nationalgrid

Annex 12

RIIO-T3

Finance Annex

National Grid Electricity Transmission's Business Plan

December 2024

Strictly Confidential

Overview of this document

Purpose of this Annex

Operating under a financial framework that is investable is critical to attract the capital that is required to deliver the consumer and societal benefits of the energy transition. Consumers and society stand to benefit significantly from the transition to net zero. We expect electricity demand to double between now and 2050 as we electrify heat and transport, and therefore we will need to be able to attract significant levels of capital to invest over the next 25 years. Additional investment in the transmission network will reduce consumers' exposure to future price shocks by bringing more home-grown, green energy onto the system and reducing Britain's dependence on energy imports.

We are pleased that Ofgem continue to reference the need for an appropriate financial framework, that retains and attracts the capital the sector requires as it embarks on a big step up of investment. It is imperative that Ofgem's RIIO-3 controls support the programme of capital expenditure that we are tasked with carrying out in the next five years.

This annex provides the evidence and analysis to demonstrate what financial package we require during RIIO-T3 and explains why this package is in the best interests of consumers over the long-term. We consider both the notional and actual NGET company and have incorporated the views of different stakeholders throughout our submission.

How to navigate this Annex

The table below provides a short summary of each section and where information requested in the Business Plan Guidance has been provided.

Section	Detail	BPG reference[1]
1	**Executive summary:** Provides an overview of why we need the financial package that we have requested to be attractive to investors and enable long-term consumer benefits;	n/a
2	**Economic regulatory principles we have applied:** Sets out the economic regulation principles that we have established and applied in deriving our proposed RIIO-T3 financial package;	n/a
3	**Our finance package: consumer preferences:** Presents the findings from our research on consumer preferences;	7.10
4	**Our finance package: investability:** Outlines the criteria that ensures our proposed RIIO-T3 financial package is investable, as per Ofgem's requirements;	7.10
5	**Our finance package: cost of equity:** Describes how we reached our proposal for cost of equity, reflecting investor requirements under current market conditions to enable electricity transmission networks to attract significant new equity;	7.10
6	**Our finance package: other equity requirements to ensure investability:** Discusses wider elements of our RIIO-T3 financial package that will ensure investability, including our proposed dividend and equity issuance policy;	7.9
7	**Our finance package: gearing:** Discusses several factors in relation to gearing before proposing our final position on the notional gearing ratio to be applied during RIIO-T3	7.10

[1] These are the BPG requirements relevant to this Annex. These requirements may also be addressed in other business plan submission documents.

Section	Detail	BPG reference[1]
8	**Our finance package: debt:** Presents our final position on all aspects of cost of debt, including credit rating thresholds, the choice of index used, approach to indexation, application of inflation and treatment of borrowing costs;	7.9
9	**Our finance package: other:** Outlines our recommendation on financial resilience, tax, asset lives and capitalisation rates;	7.9
10	**Financeability assessment:** Describes our approach to assessing financeability during RIIO-T3 and the target thresholds applied to key financial ratios, as well as management efforts and mitigating actions taken to minimise consumer impact; and	7.11 – 7.14
11	**Impact on energy bills:** Analysis to demonstrate the impact of investing in the transmission network in reducing consumers' energy bills in RIIO-T3 and the drivers behind this decrease.	7.10
Appendix 1	**Financeability assurance statement:** Confirmation that the Board consider our RIIO-T3 Business Plan financeable on both a notional and actual basis based on the regulatory assumptions that have been proposed in our submission.	7.11
Appendix 2	**Risk:** Our approach to risk management and our identification, assessment and management of risk for RIIO-T3.	7.9, 7.10
Appendix 3	**Prescribed stress tests on Ofgem working assumptions:** Financeability analysis for each year during RIIO-T3 based on Ofgem's working assumptions as stated in the SSMD.	7.9
Appendix 4	**Actual company analysis:** Financeability analysis based on the actual rather than the notional company, by adjusting notional gearing assumptions to consider actual gearing levels.	7.9
Appendix 5	**References to Financial Models:** A list of the models submitted with this plan containing full information	N/A
Addendum	**Final Business Plan Outputs:** A copy of the output tables requested by Ofgem in the BPFM guidance	7.9

Our RIIO-T3 objective and commitments

Our plan is anchored around key ambitions, each underpinned by clear objectives, commitments and success measures for the RIIO-T3 (T3) period. These allow us to target stretching levels of performance and track progress. The specific ambitions, objectives and commitments that are most relevant to this annex are shown below:

	Our Plan Objectives		*Our Commitments: We will:*	*Success Measure / Target*
B1	Maximise the value we create by controlling our costs as our network grows and seek opportunities to create additional value for consumers	B1.3	‣ Attract and retain the equity and debt required to fund our RIIO-T3 investment plan to support the UK transition and unlock the consumer and societal benefits associated with net zero	‣ An equity return that fairly rewards investors for the risk they are taking

1. Executive summary

A framework that is investable is critical to securing the benefits for consumers

- Consumers and society stand to benefit significantly from the transition to net zero. Investment in the transmission network will reduce consumers' exposure to future price shocks by bringing more home-grown, green energy onto the system and reducing Britain's dependence on energy imports.
- We are pleased that Ofgem continue to reference the need for an appropriate financial framework, that retains and attracts the capital the sector requires as it embarks on a big step up of investment.
- It is imperative that Ofgem's RIIO-3 controls support the programme of capital expenditure that we are tasked with carrying out in the next five years.
- The financial and overall regulatory framework must be attractive to investors:
    - The cost of equity must be set at a level that reflects investor requirements under current market conditions to enable electricity transmission networks to attract significant new equity. Evidence indicates a base return at the top of Ofgem's SSMD range.
    - Earnings growth should match asset growth and support acceptable dividend yields for investors when compared with other potential investment opportunities.
    - Sufficient cashflow is needed to maintain more than one investment grade credit rating and to achieve Baa1/BBB+ thresholds for debt metrics during the RIIO-3 period. This is essential for the purposes of maintaining strong access to capital and maintaining confidence in investability and financial resilience.
    - A fair opportunity is needed for efficient high performing companies to outperform through the design of the incentive framework.

The context differs significantly from when the RIIO-2 price controls were set

- The macro environment has moved to a 'higher for longer' versus 'lower for longer' interest rate environment.
- The scale of investment (£35bn baseline and pipeline) has increased significantly from RIIO-T2 (T2). The investment required for the 17 Accelerated Strategic Transmission Investment (ASTI) projects alone is more than the whole of T2.
- Whilst we recognise there is demand for ESG investment,[2] there is fierce international competition for capital to deliver net zero and other global infrastructure, with governments and regulators taking action to get ahead. We need to raise significant debt and equity financing in NGET to deliver our proposed plan, and Ofgem has recognised that network licensees will need 'real' equity to finance their plans.
- Our forward risk profile is increasing with the scale of investment, new technology and supply chain and labour constraints. These include downside impacts of new ODI and licence breach conditions in the ASTI framework.

Market cross checks support a cost of equity of 5.83% (CPIH real) at 55% gearing (6.31% CPIH real at 60% gearing)

- Ofgem's framework and initial ranges are capable of being implemented in a way that will support investability. However, we consider that Ofgem will need to use the full flexibility that it has afforded itself in its SSMD range.
- In the analysis that follows, we have consciously tried to assess the current cost of equity in a rounded way, including giving recognition to admissible methodologies and evidence which point to different plausible ranges for the component parts of the calculations.
- Market evidence in this annex demonstrates that Ofgem's working assumption of 5.03% (at 55% gearing) will not result in an adequate point estimate for cost of equity or provide for an investable proposition that can compete with international demands for capital. For example;
    - As at Monday 30 September 2024, nominal yields on 20-year UK government bonds were 4.6%,[3] on long-dated sterling A corporate bonds were c. 5.4%,[4] and on long-dated sterling BBB

[2] Investment that prioritises environmental issues, social issues and corporate governance.
[3] Per Bank of England website, IUMLNZC | Bank of England | Database
[4] iBoxx £ Non-Financials A 10+ index (ISIN: DE000A0JY837)

corporate bonds were c. 5.9%,[5] so the SSMD range results in only a small returns premium for equity. Since September, at the time of writing in November, these rates have risen which narrows the returns premium to equity further.
    - Equity must offer additional return to compensate for risk, and analysis of hybrid bonds issued by National Grid (NG) imply a cost of equity above the SSMD range.
    - Market cross checks used by Ofgem in the previous price control (investment manager forecasts of Total Market Return (TMR), infrastructure fund implied equity Internal Rate of Return (IRR)) demonstrate a higher level of returns being needed.

- To secure the equity financing needed, to therefore deliver the resulting consumer benefits, the financial framework package must be investable. It must be competitive with alternative investment opportunities. Evidence in this annex points to a cost of equity at the top of the SSMD range.
- Our proposed range is 5.06-6.60% (CPIH real, 55% gearing). Our mid-point estimate of required returns is 5.83% (CPIH real, 55% gearing). This is the equivalent to 6.31% at 60% gearing, and we note that this figure sits within the SSMD range.
- Our proposed range takes into account the following evidence on the cost of equity parameters:
    - Risk Free Rate (RFR): Evidence in this annex shows the need to consider the specialness of government bonds and the convenience premium attached to them by investors.
    - TMR: Whilst the Ofgem position (6.50-7.00%, midpoint 6.75%) is an increase on RIIO-T2, evidence in this annex suggests a historical long-term average TMR of c. 7.0%. The current high interest rate environment also influences investor needs and demonstrates the need for a point estimate above the long-term average.
    - Beta: Evidence in this annex demonstrates that forward looking risk has increased, and therefore it is justified for beta to increase from RIIO-T2 to RIIO-T3. We conclude that a point estimate in the upper half of the SSMD range is required, reflecting a review of beta for UK and European comparators, alongside evidence of the relative risk of GB ET networks versus comparators such as gas, water, nuclear and offshore wind. In SSMD, Ofgem stated they could expect to place weight on longer run betas and include additional comparators that would suggest a figure 'in the upper half' of the range.

- Whilst the 2023 UK Regulators' Network (UKRN) guidance recommends setting the cost of equity at the mid-point of the range, the guidance does not rule out a cost of equity above a reasonable mid-point where there is justification to do so. UKRN guidance also states that such justification should be considered on a case-by-case basis considering factors such as welfare impact of underinvestment and cross-check evidence.
- Evidence in this annex shows that, in the presence of uncertainty about the 'true' cost of capital, setting returns too low is likely to be more detrimental to consumers than setting returns too high, in that the indirect consequences of delaying or deterring projects due to investor reticence to allocate capital to electricity network investments far outweigh the direct effects of setting bills a little higher. This point of principle ought to have a discernible impact on the way in which Ofgem calibrates RIIO-3 returns.
- An alternative interpretation of our proposals is that Ofgem can set an appropriate return by setting a cost of equity at the top of its SSMD range, recognising that some of its proposed calculations might be producing unduly low estimates of required returns in current market conditions. This approach would be consistent with the need for caution and for ensuring that the RIIO-3 control does not unintentionally pose an obstacle to future investment.

There must be a fair opportunity to outperform the cost of equity through the design of the incentive framework (including performance, cost, and the business plan incentive)

- There is a strong consumer case to strengthen the proposed performance incentive framework, including in supporting companies to innovate and do things differently on connections delivery and constraint management.

[5] iBoxx £ Non-Financials BBB 10+ index (ISIN: DE000A0JZAH1)

We propose changes to cash flows primarily based on economic principles, and the available evidence to support these assumptions

- We propose a reduction in asset lives for new additions to 40 years to align to economic principles and improve intergenerational fairness. We also propose an accelerated return of the RAV differential to improve intergenerational fairness.
- We propose a capitalisation rate 2 of c. 93%, mainly to reflect the level of capitalisation to meet financeability requirements based on what is in our current business plan. This includes a 6% fast money adjustment broadly consistent with the difference between our natural capitalisation rate for Uncertainty Mechanisms in RIIO-T2 and the RIIO-T2 capitalisation rate 2 of 85%.
- Ofgem's decision to implement a nominal allowance for fixed rate debt accelerates cashflows in T3, and better aligns timing of income with expenditure.
- All of these measures are net present value neutral for consumers. These changes mitigate the financeability challenges posed by the scale of investment.

