIIO-3. Similarly, in the downside scenarios, credit metrics are below the credit rating agencies' Baa1/BBB+ thresholds on a notional company basis, as shown in Table 3.4 to Table 3.10 below.

Financeability scenario analysis

We have tested the financeability of the notional company based on the working assumptions proposed by Ofgem. We have then assessed the sensitivities prescribed by Ofgem on both the baseline and the uncertainty mechanism spend scenarios in both the SEPD and SHEPD financeability models, followed by SEPD and SHEPD sensitivities.

Ofgem sensitivities

Ofgem-prescribed sensitivities include:

- a change in CPIH of +/- 1%;
- a change in the RPI/CPIH wedge of +/-0.5%;
- a change in interest rate of +/-1%;
- a change in TOTEX performance of +/-10%;
- a change in RORE of +/- 2%;
- a change in inflation-linked debt assumption of +/-5% (i.e. inflation-linked debt assumption of 20% and 30%).

SSEN sensitivities

SSEN additional sensitivities include assuming 10% inflation-linked-debt, which, according to SSEN, more closely reflects the sector average, excluding outliers.

The results from these tests are summarised in the tables below. All scenarios assume an equity return in line with the base case assumption for the notional company (i.e. **4.40%, CPIH-real**), unless otherwise noted. We have also undertaken the financeability analysis for both the actual and the notional company at a 4.65% CPIH-real cost of equity assumption. The results from these scenarios are presented in Appendix A2.2 and 3.5A2.3.

Further, we have modelled a scenario including an additional 20bps on the cost of new debt for the actual company. The actual company AICR is equal to 1.41x and 1.91x for SEPD and SHEPD respectively. The results of this analysis are presented in Appendix A2.2 and A2.3.

Ofgem sensitivities

Ofgem sensitivity analysis based on changes to the interest rate projections, changes to the inflation assumptions, and TOTEX and RORE under/overperformance (see Table 3.4 to Table 3.9) suggest that the notional company will achieve a Baa1 target credit rating under upside scenarios, but

that the ratios will deteriorate significantly under downside scenarios. Overall, we observe that:

- a decline (increase) in interest rates will slightly improve (worsen) the AICR;
- an increase in inflation will increase the AICR due to the increase in allowed revenues and inflation accretion relative to the cash interest—the opposite will be true for a decrease in inflation (i.e. AICR will decrease);
- TOTEX outperformance of 10% will increase the AICR to 1.56x for SEPD and 1.55x for SHEPD (A rating), while TOTEX overspend of 10% will put pressure on the AICR, pushing it to 1.25x for SEPD and 1.25x for SHEPD (Baa2 rating);
- 2% outperformance on the RORE will increase the AICR to around 1.81x for SEPD and 1.82x for SHEPD, whereas a 2% underperformance will reduce the AICR to 0.99x for SEPD and 0.98x SHEPD.

Table 3.4 Financeability metrics for the notional company under Ofgem scenarios (interest rates and inflation) for SEPD

	Base case	Interest rate +1%	Interest rate -1%	CPIH +1%	CPIH -1%	RPI-CPI wedge -0.5%	RPI-CPI wedge +0.5%
Net debt/RAV (%)	60%	60%	60%	60%	60%	60%	60%
FFO interest cover (interest expense) (x)	3.91	3.77	4.07	3.93	3.89	3.92	3.94
FFO interest cover (cash interest) (x)	4.51	4.32	4.73	4.89	4.17	4.68	5.09
AICR (or PMICR) (x)	1.40	1.38	1.43	1.52	1.30	1.46	1.58
Nominal PMICR	3.82	3.74	3.91	4.23	3.41	4.02	4.42
FFO (cash interest)/net debt (%)	11.46%	11.46%	11.47%	11.72%	11.20%	11.59%	11.84%
FFO (interest expense)/net debt (%)	10.97%	10.96%	10.97%	10.99%	10.95%	10.98%	10.99%
RCF/net debt (%)	9.54%	9.54%	9.55%	9.80%	9.28%	9.67%	9.92%
EBITDA/RAV (x)	9.86%	9.97%	9.75%	9.88%	9.84%	9.87%	9.89%
RORE (%)	11.64%	11.64%	11.64%	11.87%	11.40%	11.75%	11.98%
Dividend cover (x)	2.82	2.82	2.82	2.90	2.74	2.86	2.93
Dividend/regulated equity (%)	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Required ¹ equity buyback/(issuance) (£m)	(489.0)	(489.6)	(488.4)	(411.7)	(563.4)	(452.6)	(373.8)

Note: ¹ Forcing the dividend yield to 3% as per the notional company assumption would require equity issuance or equity buyback in the RIIO-2 price control. The RPI-CPI wedge scenarios assume an inflation of 2.5% and 3.5% respectively in all the tables in this report unless otherwise mentioned.

Source: Oxera analysis, based on SSEN business plan data.

Table 3.5 Financeability metrics for the notional company under Ofgem scenarios (interest rates and inflation) for SHEPD

	Base case	Interest rate +1%	Interest rate -1%	CPIH +1%	CPIH -1%	RPI-CPI wedge -0.5%	RPI-CPI wedge +0.5%
Net debt/RAV (%)	60%	60%	60%	60%	60%	60%	60%
FFO interest cover (interest expense) (x)	3.78	3.65	3.92	3.79	3.76	3.78	3.80
FFO interest cover (cash interest) (x)	4.35	4.17	4.55	4.72	4.02	4.52	4.91
AICR (or PMICR) (x)	1.40	1.38	1.43	1.52	1.30	1.45	1.58
Nominal PMICR	3.80	3.72	3.88	4.19	3.40	3.98	4.38
FFO (cash interest)/net debt (%)	10.92%	10.91%	10.92%	11.17%	10.66%	11.04%	11.29%
FFO (interest expense)/net debt (%)	10.43%	10.42%	10.43%	10.44%	10.41%	10.44%	10.45%
RCF/net debt (%)	9.02%	9.02%	9.03%	9.27%	8.76%	9.14%	9.39%
EBITDA/RAV (x)	9.18%	9.29%	9.07%	9.21%	9.15%	9.19%	9.22%
RORE (%)	6.09%	6.09%	6.09%	6.43%	5.73%	6.26%	6.59%
Dividend cover (x)	0.94	0.94	0.95	1.06	0.82	1.00	1.12
Dividend/regulated equity (%)	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Required ¹ equity buyback/(issuance) (£m)	(359.5)	(359.8)	(359.2)	(321.2)	(396.2)	(341.5)	(302.4)

Note: ¹ Forcing the dividend yield to 3% as per the notional company assumption would require equity issuance or equity buyback in the RIIO-2 price control. The RPI-CPI wedge scenarios assume an inflation of 2.5% and 3.5% respectively.

Source: Oxera analysis, based on SSEN business plan data.

Table 3.6 Financeability metrics for the notional company under
Ofgem scenarios (TOTEX performance and RORE) for SEPD

	Base case	TOTEX performance +10%	TOTEX performance -10%	RORE +2%	RORE -2%
Net debt/RAV (%)	60%	60%	60%	60%	60%
FFO interest cover (interest expense) (x)	3.91	4.07	3.75	4.27	3.55
FFO interest cover (cash interest) (x)	4.51	4.69	4.32	4.92	4.10
AICR (or PMICR) (x)	1.40	1.56	1.25	1.81	0.99
Nominal PMICR	3.82	3.97	3.68	4.18	3.47
FFO (cash interest)/net debt (%)	11.46%	12.10%	10.84%	12.80%	10.13%
FFO (interest expense)/net debt (%)	10.97%	11.60%	10.35%	12.30%	9.63%
RCF/net debt (%)	9.54%	10.18%	8.93%	10.88%	8.21%
EBITDA/RAV (x)	9.86%	10.32%	9.41%	10.85%	8.87%
RORE (%)	11.64%	12.68%	10.63%	13.73%	9.56%
Dividend cover (x)	2.82	3.17	2.48	3.52	2.13
Dividend/regulated equity (%)	3.00%	3.00%	3.00%	3.00%	3.00%
Required ¹ equity buyback/(issuance) (£m)	(489.0)	(297.7)	(680.3)	(350.4)	(627.6)

Note: ¹ Forcing the dividend yield to 3% as per the notional company assumption would require equity issuance or equity buyback in the RIIO-2 price control.

