



# Cost to Customers

A Network for Net Zero  
Draft RIIO-T2 Business Plan

# Cost to Customers

## What's in this section?

**Determining the allowed revenue...** how we have estimated the amount we will be allowed to charge customers during RIIO-T2. This is based on the proposed expenditure for the Certain View that we describe in this draft Business Plan, and financial assumptions which achieve an investment grade credit rating

**Financial parameters...** while we present this draft Plan using Ofgem's Working Assumptions, we have some concerns with Ofgem's approach, and so also present Our Proposed Parameters. We explain our evidence based approach to determining the appropriate cost of equity, cost of debt, capitalisation and inflation. We propose cost of equity of 6.9% (CPI basis) and cost of debt using at least a 15 year trailing average of A/BBB iBoxx bond index

**Fair tax...** it is important that we pay our fair share of tax to GB society. We treat tax as a pass-through cost supported by Fair Tax Mark accreditation for tax transparency

**A summary of our initial financeability assessment...** we have evaluated Ofgem's Working Assumptions and our analysis shows that we have significant financeability concerns during RIIO-T2. We explain our analysis based on Credit Rating Agency methodologies with reference to both short and long term credit ratios and investment grade credit rating. We show that adopting Our Proposed Parameters will ensure we maintain our investment grade credit rating while presenting a fair return to shareholders and ensuring a fair deal for consumers

**An estimate of the impact of our proposals on household bills...** we use Ofgem's approach to the estimation of transmission charges to forecast the potential impact on average GB household electricity bills. Under Our Proposed Parameters and the Certain View, we estimate that each household will be charged £6.59 on average per year for the north of Scotland transmission system during RIIO-T2 (£5.80 excluding the effect of inflation)

## Overview

The amount that we are allowed to charge to customers is determined by the energy industry regulator, Ofgem. Through the price control process, Ofgem undertakes an assessment of necessary investment and expenditure and applies financing assumptions to derive an allowed revenue. RIIO-T2 is the process for setting the allowed revenue for the period 1 April 2021 to 31 March 2026.

We do not charge users of the north of Scotland transmission network directly. Instead, we recover our allowed revenue from the Electricity System Operator (ESO). The ESO combines the total GB transmission network revenue recovery into the GB-wide Transmission Network Use of System (TNUoS) tariff levied on generators and electricity suppliers.

This section has two parts:

### 1 Determining the allowed revenue

We have followed the methodology set out by Ofgem to make an estimate of the allowed revenue for our draft Business Plan proposals for the Certain View (Figure 6.1).

A key part of this is our assessment of the appropriate financial parameters, including the cost of capital, and whether our proposals comply with our licence obligation to maintain an investment grade credit rating.

We set out analysis which shows that Ofgem's Working Assumptions do not result in a financeable Business Plan and we have developed alternative parameters (Our Proposed Parameters). Our evidence-based financial proposals ensure that the investment required to deliver our plan for stakeholders is financeable while ensuring our investors earn a fair return.

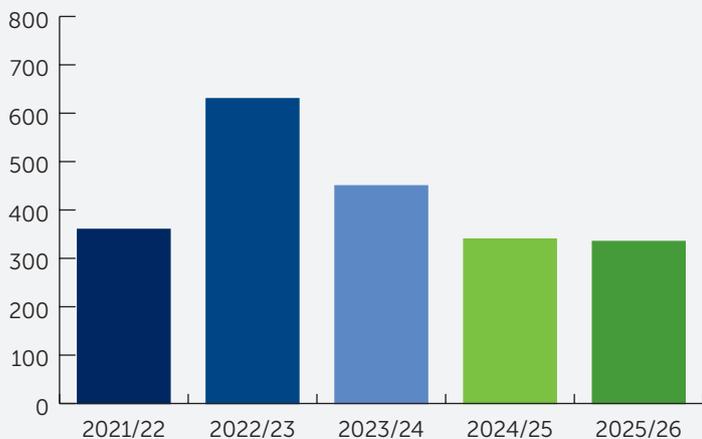
For Our Proposed Parameters and the Certain View, our allowed revenue during RIIO-T2 would be around £470 million on average per year (Figure 6.2).

### 2 Impact on household bills

The process for determining the cost of the north of Scotland transmission network to the average GB household energy bill is complicated, and requires a number of assumptions. We have followed the methodology used by Ofgem.

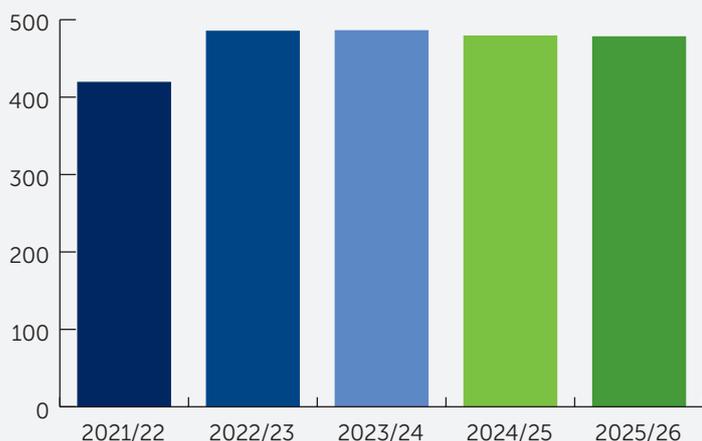
We estimate that the average GB household will be charged £6.59 on average per year for the north of Scotland transmission system during RIIO-T2 (£5.80 excluding the effect of inflation) (Figure 6.3).

**Figure 6.1** Summary of total expenditure proposals for Certain View (£m pa.)



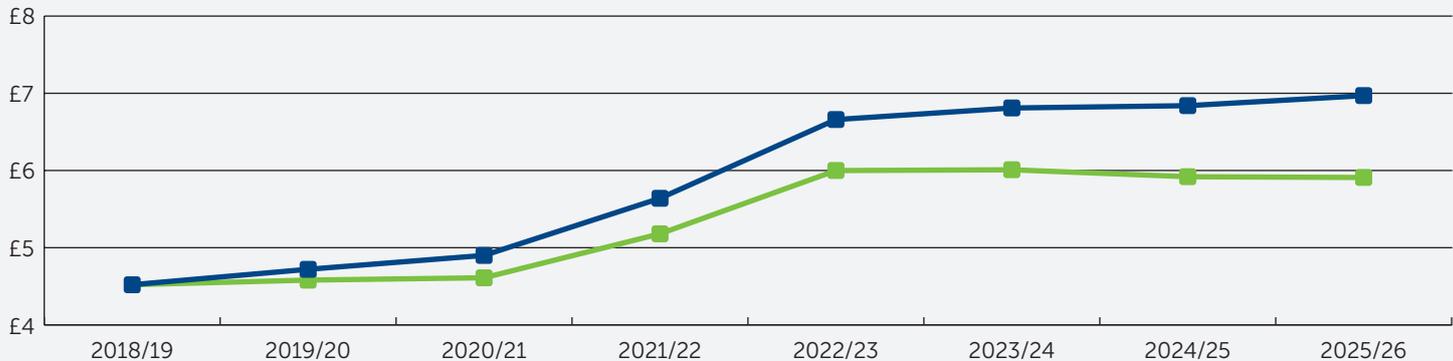
(£m 2018/19 prices)	RIO-T2 Total
Growth Investment	877
Asset Investment	703
Resilience Investment	201
IT and Data	51
Operating Costs	331
<b>Total</b>	<b>2,163</b>

**Figure 6.2** Forecast allowed revenue for Certain View (£m pa.)



Based on forecast expenditure shown in Figure 6.1 and Our Proposed Parameters

**Figure 6.3** Estimated cost of the north of Scotland transmission network to the average GB household (£)



Average GB consumption 3,100 kWh. Inflation assumption 2% pa.  
Certain View and our Proposed Parameters

# Determining the Allowed Revenue

## The price control

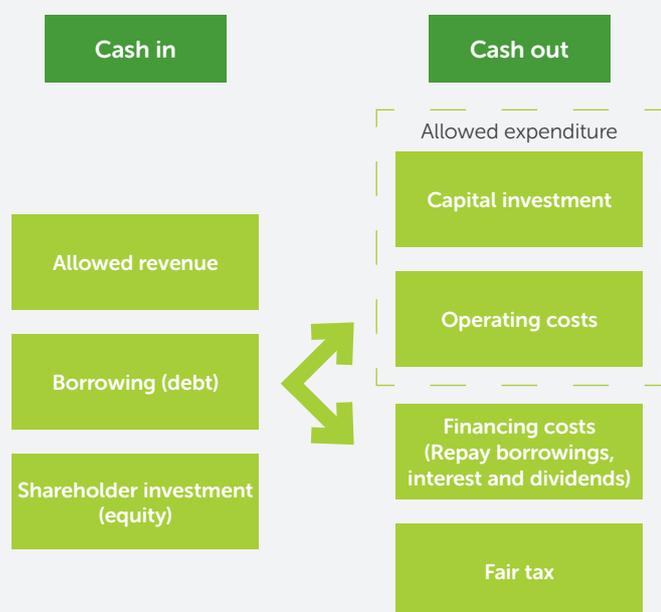
The amount that we are allowed to charge customers for using the north of Scotland transmission network is determined by the energy industry regulator, Ofgem. RIIO-T2 is the regulatory process for setting our allowed revenue for the period from 1 April 2021 to 31 March 2026.

Long life infrastructure such as electricity transmission is used by customers over many years, so it is important that the cost of that infrastructure is shared fairly between current and future customers. If, for example, we build a new overhead transmission line that has an expected life of 45 years, then the cost of building and operating that line should be fairly spread over the next 45 years<sup>1</sup>.

This results in a mismatch where investment is made upfront, but income is spread over the lifetime of the asset. Thus, the amount we are allowed to charge customers in any one year does not equal our expenditure in that year. Any 'gap' is filled with borrowing or shareholder investment (Figure 6.4).

Ofgem has proposed a methodology for the determination of the allowed revenue for the RIIO-T2 period<sup>2</sup>. This methodology is still, in part, provisional. We have some concerns with Ofgem's proposals, and continue to work with Ofgem and other stakeholders towards a common approach.

**Figure 6.4** Cash inflows and outflows



For the purposes of this draft Business Plan, and so that we are able to show the possible impact of our proposals on the average GB household energy bill, we have made an assessment of the calculation of our allowed revenue in line with Ofgem's draft methodology.

There are four steps to this (Figure 6.5):

**1 Determination of allowed expenditure**  
Our total forecast expenditure during the RIIO-T2 period for the Certain View is £2.2 billion (Figure 6.1).

As we have described in this draft Business Plan, this comprises investment in the existing network, to grow the network and expenditure to undertake day-to-day operations. The outcomes of this expenditure are stakeholder-led to deliver a safe, secure and sustainable network for net-zero greenhouse gas emissions.

We assume that our Certain View is the basis of our allowed revenue.