Whilst Ofgem's working assumptions are not financeable, there is a pathway through Ofgem's broad framework in SSMD to achieve an acceptable outcome

- Ofgem need to set a package that attracts and retains the debt and equity financing required to deliver the energy transition at pace.
- This includes a cost of equity at the top of the SSMD range that meets investor requirements and is commensurate with the risk they are bearing, at a minimal cost to consumers.
- Our business plan identifies financeability challenges using Ofgem's working assumptions. As a result, NGET's Board of Directors (the Board) has been unable to satisfy itself that our Business Plan is financeable using such working assumptions – on either a notional or an actual capital structure basis– as credit metric thresholds are not achieved in the RIIO-3 period, and cross checks on the cost of equity (5.03% at 55% gearing, Ofgem SSMD working assumption) show it is not sufficient. Ofgem's working assumptions result in a Moody's scorecard indicated outcome of Baa2, average across T3.
- The Board can provide the required assurance that, in its opinion, NGET's Business Plan is financeable (see Appendix 1 for definition) for both a notional and actual capital structure based on the regulatory assumptions that we propose in this business plan submission. NGET's proposed assumptions result in a Moody's scorecard indicated outcome of Baa1, average across T3. Importantly, our proposed alternative regulatory assumptions are within the ranges and options that Ofgem allow for within its SSMD for the financial framework.
- We are satisfied that these regulatory assumptions and conclusions are duly supported by evidence and are clearly in customers' interests.

Our proposed package supports the priorities of consumers

- Consumers value reliability and minimising long-term costs.[6] They prefer to upgrade networks at pace even if it means higher costs today.[7] Our proposed financial package supports these priorities as it is sufficient to attract and retain capital i.e. it is investable.
- Our total plan means the NGET part of the consumer bill would rise from £23 in 2026 to £39 in 2031, using Ofgem's working assumptions (all £ values in this annex are in 23/24 prices).
- Using our regulatory assumptions would add an additional c. £5 to the bill by 2031, with c. £1 of this increase relating to the increased cost of equity that we propose. The remaining c. £4 comes largely from NPV neutral changes to cash flows.
- However, whilst we forecast an increase in transmission costs, we expect that these costs are likely to be more than offset by associated reductions in the costs of managing the energy system. Our modelling shows a £12bn saving in constraint costs during the RIIO-T3 period due to our investment to increase the capacity of the transmission network. This represents a £94 annual saving for the typical consumer by the end of 2031 – further detail is contained in section 11.

[6] Yonder Consulting, National Grid Stakeholder Priority outcomes, December 2023; submitted with RIIO-3 Business Plan
[7] Yonder Consulting, Consumer Affordability tolerances, August 2024; submitted with RIIO-3 Business Plan

Our proposed package compared to Ofgem's working assumptions based on SSMD

	Ofgem working assumptions	NGET proposed assumptions
Dividend yield	3%	3%
Gearing	55%	55%
Return on debt	RAV weighted trailing average mechanism with 25bps of additional borrowing costs. Implementation of a nominal allowance on fixed rate debt to solve the leverage effect NB: Whilst the Ofgem SSMD decision is for a RAV weighted mechanism, the Ofgem working assumption in the model uses a simple trailing average	
Index linked debt assumption	30%	20%
Return on equity (real CPIH stripped at 55% gearing)*	5.03% (5.46% at 60% gearing)**	5.83% (6.31% at 60% gearing)
Asset lives	45 years straight line	40 years straight line for new additions. Acceleration of the RAV differential over 10 years from the start of RIIO-ET3 (T3)
Capitalisation rate	Annual natural rate for baseline & Uncertainty Mechanisms (UMs)	Annual natural rate for baseline. Natural pipeline spend +6% fast money adjustment for UMs (does not include opex escalator at this stage)
Equity issuance timing	Start of a year after excess gearing	End of a year to avoid excess gearing

*Ofgem quote cost of equity in SSMD at 60% gearing so we follow the same approach for the rest of this document. However, we propose 55% gearing for NGET in line with Ofgem's SSMD proposal
**5.03% is the midpoint of the SSMD range, however Ofgem use 5.05% in their working assumptions which includes an updated risk free rate

2. Economic regulatory principles we have applied

Our spend serves consumers over a range of time periods; benefitting consumers today and consumers in the future. The timing of cost recovery from consumers for the network spend we incur and cost of services we provide is important to ensure that the network is fairly paid for by those consumers who benefit from it. We incur our costs upfront and typically receive funding from consumers over many subsequent decades. We fund this timing gap through a mix of debt and equity finance.

The RIIO framework determines how much revenue we collect and when, based on the spend we incur, the outputs and services we are incentivised to deliver, and innovation we are funded to introduce. The revenue collected should be sufficient to recover the efficient cost of network provision and services, as follows:

- Fast money revenue recovers the operating expenses associated running the business.
- Depreciation revenue recovers a part each year of the cost of investment over its useful economic life
- Return on RAV recovers the cost of financing investment, i.e. paying a fair return to debt and equity investors.
- Other revenue recovers other costs we incur, such as innovation costs and passthrough costs e.g. business rates and licence fees.

In setting out our view on the RIIO-T3 financial package, the objective is to provide value for money for consumers. To achieve this objective, we have established and applied the following economic regulation principles:

- **Allocate risk to the party best able to manage it**: Where networks are best placed to mitigate particular risks they should be incentivised to do so, as this approach should ultimately lower consumer costs. Where networks do not have control over other risks, allocating those risks to networks will require higher allowed returns to compensate investors and attract capital. This directly increases consumer bills.
- **Provide strong incentives to improve service and lower cost**: If networks have incentives to deliver improved service and lower costs over a price control, it will lower bills for consumers in the longer term.
- **Be a fair bet**: The price control should be a 'fair bet' upfront; i.e. parameters are in-line with their expected outcome so that the expected outcome is clear to consumers and investors. Where there is significant uncertainty, if possible regulatory decisions should be paused until better information is available to conclude.
- **Demonstrate regulatory commitment and stability**: Debt and equity investors will finance networks for many decades. Regulatory commitment increases investor confidence in the long-term return from their investment which reduces investor risk and the return investors require, and hence lowers cost of financing for consumers.[8]
- **Consider long term financeability and investability**: Licensees should be able to fund their activities. The regulatory framework in this price control will impact cashflows, metrics and returns in future price controls. To consider these impacts today reduces investor risk and the long-term return investors require, which lowers cost of financing for consumers.
- **Intergenerational fairness**: Costs should be recovered from those who benefit from the expenditure.

3. Our finance package: consumer preferences

Consumers and society stand to benefit significantly from the transition to net zero. The timely development of the network and connection of renewable generation is critical for consumers to avoid increases in energy bills to levels higher than necessary. It also reduces the exposure of the UK to international gas price fluctuations. However, we recognise these benefits come at a cost. We commissioned Yonder Consulting to look at consumers preferences in detail. We set out their findings below.

3.1. Transmission investment is a trade-off between benefits and costs. Consumers most prefer a reliable network and minimising long term costs

In December 2023, Yonder Consulting published market research on behalf of National Grid.[9] The research involved online surveys amongst three audiences; general public, small and medium sized businesses, and impacted stakeholders (industry partners and peers, regional partners and communities). Respondents were presented with various sets of statements, each time selecting the most important and the least important. Respondents were then asked if all, some, or none of the options are important. This process was repeated with random combinations of statements. The relative importance of 12 outcomes was tested using this process. All outcomes were highly valued by respondents. The top 3 outcomes, most important first, were ensuring the electricity network is reliable, minimising costs to the consumer in the long term and minimising costs to the consumer in the short term.

[8] For example, Bernstein, UK Utilities: Ofgem RIIO-T3 consultation - A step in the right direction to attract record transmission investments, 13/12/23, on options to respond to performance on debt caused by inflation, advise that: *"Ofgem have decided to exclude the worst case scenario of retrospective true-ups which would have had a modest impact on RAV and our PTs for NG and SSE but a severe impact on investor confidence. We believe this is a prudent approach to take as it would continue to uphold the stability of the UK regulatory regime, thereby keeping the costs of financing low and being beneficial for investments in the sector over the long run"*.

[9] Yonder Consulting, National Grid Stakeholder Priority outcomes, December 2023; submitted with RIIO-3 Business Plan

3.2. Most consumers support front-loading investments which supports our plan to proceed at pace even if costs increase

In August 2024, Yonder Consulting published a second study on consumer responses to investment choices, the values that underpin them and the impact they have on the whole energy bill over time.[10] This study found that there was majority acceptance of the principles of getting the network upgrade delivered as soon as possible. However, a small proportion of respondents could not afford any increase. Even those who support frontloading and who are not struggling think steps must be put in place to minimise the burden on the vulnerable. Therefore, we will continue to play our role, alongside Ofgem and Government, in supporting consumers in vulnerable situations. We remain committed to supporting such groups across many initiatives[11] and continue to limit our impact on energy bills by providing a RIIO-T3 business plan based on efficient costs and investment decisions. Our analysis indicates that the cost of investing in the transmission network will be more than offset by the reduction in constraint costs that the investment enables.[12] Our investment also reduces consumers' exposure to price shocks in the future by bringing more home-grown, green energy onto the system and reducing Britain's dependence on energy imports.

4. Our finance package: investability

Our RIIO-T3 investment plan is consistent with what consumers have told us they require. Ofgem has recognised that the size of the RIIO-T3 investment plan means that network licensees will need to raise fresh equity. Licensees will also need to raise significantly more debt in RIIO-T3 than in RIIO-T2. Therefore, to deliver the network plan, the RIIO-T3 financial package needs to be investable. We first define financeability as:

- generating sufficient cashflow to maintain more than one investment grade credit rating and achieving Baa1/BBB+ thresholds for debt metrics during the RIIO-3 period
- the ability of the notional company to maintain a dividend of 3%
- the cost of equity set at a level that reflects investor requirements under current market conditions to enable us to attract and retain significant new equity.

In addition, to be investable, the broad financial and wider regulatory package requires:

- a fair opportunity to outperform through the design of the incentive framework
- earnings growth that matches asset growth and supports acceptable dividend yields for investors when compared with other potential investment opportunities.

The challenge of investability cannot be met by simply rolling forward RIIO-T2 methodologies. Moreover, interest rates have risen significantly since RIIO-T2 Final Determination.[13] The size and complexity of investment alongside tight market conditions means we also expect an increase in risk.[14] For example, there is increasing financial risk from ASTI ODI penalties and license breaches. These changes increase the returns needed to ensure network licensees are investable.

Market evidence demonstrates that Ofgem's working assumptions will not result in an investable proposition. National Grid hybrid bond evidence suggests NGET equity would be expected to have a return of 6.6% (CPIH real). To deliver the benefits of net zero for consumers, the following sections demonstrate that the finance package must deliver a cost of equity of 6.31% (CPIH real at 60% gearing), coupled with a regulatory framework that offers the opportunity for high performing efficient networks to outperform. It must also deliver other features that we demonstrate are valued by equity investors, including earnings that grow in line with assets and a dividend yield of 5%.

For debt and equity investors, the evidence points to a financial package that targets a minimum credit rating of Baa1/BBB+ to maximise access to finance and minimise costs for consumers. Maintaining this rating is also important to ensure financial resilience of networks.

Our proposed package supports consumer priorities of delivering at pace and delivering a reliable network that minimises long term costs.

[10] Yonder Consulting, Consumer Affordability tolerances, August 2024; submitted with RIIO-3 Business Plan
[11] See our RIIO-3 Business Plan
[12] See section 11 of this annex
[13] See section 5 of this annex
[14] See section 5 of this annex

5. Our finance package: cost of equity

Interest rates have increased significantly since RIIO-T2; the UK has moved from a lower-for-longer to a higher-for-longer interest rate environment. The 20-year index linked gilt rate converted into CPIH terms using Ofgem's approach has increased from -1.23% (negative) for the month of October 2019 to 1.23% (positive) for the month of August 2024 (the month we use to estimate RIIO-T3 cost of equity). If the RIIO-T2 methodology was applied to RIIO-T3, there should be a material increase in cost of equity.

In our SSMC response, we set out our view on the correct approach to estimate the cost of equity. In this section, we provide an update to our approach and estimates for each parameter. In the context of needing to decarbonise the electricity network by 2035, we expect a significant increase in our spend in RIIO-T3 and beyond, meaning we expect we will need significant fresh equity. For our RIIO-T3 plan under Ofgem's working assumptions, RIIO-T3 equity issuance is forecast to be c. £7bn (net of dividends), c. £10bn (gross).

A financial package that is investable is a key criterion in setting our cost of equity for RIIO-T3. Ofgem's SSMD also demonstrated concern about the financial resilience of networks; sufficient allowance for cost of equity is a key consideration ensuring robust financial resilience.