Source: Oxera analysis, based on SSEN business plan data.

Table 3.7 Financeability metrics for the notional company under Ofgem scenarios (TOTEX performance and RORE) for SHEPD

	Base case	TOTEX performance +10%	TOTEX performance -10%	RORE +2%	RORE -2%
Net debt/RAV (%)	60%	60%	60%	60%	60%
FFO interest cover (interest expense) (x)	3.78	3.93	3.62	4.14	3.41
FFO interest cover (cash interest) (x)	4.35	4.52	4.17	4.76	3.93
AICR (or PMICR) (x)	1.40	1.55	1.25	1.82	0.98
Nominal PMICR	3.80	3.94	3.66	4.16	3.44
FFO (cash interest)/net debt (%)	10.92%	11.52%	10.33%	12.25%	9.58%
FFO (interest expense)/net debt (%)	10.43%	11.03%	9.84%	11.76%	9.09%
RCF/net debt (%)	9.02%	9.62%	8.44%	10.36%	7.69%
EBITDA/RAV (x)	9.18%	9.62%	8.75%	10.19%	8.17%
RORE (%)	6.09%	7.04%	5.16%	8.20%	3.98%
Dividend cover (x)	0.94	1.26	0.64	1.65	0.24
Dividend/regulated equity (%)	3.00%	3.00%	3.00%	3.00%	3.00%
Required ¹ equity buyback/(issuance) (£m)	(359.5)	(260.7)	(458.3)	(283.5)	(435.5)

Note: ¹ Forcing the dividend yield to 3% as per the notional company assumption would require equity issuance or equity buyback in the RIIO-2 price control.

Source: Oxera analysis, based on SSEN business plan data.

Table 3.8 Financeability metrics for the notional company under Ofgem scenarios (index-linked debt) for SEPD

	Base case (25% inflation-linked debt)	Inflation-linked debt +5%	Inflation-linked debt -5%
Net debt/RAV (%)	60%	60%	60%
FFO interest cover (interest expense) (x)	3.91	3.91	3.91
FFO interest cover (cash interest) (x)	4.51	4.65	4.37
AICR (or PMICR) (x)	1.40	1.44	1.36
Nominal PMICR	3.82	3.82	3.82
FFO (cash interest)/net debt (%)	11.46%	11.56%	11.36%
FFO (interest expense)/net debt (%)	10.97%	10.97%	10.97%
RCF/net debt (%)	9.54%	9.64%	9.44%
EBITDA/RAV (x)	9.86%	9.86%	9.86%
RORE (%)	11.64%	11.64%	11.64%
Dividend cover (x)	2.82	2.82	2.82
Dividend/regulated equity (%)	3.00%	3.00%	3.00%
Required ¹ equity buyback/(issuance) (£m)	(489.0)	(488.3)	(489.7)

Note: ¹ Forcing the dividend yield to 3% as per the notional company assumption would require equity issuance or equity buyback in the RIIO-2 price control.

Source: Oxera analysis, based on SSEN business plan data.

Table 3.9 Financeability metrics for the notional company under Ofgem scenarios (index-linked debt) for SHEPD

	Base case (25% inflation-linked debt)	Inflation-linked debt +5%	Inflation-linked debt -5%
Net debt/RAV (%)	60%	60%	60%
FFO interest cover (interest expense) (x)	3.78	3.78	3.78
FFO interest cover (cash interest) (x)	4.35	4.48	4.22
AICR (or PMICR) (x)	1.40	1.44	1.36
Nominal PMICR	3.80	3.80	3.80
FFO (cash interest)/net debt (%)	10.92%	11.01%	10.82%
FFO (interest expense)/net debt (%)	10.43%	10.43%	10.43%
RCF/net debt (%)	9.02%	9.12%	8.93%
EBITDA/RAV (x)	9.18%	9.18%	9.18%
RORE (%)	6.09%	6.09%	6.09%
Dividend cover (x)	0.94	0.94	0.94
Dividend/regulated equity (%)	3.00%	3.00%	3.00%
Required ¹ equity buyback/(issuance) (£m)	(359.5)	(358.9)	(360.0)

Note: ¹ Forcing the dividend yield to 3% as per the notional company assumption would require equity issuance or equity buyback in the RIIO-2 price control.

Source: Oxera analysis, based on SSEN business plan data.

Additional sensitivities

The additional sensitivity tests on the inflation-linked debt assumptions and the increased spend under the uncertainty mechanism reduce the financeability metrics.

- Changing the assumption that 25% of debt is inflation-linked to 10% index-linked debt results in a decrease of the AICR to 1.28x (from 1.40x in the base case), below Moody's guidance threshold for a Baa1 rating (of 1.4x) for both SEPD and SHEPD (see Table 3.10 and Table 3.11). The AICR metric declines with a reduction in the proportion of index-linked debt due to the decrease in the FFO (cash interest expense, which is deducted from FFO, is higher). We further discuss the basis of Ofgem's assumption on index-linked debt in section 3.4.2.
- Increasing spend under the uncertainty mechanism by £552m and £353m (2020/21 prices) for SEPD and SHEPD respectively maintains AICR metrics at 1.40x, but increases the required equity issuance.

Table 3.10 Additional sensitivity analysis for the notional company (SEPD)

	10% inflation-linked debt	Uncertainty mechanism spend (base case)
Net debt/RAV (%)	60%	60%
FFO interest cover (interest expense) (x)	3.91	3.79
FFO interest cover (cash interest) (x)	4.13	4.36
AICR (or PMICR) (x)	1.28	1.40
Nominal PMICR	3.82	3.77
FFO (cash interest)/net debt (%)	11.17%	10.88%
FFO (interest expense)/net debt (%)	10.97%	10.39%
RCF/net debt (%)	9.25%	8.98%
EBITDA/RAV (x)	9.86%	9.54%
RORE (%)	11.64%	11.15%
Dividend cover (x)	2.82	2.65
Dividend/regulated equity (%)	3.00%	3.00%
Required ¹ equity buyback/(issuance) (£m)	(491.1)	(591.5)

Note: ¹ Forcing the dividend yield to 3% as per the notional company assumption would require equity issuance or equity buyback in the RIIO-2 price control.

Source: Oxera analysis, based on SSEN business plan data.

Table 3.11 Additional sensitivity analysis for the notional company (SHEPD)

	10% inflation-linked debt	Uncertainty mechanism
Net debt/RAV (%)	60%	60%
FFO interest cover (interest expense) (x)	3.78	3.65
FFO interest cover (cash interest) (x)	3.98	4.21
AICR (or PMICR) (x)	1.28	1.40
Nominal PMICR	3.80	3.74
FFO (cash interest)/net debt (%)	10.62%	10.33%
FFO (interest expense)/net debt (%)	10.43%	9.84%
RCF/net debt (%)	8.73%	8.46%
EBITDA/RAV (x)	9.18%	8.88%
RORE (%)	6.09%	5.92%
Dividend cover (x)	0.94	0.88
Dividend/regulated equity (%)	3.00%	3.00%
Required ¹ equity buyback/(issuance) (£m)	(361.1)	(425.0)

Note: ¹ Forcing the dividend yield to 3% as per the notional company assumption would require equity issuance or equity buyback in the RIIO-2 price control.