**2 Determination of efficient financing costs**  
Capital intensive businesses cannot fund the cost of their investment programmes from income received from customers in that year. As a consequence, companies need to be able to raise finance on reasonable terms in order to support essential investment programmes.

A key part of determining the allowed revenue is assessing the efficient cost of financing (cost of borrowing and cost to shareholders) and financial parameters (representative asset lives, proportion of capital investment and inflation). We also need to plan to pay our taxes.

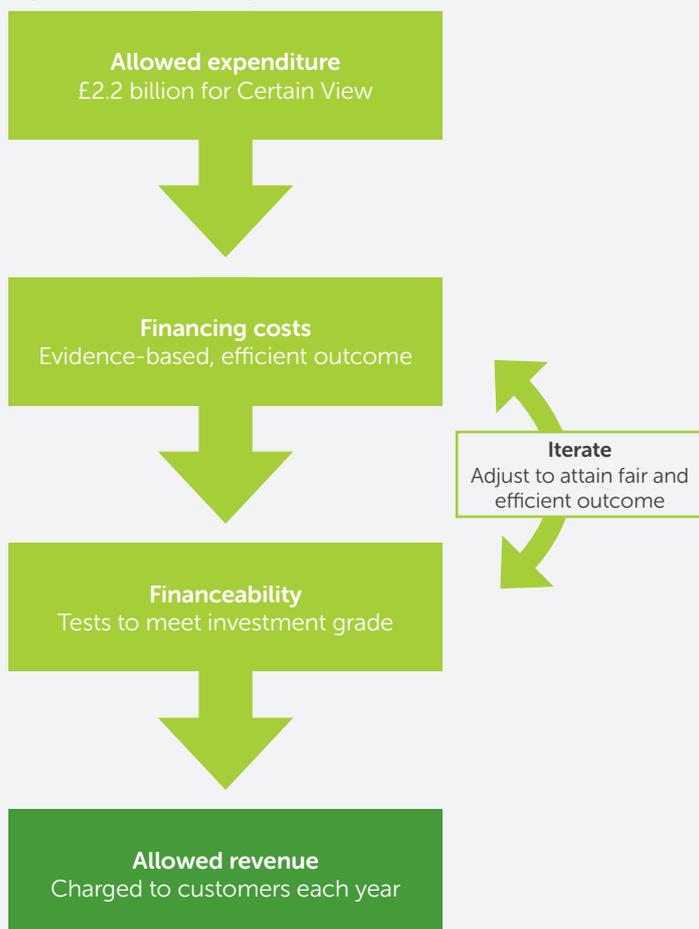
We explain on pages 161-170 how we have determined efficient financing costs for this draft Business Plan.

**3 Assessment of financeability**  
We have an obligation under our licence to maintain an investment grade credit rating, and Ofgem has a duty under statute to ensure our business is financeable. This is important, not just to maintain our viability, but also to ensure we can borrow to invest at an efficient cost.

Our draft Business Plan proposals must be tested to make sure we meet the requirements of an investment grade Credit Rating that are specified by the main Credit Rating Agencies. This testing explores a wide range of possible outcomes to stress test our financial resilience.

<sup>1</sup>During TPCR4, the price control before RIIO-T1, costs were spread over 20 years. In RIIO-T1 a transitional arrangement was agreed to move towards spreading investment over 45 years. This either takes one or two price controls to reach this point so by the end of RIIO-T2 new investment is being spread over 45 years.

<sup>2</sup>RIIO-T2 sector specific methodology (Ofgem, 2019) available at: [www.ofgem.gov.uk/publications-and-updates/riio-2-sector-specific-methodology-decision](http://www.ofgem.gov.uk/publications-and-updates/riio-2-sector-specific-methodology-decision)

**Figure 6.5** Determining the allowed revenue

We explain on pages 171-174 the financeability assessment that we have undertaken for this draft Business Plan.

#### 4 Determining the allowed revenue

The final step is the use of a financial model to apply the financial parameters and determine allowed revenue. As Ofgem's RIIO-2 Financial Model is still under development, the results we present here are based on our own financial model. This does not make any adjustments, for example to re-profile allowances, or any assumptions for performance outcomes, for example financial incentive mechanisms.

We use the allowed revenue that is determined from this methodology to then estimate the cost to customers of our draft Business Plan proposals.

## Efficient financing costs

### Introduction

In line with Ofgem's guidance<sup>3</sup>, we have presented our draft Business Plan based on the financial parameters set out in its Sector Specific Methodology Decision (SSMD). Additionally, as permitted under the SSMD, we have presented our draft Business Plan using Our Proposed financial Parameters based on evidence and analysis collated over the RIIO-2 development period. We have previously shared this evidence with Ofgem.

A summary of the RIIO-T2 financial parameters – Ofgem's Working Assumptions and Our Proposed Parameters – is shown in Table 6.1 set out against RIIO-T1 parameters.

In developing Our Proposed Parameters, we have considered the following:

- An analysis on financeability with reference to the Credit Rating Agencies (CRAs) and the licence obligation to ensure our credit rating is investment grade;
- Market evidence for core financial parameters, analysis of that evidence and regulatory precedents. This covers the cost of borrowing to finance capital investment (Cost of Debt (CoD)), the required rate of return for our shareholders (Cost of Equity (CoE)) and the level of debt or gearing required to finance our draft Plan over the RIIO-T2 period; and,
- The calibration of other financial parameters based on regulatory precedent and RIIO-T2 Business Plan analysis covering regulatory asset lives, capitalisation rates, inflation, Return Adjustment Mechanisms (RAMs) and the fair treatment of tax.

After considering all of these aspects, we conclude that our draft Business Plan would not be financeable under Ofgem's Working Assumptions due to their proposals for the CoE and CoD. Our analysis shows that we would find it challenging to remain financeable during RIIO-T2 as our credit rating would likely be downgraded. We set out Our Proposed Parameters as an alternative, financeable position.

# Cost of Capital

Ofgem has proposed short term measures to address financeability problems in RIIO-T2. The measures proposed by Ofgem in the SSMD are to make changes to actual gearing, regulatory asset lives, and capitalisation rates.

Our analysis of these proposals show that these short term measures would lead to bills being potentially higher over the long term, thereby distorting fair allocation of costs between current and future consumers. As we explain further below, we do not believe this is in the best interests of our stakeholders and consumers.

In the following pages we set out our view on the primary areas of the financial parameters as follows:

- 1** **Setting the right cost of capital**
- 2** **Spreading investment costs across current and future consumers through capitalisation rates and asset lives**
- 3** **Adopting a transparent treatment of tax**
- 4** **Other Financial Parameters including inflation and RAMs**

For each financial parameter, we have set out our approach and what we have considered for each element prior to evaluating our draft Plan overall for financeability.

## Setting the right cost of capital

The CoE is a component part of the price control methodology and comprises 40% of the Weighted Average Cost of Capital (WACC or cost of capital). The WACC is the rate of return included in the charge to consumers for the use of the electricity transmission network.

The value of the electricity transmission network is termed the Regulatory Asset Value (RAV) and also forms part of the price control formula for charging consumers. The remaining 60% of the WACC (termed the gearing ratio) is comprised of the CoD and is based on the appropriate market rate for borrowing capital to invest into the RAV.

Our approach to setting the WACC is through a balanced consideration of the evidence-base covering the CoE and CoD components. These are then calibrated based on our financeability analysis to ensure the gearing ratio is set to maintain financeability during RIIO-T2.

This approach is to ensure that our draft Plan provides an allowance sufficient enough to cover CoD and related transaction costs, and also provide an adequate return to our investors. We have set out our proposals for the CoE and CoD below with reference to the analysis and evidence we have considered<sup>4</sup>.

**Table 6.1** Summary of financial parameters

Financial parameter	Ofgem's working assumptions		Our proposed	RIIO-T1
	December 2018	SSMD	Parameters	
Cost of Equity (CoE)	4.0%	4.3%	6.9%	8.0%*
Cost of Debt (CoD)	10-year trailing	11-15 year trombone	15-20 year trailing	RAV Weighted mechanism
Gearing Ratio	60%		60%	55%
Inflation	CPI		CPI	RPI
Capitalisation Rate	Based on Business Plans		90%	90%
Asset Lives	No change from RIIO-T1		Continue transition to 45 years over one 5-year price control	Transition to 45 years over two 8-year price controls
Tax treatment	Notional allowance vs pass-through vs "double-lock"		Pass-through and Fair Tax Mark	Notional Allowance

\*RIIO-T1 Cost of Equity was set in RPI terms at 7.0% which translates to 8.0% on a CPI basis.

<sup>4</sup>Evidence presented here has previously been discussed and presented to Ofgem

# Cost of Equity

Our evidence shows that an appropriate range for the CoE is between 6.5% and 7.3% CPI-real, which compares to a CPI-real CoE in RIIO-T1 of 8.0%. We agree that evidence illustrates that returns have fallen since setting the CoE for RIIO-T1 and that this should be reflected in RIIO-T2.

Ofgem's Working Assumption for CoE for RIIO-T2 has been proposed as 4.3% whereby Ofgem intend to assess a notional company's financeability on 4.8%<sup>5</sup>. This is on the basis that Ofgem expect some form of outperformance in the price control which would improve cash flows and returns to investors by 0.5%.

When assessing the CoE we have adopted an approach consistent with regulatory precedent and what is deemed best practice for a regulator. This approach considers a broad range of evidence including observable information grounded in central finance theory as used by practitioners, as well as forward looking approaches. We have also factored in a number of cross checks in selecting the point estimate within a range which was proposed by Oxera<sup>6</sup> on behalf of the Energy Networks Association (ENA). Ofgem subsequently endorsed the use of cross checks in the SSMD.

Based on our evaluation of the balance of evidence, we do not believe that Ofgem has correctly set the range for the CoE and that Ofgem's Working Assumptions are too low. We have not responded to Ofgem's SSMD in this section of our draft Business Plan due to the short time available since SSMD publication. We intend to consider the SSMD in full as part of our final Business Plan submission in December 2019. Our initial response is that we do not believe that the base return has almost halved between RIIO-T1 and RIIO-T2.

In proposing our CoE point estimate we have considered a balanced range of evidence including observable market evidence, survey evidence and cross checks. We have placed more weight on observable market evidence to set the range for the CoE and utilised cross checks as a means to select the point estimate in our draft Business Plan.

In our view, the mid-point of the range of 6.9% is the most reasonable estimate, which is consistent with regulatory precedent and is a slightly more prudent approach than that supported by Dobbs<sup>7</sup> when setting the CoE which he argues should be in the 75th percentile of the range<sup>8</sup>. The mid-point in CPI terms is 6.9% and this is the CoE we have incorporated in our draft Plan (as set out in the financeability assessment).