In estimating cost of equity, and in selecting a reasonable point value from within the possible ranges, cross checks are critical given the need to attract new equity. We have placed most weight on market cross checks, especially those that reference debt returns. Our proposed cost of equity in this plan is based on the following values, which are shown alongside Ofgem's working assumptions:

Table 1: Ofgem's SSMD working assumptions and our proposals for the financial framework

	Ofgem		NGET	
CPIH real	**Low**	**High**	**Low**	**High**
Notional gearing15	60%	60%	60%	60%
Total Market Return	6.5%	7.0%	7.0%	7.5%
Risk free rate	1.18%	1.18%	1.23%	1.80%
Asset beta	0.30	0.40	0.34	0.42
Equity beta	0.64	0.89	0.74	0.94
Cost of equity	4.57%	6.35%	5.49%	7.14%
Mid-point	5.46% (5.03% at 55% gearing)*		6.31% (5.83% at 55% gearing)	

*5.03% (55% gearing) is the midpoint of the SSMD range, however Ofgem use 5.05% in their working assumptions which includes an updated risk free rate

For the National Grid proposal, the range for each of the individual parameters is plausible but the low and high cost of equity are less plausible, as they would require all parameters to be at their lowest or highest points. We view the mid-point of the National Grid proposal as a reasonable point estimate of the range. Analyst coverage supports our proposed return. For example:

"Overall market feedback from dozens of investor conversations was largely positive for the outlook with an expectation that Real allowed returns in Dec-25 final outcome would be >6% or even top end of the given range at 6.34% (note, on 60% gearing basis, whereas on indicated 55% gearing top end would be 5.82%).", Morgan Stanley[16]

"Ofgem compiled sell-side consensus is 5.75% real cost of equity (range 4.8-6.1%, we expected 5.8%) and 2.96% cost of debt (range 1.9-3.3%, we are at 2.9%). WACC at 4.12% (range 3.1-4.4% real). Note – analyst expectations of Ofgem publication does not mean the same as analyst

[15] Numbers are calculated based on notional gearing of 60% in line with Ofgem's approach but this approach does not prejudice the gearing assumption we evidence and propose for RIIO-T3 in this annex.
[16] Morgan Stanley, UK Electricity Outlook Improving, 18/7/24

expectation on the cost of capital. Our view is that a 6.4% real cost of equity is needed, and we include a 70bp 'aiming up' premium on our 5.7% underlying cost of equity (55% gearing).", Barclays[17]

In particular, analysts consider that the importance of investability and the need for NGET to raise fresh equity in RIIO-T3 should result in higher returns:

"We would expect any equity raise would need to come alongside a better regulatory package, one that incentivises equity investor participation. Regulatory incentives could include higher allowed returns, and shorter payback periods", Jefferies[18]

"Most investors believe high-growth companies should earn a higher return than low-growth companies", Barclays[19], water survey results

Broader investor attitudes to the regulated utilities in the UK are also important for investors in determining the cost of capital for a regulated utility such as NGET. There is evidence that recent negative experience in the water sector may reduce investor inclination to invest in the UK, which also points to the need for higher returns:

"Global investors warn Labour: UK utilities are 'off our radar'", The Times[20]

Simon Pilcher from USS commented that "Our experience with Thames Water will influence our future approach to investing both in economically regulated assets and more broadly", Utilities Week[21]

Our assessment of CAPM parameters for RIIO-T3 is supported by the following reports, which we list below. We have shared these reports with Ofgem.

- Frontier Economics, RIIO-3 Cost of Equity range: a report for NGET that considers the CAPM parameters specific for NGET, building on the following RIIO-T3 cost of equity report from Oxera.
- Oxera, RIIO-3 cost of equity- CAPM parameters: an updated view of CAPM parameters for the ENA (including gas networks), estimating CAPM parameters for generic GB energy networks.
- Frontier Economics, Updated cost of equity cross-check evidence: a latest view of cross checks for cost of equity for ET3 and evaluation of the relative merits of different cross checks. This paper develops the robustness of the hybrid crosscheck following feedback from Ofgem.
- Oxera, Review of the regulatory regimes and business mixes for relevant European comparators to strengthen the use of European beta data: a review of the regulatory regimes for European comparators to confirm if using European beta data is appropriate to set RIIO-T3 beta.
- KPMG, RIIO-ET3 Relative Risk Assessment: a comparison of the relative risk of RIIO-T3 versus other relevant sectors.
- Oxera, RIIO-3 risks and investability topics. This report evidences appropriate dividends for RIIO-T3, evidences where aiming up would be appropriate and evidences that maintaining the same WACC at different gearing levels is the clearly preferrable approach to re-gearing in RIIO-T3.
- Oxera, Evaluation of the ARP-DRP framework. This report explains the benefits of the ARP-DRP cross check, rebuts recent critiques of it and provides evidence that ARP-DRP provides useful information.
- KPMG, Regulator's call option on investments at RIIO-3: an estimate of the value of Ofgem's right to call on capital i.e. the regulator's ability to choose when we are required to provide capital.

5.1. Total Market Return (TMR)

Evidence shows that TMR has increased since RIIO-T2 and that the TMR for RIIO-T3 is higher than the SSMD's RIIO-T3 range. Our estimate of TMR is a range of 7.0%- 7.5% (CPIH real), with a best estimate at the top of this range. Our range is based on:

- historic long run TMR
- the TMR implied by a dividend growth model.
- the clear historic long run relationship between risk free rate and total market return (the 'TMR glider') which shows that, when risk free rate moves, TMR moves in the same direction, but not one for one, consistent with UKRN guidance.
- investor surveys, which point to an increase in TMR since T2.

[17] Barclays, Ofgem publishes rules of the game and higher returns than Ofwat, 18/7/24
[18] Jefferies, National Grid All Roads Lead to Transmission Growth; Upgrade to Buy, 3/2/24
[19] Barclays, Survey results: How investible is UK water? Uncertainty prevails, 23/4/24
[20] The Times, Global investors warn Labour: UK utilities are 'off our radar', 22/9/24
[21] Utilities Week, Thames' backer writes off investment after water company's credit rating slips, 25/7/24

In terms of the historic long run TMR:

- Our estimate of historic long run TMR is based on ex-post evidence. We agree with Ofgem that a one-year arithmetic average is appropriate, resulting in 6.97% (CPIH real).[22]
- Little, if any, weight should be placed on ex-ante estimates of TMR first because recent estimates made by Ofgem and Ofwat are flawed for several technical reasons.[23] [24] If the flaws are adjusted for, the ex-ante estimate TMR is 6.85%.[25] Secondly, ex-ante estimates are highly judgmental. For example, Oxera[26] note that when Dimson, Marsh and Staunton estimate the equity risk premium for the world index for 1900-2023, they make an adjustment for 'good luck'.

However, in addition to the long run historic TMR, current market conditions must be considered. The increase in risk free rates since RIIO-T2 should partly be reflected in an increased TMR. This is consistent with UKRN cost of capital guidance, which recommends greater stability in TMR than in equity risk premium but states that "This approach does not imply that regulators should simply pick the same fixed value for the TMR in each decision for all time, but that the TMR would be relatively less variable than the underlying RFR"[27]. UKRN Guidance notes that setting TMR through the cycle could result in a TMR that is biased.[28] Ofgem recognise that considering returns on a through the cycle basis may cause issues if there is a disconnect between the through the cycle estimate and current market required rates of return.[29]

We recommend a range of 7.0%- 7.5% (CPIH real) to account for:

- gilt yields in CPIH-real terms that have increased significantly, therefore, given TMR has historically moved positively with gilt yields, TMR should increase sufficiently to reflect this movement.
- debt based cross checks which point to increased returns on debt therefore TMR should increase to ensure allowed returns are consistent with current market expectations.

The cross-checks that evidence this range are as follows:

Table 2: TMR cross checks

	Estimate (CPIH real)	Detail of cross check
TMR Glider[30]	Above 7.5% for last 24 months	The TMR glider estimates the relationship between a TMR estimated from a dividend growth model and the 20 year nominal gilt yields. Frontier estimates this relationship and uses the current risk free rate to estimate the current TMR.
Dividend growth model[31]	Above 7.5% for most of last 24 months	The DGM model takes price, dividend and growth data and solves for the total market return.
Investment manager surveys[32]	Recent investment managers forecasts of TMR averages 7.2% (CPIH real), a 2.3% increase from July 2020 to September 2024. Recent Fernandes et al survey of TMR shows an increase from 4.8% (CPIH real) in 2020 to 7.6% (CPIH real) in 2024.	

[22] Frontier Economics, Updated cost of equity cross-check evidence, November 2024, para 7.3.13
[23] Oxera, RIIO-3 Cost of equity- CAPM parameters, November 2024, section 3.2 and 3.3
[24] Frontier Economics, RIIO-3 Cost of Equity range, November 2024, section 3.2.1
[25] Oxera, RIIO-3 Cost of equity- CAPM parameters, November 2024, pg 31
[26] Oxera, RIIO-3 Cost of equity- CAPM parameters, November 2024, pg 35
[27] UKRN, UKRN guidance for regulators on the methodology for setting the cost of capital, 2023, pg 19
[28] UKRN, UKRN guidance for regulators on the methodology for setting the cost of capital, 2023, pg 20
[29] Ofgem, RIIO-3 SSMD, Finance Annex, July 2024, para 3.265
[30] Frontier Economics, Updated cost of equity cross-check evidence, November 2024, Figure 10, pg 43
[31] Frontier Economics, Updated cost of equity cross-check evidence, November 2024, Figure 10, pg 41
[32] Frontier Economics, Updated cost of equity cross-check evidence, November 2024, Section 8

An adjustment to TMR to reflect rising gilt yields at a time of needing to raise additional capital would be particularly pertinent if investors are biased towards the short term. Such investors will not be willing to invest additional capital if they can get similar returns for lower risk in alternative assets such as debt. Present choices available to investors will heavily influence their investment allocations. Current market conditions need to be considered in setting TMR.

Overall, the evidence points to a proposed range for TMR that includes points above 7.5% (CPIH real). On a conservative basis, we propose a range 7.0% - 7.5%. (CPIH real). Later in this Finance Annex, we will assess whether the overall cost of equity is sufficient, in particular we will review debt based cross checks and whether setting a cost of equity at the top of the SSMD range is required to ensure investability. We will identify a risk that the cost of equity is too low. Adjustment to raise the cost of equity could be done by setting a TMR towards the top of this range.

5.2. Risk free rate

The risk free rate has increased significantly from RIIO-T2 due to changes in underlying gilt rates. The 20 year index linked gilt (ILG) rate as at 30th August is 1.12% in RPI-deflated terms.[33] We agree with Ofgem's approach to estimating RPI-CPIH wedge; Frontier Economics estimate this wedge as 11bps which gives CPIH-deflated ILG rate of 1.23%.[34]

The RFR should also be adjusted to reflect a convenience yield as gilts are not solely held to earn a return. They are also held as hedging instruments, as holding requirements for financial institutions, and they have value for their relatively high liquidity compared to other instruments. All these points result in government bonds being more valuable than if a utility network offered a bond of the same maturity and credit rating. The value of these features is likely to be stronger for ILGs than for nominal gilts, as evidenced by the fact that the difference in rate of returns between the two ('breakeven inflation') is typically greater than inflation forecasts produced by OBR and Bank of England. The marginal investor in the ILG market – e.g. UK defined benefit pension funds looking to hedge inflation risk rather than maximise returns– may not be the same as the marginal investor that regulated utilities are trying to obtain equity from.

Consistent with these considerations, the Northern Ireland Utility Regulator's (NIUR) final determination of Northern Ireland Electricity Network's (NIEN's) RP7 transmission and distribution price control on 30 October 2024 considered a range of proxies to set the risk-free rate and specifically noted that ILGs are giving very different estimates compared to non-ILG instruments. NIUR ultimately estimated RFR based on an average of yields on 20-year ILGs adjusted for the RPI-CPIH wedge and an average of yields on CPIH stripped 20-year conventional gilts, AAA non-government 10+ year bonds and AAA non-government 10-15 year bonds. The CAA for H7 and the CMA for PR19 also recognise convenience yield and set risk free rate based on an average of yields on 20-year ILGs and an average of yields on AAA non-government 10+ year bonds and AAA non-government 10-15 year bonds.[35] [36]

Similarly, for T3, Frontier Economics estimate the risk free rate as a weighted average of the UK 20 year index linked gilt rate (50%) and 10-15 year and 10+ AAA non-government bond indices (25% weight each).[37] This gives a prudent high estimate of convenience premium of 57bps and a total estimate for risk free rate of 1.80%. Whilst Oxera find there is a material convenience yield on nominal gilts,[38] Frontier's work shows that convenience yield on index linked gilts is greater still.