Source: Oxera analysis, based on SSSEN business plan data.

The sensitivity analysis presented in this section is based on a baseline cost of equity of 4.4% (CPIH-real). We have also undertaken a similar sensitivity analysis for a 4.65% (CPIH-real). The results are presented in Appendix A2.

3.4.2 Basis of Ofgem's 25% index-linked debt assumption

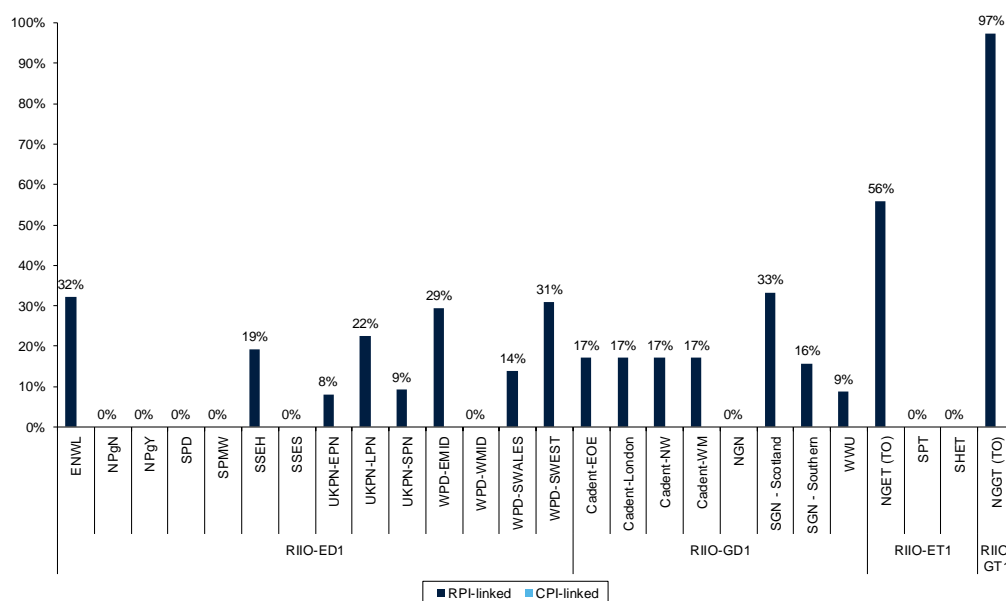
In its modelling of the notional company, Ofgem assumes that 25% of debt is index-linked to inflation. To justify the 25% index-linked debt assumption, Ofgem relies on three data points:

- 37% index-linked debt on average for gas distribution and transmission in 2018/19, based on data from business plan submissions that has not been published by Ofgem;
- a 33% index-linked debt assumption by Ofwat in PR19;
- 25% index-linked debt on average for distribution and transmission in 2017/18 (see Figure 3.3 below) based on the Regulatory Financial Performance Reporting (RFPR) data (which is on a pre-derivative basis).

While Figure 3.3 shows that the average index-linked debt in the industry is around 25%, there is a wide range of index-linked debt between companies, and the assumption of 25% index-linked debt is distorted by the inclusion of National Grid Gas Transmission (NGGT), which has a particularly high proportion of index-linked debt (97% in 2017/18).

We consider a 10% index-linked debt assumption to be more appropriate for the electricity distribution sector. This is because that is more representative³² of the proportion of index-linked debt across electricity distribution in 2017/18 data—the best possible estimate based on the data that Ofgem has disclosed.

³² The median index-linked debt in the electricity distribution sector is 8% and the mean is 11.7%. Based on this, we propose to use an index-linked debt assumption of 10% for electricity distribution.

Figure 3.3 Companies' index-linked debt for RIIO-1

Source: Oxera analysis, based on RFPR data.

We have therefore tested a '10% index-linked debt' sensitivity for the notional company. Reducing the assumption that 25% of debt is inflation-linked to 10% results in a decrease of the AICR to 1.28x (from 1.40x in the base case), slightly above Moody's' guidance threshold for a Baa2 rating (of 1.2x).³³

3.4.3 Implications for the dividend yield

The financeability assessment of the notional company suggests that Ofgem's assumption of a 3% dividend yield is not realistic. We have therefore examined the requirement for net new equity issuance over RIIO-2 to maintain a dividend assumption of 3% and a gearing of 60% for both SEPD and SHEPD respectively.³⁴

In RIIO-2, companies need to de-gear to achieve a notional gearing of 60% from the 65% notional gearing assumption in RIIO-1. The equity issuance required to maintain a notional dividend yield of 3% and a gearing of 60% would be around £489m and £360m for SEPD and SHEPD respectively (see Table 3.11 below).³⁵ This is on average in excess of 7% and 11% of the equity value in each year³⁶ for SEPD and SHEPD respectively.

³³ The AICR metric declines when reducing the proportion of index-linked debt due to FFO increasing (cash interest expense, which is deducted from FFO, is higher).

³⁴ The profile of cash flow modelled during RIIO-ED2 implies that there will be equity issuance in some years and buybacks in other years, assuming a constant dividend yield. The reported net equity issuance is net of buybacks.

³⁵ Note that reducing gearing from 65% in RIIO-1 to 60% in RIIO-2 implies that the company would need to inject equity to de-gear in the last year of RIIO-1.

³⁶ Estimated as £489.0m divided by £6655.3m of equity for SEPD. Estimated as £359.5m divided by £3598.4m of equity for SHEPD.

Table 3.12 Equity issuance required to get a dividend yield of 3% and 4% during RIIO-2 for the notional company (£m)

Dividend scenario	Apr 2024	Apr 2025	Apr 2026	Apr 2027	Apr 2028	Total RIIO-2
SEPD						
Dividend yield = 3%	177	151	62	46	52	489
SHEPD						
Dividend yield = 3%	91	88	220	(57)	17	360
SEPD						
Dividend yield = 4%	189	163	76	61	68	556
SHEPD						
Dividend yield = 4%	96	94	227	(49)	27	396

Source: Oxera analysis, based on the SSEN financial models.

In addition, the 5-year and 10-year FTSE All-Share dividend yield is around 4%.³⁷ This suggests that Ofgem's 3% notional dividend yield assumption for the electricity distribution sector is set too low. If the notional dividend yield was set in line with the average yield on FTSE All-Share, the equity issuance required to maintain the notional dividend yield would be even higher (as shown in Table 3.12 above).

3.5 Financeability analysis of the actual company in RIIO-2

In line with Ofgem's requirement, we have tested the financeability of the actual company based on the working assumptions proposed by Ofgem. We have then assessed the sensitivities prescribed by Ofgem on both the baseline and the UM scenarios in the SEPD and SHEPD financeability models.

The main difference between the actual and the notional company pertains to the cost of debt assumption. For the actual company, we use the actual cost of debt for the SEPD and SHEPD embedded debt, and the one-year average spot interest rates on iBoxx utilities index for the cost of new debt.

Our results show that both the SEPD and SHEPD actual company are financeable at a Baa1 rating in the base scenario.

Detailed results for the actual company are presented in Appendix A2.1.

³⁷ As of 23rd June 2021 based on Bloomberg data.

A1 Cost of debt assessment

A1.1 Notional cost of debt assessment: CPIH-real % terms

This section presents the main results (shown in sections 2.3 and 2.4) expressed in CPIH-real % terms, rather than £m.