## Allowed vs Expected returns and the "outperformance wedge"

Ofgem's Working Assumption for RIIO-T2 CoE is 4.3% (CPI-real) with an underlying CoE of 4.8% (CPI-real) where Ofgem has made a deduction to the CoE of 0.5%. This deduction relates to what is termed as the Allowed vs Expected return adjustment ('AvE' or 'outperformance wedge'). The AvE adjustment is based on Ofgem's assertion that investors expect some outperformance in a price control which supplements the base return, and therefore there should be a deduction equal to that expectation from the base return.

As set out in our consultation response to Ofgem's proposals with supporting evidence from Frontier Economics, the wedge is considered arbitrary and is based upon an expectation of outperformance which is not funded as part of the price control. At this stage, any expectation of the overall financial package and therefore future out or under performance is unclear and uncertain.

In our view, to make an adjustment to the cost of equity which is subjective and inconsistent with both economic principles and regulatory precedent is not sound regulatory practice. As outlined by Frontier, price controls have historically been calibrated symmetrically and are not therefore a one-way bet so outperformance is not guaranteed.

**Do you agree with our approach to setting the cost of equity including the point estimate for evaluating our Business Plan?**



**Do you believe that we should assume outperformance will occur in assessing our Business Plan (as Ofgem does)?**

**We welcome views on using cross checks to provide more detailed analysis for the cost of equity for RIIO-T2.**

<sup>5</sup>Ofgem's proposed headline Working Assumption for RIIO-2 CoE is 4.3% (CPI-real) with the underlying CoE of 4.8% (CPI-real) where Ofgem has made a deduction to the CoE of 0.5% for what they have termed as the Allowed vs Expected return adjustment ('AvE'). However, Ofgem has assessed financeability of the notional regulated network company using a CoE 4.8% (CPI-real). We have not used any outperformance assumption in assessing our draft Plan for financeability. Therefore we have evaluated Ofgem's proposed financial parameters using 4.3% compared to our proposal of 6.9% (CPI-real).

<sup>6</sup>Oxera report, The cost of equity for RIIO-2 – A review of the evidence, Prepared for the ENA (ENA, 2018) available at: [https://www.oxera.com/wp-content/uploads/2018/07/ENA-cost-of-equity\\_2018-02-28.pdf.pdf](https://www.oxera.com/wp-content/uploads/2018/07/ENA-cost-of-equity_2018-02-28.pdf.pdf)

<sup>7</sup>Modelling Welfare loss Asymmetries Arising from Uncertainty in the Regulatory Cost of Finance (Dobbs, 2011) available at: <https://link.springer.com/article/10.1007/s11149-010-9131-2>

<sup>8</sup>Frontier Economics, Adjusting baseline returns for anticipated outperformance – An assessment of Ofgem's proposals, Prepared for the ENA (ENA, 2019)

# Cost of Debt

In RIIO-T1, we had a company-specific arrangement whereby the CoD was annually indexed using a 10-year trailing average A/BBB non-financial iBoxx corporate bond indices with a bespoke weighting tracking the investment profile. This was due to the high capital growth which we forecast in the RIIO-T1 period<sup>9</sup>.

Below we consider a number of CoD mechanisms with reference to Ofgem’s principles<sup>10</sup>:

- Moving from RIIO-T1 to RIIO-T2
- Embedded debt costs
- Additional costs of borrowing
- Approach to evaluating CoD mechanisms

In undertaking our analysis, we have commissioned an independent study by Oxera<sup>11</sup>. This is in addition to a study undertaken by NERA<sup>12</sup> on behalf of the ENA for evaluating the CoD mechanisms used in RIIO-1 and extending those into RIIO-2.

## Moving from RIIO-T1 to RIIO-T2

We anticipate significant investment in RIIO-T2 to deliver further energy decarbonisation.

However, the scale and extent of investment compared to the size of our current asset base is not as pronounced when comparing to RIIO-T1. During RIIO-T1 the RAV has grown fivefold whereas in RIIO-T2 we anticipate that RAV will grow by 30%-50% depending on the outcome of a range of uncertainty mechanisms to support increasing generation in the north of Scotland. We are therefore not currently considering a bespoke weighted CoD mechanism for RIIO-T2 albeit we intend to keep this under review until our final Business Plan submission, should market circumstances change.

Based on the evidence and analysis presented by the ENA through the NERA study<sup>12</sup>, several notional and actual energy networks would underperform in RIIO-2 under the 10-year RIIO-1 mechanism. In order to remedy this, a longer-term average is appropriate as networks should be able to recover their CoD on a notional basis.

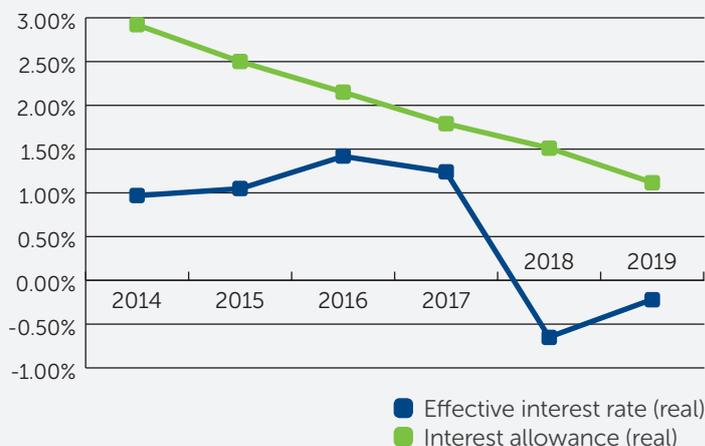
In the SSMD, Ofgem’s Working Assumption is an 11-15-year trombone on A/BBB iBoxx index (compared to its previously proposed 10-year trailing A/BBB iBoxx index). We have evaluated Ofgem’s revised proposal against other configurations of longer-term CoD index mechanisms to ensure that the CoD mechanism for RIIO-T2 delivers Ofgem’s principles while supporting the delivery of our stakeholder-led outcomes.

## Embedded debt costs

During RIIO-T1, we raised a significant amount of debt to finance our capital growth programme. We raised approximately £1.4 billion between 1 April 2013 and 31 March 2019 in order to fund this large capital investment<sup>13</sup>.

Figure 6.6 shows an analysis of the RIIO-T1 CoD mechanism compared to our actual CoD during the price control. During RIIO-T1, our average real cost of debt was below the allowance when calculating this on a simple basis<sup>14</sup>.

Figure 6.6 Actual CoD vs RIIO-T1 CoD mechanism



<sup>9</sup>RIIO-T1 SHE-Transmission Final Proposals (Ofgem, 2012) available at: [www.ofgem.gov.uk/publications-and-updates/riio-t1-final-proposals-sp-transmission-ltd-and-scottish-hydro-electric-transmission-ltd](http://www.ofgem.gov.uk/publications-and-updates/riio-t1-final-proposals-sp-transmission-ltd-and-scottish-hydro-electric-transmission-ltd)

<sup>10</sup>RIIO-T2 framework consultation (Ofgem, 2012) available at: [www.ofgem.gov.uk/publications-and-updates/riio-2-framework-consultation](http://www.ofgem.gov.uk/publications-and-updates/riio-2-framework-consultation)

<sup>11</sup>Oxera report, RIIO-T2 cost of debt and financeability assessment, Prepared for Scottish Hydro Electric Transmission plc, (SSen Transmission, 2019 available at: <https://www.ssen-transmission.co.uk/information-centre/industry-and-regulation/riio-t2/>)

<sup>12</sup>NERA report, Cost of debt at RIIO-2, Prepared for the ENA, March 2019 (not published)

<sup>13</sup>Based on the annual statutory financial statements between 31 March 2013 and 31 March 2019

<sup>14</sup>We refer to this as a simple basis as it deducts the real effective interest rate from the real interest rate allowance as opposed to making any other adjustments for additional costs of borrowing or other elements related to tenor or credit rating

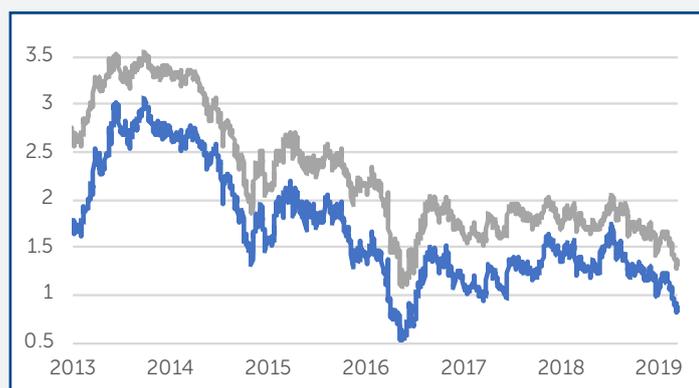
In considering additional borrowing costs and the term of our embedded debt during RIIO-T1, we believe the CoD mechanism in RIIO-T1 was only partly effective in delivering its outcomes. For example, having a market index to set the annual cost of debt is an effective way to ensure only efficient finance costs are funded by consumers while also retaining incentive properties.

However, we believe the mechanism did not provide for the 'all-in' cost of debt which resulted in us having to raise shorter term debt. The average age (or tenor) of debt issued during this period is 10 years<sup>15</sup>, which is significantly shorter than the average A/BBB iBoxx index. A longer term averaging period was acknowledged as a reasonable match to interest costs across operators at RIIO-ED1 Final Determinations<sup>16</sup>.

When we analyse Figure 6.6, considering the additional costs of borrowing and also the premium on issuing longer term debt (i.e. 20-year bonds vs 10-year bonds), it is clear we have been underfunded during RIIO-T1. In order to manage the costs during this capital intensive phase, we adopted a shorter term treasury policy by issuing 10-year debt to mitigate the impact of being underfunded. Figure 6.7 sets out the spread between general 10 and 20-year gilts from April 2013.

The premium on issuing 20-year debt compared to 10-year debt is approximately 60bps. Therefore, when considering the additional costs of borrowing and also the premium of 60bps on issuing 20 year debt, the comparison of the RIIO-T1 CoD mechanism and actual CoD in Figure 6.6, changes to Figure 6.8. This shows a shift downward in our funding levels for the CoD during RIIO-T1.

**Figure 6.7** Comparison of rate of 10-year (blue) and 20-year (grey) gilts from 1 April 2013

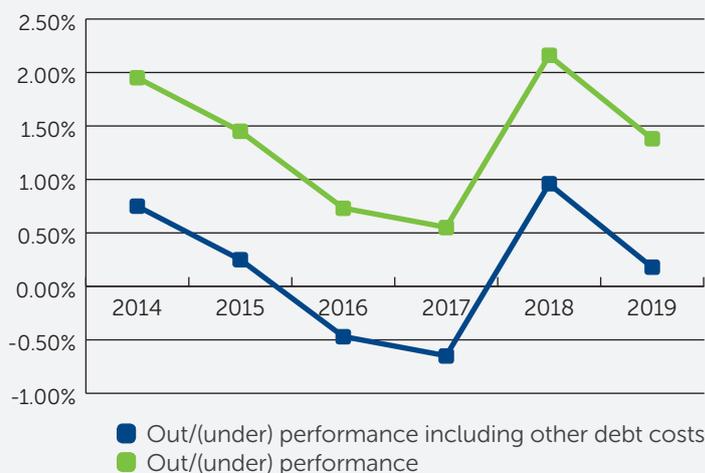


This analysis evidences that the embedded debt for RIIO-T1 is a function of the CoD mechanism which has led to us raising shorter term bonds (10 years) compared to longer dated bonds (20 years).