5.3. Beta

In this section, we show that the beta for RIIO-T3 is likely to be higher than RIIO-T2, higher than other GB regulated utilities and that European energy networks are a reasonable comparator.

Frontier Economics[39] estimate a range for asset beta of 0.34-0.42. This range is on the following basis (figures from Table 3 below):

[33] Frontier Economics, RIIO-3 Cost of Equity range, November 2024, pg 13
[34] Frontier Economics, RIIO-3 Cost of Equity range, November 2024, pg 13
[35] CMA, Anglian Water Services Limited, Bristol Water plc, Northumbrian Water Limited and Yorkshire Water Services Limited price determinations, Final Report, paras 9.241-9.244
[36] UK CAA, Economic regulation of Heathrow Airport Limited: H7 Initial Proposals, para 9.127
[37] Frontier Economics, RIIO-3 Cost of Equity range, November 2024, pg 15
[38] Oxera, RIIO-3 Cost of equity- CAPM parameters, November 2024, pg 22
[39] Frontier Economics, RIIO-3 Cost of Equity range, November 2024, pg 28

- The top of the range is based on an unweighted average of the 2 and 10-year betas of European comparators Ofgem listed in SSMD.
- The bottom of the range is based on an unweighted average of 10-year betas of GB listed regulated water and energy networks.

Table 3: asset beta range

	Average 2-year beta	Average 5-year beta	Average 10-year beta
UK comparators	0.40	0.33	0.34
Ofgem SSMD European comparators	0.43	0.40	0.41
KPMG relative risk range	0.37-0.47 (lower bound is for European electricity transmission, upper bound is beta from fitting NGET's relative risk score to an OLS regression of relative risk score vs beta. Both bounds are based on average of 2, 5 and 10 year betas)		

The 5 year beta estimate is distorted because beta was subdued during the COVID-19 period. The 2 year beta avoids this distortion and the 10 year window is a sufficiently large dataset that it is not overly distorted whilst also benefitting from a longer window. A 2 year and 10 year beta are the most appropriate to take into account.

On comparators, we disagree with Ofgem's view to exclude Pennon. The regulated share of Pennon's business has increased over time and, since mid-2020, it is now materially the whole business,[40] so it should be included in the 2 year beta sample, consistent with UKRN guidance.

Oxera have reviewed whether it is appropriate to include the European comparators that Ofgem proposed at SSMC.[41] They conclude that these comparators are sufficiently similar in terms of regulatory regime, regulatory framework and the proportion of revenue that is regulated to make them good comparators to ET3. Frontier Economics[42] also consider which European comparators are most appropriate to use, according to the criteria of liquidity, share of regulated revenue and regulatory comparability; they find that Ofgem's proposed SSMD European comparators are the most appropriate to use. On balance, we conclude that Ofgem's SSMD proposed European comparators are of suitable quality and sufficient.

There is evidence of increased risk in RIIO-T3 that supports a higher beta than RIIO-T2

5.3.1. Logic suggests higher risk

Our forecast totex in RIIO-T3 is a greater proportion of the RAV than in RIIO-T2. If the percentage variance around totex is the same in RIIO-T2 as in RIIO-T3, then the expected variance in RIIO-T3 is larger relative to the RAV, so the Return on Regulated Equity (RoRE) range is larger in RIIO-T3 than in RIIO-T2. A proportion of the variance in RoRE will be systematic so we would expect beta to increase from RIIO-T2 to RIIO-T3.

This was implicitly recognised by Ofgem in SSMD where Ofgem is minded to use European comparators and Ofgem notes that the inclusion of European comparators results in a higher beta.[43] Moreover, Ofgem noted on their SSMD investor call that they expected the RoRE range to potentially be larger in T3:

"In terms of Return on Regulatory Equity (RoRE), which is the measure of returns that factors in base allowances and both financial and operational performance, we expect RoRE ranges in the gas sectors to be broadly in line with those in RIIO-2. For Electricity Transmission, there is the potential for a larger RoRE range, driven by agreed ASTI delivery incentives, while we will seek to maintain a broadly neutral risk profile for totex and non-project delivery incentives".

[40] Frontier Economics, RIIO-3 Cost of Equity range, November 2024, pg 24
[41] Oxera, Review of the regulatory regimes and business mixes for relevant European comparators to strengthen the use of European beta data, November 2024
[42] Frontier Economics, RIIO-3 Cost of Equity range, November 2024, section 4.1.2
[43] Ofgem, RIIO-3 SSMD, Finance Annex, July 2024, para 3.201

Again, a larger RoRE range should imply higher risk, which means higher returns are required.

Analysts specifically note that higher capex spend is a driver of higher required returns:

"We believe forward-looking risk profiles are significantly higher than historical risk due to the large step up in capex", Barclays[44], in relation to the England & Wales water sector

And the Moody's scorecard includes size and complexity of capital plan as a metric; as the size and complexity of the capital plan increases it has an adverse impact on the credit rating because of the increased risk for debt holders. By analogy, higher capex implies greater risk for equity returns too.

5.3.2. Bottom-up assessment of risks in RIIO-T3 supports higher risk

In Appendix 2, we explain how we manage risk, the residual risks that we are exposed to, and our assessment of the financial impact of those risks. In our SSMC response, we identified the main risks that are likely to change from RIIO-T2 to RIIO-T3 and we showed that our systematic risk is likely to increase from RIIO-T2 to RIIO-T3.[45] For example, there is increasing financial risk from ASTI ODI penalties and licence breaches. For these risks, in our SSMC response, we estimated a P10-P90 RoRE range for RIIO-T3.[46] We then compared this range to Ofgem's RoRE range for RIIO-T2; see Table 4 below. To make this comparison:

- We excluded the Business Plan Incentive range for RIIO-T2, to be consistent with the risk work done for RIIO-T3, as PwC's work excluded the Business Plan Incentive as it is a regulatory mechanism at Ofgem's discretion.
- The RIIO-T3 RoRE range only considered risks expected to be materially different from RIIO-T2 to RIIO-T3. Therefore, the RIIO-T3 RoRE range is in this sense conservative.

Table 4: RoRE range

	RIIO-T3 RoRE % real	RIIO-T2 RoRE % real	Variance % real
Upside vs baseline return	(0.1)%	0.9%	(1.0)%
Downside vs baseline return	(6.0)%	(1.3)%	(4.7)%
Range	5.9%	2.1%	3.8%

The work demonstrates two key points;

1. The RoRE range is expected to increase from RIIO-T3 to RIIO-T2 implying an increase in beta.
2. The RIIO-T3 RoRE range is likely to be asymmetrically skewed downwards, meaning the price control will not be a fair bet. Therefore, mitigation is needed, either through measures in the framework to correct the asymmetric skew or an allowed return above the CAPM-implied cost of equity to so that the expected return for RIIO-T3 is in line with the CAPM-implied cost of equity.

5.3.3. Relative risk analysis points to higher risk

KPMG have prepared a report summarising the risk of the Ofgem regulated electricity transmission sector relative to other relevant sectors.[47] The comparators were rated based on key risk categories, to determine an overall risk score and relative risk ranking. The ET sector at RIIO-T3 faces significantly higher risk compared to the RIIO-T2 period and other previous price reviews in the regulated utility sectors (e.g. PR19, RIIO-ED2 and RIIO-GD2). The ET sector at RIIO-T3 is most like the Italian electricity network Terna. Based on the relative risk score and ranking of RIIO-T3 compared to the comparators, and the betas of these comparators, KPMG conclude that the evidence supports an asset beta from 0.37 - 0.47, higher than Ofgem's SSMD estimate of 0.3-0.4.

5.3.4. Recent share price movements point to higher risk

[44] Barclays, UK Power and Water Draft Determinations: D-Day approaches, an entry point?, 4/7/24
[45] For detail, see report re-submitted with SSMD by PwC, Identifying and quantifying risks for RIIO-T3, March 2024
[46] For detail, see report re-submitted with SSMD by PwC, Identifying and quantifying risks for RIIO-T3, March 2024
[47] KPMG, RIIO-ET3 Relative Risk Assessment, August 2024

[redacted]

5.3.5. Summary

Overall, a consideration of forward-looking risk evidences a higher beta than RIIO-T2 and supports our asset beta range for RIIO-T3 of 0.34-0.42.

5.4. Cost of equity cross checks

5.4.1. How much weight should be placed on different cross checks?

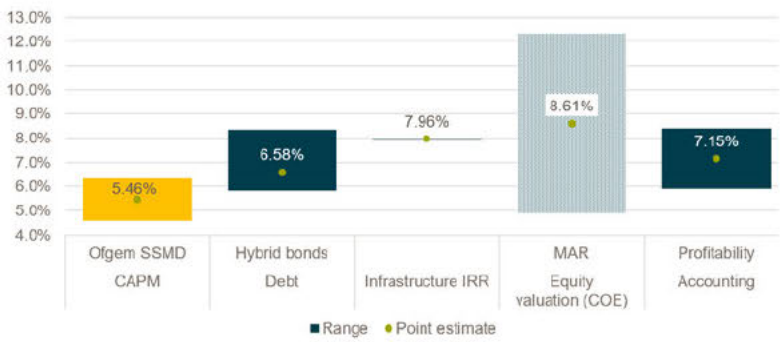
For cost of equity cross-checks, in the current environment of high interest rates, debt-based cross checks are most useful as they are both market-based and they provide a floor on cost of equity; i.e. because equity is a residual claim on company's cashflow, it is riskier than debt, therefore the return on equity should be higher than the return on debt. If the debt-based cross checks points to CAPM giving an answer that is too low, the individual CAPM parameters should be reconsidered.

Infrastructure fund IRRs, MARs cross-checks, survey cross-checks and accounting profitability cross-checks provide additional data points that, if inconsistent with other information, suggest further investigation is needed. Of these other cross checks, infrastructure funds are most informative as limited assumptions need to be made to infer a cost of equity. MARs are a measure of a market value but many assumptions need to be made to infer a cost of equity. Neither of these cross checks offer an accurate estimate of cost of equity. Therefore, these other cross checks should be viewed as being part of a portfolio of cross checks and limited weight should be placed on any one of them.

5.4.2. What is the evidence from cross checks?

The evidence from cross-checks shows that only the top end of the SSMD range is supported. The starkest evidence is that, as at Monday 30 September 2024, nominal yields on 20-year UK government bonds are 4.6%,[48] on long-dated sterling "A rated" corporate bonds are c. 5.4%[49] and on long-dated sterling "BBB rated" corporate bonds are c. 5.9%,[50] so the SSMD range results in only a small returns premium for equity. Investors will not be willing to invest additional capital if they can get similar returns for lower risk elsewhere. Current market conditions need to be considered in setting cost of equity.

There is competition for capital. We note that electricity networks (transmission & distribution) in the US typically provide nominal returns of 9%-11%. In addition to a base return at the top of Ofgem's range there must be an opportunity to earn returns that outperform the cost of equity by 100bps (1%) so that we have the potential to offer nominal returns



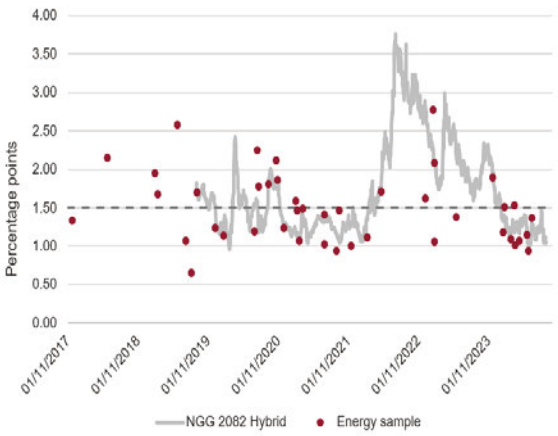
[48] Per Bank of England website, IUMLNZC | Bank of England | Database
[49] iBoxx £ Non-Financials A 10+ index (ISIN: DE000A0JY837)
[50] iBoxx £ Non-Financials BBB 10+ index (ISIN: DE000A0JZAH1)

comparable to US electricity networks.