Table A1.1 Outperformance/underperformance by notional network in RIIO-ED2 (CPIH-real %)

	SEPD			SHEPD		
	Base	High	Low	Base	High	Low
CoD allowance (excl. additional costs)	1.83%	2.01%	1.65%	1.83%	2.01%	1.65%
Notional CoD	1.67%	1.98%	1.37%	1.63%	1.98%	1.27%
Outperformance	0.16%	0.03%	0.29%	0.21%	0.04%	0.38%

Note: The actual CoD is quoted as the simple average over RIIO-2, rather than a RAV-weighted average. The low- and high-interest-rate scenarios reflect the annual funding impact in RIIO-2, subject to a ± 100 bp deviation from the nominal forward curve. The RIIO-ED2 proposed allowance does not include any allowance by Ofgem for additional costs (set at 25bps).

Table A1.2 Average annual funding impact in RIIO-2 under different cost of debt mechanisms net of costs not covered by the cost of debt mechanism (0–20bp) (CPIH-real %), notional

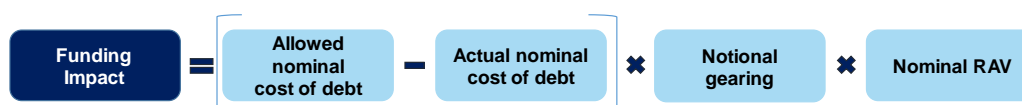
	SEPD			SHEPD		
	Base case	High-interest-rate scenario	Low-interest-rate scenario	Base case	High-interest-rate scenario	Low-interest-rate scenario
Outperformance prior to additional costs	0.16%	0.03%	0.29%	0.21%	0.04%	0.38%
Additional borrowing costs not covered by Ofgem allowance	0–0.2%	0–0.2%	0–0.2%	0–0.2%	0–0.2%	0–0.2%
Outperformance/underperformance	(0.04)– 0.16%	(0.17)– 0.03%	0.09– 0.29%	0.01– 0.21%	(0.16)– 0.04%	0.18– 0.38%

Note: The impact on funding is reported on a per annum CPIH-real (%) basis. The low- and high-interest-rate scenarios reflect the annual funding impact in RIIO-2, subject to a ± 100 bps deviation from the nominal forward curve.

A1.2 Actual cost of debt assessment

We have also assessed the impact of the proposed SSEN cost of debt mechanism against SSEN's forecast actual cost of debt under several future interest rate scenarios. The impact is presented as the forecast £m difference in value (i.e. cost of debt * notional gearing * RAV) between the expected allowed and actual costs of debt (as projected in the SSEN business plan).

Figure A1.1 Measuring the funding of debt costs (£m, nominal terms)



Note: The expected allowed cost of debt is based on interest-rate projections and the cost of debt indexation mechanism. The actual cost of debt represents the bundled effective interest rate of the embedded and new debt. Both cost of debt rates are expressed in nominal terms.

The notional gearing working assumption is in line with the Ofgem methodology (i.e. 60% for RIIO-ED2). Nominal RAV is estimated as the simple average of the opening RAV and NPV-neutral closing RAV. The latter is estimated using the relevant one-year WACC discounting factor.

Source: Oxera.

The actual cost of debt is based on the cost of embedded debt and the projected cost of new debt raised in RIIO-ED2.³⁸ It is estimated as follows:

$$\text{Actual CoD} = (\text{embedded interest} + \text{interest on new debt}) / \text{total net debt}$$

The interest rate on cash and cash equivalents is assumed to be zero.³⁹

As explained in section 2.3, the expected allowed cost of debt is based on interest-rate projections that are taken as inputs into the cost of debt indexation mechanism.

The results are presented below, both with and without transaction costs, expressed in both nominal £m and CPIH-real %. The results show that the cost of debt mechanism proposed by Ofgem is sufficient to allow for the recovery of debt costs. However, in the high-interest-rate scenario, there is minimal headroom available to accommodate any further increases in interest rates than those assumed in the scenario.

Table A1.3 Outperformance/underperformance by actual network in RIIO-ED2 (nominal £m)

	SEPD			SHEPD		
	Base	High	Low	Base	High	Low
CoD Allowance (excl. additional costs)	76.81	80.67	72.95	41.35	43.50	39.21
Actual CoD	67.22	74.42	60.02	27.31	33.51	21.10
Outperformance	9.60	6.25	12.94	14.05	9.99	18.11

Note: The low- and high-interest-rate scenarios reflect the annual funding impact in RIIO-2, subject to a ±100bp deviation from the nominal forward curve. The RIIO-ED2 proposed allowance does not include any allowance by Ofgem for additional costs (set at 25bps).

Source: Oxera analysis.

³⁸ The issuance profile of new debt is based on data provided to Oxera by SSEN. We assume that the new debt will be issued at the prevailing market rate based on our forward curve analysis described above. New debt is assumed to be issued at a rate that is equal to the average of the Utilities index in the year of issuance.

³⁹ This is in line with the SSEN business plan assumption for RIIO-ED2.

Table A1.4 Outperformance/underperformance by actual network in RIIO-ED2 (CPIH-real %)

	SEPD			SHEPD		
	Base	High	Low	Base	High	Low
CoD Allowance (excl. additional costs)	1.83%	2.01%	1.65%	1.83%	2.01%	1.65%
Actual CoD	1.34%	1.69%	0.99%	0.51%	1.06%	-0.04%
Outperformance	0.49%	0.33%	0.66%	1.33%	0.95%	1.70%

Note: The actual CoD is quoted as the simple average over RIIO-2, rather than a RAV-weighted average. The low- and high-interest-rate scenarios reflect the annual funding impact in RIIO-2, subject to a ± 100 bp deviation from the nominal forward curve. The RIIO-ED2 proposed allowance does not include any allowance by Ofgem for additional costs (set at 25bps).

Source: Oxera analysis.

Table A1.5 Average annual funding impact in RIIO-2 under different cost of debt mechanisms net of costs not covered by the cost of debt mechanism (0–20bps) (nominal £m), actual

	SEPD			SHEPD		
	Base case	High-interest-rate scenario	Low-interest-rate scenario	Base case	High-interest-rate scenario	Low-interest-rate scenario
Outperformance prior to additional costs	9.60	6.25	12.94	14.05	9.99	18.11
Additional borrowing costs not covered by Ofgem allowance	0–4	0–4	0–4	0–2.16	0–2.16	0–2.16
Outperformance/underperformance	5.6–9.6	2.26–6.25	8.94–12.94	11.89–14.05	7.83–9.99	15.95–18.11

Note: The impact on funding is reported on a per annum nominal (£m) basis. The low- and high-interest-rate scenarios reflect the annual funding impact in RIIO-2, subject to a ± 100 bps deviation from the nominal forward curve.

Table A1.6 Average annual funding impact in RIIO-2 under different cost of debt mechanisms net of costs not covered by the cost of debt mechanism (0–20bp) (CPIH-real %), actual

	SEPD			SHEPD		
	Base case	High-interest-rate scenario	Low-interest-rate scenario	Base case	High-interest-rate scenario	Low-interest-rate scenario
Outperformance prior to additional costs	0.49%	0.33%	0.66%	1.33%	0.95%	1.70%
Additional borrowing costs not covered by Ofgem allowance	0–0.2%	0–0.2%	0–0.2%	0–0.2%	0–0.2%	0–0.2%
Outperformance/underperformance	0.29–0.49%	0.13–0.33%	0.46–0.66%	1.13–1.33%	0.75–0.95%	1.5–1.7%

Note: The impact on funding is reported on a per annum CPIH-real (%) basis. The low- and high-interest-rate scenarios reflect the annual funding impact in RIO-2, subject to a ± 100 bps deviation from the nominal forward curve.

A2 Financeability assessment

A2.1 Financeability assessment of the actual company

A2.1.1 Baseline TOTEX

We present in the tables below the financial ratios, under different assumptions, for the two actual companies, SEPD and SHEPD.