As of 31 March 2019, the weighted average term remaining on our debt is less than six years and we believe that issuing longer dated bonds would be an efficient and appropriate treasury policy to adopt in RIIO-T2. This is consistent with RIIO-ED1 which uses a 10-20 year trombone mechanism to reflect longer dated debt and is also in line with Ofgem's Working Assumption of adopting a 11-15 year trombone CoD mechanism.

Oxera have undertaken their analysis considering the impact of additional costs of debt and the premium associated with 20-year bonds compared to 10-year bonds. They conclude that when considering these elements, the CoD mechanism for RIIO-T2 would be more appropriately set using a 15-year trailing average compared to the 11-15 year trombone.

**Figure 6.8** Out/(under) performance on the cost of debt in RIIO-T1 (comparing 'all-in' and additional premium costs on issuing 20 year debt)



**Do you agree with our analysis of the RIIO-T1 CoD mechanism and the impact on SHET's embedded debt?**

**Do you agree with our analysis of additional costs of borrowing that should be funded through the CoD mechanism in RIIO-2?**

**Do you agree with our evaluation of CoD mechanisms and our proposed CoD mechanism? Are there any other CoD mechanisms that we have not considered?**

<sup>15</sup>Weighted average term of debt raised during the period

<sup>16</sup>RIIO ED1 Final determination (Ofgem,2014) available at:

[www.ofgem.gov.uk/publications-and-updates/riio-ed1-final-determinations-slow-track-electricity-distribution-companies](http://www.ofgem.gov.uk/publications-and-updates/riio-ed1-final-determinations-slow-track-electricity-distribution-companies)

# Additional Borrowing Costs

Ofgem’s Working Assumption 11-15 year trombone is a more appropriate CoD mechanism for RIIO-T2 than a 10 year trailing average.

However, thorough analysis of the CoD mechanism demonstrates that this will not adequately fund the costs of borrowing during RIIO-T2. There are additional transactional related costs of borrowing, such as the cost of carry, that need to be taken into account. It is less likely that we would be fully funded on a notional basis if these additional costs are discounted.

The table below sets out our evidence based view of the additional costs of borrowing from discussions with our relationship banks and our own experience of borrowing in capital markets. We have identified that associated debt transaction costs are between 0.60% and 0.65% (or 60-65 basis points (bps)).

The calibration of the CoD mechanism must ensure that these other debt costs are efficiently funded.

### New Issue Premium (20bps)

Costs associated with issuing new debt have previously been calculated and assumed to be 20bps by Ofgem and other regulators<sup>17</sup>. When considering market evidence and regulatory precedent, we believe these costs are still approximately 20bps albeit varying over time depending on market conditions. This includes bank underwriting fees, rating agency fees and new issue premiums.

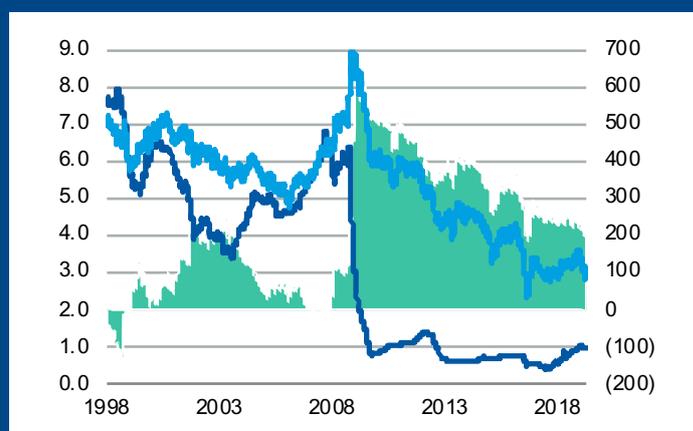
### Transaction and related costs of debt

	%	Bps
New Issue Premium	0.20	20
Costs of carry or Liquidity costs	0.15-0.20	15-20
Premium for issuing nominal debt	0.15	15
Spread on issuing BBB+ debt compared to A/BBB iboxx index	0.10	10
<b>Total</b>	<b>0.60-0.65</b>	<b>60-65</b>

### Cost of carry (15-20bps)

As part of raising funds from debt markets, there is a requirement to pre-finance or raise funds in advance of needing the funds, in sufficient time to avoid liquidity issues. Raising funds in advance therefore carries a significant amount of costs which are unfunded due to both the cost of holding cash balances and the differential between interest returns on cash balances and the interest costs on borrowed funds. In our analysis, we conclude that this could cost as much as 15-20bps over a full year.

### Analysis of the cost of carry for GBP A-Rated Corporates (10 year bonds)



Source Morgan Stanley

The costs in this figure illustrate an average cost of 35-40bps per six months on 10-year bonds, which equates to 17-20bps per annum (50% of this applies to the full year once spread over 12 months). This analysis is over a 10-year period where, with the expected rise in interest rates and rising credit spreads, the cost of pre-funding would continue at similar averages over the past 10 years in the next price control.

<sup>17</sup>See, for example, RIIO-ED1: Final determinations for the slow-track electricity distribution companies where Ofgem conclude that issuance and other costs for raising debt are around 0.2% or 20bps

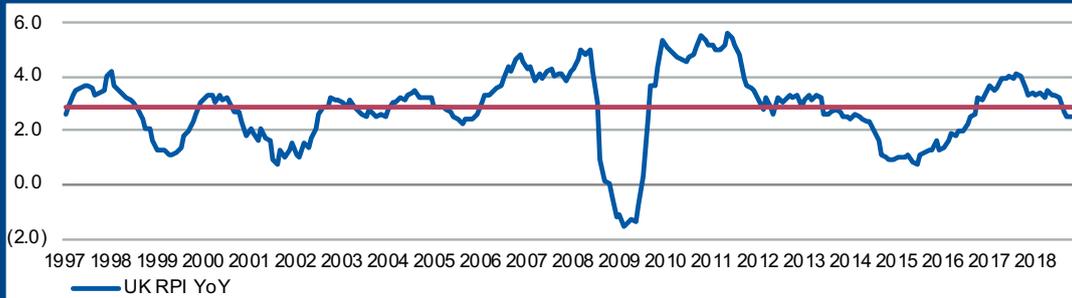
**Premium on issuing nominal debt (15bps)**

Analysis of the differential between issuing index linked debt and nominal debt shows a premium is applied to issuing nominal debt. We have only issued nominal debt during RIIO-T1. Ofgem’s assumption is that networks will issue 25% of their debt as index linked debt (real debt increasing with an inflation measure, typically RPI). For RIIO-T2 we expect to see around 15bps of additional costs on our nominal debt during the period.

Since 1997, RPI has averaged 2.83% while, over the same period, 10-year breakeven inflation (which is the rate the market will pay to receive inflation over 10 years) has averaged 2.98%. This is 15bps above realised inflation. This represents the risk premium that the market charges to hedge the inflation risk. Ofgem has assumed that at least 75% of the debt issued by regulated networks will be nominal debt and therefore this cost differential needs to be funded. In our case, 100% of our debt has been issued as nominal debt due to a lack of index linked bond investors.

**Inflation implied in nominal Corporate Debt is higher than realised inflation**

**UK RPI YoY**



**10 year breakeven inflation**

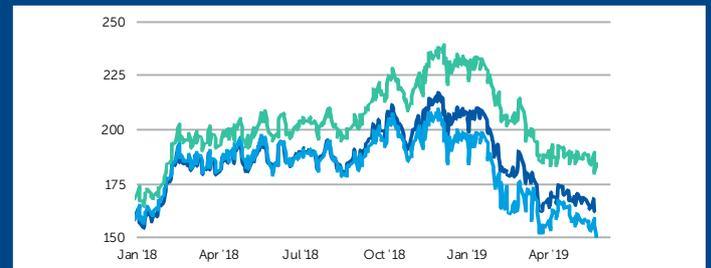


Source Morgan Stanley, Bank of England, Bloomberg

**Spread on issuing BBB+ debt (10bps)**

There is an evident cost differential between issuing BBB+ debt (our current credit rating) compared to averaging A/BBB iBoxx debt indices (the method used to set CoD). The differential amounts to 36bps annually and at least part of this differential would form an additional cost. When spread evenly between A and BBB, this converts to approximately 10bps of additional annual costs when raising BBB+ bonds compared to the average of A/BBB. Spread differentials remain historically tight, with increasing market pressure on credit fundamentals pointing to a higher difference going forward.

**Credit spread of A and BBB bonds**



Morgan Stanley

### Approach to Evaluating CoD Mechanisms

Our approach to evaluating potential CoD mechanism options for RIIO-T2 has been set out comprehensively by Oxera<sup>9</sup>. We have used this independent analysis to inform our proposals.

Table 6.2 sets out the mechanisms which have been considered by Oxera. This has involved applying their methodology and sensitivity analysis for future interest rates alongside considering variability around these interest rates and issuing debt on a longer-term basis consistent with the wider industry, regulatory precedent and Ofgem’s SSMD.

All scenarios are modelled based on a simple average of yields on the nominal iBoxx A/BBB non-financial corporate bond indices. This is not exactly aligned with our credit rating of BBB+, which is a factor likely to contribute to underfunding of the cost of debt.

We have not repeated Oxera’s methodology below in relation to the detailed calculations. However, we note that they have evaluated the CoD mechanisms compared to Ofgem’s principles set out in the SSMD as well as considering the following elements:

- Maintaining our investment grade credit rating at BBB+
- The notional company cost of borrowing over the long term
- The impact of the additional costs of borrowing

In doing so, Oxera conclude that the 11-15 year trombone proposed by Ofgem is unlikely to fund our ‘all-in’ cost of debt during RIIO-T2 when considering the additional costs of borrowing. During a period of high interest rates, it is more appropriate to use a simple 15-year trailing average of A/BBB iBoxx non-financial corporate bond indices. This is illustrated in Figure 6.9.