5.4.3. Hybrid bonds

Hybrid bonds are closer to equity in terms of relative risk than senior debt so a cross check to returns on hybrid debt is a powerful debt market cross check. At SSMD, Ofgem said: *"we agree with the broad principle that we would expect equity returns for an asset to be strictly higher than debt returns for the same asset. By extension, we can in theory consider the pricing signals from 'hybrid' instruments that have both debt and equity like features"*.[51] However, Ofgem raised concerns at SSMD about using data from one company and changing levels or inaccuracies when assessing debt and equity risk premia over time. Frontier have responded to these concerns, bolstering the hybrid bonds cross check shared with Ofgem at SSMC.[52] Frontier find that there are many hybrid bonds issued by energy companies in the UK and Europe. This work shows hybrid bonds are a relatively common asset class utilised by large corporates. They apply a series of filters to establish the most meaningful cross check, which results in a still large sample of 55 hybrid bonds across 16 utilities. For this sample, Frontier find that hybrid bonds command a spread above the yield on conventional investment-grade bonds. This supports the logic and findings of the cross-check.

Frontier find that the specific National Grid hybrid bond spread used to estimate the cross-check (151bps) lies within the comparable sample of other hybrid spreads (100bps to 213bps). Moreover, the traded yield of National Grid hybrid bonds moves in line over time with yields at issue of other relevant hybrid bonds:



This analysis shows that the National Grid bond is a robust observation and one which is broadly consistent with peers in its asset class.

Overall, the hybrid bonds range is 5.8%-8.5% (CPIH real) with a point estimate of 6.6% (CPIH real). The range is significantly above the mid-point of the SSMD range, few assumptions need to be made for this cross check and the assumptions that are made are consistent across time and across a large sample of other hybrid bonds. Significant weight should therefore be placed on this cross check and, in line with the evidence, we consider that hybrid bonds are the most important cross check in the current high-interest rate environment. The value and mid-point for hybrid bonds demonstrates that Ofgem's SSMD cost of equity range is too low and that, if Ofgem were to stick with this range, it would be required to set a cost of equity at the top of its range.

5.4.4. ARP-DRP

This cross check uses market-observed data on current debt spreads to test the reasonableness of a cost of equity that is estimated using theoretical models, such as the CAPM. The work done by Oxera for SSMC still applies for this cross check.[53] Since SSMC, Mason & Wright have written a paper critiquing the ARP-DRP approach on behalf of Ofwat. Oxera have written a paper responding to these criticisms;[54] this paper shows that the relative measurement errors of the ARP–DRP framework are unlikely to be greater than the uncertainty inherent in a traditional application of the CAPM as used by the regulators. It also provides evidence that, for a regulated network company, the shape of the DRP curve is much more likely to be convex than concave such that ARP-DRP can be applied to eliminate parts of the cost of equity range that provide an inadequate risk premium relative to debt.

5.4.5. Infrastructure fund IRR

For those infrastructure funds Ofgem reviewed in RIIO-2 for which consistent data was available, Frontier Economics[55] show that the equity implied IRR has increased from 3.9% (CPIH real) in July 2020 to 8.0% (CPIH real) in September 2024, with all 9 funds reviewed showing an increase in IRR over this period. The difference between Net Asset Value and fund valuation may be due to other factors than just a misestimation of cost of equity. However, many of these funds hold both equity and

[51] Ofgem, RIIO-3 SSMD, July 2024, Finance Annex, 3.270
[52] Frontier Economics, Updated cost of equity cross-check evidence, November 2024, section 2
[53] Oxera, RIIO-3 Cost of Equity, March 2024, section 3
[54] Oxera, Evaluation of the ARP-DRP framework, November 2024
[55] Frontier Economics, Updated cost of equity cross-check evidence, November 2024, section 3

debt so they are likely to be less risky than GB energy networks which means they should be more informative about the lower bound for cost of equity for T3. Moreover, the consistent directional movement of this cross check for all the funds reviewed and the material size of these movements means weight should be placed upon it. Ofgem has previously considered this cross check informative.[56]

5.4.6. MARs

Our view is that MARs are a weak cross check and that Ofgem has historically placed too much reliance on it. This conclusion is based on the wide range of assumptions that need to be made which results in a wide range of MARs estimates. At T2, Oxera listed many assumptions that have to be made to infer cost of equity from trading and transaction MARs.[57] We also note that estimates of cost of equity from MARs typically assume that investors use the latest Ofgem published cost of equity in determining their expectation of allowed cost of equity, but investors may reasonably expect that allowed cost of equity is likely to move from Draft Determinations to Final Determinations. As a result of the many assumptions that must be made, Frontier Economics demonstrate the unhelpfully wide range for inferred cost of equity that exists as a result.[58]

We note that Iberdrola purchased ENW at an enterprise value estimated by UBS of 1.44 times RAV.[59] It is not clear what drives this premium; for example, it could be a winner's curse or non-RIIO business activities. Sell-side analysts noted various efficiencies due to the transaction, such as adjacent location of network areas, higher procurement strength due to the integration with Iberdrola and higher bargaining power and improvement of corporate and financial costs and implementation of management best practices. We also note ESO was purchased by government for a MAR of 1.35.[60] It is unlikely that the government expects significant outperformance as the scope of incentives in ESO is limited and costs are passthrough. Therefore, this is a compelling recent example demonstrating that MAR premium is not simply a reflection of expected outperformance compared to cost of equity.

Outside of the licensee entity, value may be driven for shareholders by increasing gearing. Ofgem did not consider this driver of value in using MARs to estimate expectations of cost of equity in T2.

5.4.7. Accounting profitability

Ofgem's chosen cost of equity should ultimately be reflected in accounting rates of return on book equity. Whilst this reflection may not be one for one in the short term, a review of accounting rates of return over a longer horizon can be informative about required returns.

5.4.8. What are the conclusions from cross checks?

The evidence shows that Ofgem's SSMD range for the cost of equity is too low and a cost of equity at or above the top of the SSMD range is needed.

[56] E.g.; Ofgem, RIIO-ED2 Final Determinations Finance Annex, November 2022, para 3.139
[57] Oxera, Market-to-asset ratios as a cost of equity cross-check, August 2022
[58] Frontier Economics, Updated cost of equity cross-check evidence, November 2024, section 4
[59] UBS, Iberdrola acquires an 88% stake in ENWL for £2.1bn, representing an implicit £4.2bn EV, 2/8/24
[60] Based on £630m transaction price divided by estimated ESO RAV at 30/9/24 (£467m), calculated based on an average of latest ESO PCFM RAV at 31/3/24 (£433m) and 31/3/25 (£501m).

5.5. Regulatory call on capital

In competitive markets companies have flexibility as to whether to proceed with, delay, or abandon investments based on their expected returns and financing options available. In contrast, regulated firms are driven by policy and regulatory requirements to deliver mandated projects at set terms regardless of the actual cost of financing or market conditions. As a result, the regulator can 'call' us to raise and provide additional capital during a price control (including equity) and there is a risk that the allowed return may not be adequate given it is set at the start of the price control. This obligation requires compensation in the same way that an unregulated company would require compensation for providing a third party a right to choose what it invests in. As the value of RIIO-T3 spend is expected to be significantly higher than in previous price controls, the value of this call is now sufficiently material that its value should be explicitly considered in setting the price control parameters.

KPMG explain the existence of this call option.[61] They provide an illustrative estimated value of the regulator's call on capital using both discrete movements in the WACC and for a continuous distribution of value of the WACC using the Black-Scholes option pricing formula. The illustrative value of the option is c£7m per £ billion of spend; our RIIO-T3 investment plan is £35bn so the total value for RIIO-T3 is over £200m. They note that compensating networks for this call option could be done through several avenues, such as (but not limited to) a separate revenue allowance, through adjusting the RAV, or by aiming up on WACC. Aiming up on the cost of equity seems the simplest way to operationalise this value and correct for the asymmetry; based on the illustrative values, an upward adjustment of 0.3% on cost of equity would be needed.[62]

NESO's market engagement for an early competition commercial framework found that "investors, while welcoming the opportunity for further investment, were uncomfortable with an obligation to further invest capital".[63] This quotation shows that investors have noted that Ofgem can compel capital investment regardless of whether it is an attractive return that investors would choose to accept. A rational investor would view this obligation as a cost which requires compensation.

5.6. Circumstances where aiming up is appropriate

If there was complete information and the price control was a fair bet,[64] the CAPM parameters would be set at a minimum level to incentivise investment which would enable the benefits of net zero, system reliability, secure energy supplies and more stable energy prices. However, there may be asymmetries and uncertainties that put the achievement of these objectives at risk.
Oxera consider that aiming up is justified in the following circumstances:[65]

- Where there is asymmetry in the regulatory package and these asymmetries cannot be addressed at source.
- Where there is asymmetry in cost of capital parameters. Oxera expect an increase in future risk for energy networks therefore it would be appropriate to aim up for beta. Oxera also observe that a long run view of TMR may differ to the TMR that investors consider in their investment choices for RIIO-T3, and this difference could justify aiming up. Aiming up could be done at the level of individual parameters or an overall aiming up adjustment to cost of equity.
- To avoid asymmetric impacts of uncertainty in setting cost of capital. Oxera show that the welfare effects of underinvestment on system reliability and delivering net zero are likely to be significant and greater than the saving to consumers from setting cost of capital too low.

For RIIO-T3, for our proposed range, the evidence points to aiming up being necessary because:

- The evidence points to a risk-free rate and TMR at the top of our proposed range, further supported by evidence from overall cost of equity cross checks.
- The welfare effects of underinvestment are likely to be significant and greater than the saving to consumers from setting cost of capital too low.
- Ofgem has a call on capital i.e. the regulator's ability to choose when we are required to use capital, as explained above.

[61] KPMG, Call option on investments in RIIO-3, November 2024
[62] Calculated based on our £34.6bn plan (23/24 prices) as: (£7m per £bn) * 34.6 / (£35.4bn average RIIO-T3 RAV * 45% equity share) / 5 years
[63] Ofgem, Consultation on the onshore electricity transmission Early Competition commercial framework, October 2024, para 6.12
[64] As defined on page 6
[65] Oxera, RIIO-3 risks and investability topics, November 2024, section 4

Frontier Economics reflect the first two of these three points in their paper resulting in a proposed cost of equity of 6.56% (CPIH real).[66] We have chosen a cost of equity (6.31% CPIH real at 60% gearing) that is instead based on a mid-point of our proposed range for each parameter with a resulting cost of equity within the SSMD range. However, we believe the reasons noted above should be considered by Ofgem in setting the RIIO-T3 cost of equity. Ofgem therefore need to select a cost of equity at the top of its SSMD range. Aiming up in the SSMD range is also consistent with analyst views:

"At this stage Ofgem has not addressed the investability point on ET and in our view would need to aim-up in their range." Bernstein[67]

5.7. Approach to gearing & re-gearing in setting cost of equity

At T2, Ofgem estimated cost of equity, cost of debt and WACC at a gearing of 60%, using CAPM, and then re-geared the cost of equity to 55% by solving for a cost of equity based on a WACC and cost of debt that were the same as their values at 60% gearing (the 'flat-WACC' approach). However, we infer from SSMD that Ofgem may change approach for RIIO-T3 by estimating cost of equity, cost of debt and WACC at 55% gearing. We have several concerns with this approach, which are explained in more detail by Oxera.[68] The main concerns are:

- It goes against regulatory precedent. Regulatory stability is an important feature of price controls that is valued by investors.
- It lowers the headline allowed cost of equity, thus potentially harming the investability of networks, at a time when network licensees expect to need to raise substantial fresh equity. Based on the SSMD range, we estimate that this reduction in cost of equity would otherwise be c. 20bps.
- It would mean that a slightly lower gearing, at the same targeted credit rating level, would result in a lower WACC, due to a lower assumed cost of equity. It is not clear that a lower WACC would be reflected in practice with similar small adjustments to gearing. Oxera note that investor hurdle rates are typically invariant to gearing.

In conclusion, if Ofgem changes the approach to re-gearing in T3, there are good reasons that networks should be compensated for the reduction in cost of equity that would result.

6. Our finance package: other equity requirements to ensure investability

In our SSMC response, we defined investability as the ability to retain and attract significant amounts of equity and debt capital. In SSMD, Ofgem rejected an additional investability test and stated that they intended to assess investability by placing an investability lens on cross checks and equity issuance costs. The RIIO-T3 package must have financial characteristics and levels of allowed return which will help to convince investors to commit new capital. Based on the financial characteristics and levels of allowed return, Ofgem should consider if, in the round, the price control is consistent with Ofgem's statutory duties to have regard to the need to secure that licensees are able to finance their activities alongside its net zero and growth duties. Investors are locked into a given financial framework for a 5 year period which could be costly to them,[69] so the price control financial package must be attractive.