Table A2.1 SEPD: actual company

	Base Case	Interest rate +1%	Interest rate -1%	CPIH +1%	CPIH -1%	RPI-CPI wedge -0.5%	RPI-CPI wedge +0.5%	TOTEX performance +10%	TOTEX performance -10%	RORE +2%	RORE -2%
Net debt/RAV (%)	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
FFO interest cover (interest expense) (x)	4.33	3.86	4.61	4.35	4.31	4.34	4.36	4.51	4.16	4.72	3.94
FFO interest cover (cash interest) (x)	4.63	4.10	4.96	4.65	4.62	4.64	4.65	4.83	4.45	5.05	4.22
AICR (or PMICR) (x)	1.44	1.30	1.50	1.44	1.43	1.44	1.44	1.60	1.28	1.86	1.02
Nominal PMICR	4.44	4.02	4.68	4.88	3.99	4.65	5.09	4.61	4.28	4.83	4.05
FFO (cash interest)/net debt (%)	11.56%	11.27%	11.64%	11.57%	11.55%	11.57%	11.58%	12.20%	10.94%	12.90%	10.23%
FFO (interest expense)/net debt (%)	11.34%	11.05%	11.41%	11.36%	11.32%	11.35%	11.36%	11.98%	10.72%	12.67%	10.01%
RCF/net debt (%)	11.56%	11.27%	11.64%	11.57%	11.55%	11.57%	11.58%	12.20%	10.94%	12.90%	10.23%
EBITDA/RAV (x)	9.90%	9.98%	9.80%	9.92%	9.89%	9.91%	9.93%	10.36%	9.46%	10.90%	8.91%
RORE (%)	12.22%	11.78%	12.32%	12.44%	11.98%	12.32%	12.55%	13.25%	11.21%	14.30%	10.13%
Dividend cover (x)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Dividend/regulated equity (%)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Required ¹ equity buyback/(issuance) (£m)	(200.1)	(230.4)	(193.0)	(102.8)	(293.5)	(154.3)	(55.0)	(17.7)	(382.6)	(61.5)	(338.7)

Note: ¹ Forcing the dividend yield to 3% as per the notional company assumption would require equity issuance or equity buyback in the RIIO-2 price control.

Source: Oxera analysis, based on SSEN business plan data.

Table A2.2 SHEPD: actual company

	Base Case	Interest rate +1%	Interest rate -1%	CPIH +1%	CPIH -1%	RPI-CPI wedge -0.5%	RPI-CPI wedge +0.5%	TOTEX performance +10%	TOTEX performance -10%	RORE +2%	RORE -2%
Net debt/RAV (%)	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
FFO interest cover (interest expense) (x)	5.28	4.20	6.43	5.28	5.28	5.28	5.28	5.51	5.06	5.77	4.79
FFO interest cover (cash interest) (x)	6.37	4.86	8.15	6.34	6.41	6.36	6.33	6.67	6.09	6.97	5.78
AICR (or PMICR) (x)	2.02	1.58	2.52	2.01	2.04	2.02	2.00	2.26	1.79	2.61	1.43
Nominal PMICR	5.63	4.53	6.81	6.17	5.08	5.89	6.43	5.83	5.44	6.12	5.14
FFO (cash interest)/net debt (%)	11.83%	11.26%	12.17%	11.85%	11.82%	11.84%	11.85%	12.43%	11.25%	13.15%	10.52%
FFO (interest expense)/net debt (%)	11.39%	10.82%	11.73%	11.41%	11.36%	11.40%	11.42%	11.98%	10.82%	12.70%	10.07%
RCF/net debt (%)	11.83%	11.26%	12.17%	11.85%	11.82%	11.84%	11.85%	12.43%	11.25%	13.15%	10.52%
EBITDA/RAV (x)	9.30%	9.35%	9.23%	9.33%	9.28%	9.32%	9.34%	9.74%	8.88%	10.30%	8.31%
RORE (%)	7.77%	6.88%	8.30%	8.05%	7.47%	7.90%	8.18%	8.76%	6.81%	9.88%	5.65%
Dividend cover (x)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Dividend/regulated equity (%)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Required ¹ equity buyback/(issuance) (£m)	(155.9)	(188.5)	(136.9)	(107.0)	(202.7)	(132.9)	(82.9)	(61.6)	(250.3)	(80.4)	(231.5)

Note: ¹ Forcing the dividend yield to 3% as per the notional company assumption would require equity issuance or equity buyback in the RIIO-2 price control.

Source: Oxera analysis, based on SSEN business plan data.

Additional sensitivities**Table A2.3 Additional sensitivity analysis for the actual company (SEPD and SHEPD)**

	Uncertainty mechanism spend (SEPD—base case)	Uncertainty mechanism spend (SHEPD—base case)
Net debt/RAV (%)	60%	60%
FFO interest cover (interest expense) (x)	4.20	5.03
FFO interest cover (cash interest) (x)	4.47	5.98
AICR (or PMICR) (x)	1.43	1.96
Nominal PMICR	4.37	5.48
FFO (cash interest)/net debt (%)	10.96%	11.23%
FFO (interest expense)/net debt (%)	10.76%	10.82%
RCF/net debt (%)	10.96%	11.23%
EBITDA/RAV (x)	9.58%	9.00%
RORE (%)	11.73%	7.46%
Dividend cover (x)	n/a	n/a
Dividend/regulated equity (%)	0.00%	0.00%
Required ¹ equity buyback/(issuance) (£m)	(254.9)	(190.7)

Note: ¹ Forcing the dividend yield to 3% as per the notional company assumption would require equity issuance or equity buyback in the RIIO-2 price control.

Source: Oxera analysis, based on SSEN business plan data.

A2.2 Financeability metrics for the notional and the actual company under different assumptions (SEPD)**Table A2.4 SEPD: notional company under uncertainty mechanism scenario**

	Base Case	10% inflation -linked debt	Interest rate +1%	Interest rate -1%	CPIH +1%	CPIH -1%	RPI-CPI wedge -0.5%	RPI-CPI wedge +0.5%	TOTEX performance +10%	TOTEX performance -10%	RORE +2%	RORE -2%	Inflation -linked debt +5%	Inflation -linked debt -5%
Net debt/RAV (%)	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
FFO interest cover (interest expense) (x)	3.79	3.79	3.65	3.93	3.80	3.77	3.79	3.81	3.93	3.64	4.15	3.43	3.79	3.79
FFO interest cover (cash interest) (x)	4.36	4.00	4.18	4.57	4.73	4.04	4.53	4.93	4.53	4.19	4.78	3.95	4.50	4.23
AICR (or PMICR) (x)	1.40	1.28	1.38	1.43	1.52	1.30	1.46	1.58	1.55	1.26	1.82	0.99	1.44	1.36
Nominal PMICR	3.77	3.77	3.70	3.86	4.17	3.37	3.96	4.36	3.91	3.64	4.13	3.41	3.77	3.77
FFO (cash interest)/net debt (%)	10.88%	10.58%	10.87%	10.88%	11.13%	10.62%	11.00%	11.25%	11.46%	10.31%	12.21%	9.54%	10.98%	10.78%
FFO (interest expense)/net debt (%)	10.39%	10.39%	10.38%	10.39%	10.40%	10.37%	10.40%	10.41%	10.97%	9.82%	11.72%	9.05%	10.39%	10.39%
RCF/net debt (%)	8.98%	8.69%	8.97%	8.99%	9.23%	8.72%	9.10%	9.35%	9.56%	8.42%	10.31%	7.65%	9.08%	8.88%
EBITDA/RAV (x)	9.54%	9.54%	9.65%	9.43%	9.55%	9.52%	9.55%	9.56%	9.96%	9.12%	10.54%	8.53%	9.54%	9.54%
RORE (%)	11.15%	11.15%	11.15%	11.15%	11.37%	10.93%	11.26%	11.47%	12.11%	10.22%	13.26%	9.04%	11.15%	11.15%
Dividend cover (x)	2.65	2.65	2.64	2.65	2.72	2.57	2.68	2.75	2.97	2.33	3.35	1.94	2.65	2.65
Dividend/regulated equity (%)	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Required ¹ equity buyback/(issuance) (£m)	(591.5)	(594.4)	(592.1)	(590.9)	(512.0)	(667.8)	(554.1)	(473.1)	(400.2)	(782.8)	(440.7)	(742.3)	(590.5)	(592.5)

Note: ¹ Forcing the dividend yield to 3% as per the notional company assumption would require equity issuance or equity buyback in the RIIO-2 price control.