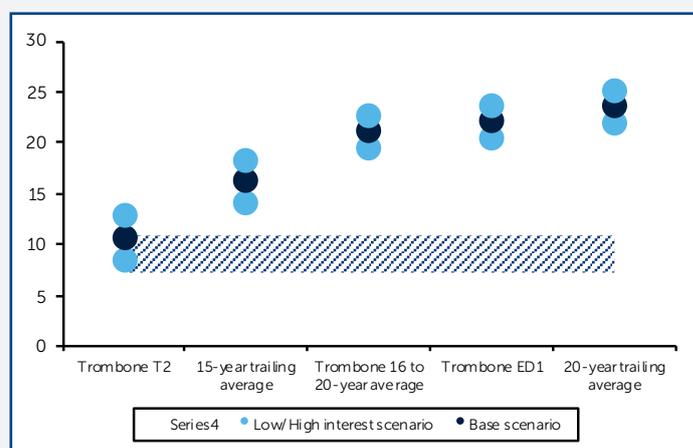
Oxera’s analysis supports that a 15-year trailing average is the minimum required CoD mechanism to ensure the costs of borrowing are fully funded during RIIO-T2 for a notional company. There is enough evidence to move towards a 20-year trailing average or to a point between a 15-year trailing average and a longer-term average.

We intend to keep the CoD mechanism under review for our final Business Plan in December 2019<sup>18</sup> and to consider additional evidence, analysis and changing market conditions to ensure our proposed CoD mechanism fairly compensates for our borrowing costs while also maintaining the incentive to fund efficiently during RIIO-T2, in line with Ofgem’s principles.

**Table 6.2** Potential cost of debt indexation mechanisms in RIIO-T2

Cost of debt mechanism	Description
15-year trailing	15-year trailing average starting from November 2006
20-year trailing	20-year trailing average starting from November 2001
RIIO-ED1 trombone	10–20 year trombone starting from November 2002 (assumes continuation of ED1 trombone into RIIO-T2)
RIIO-T2 trombone	11–15 year trombone starting from November 2011
16–20 year trombone	16–20 year trombone starting from November 2006

**Figure 6.9** Analysis of potential cost of debt indexation mechanisms<sup>19</sup>



Source Oxera

<sup>18</sup>In RIIO-ED1, the CoD mechanism design was changed at Draft Determinations (July 2014) before being finalised in Final Determinations (December 2014) as Ofgem kept options open for changing market conditions and additional analysis as the price control progressed

<sup>19</sup>Oxera’s analysis does not include the full impact of issuing longer term bonds as we have proposed. When included the unfunded costs area increases significantly meaning at least 15 year trailing average looks more appropriate as a minimum

## Spreading investment costs over current and future customers

### Capitalisation Rates

The capitalisation rate for RIIO-T2 should reflect the extent of our forecast spend which is expected to be capital investment versus the spend that we are forecasting to operate and maintain our network. Our proposed spend profile will therefore give the best view of the capitalisation rate.

In RIIO-T1, our capitalisation rate was 90% (Table 6.3). This was driven by the large capital investment programme forecast. During RIIO-T2 we are expecting to continue to promote efficient investment in our network and hence, the vast majority of our spend will be capital related.

For this draft Business Plan and the Certain View over 85% of our spend is forecast to be capital based.

When considering the additional expenditure likely to be incurred on capital investment in relation to uncertainty mechanisms, the capitalisation rate would be appropriately set at 90%. The additional capital expenditure in the price control period could comprise of more than £1bn excluding any investment in Scottish Islands. Therefore, our Business Plan proposal incorporates a 90% capitalisation rate which we also believe more appropriately spreads costs of the assets over their useful economic lives and consumers. If set lower, it would increase the cost to current consumers unnecessarily.

**Table 6.3** Capitalisation rates

£m	RIIO-T1 Allowance	RIIO-T1 Actual/ Forecast	RIIO-T2 Certain
Capex	3,246	3,597	1,882
Opex	253	254	316
Totex	3,499	3,851	2,197
Implied Capitalisation Rate	93%	93%	86%

### Asset lives

In RIIO-T1, Ofgem decided that asset lives should transition to 45 years from 20 years for all transmission owners in order that regulatory asset lives better reflected the estimated useful economic lives of network assets<sup>20</sup>.

For us, the period for this transition was to be across "two price control periods (16 years). The transition was agreed to be over two price control periods due to the intensity of the capital investment forecast for RIIO-T1 and to support financeability. As RIIO-T1 was an eight-year price control, it was assumed that the transition would be over a sixteen-year period. However, due to RIIO-T2 being a five-year period, we have assessed our Plan over a second price control period lasting five years and hence, asset lives will be 45 years by the end of RIIO-T2.

In evaluating our draft Business Plan we tested a range of assumptions and deemed that moving to 45 years immediately in the first year of RIIO-T2 would reduce cashflows unnecessarily and would be a deviation from Ofgem's policy decision in RIIO-T1. Therefore, we have proposed that depreciation is modelled with a five-year transition period for RIIO-T2.



Are there any other items that we should consider when assessing the appropriate capitalisation rate?



Should asset lives transition to 45 years by the end of RIIO-T2 or should the period be locked at sixteen years, meaning the transition will complete in the early years of RIIO-T3?

# Fair Tax and Inflation

## Adopting a transparent treatment of tax

In RIIO-T1, the tax allowance for companies was set on a notional basis, with the allowance being estimated as the amount required for companies to recover corporation tax costs.

The notional allowance gives scope for an out or under performance on tax due to differentials on timing and effective tax rates. In RIIO-T2, our view is that it is important to ensure that companies are fully funded for their actual tax costs and that consumers only pay for those actual tax costs. We also believe that, as regulated networks, adopting some form of accreditation for transparency on tax would be a positive step for consumers. Thus, taxation should be treated as a pass-through cost with accreditation for tax transparency.



**We support the Fair Tax Mark (FTM) which SSE plc has been accredited with for the past five years. Encouraging companies to achieve FTM status or provide additional disclosure requirements in line with FTM principles or another accreditation method gives consumers confidence that companies are paying a fair and reasonable amount of tax.**

In considering the alternative mechanisms proposed by Ofgem in the SSMD, we believe that the notional tax allowance gives scope for recovery of tax which is different to the actual tax incurred. The double-lock mechanism, where companies recover the lower of notional allowance and actual tax costs, is likely to encourage companies to seek measures to reduce their tax costs below the notional tax allowance to ensure they are not underfunded. This is not in the best interest of consumers as it creates the wrong incentive on paying taxation.

What are your views on the FTM accreditation or an alternative accreditation for energy networks in RIIO-T2?



Do you agree with our conclusion that pass-through is the appropriate treatment of tax costs for consumers? If not, what mechanism or approach do you prefer and why?

Do you believe switching to CPI from RPI should be NPV-neutral?

Do you believe that RPI should be retained?

## Other financial parameters

### Inflation

We acknowledge Ofgem’s decision to apply an immediate switch from RPI to CPI.

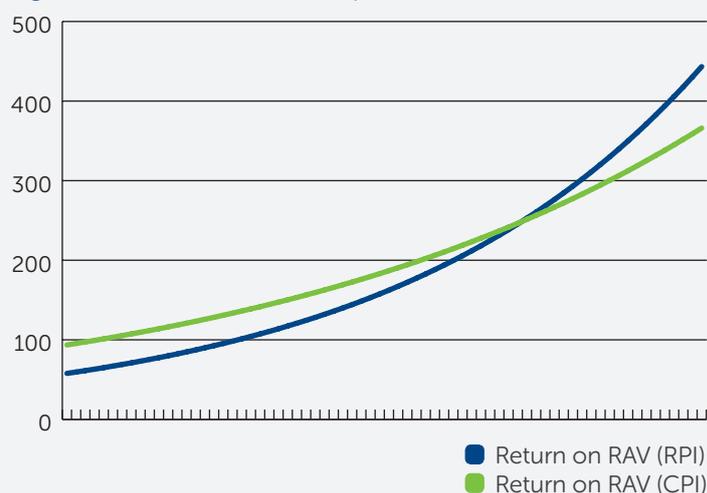
In reviewing this decision, we have considered the impact on consumer bills as well as how this would impact on short and long term financeability. Our analysis clearly shows that allowed revenue, and therefore consumer bills, will be higher due to the switch to CPI from RPI (Figure 6.10).

The switch to CPI results in a higher return on RAV as compared to RPI at the beginning of the switch. In future years however, consumers will pay less due to a CPI-inflated RAV base as opposed to an RPI-inflated RAV. In summary, consumers will pay more today but less in the future.

Recognising this, the water regulator Ofwat adopted a transitional arrangement when moving to CPI for PR19 to mitigate the impact on consumer bills<sup>21</sup>. Ofgem have decided not to consider a transitional arrangement.

We consider the impact of an immediate switch to CPI, and what this means for consumers, in our financeability assessment in the short and long term. We conclude that the change to CPI should be NPV-neutral across RIIO-T2. In particular it is not appropriate to use a change in inflation measure to support short term credit ratios at the expense of longer term financeability.

Figure 6.10 Allowed revenue impact of RPI to CPI switch



<sup>21</sup>Ofwat price control framework and methodology (Ofwat, 2019) available at: [www.ofwat.gov.uk/regulated-companies/price-review/2019-price-review/pr19-final-methodology/](http://www.ofwat.gov.uk/regulated-companies/price-review/2019-price-review/pr19-final-methodology/)

# Financeability Assessment

## Return Adjustment Mechanisms (RAMs)

RAMs are a new regulatory mechanism which, our analysis indicates, are more likely to cause harm than good to consumers in RIIO-T2<sup>22</sup>. In summary, our analysis shows that these mechanisms are akin to a tax on effort. They have a distortionary impact on incentives and their introduction has not been justified by means of a full and clear regulatory impact assessment.

These mechanisms are to the detriment to consumers over the long term by creating inadvertent consequences that are likely to increase costs to consumers and create uncertainty within a price control. EY undertook a review of the proposed RAMs for the ENA and found they provided little value compared to existing regulatory mechanisms<sup>23</sup>. There is not, therefore, any proven advantage to consumers or companies in introducing these complex mechanisms.

We have not therefore proposed any RAM type mechanisms in our draft Business Plan.

## Ensuring our Business Plan is Financeable

Network operators are required under licence to maintain an investment grade credit rating.

To ensure our draft Business Plan is financeable, we have undertaken an assessment of our credit rating ratios in line with the CRAs. We have commissioned Oxera<sup>11</sup> to independently evaluate our draft Business Plan for financeability as well as consider Ofgem's approach to financeability. This evaluation allows us to test both Our Proposed Parameters and Ofgem's Working Assumptions. We have used this analysis to determine whether adjustments are required to Our Proposed Parameters to ensure there is an appropriate balance between financeability and the impact on customer bills.

Financeability is our ability to maintain investment grade credit rating at our current rating of BBB+ while being able to continue to attract and retain investment from existing and new shareholders. Both the CoE and CoD must be considered in this analysis, otherwise we are only considering a proportion of the funding required and costs associated with servicing these funds.

### Approach to evaluating financeability

In previous price controls, Ofgem has evaluated business plans assuming no outperformance and has then applied sensitivities to evaluate the notional and actual company against a range of potential outcomes. We have adopted a consistent approach for our draft Business Plan albeit we do not have sufficient information to determine the potential outperformance available from the incentive mechanisms proposed in the SSMD. We intend to revisit our financeability analysis as part of our final Business Plan submission in December 2019 considering any changes in the incentive mechanisms that may have materialised during that period. Therefore we have assessed our draft Business Plan assuming no out or under performance in RIIO-T2.