To support investability, in our SSMC response we highlighted the importance of:

- increased allowances for debt costs due to the increased level of debt issuance required
- an increase in the allowed cost of equity compared to the RIIO-T2 methodology due to the overall increase in absolute risk we face, the need for us to attract new equity capital if it is to maintain constant leverage and increasing competition for capital.
- ensuring our ability to deliver growth in earnings and EBITDA in line with the expected rate of asset growth along with an appropriate level of dividend yield, in order to satisfy the requirements of equity investors
- adequate allowance for equity issuance costs
- a stable and predictable regulatory regime.

[66] Frontier Economics, RIIO-3 Cost of Equity range, November 2024, pg 6
[67] Bernstein, UK Utilities: First impressions from Ofgem's ET3 Sector Specific Methodology Document - Need to aim-up, 18/7/24
[68] Oxera, RIIO-3 risks and investability topics, November 2024, section 5
[69] See section 5, sub-section on 'Regulatory call on capital' for more detail

Ofgem's SSMD made positive statements on investability. However, there were also negative signals:

- Ofgem does not see the need to specifically target Baa1/BBB+ in financeability assessments yet this target would reduce financing costs and facilitate investability by improving financial resilience. Our response on this area is in section 8.1.
- Ofgem has said a clawback for cost of equity issuance is an option, which is likely to be difficult to implement and may not recover the full cost, direct and indirect, of equity issuance.
- Ofgem view dividend yield as a cash lever but a strong yield and growing dividend is valued by investors.
- Ofgem does not support use of additional equity metrics, such as the ratio of earnings to assets, as a test of investability.
- Ofgem considers that it is very important not to 'cherry-pick' when assessing equity premium over debt, as 'fixing' for any perceived insufficient premium in one price control period, without factoring in the through-the-cycle impact of the stable TMR approach, may lead to consumers structurally over-rewarding investors. We agree that Ofgem should not structurally over-reward investors but note that, by the same token, Ofgem's approach to TMR risks under-rewarding investors in the short term.

In this section, we provide new evidence on the importance of an investable financial package, evidence on targets to set for equity metrics in order to satisfy the requirements of equity investors and we discuss, following SSMD, allowance for equity issuance costs. We consider credit ratings in section 10.

6.1. Evidence from National Grid plc's May 2024 rights issue

[redacted]

[70] Barclays, Get on the growth train - it's leaving the station, 18/6/24

6.2. Dividend and equity issuance policy

NGET is a part of the National Grid group with National Grid plc as the ultimate parent company. National Grid plc is listed on the London Stock exchange and has American Depositary Receipts listed on the NYSE. The dividend policy of National Grid plc is a key element of why equity investors choose to provide capital to support further investment in National Grid's regulated assets. National Grid group aims to grow dividend per share in line with CPIH inflation. In June 2024, National Grid plc raised £6.8bn of net proceeds from a new equity issuance, one of the largest corporate rights issues ever undertaken in the UK.

As part of the NG group, we have targeted to maintain actual gearing (net debt/RAV) at a level broadly consistent with the notional gearing assumed in the regulatory price control. Over time, distributions from NGET are available to National Grid plc to support the overall group distribution policy.

6.3. Dividend yield

Our proposal uses Ofgem's SSMD figure of 3% to remain within the SSMD range. However, this section demonstrates that a dividend yield of 5% is supported.

[71] BNP Paribas Exane, Blowing the doors off, 24/5/24
[72] Barclays, Get on the growth train - it's leaving the station, 18/6/24. 5.9% is at 55% gearing.

Dividends are an important part of the investor proposition offered by utility companies and predictable earnings supporting a long-term reliable, predictable and material dividend pay-out is an important part of the overall return delivered to investors. For example, Barclays,[73] in relation to the England & Wales water sector, but also applicable to energy, advise that:

"A long-term dividend policy could improve attractiveness: According to the panel, the US water sector offers double-digit returns and materially higher valuations, which are likely driven by a longer-term dividend policy. The UK gives little guidance on dividends beyond its 5-year regulatory periods; however, a balance must be struck between the dividends reflecting company performance versus providing longer term visibility."

Historical data used by investors to assess cost of equity will reflect a material level of dividend yield in their investor returns, and any move away from that proposition would be expected to result in a material increase in perceived risk and required returns.

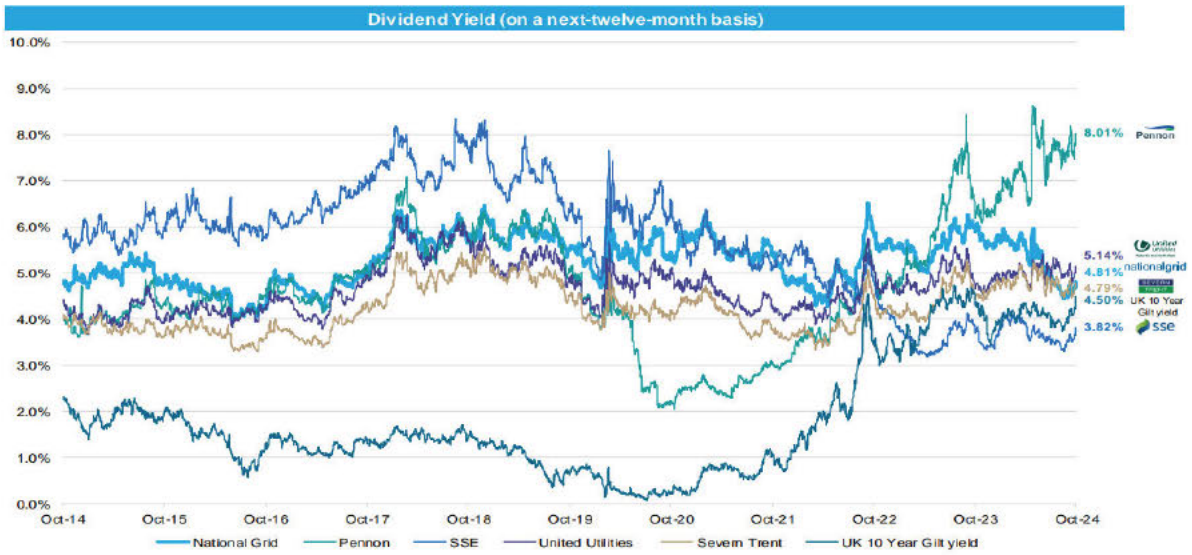
Oxera have reviewed historic dividends for relevant European comparator networks.[74] They show that in recent years the average dividend yield of European transmission networks has persistently been significantly above 3% and the average dividend yield for FTSE utilities has been above 5%. They also show that utilities are the sector with the lowest drop-out rate from the FTSE UK Dividend Plus index, an index which is designed to represent the performance of the 50 highest-yielding companies in the FTSE 350 Index, which shows stability of dividends in utilities in the FTSE. This paper thus evidences that high, stable dividends are important for utility shareholders.

Maintaining a growing dividend and delivering an adequate dividend yield is an important signal of our ability to fund our business and the growth of our business. This is evidenced as follows:

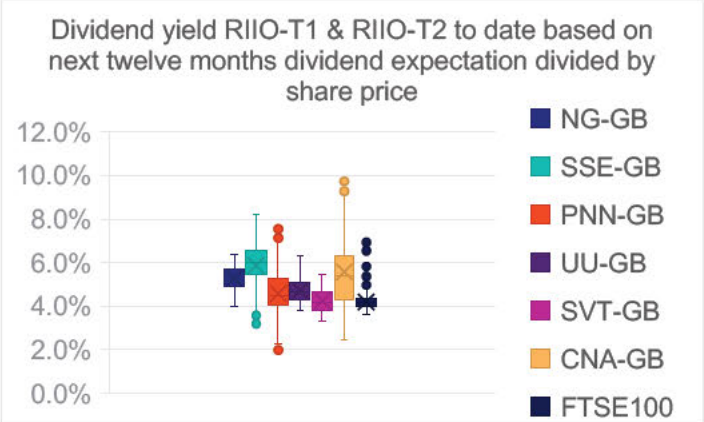
- Certain sell-side analysts value NG based on dividend yield and place a 25%- 50% weight on this dividend yield valuation in their overall valuation of NG.[75]
- In November 2023, the UK government made full expensing for qualifying capital expenditure permanent. Analysts have noted that this change is economically and cash neutral for UK regulated companies.[76] However, NG has historically included the impact of deferred tax in its definition of earnings per share. The change increased NG's expected deferred tax, resulting in a reduction in earnings per share. On 18th April 2024, NG made a Regulatory News Service announcement that, to represent underlying profitability more accurately, and to align with UK peers, NG will now *"report Underlying Earnings and Underlying EPS excluding the impact of deferred tax in our UK Electricity Transmission and Distribution businesses"*. Following this change, NG's share price increased 2%; this is evidence that, despite the change being, in principle, economically and cash neutral, signals matter to investors and for valuation. Retaining a level of dividend yield is a similar signal of the ability to pay dividends and of company valuation.
- As part of NG's May 2024 rights issue, the dividend to shareholders was maintained at the same total level, with a commitment to grow by at least inflation, reflecting the importance of the dividend to investors' decisions to provide equity capital to support increased growth. NG's dividend yield is currently around 4.8%.

For an appropriate dividend yield, we consider the yield offered by other actively traded UK public regulated utilities, including water companies, National Grid plc and SSE plc. The signalling benefit of dividends is less important for non-actively traded shareholdings. The yields on actively traded utilities would indicate a yield in the middle of the range 3.5% to 7%, with the midpoint of that range being around 5% (see figure below), in line with the assumption over RIIO-ET1 (T1). In addition, the increase in market interest rates since the start of RIIO-T2 means investors will focus more on the level of cash paid out as dividend compared to the cash returns available from other forms of investment. Yields on 20-year UK government gilts are currently above 4%. Overall, Ofgem's assumption of a 3% dividend yield is inadequate and should be increased. A dividend yield this low may marginally help debt financeability but only at the expense of equity investability.

[73] Barclays, Barclays Water conference feedback, 19/3/24
[74] Oxera, RIIO-3 risks and investability topics, November 2024, section 3
[75] E.g. HSBC, Buy: Accelerating green grid growth, 5/6/24, and Goldman Sachs, National Grid Plc (NG.L): H1 24 results: Solid numbers, significant ASTI investment growth to come, 9/11/23
[76] E.g. JP Morgan, Permanent extension of full expensing could mean increase in EPS targets, 22/11/23 and Citi, UK Autumn Statement: full expensing made permanent, 22/11/23



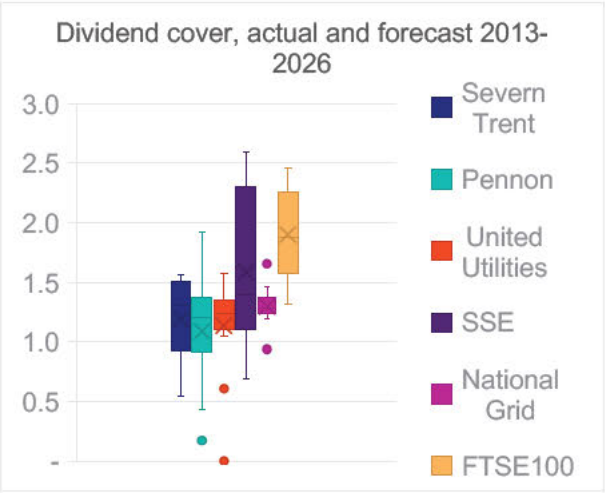
In addition, we have looked at dividend yields more broadly, in particular Centrica (a non-regulated utility in the FTSE100) and the FTSE100 overall (see figure right). Centrica's dividend is similar to regulated utilities, which supports a 5% dividend yield. FTSE100 average dividends are lower, circa 4%. This is consistent with the view that investors require utilities to provide a reasonable level of income, above that of the FTSE100 overall which provides a slightly lower dividend yield.



6.4. Dividend cover

Dividend yield is a key metric that needs to be assessed. However, dividend cover is a useful sense check of whether our dividend is in line with market expectations. Dividend cover for regulated utilities is typically around 1.4 (see graph right), whereas it is around 1.8 for FTSE100. This is again consistent with regulated utilities being held by investors to provide more income than the average FTSE100 company. We exclude Centrica from this analysis because in recent years, Centrica's earnings, and hence dividend cover, have been significantly impacted by fluctuations in energy prices that would not impact regulated transmission & distribution utilities.

Ofgem should therefore check that the proposed financial package provides dividend cover of at least 1.4 in order to meet investors expectations.



6.5. Stable ratio of earnings relative to asset growth

Analysts note that additional measures to bring cash forward are likely to be needed for NGET going forwards:

RBC[77] 12/1/24:

"The return and cash flow profile for ASTI projects should be another key point of interest, with the assumed asset life on offshore capex a key point of focus given its material impact on the future cash flow profile. This would be an important point as the market considers NG's balance sheet going forward.