Source: Oxera analysis, based on SSEN business plan data.

Table A2.5 SEPD: actual company under uncertainty mechanism scenario

	Base Case	Interest rate +1%	Interest rate -1%	CPIH +1%	CPIH -1%	RPI-CPI wedge -0.5%	RPI-CPI wedge +0.5%	TOTEX performance +10%	TOTEX performance -10%	RORE +2%	RORE -2%
Net debt/RAV (%)	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
FFO interest cover (interest expense) (x)	4.20	3.80	4.70	4.21	4.18	4.21	4.22	4.36	4.04	4.60	3.80
FFO interest cover (cash interest) (x)	4.47	4.02	5.05	4.48	4.46	4.48	4.49	4.65	4.30	4.90	4.05
AICR (or PMICR) (x)	1.43	1.32	1.58	1.44	1.43	1.43	1.44	1.58	1.28	1.86	1.01
Nominal PMICR	4.37	4.01	4.79	4.80	3.93	4.57	5.00	4.52	4.21	4.76	3.97
FFO (cash interest)/net debt (%)	10.96%	10.73%	11.19%	10.97%	10.95%	10.97%	10.97%	11.55%	10.40%	12.30%	9.63%
FFO (interest expense)/net debt (%)	10.76%	10.52%	10.98%	10.77%	10.74%	10.76%	10.78%	11.34%	10.19%	12.09%	9.42%
RCF/net debt (%)	10.96%	10.73%	11.19%	10.97%	10.95%	10.97%	10.97%	11.55%	10.40%	12.30%	9.63%
EBITDA/RAV (x)	9.58%	9.67%	9.50%	9.60%	9.57%	9.59%	9.61%	10.01%	9.17%	10.59%	8.58%
RORE (%)	11.73%	11.37%	12.07%	11.94%	11.51%	11.83%	12.04%	12.69%	10.79%	13.84%	9.62%
Dividend cover (x)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Dividend/regulated equity (%)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Required ¹ equity buyback/(issuance) (£m)	(254.9)	(281.6)	(229.3)	(152.9)	(352.7)	(206.9)	(102.7)	(72.5)	(437.4)	(104.2)	(405.7)

Note: ¹ Forcing the dividend yield to 3% as per the notional company assumption would require equity issuance or equity buyback in the RIIO-2 price control.

Source: Oxera analysis, based on SSEN business plan data.

Table A2.6 SEPD: notional company with 4.65% CoE

	Base Case	10% inflation-linked debt	Interest rate +1%	Interest rate -1%	CPIH +1%	CPIH -1%	RPI-CPI wedge -0.5%	RPI-CPI wedge +0.5%	TOTEX performance +10%	TOTEX performance -10%	RORE +2%	RORE -2%	Inflation-linked debt +5%	Inflation-linked debt -5%
Net debt/RAV (%)	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
FFO interest cover (interest expense) (x)	3.95	3.95	3.81	4.11	3.97	3.93	3.96	3.98	4.11	3.79	4.31	3.60	3.95	3.95
FFO interest cover (cash interest) (x)	4.55	4.17	4.36	4.78	4.94	4.21	4.73	5.15	4.74	4.37	4.96	4.14	4.70	4.42
AICR (or PMICR) (x)	1.45	1.33	1.42	1.48	1.57	1.34	1.51	1.64	1.61	1.30	1.86	1.04	1.49	1.41
Nominal PMICR	3.86	3.86	3.78	3.95	4.27	3.45	4.06	4.46	4.01	3.72	4.22	3.51	3.86	3.86
FFO (cash interest)/net debt (%)	11.62%	11.32%	11.61%	11.63%	11.88%	11.36%	11.74%	12.00%	12.26%	11.00%	12.95%	10.29%	11.72%	11.52%
FFO (interest expense)/net debt (%)	11.12%	11.12%	11.12%	11.13%	11.14%	11.11%	11.13%	11.15%	11.76%	10.51%	12.46%	9.79%	11.12%	11.12%
RCF/net debt (%)	9.70%	9.40%	9.70%	9.71%	9.96%	9.44%	9.82%	10.08%	10.34%	9.09%	11.04%	8.37%	9.80%	9.60%
EBITDA/RAV (x)	9.98%	9.98%	10.09%	9.87%	10.00%	9.96%	9.99%	10.01%	10.44%	9.53%	10.98%	8.99%	9.98%	9.98%
RORE (%)	11.90%	11.90%	11.90%	11.90%	12.13%	11.66%	12.01%	12.23%	12.93%	10.89%	13.98%	9.81%	11.90%	11.90%
Dividend cover (x)	2.90	2.90	2.90	2.91	2.98	2.82	2.94	3.02	3.25	2.57	3.60	2.21	2.90	2.90
Dividend/regulated equity (%)	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Required ¹ equity buyback/(issuance) (£m)	(472.5)	(474.6)	(473.1)	(471.9)	(394.7)	(547.4)	(435.8)	(356.6)	(281.5)	(663.5)	(333.9)	(611.1)	(471.8)	(473.2)

Note: ¹ Forcing the dividend yield to 3% as per the notional company assumption would require equity issuance or equity buyback in the RIIO-2 price control.

Source: Oxera analysis, based on SSEN business plan data.

Table A2.7 SEPD: actual company with 4.65% CoE

	Base Case	Interest rate +1%	Interest rate -1%	CPIH +1%	CPIH -1%	RPI-CPI wedge -0.5%	RPI-CPI wedge +0.5%	TOTEX performance +10%	TOTEX performance -10%	RORE +2%	RORE -2%
Net debt/RAV (%)	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
FFO interest cover (interest expense) (x)	4.38	3.90	4.66	4.40	4.36	4.39	4.41	4.56	4.20	4.77	3.99
FFO interest cover (cash interest) (x)	4.68	4.14	5.01	4.70	4.67	4.69	4.70	4.88	4.49	5.10	4.27
AICR (or PMICR) (x)	1.49	1.35	1.55	1.49	1.48	1.49	1.49	1.65	1.33	1.91	1.07
Nominal PMICR	4.49	4.07	4.73	4.93	4.04	4.70	5.14	4.65	4.32	4.88	4.09
FFO (cash interest)/net debt (%)	11.72%	11.43%	11.79%	11.73%	11.71%	11.72%	11.73%	12.36%	11.10%	13.05%	10.39%
FFO (interest expense)/net debt (%)	11.50%	11.21%	11.57%	11.51%	11.48%	11.51%	11.52%	12.14%	10.88%	12.83%	10.16%
RCF/net debt (%)	11.72%	11.43%	11.79%	11.73%	11.71%	11.72%	11.73%	12.36%	11.10%	13.05%	10.39%
EBITDA/RAV (x)	10.03%	10.10%	9.92%	10.04%	10.01%	10.04%	10.05%	10.49%	9.58%	11.02%	9.03%
RORE (%)	12.47%	12.03%	12.57%	12.69%	12.23%	12.58%	12.80%	13.51%	11.46%	14.55%	10.38%
Dividend cover (x)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Dividend/regulated equity (%)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Required ¹ equity buyback/(issuance) (£m)	(183.7)	(214.0)	(176.6)	(85.9)	(277.6)	(137.7)	(37.8)	(1.5)	(365.9)	(45.1)	(322.3)

Note: ¹ Forcing the dividend yield to 3% as per the notional company assumption would require equity issuance or equity buyback in the RIIO-2 price control.