For RIIO-T2 Ofgem has assessed financeability on a notional company basis in the SSMD assuming that there is 50bps (equivalent to 0.5%) of outperformance meaning they have used a cost of equity of 4.8% rather than the base cost of equity of 4.3%. As explained above, we do not agree with this approach and so have assessed Ofgem's Working Assumptions using a CoE of 4.3% rather than 4.8%.



We welcome views on the potential benefits and risks of RAMs.

**Do you believe we should include a RAM type mechanism in our final Business Plan and, if so, what mechanism do you think is the most appropriate?**

<sup>22</sup>See, for example, our response to Ofgem's Sector Specific Methodology Consultation (SSEN Transmission, 2019) available at: <https://www.ssen-transmission.co.uk/news-views/articles/2019/5/ssen-statement-on-ofgem-s-riio2-sector-specific-methodology-decision/>

<sup>23</sup>Ernst and Young report, Evaluating the need for, and strengths and weaknesses of, fair returns mechanisms for RIIO-2, Prepared for the ENA, April 2018

# Approach to Assessing Financeability

Table 6.4 below summarises the credit metrics we have used from each of the CRAs in assessing our draft Plan. We present here the findings of Oxera's analysis, but note that our own analysis has similar findings. Table 6.5 sets out the assumptions used when assessing the notional company. Oxera has undertaken additional sensitivity analysis in their report.

## Analysis of Financeability for Ofgem's working assumptions

The assessment which we and Oxera have conducted shows that there is little headroom in key financeability metrics above the minimum thresholds required to retain our investment-grade credit rating.

We describe below the key credit ratios that the CRAs focus on including the Adjusted Interest Cover Ratio (AICR) or Post Maintenance Interest Cover Ratio (PMICR), and the Funds from Operations (FFO) to Net Debt. A full analysis of all credit ratios is included in the Oxera report. Figures 6.11 and 6.12 show the outcome for Ofgem's Working Assumptions on an accounting and economic<sup>24</sup> basis for these key ratios. Oxera considered the ratios across the RIIO-T2 period and beyond given the long term impact of the change to CPI on credit metrics.

**Table 6.5** Main assumptions for notional company

Parameter	Assumption
Allowed cost of equity	Baseline estimate of 4.3% (real, CPIH)
Allowed cost of debt	11–15 year trombone <sup>25</sup>
Indexed-linked debt	Comprises 25% of total debt, indexed to CPIH
Interest expense	Equal to the cost of debt
Gearing	60% maintained in line with notional assumption through equity injection(s)
Inflation	CPIH of 2.0%
Dividend yield	4.3%. Equal to Ofgem's baseline cost of equity estimate (4.3%) for our base case. A sensitivity of zero dividend yield is also assessed
Capitalisation rate	90.0%
Depreciation	Transition to asset life of 45 years by end of RIIO-T2

**Table 6.4** Indicative ranges for investment grade rating from the CRAs<sup>26</sup>

Ratio	Fitch		Moody's		Standard & Poor's	
Debt metrics	A	BBB	A	BAA	A	BBB
Net debt/RAV (%)	60	70	45–60	60–75	<70	>70
FFO interest cover, incl. accretions (x)*	4.5	3.5	4–5.5	2.8–4	>3.5	2.5–3.5
FFO interest cover, excl. accretions (x)*	4.5	3.5	4–5.5	2.8–4	>3.5	2.5–3.5
AICR (or PMICR) (x)*	1.75	1.5	2.0–3.5 or 1.6–1.8	1.4–2.0 or 1.2–1.4		
Notional PMICR (x)						
FFO (cash interest) /net debt (%)*			18–26	11–18	>12	8–12
FFO (interest expense)/net debt (%)*						
RCF/net debt (%)			14–21	7–14		

\*Ofgem key credit metric in the SSMD

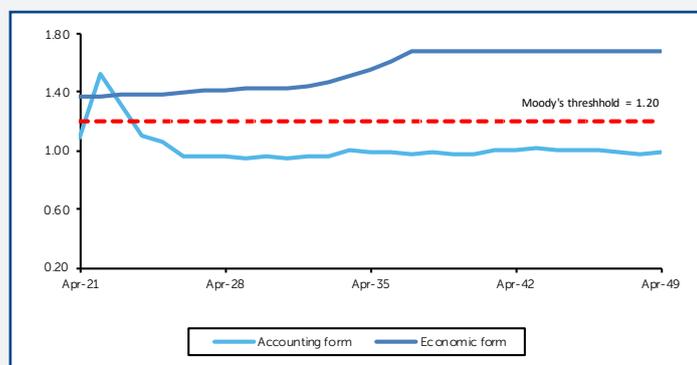
<sup>24</sup>Oxera note that average credit ratios in RIIO-T2 using Ofgem's economic form for the AICR and FFO/net debt (and RCF/net debt) are higher than the values using the accounting forms of the ratios. The analysis Oxera and we have undertaken focuses on the accounting form of the metrics which is consistent with CRAs methodology.

<sup>25</sup>Oxera assume that this is sufficient to fully fund the all-in costs of debt at BBB+ for the benefit of undertaking financeability analysis. Any change in investment grade to BBB would require a re-assessment of the Cost of Debt mechanism which we have not considered in our draft Business Plan

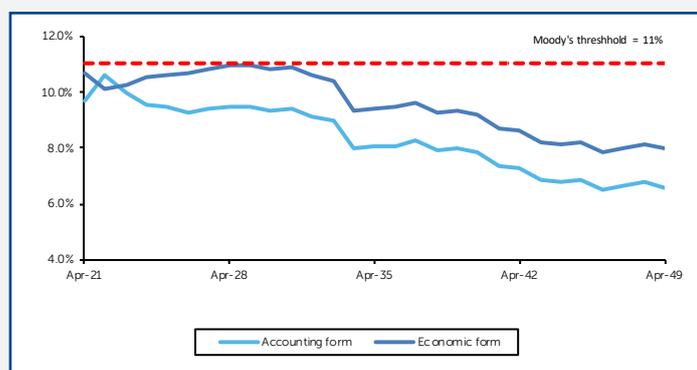
<sup>26</sup>A comprehensive derivation of these ranges is set out in Oxera's report. \* denotes Ofgem's key credit metrics in the SSMD

# Analysis of Financeability

**Figure 6.11** AICR (or PMICR) analysis over RIIO-T2 for Ofgem's Working Assumptions (CPI)



**Figure 6.12** FFO/Net Debt analysis over RIIO-T2 for Ofgem Working Assumptions (CPI)



As shown in Figure 6.11, for the notional company during RIIO-T2, the AICR (or PMICR) falls below the bottom end of Moody's guidance of 1.2–1.4x and 1.4–2.0x (for a Baa rating) at 1.18 over the period. The AICR is also below Fitch's guidance of 1.5x for a BBB<sup>27</sup> rating. Furthermore, Figure 6.12 shows that the FFO/net debt (including and excluding accretion) is below Moody's guidance for a Baa rating of 11%<sup>28</sup>.

The above analysis ignores both the long-term impact on credit ratios that deteriorate due to the change to CPI from RPI and the CoE being set too low in Ofgem's Working Assumptions. This evidences that Ofgem's Working Assumptions present financeability pressures when using CPI as the inflation measure. As part of our evaluation, we have also considered Ofgem's Working Assumptions if RPI were to remain the inflation measure for RIIO-2. In doing so we are evaluating Ofgem's Working Assumptions excluding the change in inflation measure, which has been noted as increasing short term cash flows<sup>29</sup> and therefore materially moving the credit rating ratios.

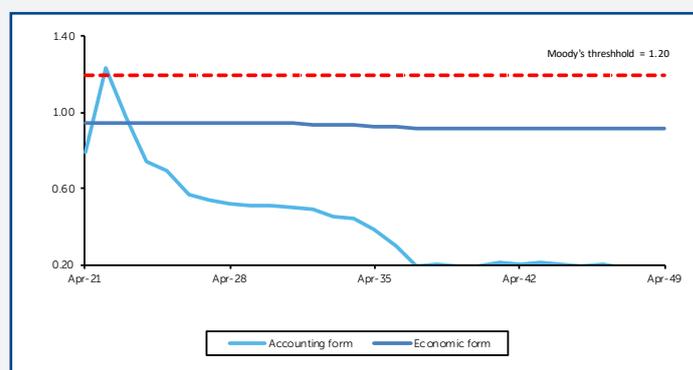
Transitioning to CPI 'skews' the analysis.

When analysing Ofgem's Working Assumptions, we have considered the impact of changing to CPI as the measure of inflation instead of RPI. Oxera undertook the same analysis independently (Figures 6.13 and 6.14). Oxera considered the impact across and beyond RIIO-T2 showing that CPI-related short term cash flow increases become neutral compared to RPI before inverting to a negative impact.

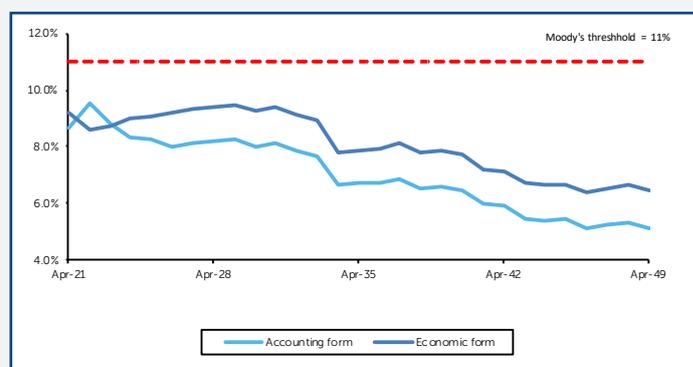
In Oxera's conclusions from the analysis of the impact of CPI to RPI on long term credit metrics they note that if Ofgem had retained RPI-based allowances instead of CPIH-based allowances, the AICR would have been even lower at around 0.89x. This is well below Moody's guidance threshold for a Baa2 rating (i.e. 1.2x) which is sub-investment grade. This demonstrates that but for the transition to CPIH inflation, the credit metrics would not have been consistent with the threshold guidance for investment-grade ratings and therefore our regulatory licence obligations.

If Ofgem were to retain RPI, price control financial parameters would not achieve financeability for the notional company and Ofgem's Working Assumptions would need to be changed to support financeability.

**Figure 6.13** AICR (or PMICR) analysis over RIIO-T2 for Ofgem Working Assumptions (RPI)



**Figure 6.14** FFO/Net Debt analysis over RIIO-T2 for Ofgem Working Assumptions (RPI)



[www.ssen-transmission.co.uk](http://www.ssen-transmission.co.uk)

<sup>27</sup>Regulated electric and gas networks – UK. Risks are rising, but regulatory fundamentals still intact' p. 4. Moody's (May, 2019), Available at: <https://www.moody's.com/credit-ratings-tab/IndustryResearch/546500?orgname=New-Haven-Water-Co-&url=MIS>

<sup>28</sup>Oxera focus on the accounting form which is the same basis in which the CRAs used compared to Ofgem's methodology for using the economic form of CRAs. Oxera explore this further in their report.