NG's balance sheet remains in focus as the market looks at the significant investment proposed going forward… Changes to the regulatory structure (as discussed above) are important as NG considers its balance sheet going forward, given the current T2 structure is not designed for this additional level of capex."

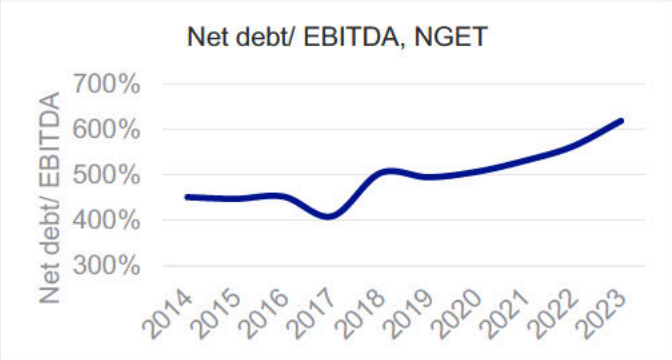
UBS[78] 5/4/24:

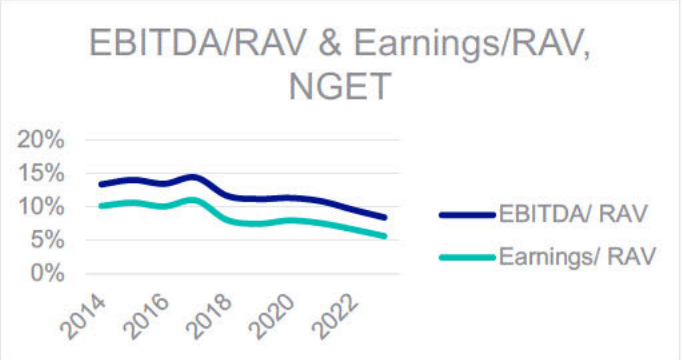
"EPS acceleration for regulated names: We note very low EPS growth--at a time of higher capex and energy transition theme--has been an adverse feature of the sector. We think this could change with: (1) Higher allowed returns; (2) More fast money; and (3) Additional incentives".

We explained in our SSMC that the consistent use of Price/Earnings (P/E), Enterprise Value (EV)/EBITDA and Net Debt to EBITDA metrics by analysts highlights the importance of accounting IFRS earnings and EBITDA measures, both in absolute terms and, in particular, the profile over time of these metrics. We explained that the level and profile of these metrics is valuable to investors as it demonstrates the value from additional investment. In SSMD, Ofgem said they do not consider it to be the role of the regulator to facilitate particular earnings profiles or valuation metrics at any point in time.[79] We disagree and note that this appears contrary to Ofgem's statutory duties including having regard to the financeability of networks. In T3, attracting new equity finance into the licensee is key to financeability and Ofgem has recognised the need for fresh equity. In a world of imperfect information, the signalling demonstrated by metrics and earnings profiles is valuable to investors. So incorporating these metrics and earnings profiles means investors are more likely to provide fresh equity to the licensee and provide it at lower cost. To ignore key metrics that equity investors use to make investment decisions is an unreasonable and risky position for Ofgem to take.

In section 8 on Credit Rating Thresholds, we note that net present value (NPV) cash neutral solutions to maintain credit ratings would be favourable for consumers in the long run. A closer match between accounting earnings growth and asset growth will result in materially improved credit metrics and improved financeabilty. This demonstrates the importance and benefit to investors if Ofgem were to specifically consider this measure in setting the price control.

The following graphs show the key statistics for Net debt/ EBITDA for NGET since the start of T1, and, in particular, the recent trend. The unfavourable trend in recent years could become a concern to investors if it continued as it would increase the likelihood of reductions to payouts to equity investors and represents a weakening balance sheet. A more appropriate profile would be a stable or improving ratio that enables us to meet our target strong investment grade credit ratings and supports a growing dividend to maintain a reasonable level of yield.





[77] RBC, Global Power, Utilities & Infrastructure, 12/1/24
[78] UBS, European Utilities Standing firm in our convictions, 5/4/24
[79] Ofgem, RIIO-3 SSMD, Finance Annex, July 2024, para 3.280

For EBITDA/ RAV and earnings/ RAV, the following graphs show the key statistics for these ratios since the start of T1, and the trend. Again, the declining trend in recent years could become a concern to investors if it continued as it would increase the likelihood of reductions to payouts to equity investors. As before, a more appropriate profile would be a stable or improving ratio that enables us to meet our targeted strong investment grade credit ratings and supports a growing dividend at an appropriate yield while maintaining a steady payout ratio.

6.6. Cost of issuing new capital

As noted, RIIO-T3 is expected to include a significant level of equity injections into the NGET notional company to support the increased investment programme and maintain an appropriate level of leverage. It will be important that the cost associated with raising new equity is adequately reflected in the allowances for RIIO-T3.

The costs of raising new debt financing are considered separately in section 8.

Our SSMC response explained that the costs of raising new equity consist of:

- Direct costs e.g. direct external costs (e.g. underwriting fees, legal and bank fees, listing fees) and direct internal costs
- Cost of carry which is the cost of needing to raise equity before the licensee needs to spend the cash. This cost consists of the following:
    - In the run up to an equity raise, as proceeds are not sufficiently certain, we will have to continue to issue long term debt. We will receive a lower interest rate on equity proceeds invested on a short-term basis than the company pays on the long term debt.
    - There is a long run expectation of equity holders with regard to the required return on equity but in reality, under the regulatory arrangements, equity holders will only receive debt returns until the equity raised is utilised and leverage returns to long-run levels

Ofgem's Business Plan Financial Model models new equity as smaller, more frequent issuances whereas in reality, equity issuance is typically done in larger, earlier, one-off issuances.

We evidenced in our SSMC response that the total of these costs would be significantly more than 5% of the value of equity raised.

In the SSMD, Ofgem advised that they would *"assess any evidence that a clawback or ex post cost assessment process would be in the consumer interest and would support more accurate compensation of efficient equity issuance costs"*. To implement a clawback would be challenging, as demonstrated by the recent example of National Grid's May 2024 c£7bn rights issue. In this case, the equity was raised outside of NGET, within National Grid group. It was also raised during RIIO-T2, while any new equity that National Grid group chooses to provide to NGET would primarily be to finance spend in the RIIO-T3 period. To apply a clawback in this situation, Ofgem would need to assess cost incurred outside of the licensee entity in RIIO-T2 and determine how much of the cost relates to NGET in RIIO-T3, which would be highly subjective and complex.

In summary, evidence shows that the direct and indirect cost of issuing equity is at least 5% of the issuance value. We have assumed issuance costs of 5% in the plan.

7. Our finance package: gearing

In SSMD, Ofgem has proposed keeping gearing at 55% for T3. UKRN guidance lists a number of factors relevant to regulators' decisions on gearing; actual gearing, external benchmarks, risk profile, financial resilience, and the relationship with the allowed return. We consider each of these factors in turn. This section addresses Business Plan Guidance para 7.10 parts 4 and 5.

There are several arguments that maintaining or increasing licensee gearing to 60% is most appropriate;

- Trends in actual gearing: in T1, NGET notional gearing was 60% and actual gearing averaged 55.8%.[80] In T2, NGET notional gearing was 55% and actual gearing is expected to average 53%.[81]

[80] Regulatory Financial Performance annex to RIIO-1 Annual Reports 2020-21, www.ofgem.gov.uk/publications/regulatory-financial-performance-annex-riio-1-annual-reports-2020-21
[81] RIIO-2 Regulatory Performance Data File 2021-22, www.ofgem.gov.uk/publications/riio-2-regulatory-performance-data-file-2022-23

As at 22/23 year end, actual gearing expected for RIIO-T2 in GD networks is 63.1%, GT 55.7%, ET 53.9%.[82] As at 21/22 year end, actual gearing is 68.5% for water.[83] These numbers are in some cases slightly below and in some cases slightly above the notional gearing, but overall broadly consistent which suggests the notional gearing is not too high.

- External benchmarks: Moody's gearing ratio guidance for UK water utilities has a target gearing level for Baa1 of 65%-72%. Fitch's sector specific rating methodology for regulated utilities has a target level of 70% for BBB, 60% for A. These thresholds have been unchanged for several years and are higher than our RIIO-T2 notional gearing, which suggests NGET's notional gearing does not need to be lowered.
- Higher gearing means increased use of debt funding compared to equity funding, which helps to mitigate the need for new equity in a high growth period.

Some arguments point to lower gearing:

- Notional company risk profile: we evidenced in our SSMC response that in ET3, we will be delivering larger, more complex projects and will face supply chain constraints, intense competition for materials and labour and new licence conditions and penalties for later delivery.[84] Therefore, we expect to face an increase in operational risk in T3, which would suggest a reduction in optimal gearing would be appropriate if overall risk is to be maintained. This increase in risk also impacts our cost of equity, as explained in section 5 of this annex.
- Financial resilience: higher gearing could reduce our ability to comfortably achieve a high investment grade credit rating, although the reduced reliance on new equity financing associated with higher allowed leverage may be seen as beneficial by rating agencies.

These factors should to some extent offset so any change in optimal gearing is likely to be small. For small changes in gearing e.g. between 55% - 60% gearing, the impact on required returns is immaterial. Finally, we recognise that gearing of 60% avoids the need for regearing whereas gearing of 55% is consistent with regulatory precedent. It is particularly pertinent that a lower gearing is not consistent with external benchmarks and makes the challenge of raising fresh equity harder. In summary, the theory and evidence points to either retaining the RIIO-T2 gearing of 55% or increasing to 60%.

However, if using 55% gearing, Ofgem needs to ensure that there is no reduction in WACC from regearing from 60% to 55%. Lower gearing is associated with higher risk and therefore higher WACC. At RIIO-T2, Ofgem used a 'flat-WACC' approach to re-gearing.[85] But if Ofgem changes the approach to re-gearing for RIIO-T3, then, if we have the same asset beta, we would get a lower WACC. As part of its decision on gearing, Ofgem should agree to increase the cost of equity for licensees to compensate for the reduction in cost of equity from not using the 'flat-WACC' approach, in order to maintain the WACC.

Although Ofgem may use a 55% or 60% gearing assumption when setting the WACC and revenue allowances, financeability tests should be performed at a higher level of gearing (up to 75%) to ensure that credit ratings can be maintained in the event that the licensee is not able to raise sufficient equity to fund the RIIO-T3 investment plan.

8. Our finance package: debt

Ofgem's references to investability in SSMC and SSMD seem to focus on equity, due to the expectation that networks will be expected to raise fresh equity in RIIO-T3. However, network licensees will also need to raise fresh debt. Based on RIIO-T2 levels of gearing, networks will need to raise more debt than equity, so attracting debt is as important as attracting equity. To enable the benefits for consumers of net zero, reduced exposure to price shocks and reduced dependence on energy imports, attracting debt investors is key. Ofgem's SSMD also demonstrated concern about the financial resilience of networks; sufficient allowances for debt costs supports financial resilience.

[82] RIIO-2 Regulatory Performance Data File 2021-22, www.ofgem.gov.uk/publications/riio-2-regulatory-performance-data-file-2022-23
[83] Ofwat "Monitoring Financial Resilience, 2021-22", www.ofwat.gov.uk/wp-content/uploads/2022/12/MFR_2021-22.pdf
[84] PwC, Identifying and quantifying risks for RIIO-T3, March 2024
[85] At T2, Ofgem estimated cost of equity, cost of debt and WACC at a gearing of 60%, using CAPM, and then re-geared the cost of equity to 55% by solving for a cost of equity based on a WACC and cost of debt that were unchanged (i.e. 'flat') at 55% gearing

8.1. Credit rating thresholds

In the SSMD Finance Annex published in July 2024, Ofgem consider the credit ratings thresholds that should apply for the financeability assessments in T3.

Specifically, Ofgem say "The network companies have argued that we should target credit metrics in line with 'BBB+' (S&P) and 'Baa1' (Moody's) ratings when assessing financeability. We do not currently consider there to be evidence of a need to target particular credit metric levels across our assessment of financeability."[86]

In addition, Ofgem state that "there may be circumstances in which the consumer costs associated with the adjustments required to achieve 'BBB+'/'Baa1' ratings outweigh the potential costs of accepting a slightly lower credit rating for a period." Ofgem also note "that a 'BBB'/'Baa2' investment grade rating (rather than the higher 'BBB+'/'Baa1' rating suggested as required by the Network companies) would meet associated licence requirements."