Source: Oxera analysis, based on SSEN business plan data.

Table A2.8 SEPD: actual company assuming 20bps of transaction costs

	Base Case	Interest rate +1%	Interest rate -1%	CPIH +1%	CPIH -1%	RPI-CPI wedge -0.5%	RPI-CPI wedge +0.5%	TOTEX performance +10%	TOTEX performance -10%	RORE +2%	RORE -2%
Net debt/RAV (%)	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
FFO interest cover (interest expense) (x)	4.24	3.90	4.66	4.26	4.23	4.25	4.26	4.42	4.07	4.63	3.86
FFO interest cover (cash interest) (x)	4.54	4.14	5.02	4.54	4.53	4.54	4.55	4.73	4.35	4.95	4.12
AICR (or PMICR) (x)	1.41	1.32	1.52	1.41	1.41	1.41	1.41	1.57	1.25	1.82	1.00
Nominal PMICR	4.36	4.05	4.72	4.79	3.93	4.57	5.00	4.53	4.20	4.75	3.98
FFO (cash interest)/net debt (%)	11.49%	11.31%	11.67%	11.50%	11.49%	11.49%	11.50%	12.14%	10.87%	12.83%	10.16%
FFO (interest expense)/net debt (%)	11.27%	11.08%	11.45%	11.28%	11.26%	11.28%	11.29%	11.91%	10.65%	12.60%	9.94%
RCF/net debt (%)	11.49%	11.31%	11.67%	11.50%	11.49%	11.49%	11.50%	12.14%	10.87%	12.83%	10.16%
EBITDA/RAV (x)	9.90%	9.99%	9.81%	9.91%	9.88%	9.90%	9.92%	10.36%	9.45%	10.89%	8.90%
RORE (%)	12.11%	11.83%	12.37%	12.33%	11.88%	12.21%	12.43%	13.15%	11.10%	14.19%	10.02%
Dividend cover (x)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Dividend/regulated equity (%)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Required ¹ equity buyback/(issuance) (£m)	(207.6)	(226.8)	(189.4)	(110.9)	(300.3)	(162.1)	(63.4)	(24.8)	(390.4)	(69.0)	(346.2)

Note: ¹ Forcing the dividend yield to 3% as per the notional company assumption would require equity issuance or equity buyback in the RIIO-2 price control.

Source: Oxera analysis, based on SSEN business plan data.

A2.3 Financeability metrics for the notional and the actual company under different assumptions (SHEPD)**Table A2.9 SHEPD: notional company under uncertainty mechanism scenario**

	Base Case	10% inflation -linked debt	Interest rate +1%	Interest rate -1%	CPIH +1%	CPIH -1%	RPI-CPI wedge -0.5%	RPI-CPI wedge +0.5%	TOTEX performance +10%	TOTEX performance -10%	RORE +2%	RORE -2%	Inflation -linked debt +5%	Inflation -linked debt -5%
Net debt/RAV (%)	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
FFO interest cover (interest expense) (x)	3.65	3.65	3.53	3.79	3.67	3.64	3.66	3.68	3.79	3.52	4.02	3.29	3.65	3.65
FFO interest cover (cash interest) (x)	4.21	3.86	4.04	4.40	4.56	3.89	4.37	4.75	4.37	4.05	4.63	3.79	4.34	4.08
AICR (or PMICR) (x)	1.40	1.28	1.38	1.43	1.52	1.30	1.45	1.58	1.54	1.26	1.82	0.98	1.44	1.36
Nominal PMICR	3.74	3.74	3.66	3.82	4.12	3.35	3.92	4.31	3.87	3.61	4.10	3.37	3.74	3.74
FFO (cash interest)/net debt (%)	10.33%	10.04%	10.32%	10.33%	10.57%	10.07%	10.44%	10.69%	10.87%	9.79%	11.66%	8.99%	10.42%	10.23%
FFO (interest expense)/net debt (%)	9.84%	9.84%	9.83%	9.85%	9.86%	9.82%	9.85%	9.87%	10.39%	9.31%	11.18%	8.51%	9.84%	9.84%
RCF/net debt (%)	8.46%	8.17%	8.45%	8.46%	8.70%	8.20%	8.58%	8.82%	9.00%	7.93%	9.79%	7.12%	8.55%	8.36%
EBITDA/RAV (x)	8.88%	8.88%	8.99%	8.77%	8.91%	8.86%	8.90%	8.92%	9.29%	8.49%	9.90%	7.86%	8.88%	8.88%
RORE (%)	5.92%	5.92%	5.92%	5.92%	6.25%	5.58%	6.08%	6.40%	6.79%	5.07%	8.06%	3.78%	5.92%	5.92%
Dividend cover (x)	0.88	0.88	0.88	0.89	1.00	0.77	0.94	1.05	1.18	0.60	1.60	0.17	0.88	0.88
Dividend/regulated equity (%)	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Required ¹ equity buyback/(issuance) (£m)	(425.0)	(427.2)	(425.4)	(424.7)	(385.4)	(463.0)	(406.4)	(365.9)	(326.2)	(523.8)	(341.3)	(508.8)	(424.3)	(425.8)

Note: ¹ Forcing the dividend yield to 3% as per the notional company assumption would require equity issuance or equity buyback in the RIIO-2 price control.

Source: Oxera analysis, based on SSEN business plan data.

Table A2.10 SHEPD: actual company under uncertainty mechanism scenario

	Base Case	Interest rate +1%	Interest rate -1%	CPIH +1%	CPIH -1%	RPI-CPI wedge -0.5%	RPI-CPI wedge +0.5%	TOTEX performance +10%	TOTEX performance -10%	RORE +2%	RORE -2%
Net debt/RAV (%)	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
FFO interest cover (interest expense) (x)	5.03	4.06	6.40	5.02	5.04	5.03	5.02	5.24	4.83	5.52	4.54
FFO interest cover (cash interest) (x)	5.98	4.66	8.02	5.94	6.02	5.96	5.93	6.24	5.72	6.56	5.39
AICR (or PMICR) (x)	1.96	1.56	2.57	1.94	1.97	1.95	1.94	2.17	1.75	2.54	1.37
Nominal PMICR	5.48	4.46	6.84	5.97	4.97	5.71	6.20	5.68	5.28	5.97	4.98
FFO (cash interest)/net debt (%)	11.23%	10.71%	11.68%	11.21%	11.25%	11.22%	11.21%	11.79%	10.69%	12.56%	9.90%
FFO (interest expense)/net debt (%)	10.82%	10.30%	11.27%	10.82%	10.83%	10.82%	10.81%	11.37%	10.28%	12.15%	9.49%
RCF/net debt (%)	11.23%	10.71%	11.68%	11.21%	11.25%	11.22%	11.21%	11.79%	10.69%	12.56%	9.90%
EBITDA/RAV (x)	9.00%	9.05%	8.95%	9.03%	8.98%	9.01%	9.04%	9.41%	8.61%	10.02%	7.98%
RORE (%)	7.46%	6.64%	8.16%	7.76%	7.15%	7.60%	7.90%	8.34%	6.60%	9.60%	5.32%
Dividend cover (x)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Dividend/regulated equity (%)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Required ¹ equity buyback/(issuance) (£m)	(190.7)	(223.4)	(162.7)	(138.7)	(240.4)	(166.3)	(113.1)	(96.3)	(285.1)	(106.9)	(274.5)

Note: ¹ Forcing the dividend yield to 3% as per the notional company assumption would require equity issuance or equity buyback in the RIIO-2 price control.