<sup>29</sup>The novel approach adopted reduces the TMR by 1%, which has been noted by Moody's in their analysis of RIIO-2. Moody's, Credit quality likely to weaken in RIIO-GD2 regulatory period (Moody's, Feb 2019) available at: [https://www.ofgem.gov.uk/sites/default/files/docs/2012/10/7\\_network\\_access\\_policy\\_shetlandsptL0.pdf](https://www.ofgem.gov.uk/sites/default/files/docs/2012/10/7_network_access_policy_shetlandsptL0.pdf)

### Sensitivity Analysis on Financeability

We have undertaken a number of sensitivities on our draft Business Plan including evaluating credit ratios on Our Proposed Parameters. Oxera have also independently assessed these sensitivities which are summarised as follows:

- Using a cost of equity of 6.9% (CPIH, real or 5.8% RPI, real), consistent with Our Proposed Parameters;
- Using Our Proposed Parameter of a 15-year trailing average of yields on A/BBB iBoxx non-financial corporate bond indices for the cost of debt<sup>30</sup>;
- Measuring the change in the capitalisation rate required in order to achieve credit metrics that would be consistent with the upper bound of the guidance range from Moody's for a Baa1 rating<sup>25</sup>, in line with the Competition Commission's (2007) guidance on interpreting a 'solid' investment-grade rating.

The results of testing financeability under these scenarios are summarised in Table 6.6. All scenarios assume an equity return in line with the base case assumption for the notional company (i.e. 4.3%, CPIH real), unless otherwise noted. We conclude that:

- If Ofgem had retained RPI-based allowances instead of CPIH-based allowances, the AICR would have been lower at around 0.84x. This is well below Moody's guidance threshold for a Baa2 rating (i.e. 1.2x).
- Reducing the notional gearing to 55% in line with RIIO-T1 would improve credit metrics; i.e. AICR would increase to 1.31x, which would be slightly below the guidance threshold for a Baa1 rating (i.e. 1.4x).
- Changes to the dividend yield or asset life assumption are ineffective in materially alleviating pressure on interest coverage ratios<sup>31</sup>. Oxera outline in their report why the AICR is non-responsive to a change in asset lives.

**Table 6.6** Sensitivity analysis of financeability metrics for the notional company

	Base case	RPI inflation	Cost of equity = 6.9%	Dividend yield = 0.0%	15-year trailing average	No inflation-linked debt	Capitalisation rate = 85.9%	Gearing = 55%
Debt metrics								
Net debt/RAV (%)	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	60.0%	55.0%
FFO interest cover, incl. accretions (x)*	3.3	3.0	3.6	3.3	3.1	3.3	3.5	3.6
FFO interest cover, excl. accretions (x)*	3.8	3.7	4.2	3.8	3.6	3.3	4.0	4.2
AICR (or PMICR) (x)*	1.18	0.84	1.55	1.18	1.15	1.03	1.40	1.31
Notional PMICR (x)	1.8	1.8	2.1	1.8	1.7	1.8	2.0	2.0
FFO (cash interest) / net debt (%)*	9.8%	8.7%	11.1%	9.8%	9.8%	9.3%	10.7%	11.1%
FFO (interest expense)/net debt (%)*	9.4%	8.1%	10.7%	9.4%	9.4%	9.3%	10.3%	10.7%
RCF/net debt (%)	7.1%	5.9%	8.4%	9.8%	7.1%	6.6%	8.0%	7.8%

\*Ofgem key credit metric in the SSMD

<sup>30</sup>The 15-year trailing average cost of debt index excludes the impact of transaction costs and the cost of carry. Oxera's analysis has not modelled this here but it is not intended to preclude the possibility of a different trailing average period

<sup>31</sup>Regarding the former, this is due to debt costs being driven by the maintenance of a constant notional gearing ratio in line with the projected RAV growth rather than by dividend policy. Regarding the latter, this is due to changes to the asset life assumption for depreciation being reflected in the calculation of the FFO, but then being offset by a revised estimate of RAV depreciation within the numerator for the AICR (or PMICR) ratio

# Determining Allowed Revenue

- Revising the capitalisation rate to generate an AICR estimate of 1.4x, in line with a Baa1 guidance threshold, would require a reduction from a rate of 90% to below 85%. However, CRAs may look through adjustments that are NPV-neutral, such as modifying the capitalisation rate and the depreciation profile. For example, Fitch has indicated that it does not view alternative capitalisation or depreciation rates as helping PMICRs<sup>32</sup>. This would also inadvertently shorten the period over which costs are recovered on assets, which is not reflective of the analysis undertaken of our draft Business Plan.
- Assuming indexed linked debt is available, this improves ratings. Availability is not guaranteed which could lead to a deterioration in ratings close to the threshold for investment grade.
- Our proposed CoE of 6.9% (CPIH-real) shows a significant improvement in the AICR to 1.59x, which is consistent with a Moody's Baa1 rating.

The above analysis assumes that we are fully financed on all capital costs, there is no out or underperformance and the "all-in" costs of borrowing are fully funded. We intend to evaluate the range of outcomes once incentive mechanisms are further defined by Ofgem in advance of our final Business Plan in December 2019.

## Conclusion on financeability analysis

Our analysis of financeability under Ofgem's Working Assumptions shows that there would be significant downward pressure on our credit rating. Under a range of sensitivities, including the impact of transitioning to CPI, we show that Ofgem's Working Assumptions would require material changes to support short term financeability. We believe this illustrates that Ofgem is using the short-term change to CPI to reduce the CoE to 4.3% in RIIO-T2.

To avoid any downgrading occurring under Ofgem's Working Assumptions, changes would be required to gearing or capitalisation rates alongside an increase in the cost of debt index to enable cash flows to support short term credit ratios. Such changes would lead to Ofgem setting other financial parameters 'inaccurately' to support financeability. This would have the effect of increasing costs to consumers in the short term and could potentially lead to higher bills in the longer term.

We believe that we should be financeable under both RPI and CPI.

Our Proposed Parameters are able to achieve this and will ensure that we maintain our credit rating while being able to attract and retain equity investment from new and existing shareholders.

## Determining Allowed Revenue

Our allowed revenue is calculated using a regulated financial framework which is common to all transmission operators and is prepared on a "notional company basis" – that is, it ignores our actual funding structure and assumes that we are funded in line with what Ofgem defines as an efficient TO. The inputs to the framework are our expenditure requirements and the financial assumptions. The output of the framework is the base revenue which we are allowed to charge each year.

Our allowed revenue is made up of the following key components:

- A proportion of our allowed expenditure is capitalised and added to RAV ("slow money"). A return on RAV is earned based on the WACC. The RAV depreciation element also forms part of our revenue, with the amount of money we earn on this portion of our expenditure being spread over the life of the assets on which we spend our money.
- A proportion of our allowed expenditure is recovered as revenue in the year it is incurred ("fast money"), but with no return.
- Any expenditure incurred on areas which are outwith our control, such as business rates, are recovered in revenue in the year it is incurred, as long as Ofgem agrees that it is efficiently incurred.
- An allowance to cover our tax costs and the costs of any efficiently-incurred payments to cover pension scheme deficits from before April 2010 in accordance with specific guidelines including Ofgem's Pension Reasonableness Review.
- An allowance to cover any costs incurred in raising equity to fund our business.
- Any upfront incentives as set by Ofgem.
- Ofgem operates a Price Control Financial Model (PCFM) to undertake this calculation of allowed revenue. As the PCFM for RIIO-T2 is not yet fully developed, we have used our own financial model (based on the PCFM for RIIO-T1) to forecast our allowed revenue for the RIIO-T2 period.

# Forecast Allowed Revenue

## Forecast allowed revenue

Figures 6.14 and 6.15 show our forecast of allowed revenue<sup>33</sup> for the RIIO-T2 period for the Certain View of allowed expenditure, respectively, Ofgem’s Working Assumptions and Our Proposed Parameters.

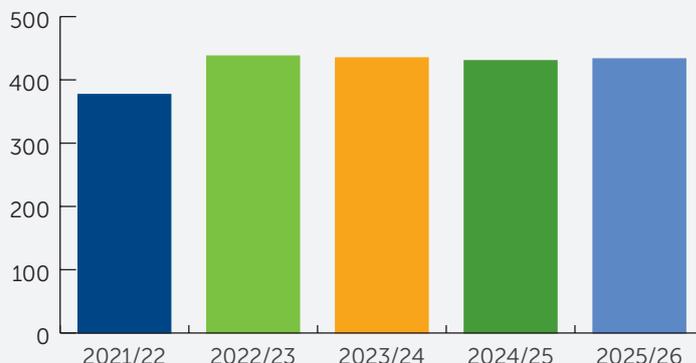
There is an approximately £47 million per year difference between the average allowed revenue under Ofgem’s Working Assumptions and Our Proposed Parameters. This largely relates to the difference in the CoE assumption.

As explained above, a higher CoE assumption is necessary to maintain the long term financeability of our business. In addition, the revenue is skewed by the transition to CPI which will increase revenues under Ofgem’s Working Assumptions over the long term. In effect, there would be a transfer of costs from current to future customers.

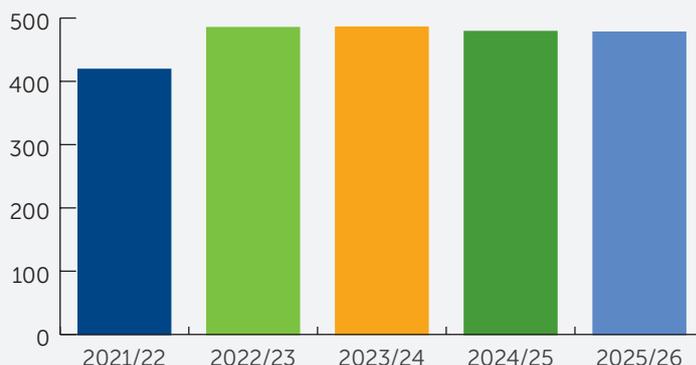
Allowed revenue is forecast to increase by between £70-100 million between 2020/21 and 2022/23 under both Ofgem’s Working Assumptions and Our Proposed Parameters. This is driven by the costs of a larger network (higher RAV) alongside changes to the regulatory treatment of pass-through costs, including business rates and corporation tax, between each price control. There is also an increase in depreciation following the large investment in the final years of RIIO-T1. Depreciation is a means to finance new investment as older assets deteriorate over a period of time.

Once Ofgem’s Working Assumptions are amended to support financeability, as illustrated in our financeability analysis, the differential in revenue between Our Proposed Parameters and Ofgem’s Working Assumptions would reduce significantly.