Source: Oxera analysis, based on SSEN business plan data.

Table A2.11 SHEPD: notional company with 4.65% CoE

	Base Case	10% inflation -linked debt	Interest rate +1%	Interest rate -1%	CPIH +1%	CPIH -1%	RPI-CPI wedge -0.5%	RPI-CPI wedge +0.5%	TOTEX performance +10%	TOTEX performance -10%	RORE +2%	RORE -2%	Inflation -linked debt +5%	Inflation -linked debt -5%
Net debt/RAV (%)	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
FFO interest cover (interest expense) (x)	3.82	3.82	3.69	3.96	3.83	3.80	3.83	3.84	3.97	3.67	4.18	3.46	3.82	3.82
FFO interest cover (cash interest) (x)	4.40	4.03	4.22	4.60	4.77	4.07	4.57	4.96	4.57	4.22	4.81	3.98	4.53	4.27
AICR (or PMICR) (x)	1.45	1.33	1.42	1.48	1.57	1.34	1.51	1.64	1.60	1.30	1.86	1.03	1.49	1.41
Nominal PMICR	3.84	3.84	3.76	3.93	4.23	3.44	4.03	4.42	3.98	3.70	4.20	3.48	3.84	3.84
FFO (cash interest)/net debt (%)	11.07%	10.78%	11.07%	11.08%	11.32%	10.81%	11.19%	11.44%	11.68%	10.48%	12.41%	9.74%	11.17%	10.97%
FFO (interest expense)/net debt (%)	10.58%	10.58%	10.58%	10.59%	10.60%	10.56%	10.59%	10.61%	11.19%	10.00%	11.92%	9.25%	10.58%	10.58%
RCF/net debt (%)	9.18%	8.89%	9.17%	9.18%	9.43%	8.92%	9.30%	9.55%	9.78%	8.60%	10.51%	7.85%	9.28%	9.08%
EBITDA/RAV (x)	9.30%	9.30%	9.41%	9.19%	9.33%	9.27%	9.31%	9.34%	9.74%	8.87%	10.31%	8.29%	9.30%	9.30%
RORE (%)	6.34%	6.34%	6.34%	6.34%	6.68%	5.98%	6.50%	6.84%	7.29%	5.41%	8.46%	4.23%	6.34%	6.34%
Dividend cover (x)	1.03	1.03	1.02	1.03	1.15	0.90	1.08	1.20	1.34	0.72	1.73	0.32	1.03	1.03
Dividend/regulated equity (%)	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Required ¹ equity buyback/(issuance) (£m)	(350.6)	(352.2)	(350.9)	(350.3)	(312.0)	(387.6)	(332.4)	(293.0)	(251.9)	(449.3)	(274.6)	(426.6)	(350.0)	(351.1)

Note: ¹ Forcing the dividend yield to 3% as per the notional company assumption would require equity issuance or equity buyback in the RIIO-2 price control.

Source: Oxera analysis, based on SSEN business plan data.

Table A2.12 SHEPD: actual company with 4.65% CoE

	Base Case	Interest rate +1%	Interest rate -1%	CPIH +1%	CPIH -1%	RPI-CPI wedge -0.5%	RPI-CPI wedge +0.5%	TOTEX performance +10%	TOTEX performance -10%	RORE +2%	RORE -2%
Net debt/RAV (%)	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
FFO interest cover (interest expense) (x)	5.31	4.32	6.68	5.32	5.31	5.32	5.32	5.54	5.10	5.81	4.82
FFO interest cover (cash interest) (x)	6.41	5.01	8.51	6.38	6.44	6.40	6.37	6.69	6.13	7.00	5.82
AICR (or PMICR) (x)	2.08	1.66	2.71	2.07	2.09	2.08	2.07	2.32	1.86	2.67	1.49
Nominal PMICR	5.64	4.61	6.99	6.19	5.09	5.90	6.44	5.84	5.45	6.13	5.15
FFO (cash interest)/net debt (%)	11.98%	11.48%	12.39%	12.00%	11.96%	11.99%	12.01%	12.57%	11.40%	13.30%	10.66%
FFO (interest expense)/net debt (%)	11.54%	11.04%	11.95%	11.56%	11.51%	11.55%	11.58%	12.12%	10.96%	12.85%	10.22%
RCF/net debt (%)	11.98%	11.48%	12.39%	12.00%	11.96%	11.99%	12.01%	12.57%	11.40%	13.30%	10.66%
EBITDA/RAV (x)	9.43%	9.48%	9.36%	9.45%	9.40%	9.44%	9.46%	9.86%	9.00%	10.43%	8.43%
RORE (%)	8.01%	7.23%	8.65%	8.30%	7.71%	8.15%	8.43%	9.00%	7.05%	10.12%	5.89%
Dividend cover (x)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Dividend/regulated equity (%)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Required ¹ equity buyback/(issuance) (£m)	(147.3)	(175.4)	(123.8)	(97.8)	(194.6)	(124.0)	(73.5)	(53.1)	(241.5)	(71.8)	(222.8)

Note: ¹ Forcing the dividend yield to 3% as per the notional company assumption would require equity issuance or equity buyback in the RIIO-2 price control.

Source: Oxera analysis, based on SSEN business plan data.

Table A2.12 SHEPD: actual company assuming 20bps of transaction costs

	Base Case	Interest rate +1%	Interest rate -1%	CPIH +1%	CPIH -1%	RPI-CPI wedge -0.5%	RPI-CPI wedge +0.5%	TOTEX performance +10%	TOTEX performance -10%	RORE +2%	RORE -2%
Net debt/RAV (%)	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
FFO interest cover (interest expense) (x)	5.03	4.12	6.24	5.03	5.03	5.03	5.03	5.24	4.82	5.50	4.56
FFO interest cover (cash interest) (x)	6.01	4.75	7.84	5.98	6.04	6.00	5.97	6.28	5.75	6.57	5.45
AICR (or PMICR) (x)	1.91	1.54	2.43	1.90	1.92	1.90	1.89	2.13	1.69	2.47	1.35
Nominal PMICR	5.35	4.41	6.55	5.87	4.82	5.60	6.11	5.54	5.17	5.82	4.88
FFO (cash interest)/net debt (%)	11.70%	11.20%	12.11%	11.72%	11.69%	11.71%	11.72%	12.29%	11.12%	13.02%	10.38%
FFO (interest expense)/net debt (%)	11.26%	10.76%	11.67%	11.28%	11.23%	11.27%	11.29%	11.84%	10.68%	12.57%	9.94%
RCF/net debt (%)	11.70%	11.20%	12.11%	11.72%	11.69%	11.71%	11.72%	12.29%	11.12%	13.02%	10.38%
EBITDA/RAV (x)	9.29%	9.34%	9.23%	9.31%	9.26%	9.30%	9.32%	9.73%	8.86%	10.29%	8.29%
RORE (%)	7.56%	6.79%	8.20%	7.85%	7.26%	7.70%	7.98%	8.55%	6.60%	9.67%	5.45%
Dividend cover (x)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Dividend/regulated equity (%)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Required ¹ equity buyback/(issuance) (£m)	(163.4)	(191.5)	(139.9)	(114.5)	(210.1)	(140.4)	(90.5)	(68.9)	(257.9)	(87.9)	(238.9)

Note: ¹ Forcing the dividend yield to 3% as per the notional company assumption would require equity issuance or equity buyback in the RIIO-2 price control.

Source: Oxera analysis, based on SSEN business plan data.

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