**Figure 6.14** Forecast allowed revenue for Certain View and Ofgem’s Working Assumptions (£m pa. 2018/19 prices)



**Figure 6.15** Forecast allowed revenue for Certain View and Our Proposed Parameters (£m pa. 2018/19 prices)



<sup>33</sup>This analysis does not include Excluded Services, such as connection charges levied directly on the connecting party e.g. generators. For modelling purposes, we have assumed that these charges will continue at similar levels

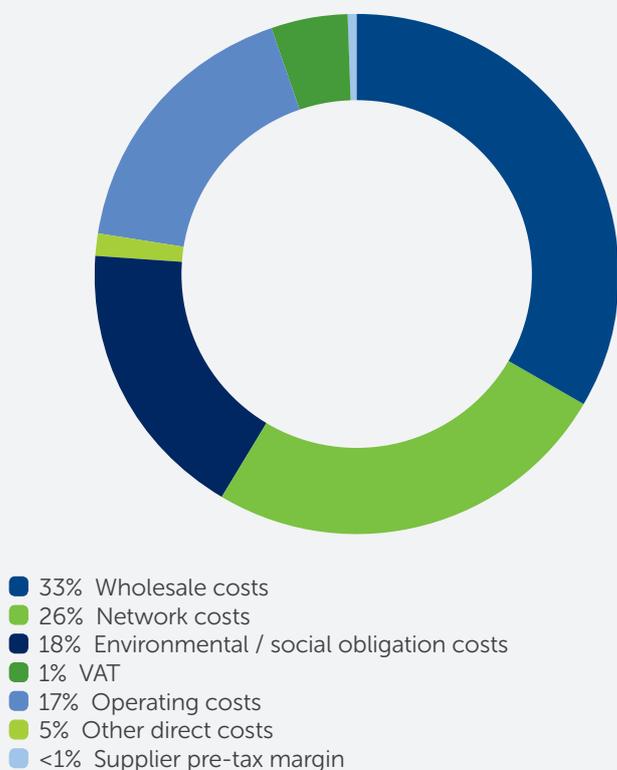
# Cost to Customers

GB homes and businesses buy their electricity from the competitive retail supply market. Each supplier is liable for Transmission Network Use of System (TNUoS) charges based on their overall demand consumption. TNUoS charges recover the cost of installing and maintaining the GB transmission system. TNUoS charges are just one part of the overall electricity bill paid by homes and businesses. The electricity bill comprises wholesale, network, supplier and other costs. In addition to TNUoS, other network charges include the charge for the low voltage distribution system and the cost of the operation and balancing of the transmission system.

Ofgem estimates that the average GB household electricity bill is £577 (Figure 6.16), of which £37 (6%) is due to transmission network charges. This £37 is the total charge for all of the GB transmission network including SHE Transmission in the north of Scotland.

Using the methodology set out in the following section, we estimate that in 2019/20 the average GB household is paying around £4.70 for the north of Scotland transmission network. This equates to less than 1% of the total electricity bill, and less than 0.5% of the total dual fuel energy bill.

**Figure 6.16** Components of average GB household electricity bill



Source Ofgem, May 2019

## Assumptions: Cost to household customers

The revenue that we are allowed to recover under the price control is paid by all GB electricity network customers (households, businesses and generators).

The process for doing this is complicated and means that there is not a standard charge in your electricity bill. For the purposes of this draft Business Plan, we have used a simple top-down approach that is intended to follow the methodology described by Ofgem<sup>34</sup> with five steps:

- 1 Start with our calculated allowed revenue for each year of RIIO-T2 (note that the RIIO-T1 period is based on the revenue that is charged to customers through the TNUoS tariffs for each respective year).**
- 2 Calculate the proportion of this allowed revenue that is paid by demand customers:**
  - a)** By multiplying Item 1 by 84% (which is the percentage of the TNUoS charge paid for by demand customers<sup>35</sup>); and then
  - b)** by multiplying Item 2a by 62% (which is our best estimate of the demand proportion paid by households).
- 3 In order to calculate the unit cost (£/kWh), divide the result from Item 2b by 142.3 TWh (which is the total electricity used by households<sup>36</sup>).**
- 4 Households also pay for electrical losses on the transmission network, so increase the unit cost figure by 9% (which is the GB proportion of losses).**
- 5 Finally, to calculate the cost of our network to the average GB household, multiply the unit cost by 3,100 kWh (which is the average domestic consumption value used by Ofgem).**

This approach is based on the charging methodology and inputs from 2018/19, so our forward looking estimates do not include for future changes to these variables.

The determination of TNUoS charges paid by generation customers is specific to each customer and not considered here. The ESO publishes five year ahead tariff forecasts.

[www.ssen-transmission.co.uk](http://www.ssen-transmission.co.uk)

<sup>34</sup>Understand your gas and electricity bills (Ofgem, 2019) available at: [www.ofgem.gov.uk/consumers/household-gas-and-electricity-guide/understand-your-gas-and-electricity-bills](http://www.ofgem.gov.uk/consumers/household-gas-and-electricity-guide/understand-your-gas-and-electricity-bills)

<sup>35</sup>Digest of UK Energy Statistics (DUKES) 2018: main report (BEIS,2018) available at: <https://www.gov.uk/government/statistics/digest-of-uk-energy-statistics-dukes-2018-main-report>

<sup>36</sup>Transmission Network Use of System (TNUoS) charges (National Grid ESO, 2019) available at: [www.nationalgrideso.com/charging/transmission-network-use-system-tnuos-charges](http://www.nationalgrideso.com/charging/transmission-network-use-system-tnuos-charges)

**Figures 6.17** and **6.18** show our best estimate of the cost to the average GB household of the north of Scotland transmission network during RIIO-T2. This applies the assumptions and methodologies described above to our Certain View of expenditure and outcomes.

For Our Proposed Parameters, the annual average cost would be £6.59 per household (£5.80 excluding the effect of inflation). For Ofgem's Working Assumptions, the cost would be slightly lower but, as we illustrate above, this is not a financeable proposition and would cost customers more in the long term.

The increase in estimated bills in 2022/23 is driven by the costs of a larger network (RAV) alongside the treatment of pass-through costs, including business rates and corporation tax, between each price control. There is also an increase in depreciation following the large investment in the final years of RIIO-T1. The depreciation component is a means to finance new investment as older assets deteriorate over a period of time.

This is an estimate of the average GB household bill. There is a locational element to demand TNUoS tariffs, which means that (for the same demand) charges are higher in the south than north of GB. In 2019/20<sup>37</sup>, the non-half hourly locational demand tariff in the north of Scotland is 2.82 p/kWh compared with 7.76 p/kWh in the southwest of England.

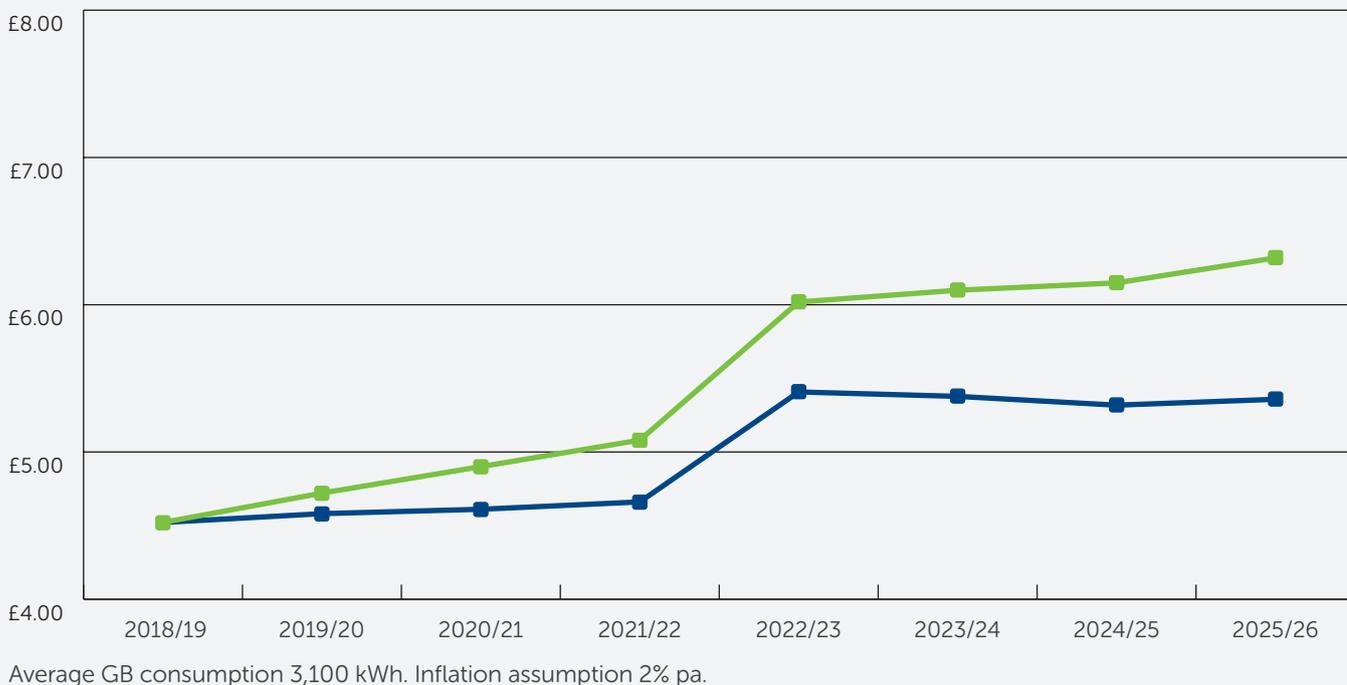
There is also significant variability in consumption around the notional average of 3,100 kWh, as we have illustrated in our north of Scotland energy trends papers<sup>38</sup>. Our analysis shows that electricity consumption in the north of Scotland is higher than the GB average and, at the extreme, the median customer in the far north can consume nearly twice as much electricity as a customer in the south of England.

While the absolute value we present here are evidently not applicable to all GB households, in general the average GB household will pay around £7 for the north of Scotland transmission system by the end of RIIO-T2. This represents good value for the proposed service levels and contribution to the transition to the low carbon economy.

<sup>37</sup>Final TNUoS Tariffs for 2019/20 National Grid Electricity System Operator (National Grid ESO, 2019) available at: [www.nationalgrideso.com/document/137351/download](http://www.nationalgrideso.com/document/137351/download)

<sup>38</sup>Future Energy Scenarios (SSEN Transmission, 2018) available at: [www.ssen-transmission.co.uk/information-centre/industry-and-regulation/future-energy-scenarios/](http://www.ssen-transmission.co.uk/information-centre/industry-and-regulation/future-energy-scenarios/)

**Figure 6.17** Estimated cost of the north of Scotland transmission network to the average GB household for Ofgem's Working Assumptions(£)



**Figure 6.18** Estimated cost of the north of Scotland transmission network to the average GB household for Our Proposed Parameters(£)