National Grid strongly believe that targeting a strong investment grade debt rating equivalent to at least 'Baa1'/'BBB+' will be necessary in T3. We submitted a paper to Ofgem[87] that provides the evidence for the following consequences:

- A 'Baa1'/'BBB+' credit rating is critical to ensure access to capital throughout this period of significantly heightened capex. Higher rated borrowers have stronger access to debt markets, particularly in times of market stress.
- A 'Baa1'/'BBB+' credit rating enables access to a lower cost of long-term debt, helping to keep consumer bills down, and avoiding the increased costs associated with a reduction in access to capital.
- A switch to a lower rating than 'BBB+' goes against the average of the iBoxx £ 10+ utilities index, which risks under remunerating appropriate debt costs if credit metrics checks deliver 'BBB' outcomes.
- Ofgem is rightly focussed on providing an investable outcome for T3, whilst ensuring electricity transmission remains a financially resilient sector, and a weakening of financeability targets would undermine these aims.

In contrast, the measures that can be taken to ensure a Baa1/BBB+ rating is targeted are generally NPV neutral and so do not increase consumer costs once future consumers are considered.

Equity is subordinate to debt so if the likelihood of recovering debt is reduced (which is implicit in a lower rating), it further increases risk and discourages equity investment, as illustrated by recent experience in the England & Wales regulated water sector.

This issue is not trivial. Analyst coverage points to the importance investors place on maintaining credit ratings. For example, Barclays[88] for the England & Wales water sector advise that:

"c.70% view the protection of OpCo IG ratings and Class A bonds from haircuts as a systemic priority".

In conclusion, it is critical that 'Baa1'/'BBB+' remain targets for financeability assessments, to ensure strong market access at a time when a huge amount of investment needs to be accessed, to ensure Ofgem's investability and financial resilience focus is not undermined, and to ensure both costs for the consumer are kept low and the consumer and societal benefits of net zero can be realised. If the rating is not Baa1/BBB+, we will not be able to get the low cost debt we need and equity investment is also discouraged.

8.2. Choice of Index

We are broadly supportive of the overall approach set out in the UKRN recommendation 8.

We support using indexation of the allowance; in particular, we propose that Ofgem continues to use the iBoxx Utilities 10yr+ Index (ISIN reference DE0005996532) which was used for RIIO-2. Because of our long average asset life, we issue long term financing, so the 10 year+ index is appropriate. In terms of the choice of iBoxx Utilities, the main alternatives, used in T1, are the iBoxx A and BBB 10yr+ indices. In theory, whilst the iBoxx A and BBB 10yr+ index provides a larger number of bonds

[86] Ofgem, RIIO-3 SSMD, Finance Annex, 18 July 2024, para 5.32, page 138
[87] National Grid, Benefits of a 'Baa1'/'BBB+' debt rating over 'Baa2'/'BBB', 14/10/2024
[88] Barclays, Survey results: How investible is UK water? Uncertainty prevails, 23/4/24

which enables comparability, the iBoxx Utilities index is likely to better reflect the risks that we face. We propose continuing with the iBoxx Utilities index as it is more relevant to us and for consistency with T2.

We note however that the UKRN cost of capital guidance refers to the significant control networks have on the timing and nature of debt etc. We will be going through a period of high growth and the quantum of debt financing required each year is such that if we were to seek to delay debt issuance, it would require the market to digest an even larger amount at a later date, as any funding shortfall would continue to grow with the ongoing capital programme. Given the magnitude of our funding requirements, it could be costly to clear the large funding requirement that had accumulated, especially with the certainty that we will require more funding several months later and on an ongoing basis. There is also a risk of failure if we are forced to go to market if the cash/liquidity shortfall became unsustainable because of delaying issuance, and the market is unable to absorb the requirement for whatever reason. Therefore, the assumption that networks have significant control over the timing of debt issuance may not hold for T3.

8.3. Indexation methodology

As explained in our SSMC response, we agree with Ofgem that an unweighted trailing average is no longer an optimal method to calculate the allowance. We support the RAV weighed methodology for T3. A company-specific RAV-weighting should be used (e.g. NGET RAV additions should be used for NGET) to more accurately reflect the efficient financing costs for each licensee's growth profile. Please note, in the BPFM in our NGET proposed assumptions, we have adjusted the nominal RAV calculations to correct for opening and closing RAV issues in relation to the RAV weighting. Please see the BPFM narrative for more details.

8.4. Calibration group

We support moving away from a combined gas network and electricity transmission (ET) calibration group as ET debt could be on a different path in a net zero world. We support the use of a combined ET & electricity distribution (ED) calibration group, rather than a separate ET calibration group possibly with an ED cross check, as it provides a larger sample of licensees which the debt markets perceive to have similar risks to calibrate debt. We are keen to discuss with Ofgem how a calibration group would work with a company-specific RAV weighting.

8.5. Inflation: methodology and proportion of index linked debt (ILD)

We agree with Ofgem's SSMD decision to choose option 1 (nominal cost of debt for fixed rate debt) as it fully addresses the leverage effect. We agree with Ofgem's proposal not to implement a transition mechanism. We have shared specific comments on the implications of and modelling for implementation of Option 1 with Ofgem.

We have shared evidence relating to the following points with Ofgem in November 2024.[89] National Grid represents 2.6% of the GBP index linked bond market.[90] However, the size of the UK corporate inflation linked debt market is c.£440m per annum on average for 2019- 2023 inclusive whereas we will need to issue c.£650m of ILD annually to maintain 30% of its debt as index linked; this is a significant challenge given the annual size of the market. Our proportion of inflation linked debt falls from 22% to 10% over RIIO-T3 without new inflation linked debt, just because of our growth.

It is important that there is a correspondence between the percentage of the NGET RAV that is financed by equity plus index-linked debt and the percentage of the RAV that indexes in line with inflation as this matching reduces scope for windfall gains and losses on financing and better matches expected cash outflows with cash inflows. Therefore, we propose reducing the index linked debt (ILD) assumption. Our proposal is a reduction in ILD assumption from 30% in RIIO-T2 to 20% at the start of T3, i.e. in each year of T3, 56% of returns are real and 56% of the RAV is indexed to CPIH.[91]

[89] National Grid, RIIO-T3 Size of inflation linked GBP bond market, 5/11/24 and excel file 'GBP inflation linked debt issued since 2019', 5/11/24
[90] Excludes Supranational, Sovereigns and Agencies and government issuance
[91] 56% is derived from 45% of RAV that is funded by equity and 20% of the 55% of RAV that is funded by index linked debt (45% + (20%*55%) = 56%)

8.6. Borrowing costs

Our business plan uses Ofgem's current assumption of 25bps to align with SSMD, however Ofgem's assumption is too low. Our SSMC response evidenced that networks face additional borrowing costs for RIIO-3 of 54-59 bps, including evidence for a new issue premium (5 bps).[92] On top of these additional borrowing costs, we evidenced in our SSMC response a requirement for a large issuer premium (9 bps). The amount of debt we will have outstanding, and the additional amount required each year will weigh on investors as they reach concentration limits. Investors would need to see our debt as good value compared to peers to be incentivised to go overweight in their portfolios with NGET.

9. Our finance package: other

9.1. Financial resilience

Energy networks are a vital part of the national infrastructure so it is in consumers' interests to have the right regulatory arrangements and protections in place to achieve a financially resilient sector. Moreover, NGET plc is a listed entity. The Guardian[93] notes that being listed has benefits of lower gearing, more financial transparency, more timely reporting and closer proximity to the public, all of which can mitigate financial resilience concerns. In water PR24 Draft Determinations, Ofwat recognised that there are benefits for listing when it said it intended to consider introducing an allowance to cover costs of listing for water networks.[94] We refer to our response to Ofgem's recent Call for Input on the Energy Networks ring fence review[95] for further explanation of our position on financial resilience.

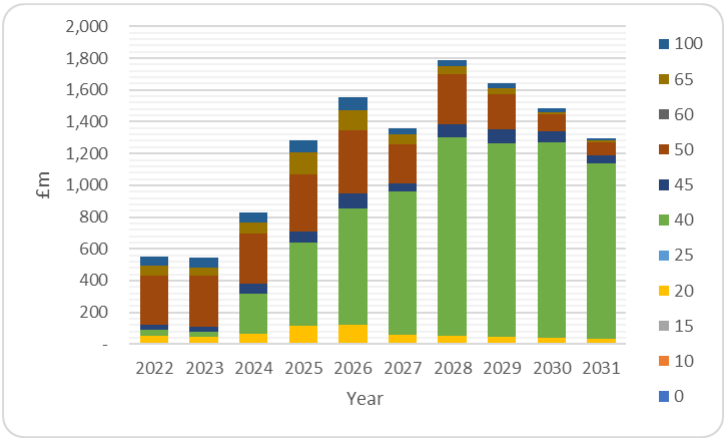
9.2. Tax

The RIIO-T2 notional allowance approach has been an effective mechanism and we support its continuation for funding in the RIIO-T3 period. We support decisions on tax made by Ofgem in SSMD as it means the notional tax charge will further align with the actual company tax charge.

9.3. Regulatory depreciation and RAV differential

In RIIO-T3, we propose a reduction in regulatory asset lives for our new additions only and an acceleration of the "RAV differential" pot to improve intergenerational fairness.

9.3.1. Regulatory depreciation



We forecast that the evolving technological landscape will mean we continue to transition towards a shorter lifespan for certain transmission assets over the coming decade. For example, for substations, we expect the increasing deployment of "intelligent" substations, characterised by an increased reliance on electronic and digital components as opposed to traditional mechanical installations. Furthermore, investments in the Accelerated Strategic Transmission Investment (ASTI) projects will see an increase in certain transmission assets being built, such as HVDC submarine cables. These possess an economic useful life that is shorter than the currently assigned regulatory asset life of 45 years.

[92] NERA, Additional Cost of Borrowing for the RIIO-3 Price Control, February 2024
[93] The Guardian, The best long-term plan for Thames Water is to get it back on the stock market, 11/7/24
[94] Ofwat, PR24 draft determinations: Aligning risk and return, July 2024, pg 4
[95] National Grid, National Grid response to Ofgem's call for input – Energy Networks ring fence review, 7/11/24

The initial data available to us for new additions in RIIO-T3 suggest that the proportion of assets that are being built that have an asset life of 40 years or less is 78% for the RIIO-T3 period as demonstrated by the chart.

These factors collectively suggest that a lower assigned regulatory asset life than that assigned in RIIO-T2 would be appropriate for additions in RIIO-T3. Based on our evaluation of our own assets and expected investment plans for RIIO-T3, we expect a reduction in average economic useful lives of additions from the current c. 45-years to close to 40 years. As we expect assets to be used over a shorter period, intergenerational fairness requires that the revenue associated with these assets is also collected over this shorter period to match the benefit and cost to consumers over time.

In addition, consumers today and in the coming years are benefiting from the accelerated depreciation of assets installed pre-privatisation and from 1990 to 2021, but without making any contribution towards funding a similar benefit to future consumers after c. 2045 on assets that are now being installed.

In Ofgem's recent consultation on early competition, Ofgem notes that NESO suggest an optimal revenue period of shorter than 40 years. We also note the project selected for the pilot is an onshore project and onshore assets typically have a longer life than offshore assets.[96] This supports a lower asset life.

Finally, we note that average regulatory asset lives are increasing throughout RIIO-2 and RIIO-3 at a time when cash support is essential during high investment – driven by shorter asset lives becoming fully depreciated and new assets being depreciated over 45 years.

Table 5: Average regulatory asset lives

	RIIO-T1	RIIO-T2 (estimated)	RIIO-T3 (estimated)
NGET by end of price control	c.32yrs	c.39yrs	c.45yrs

9.3.2. The RAV differential

The RAV differential is a regulatory mechanism devised to rectify the revenue cliff-drop in 2011 stemming from pre-privatisation assets assigned a 20-year life in 1991. An adjustment to the asset life was applied to assets built from 1991-2011, this was from 40 years down to 20 years. The difference between the two calculated asset lives was £2.3bn (18/19 prices) and was smoothed over 50 years from 2011. We currently have the biggest RAV differential among networks, with a substantial total value yet to be recovered, estimated at approximately £1.6 billion by the end of T2. Only one other network has a RAV differential balance at the start of RIIO-T3. Most of this balance relates to assets installed in the 1990s but the balance will not be fully recovered until 2061 nearly 70 years after the assets were installed and implies that future consumers will bear the costs of assets built in the 1990s for a period way beyond the economic life outlined in RIIO-T2 of 45 years.

In its SSMD, Ofgem states that "The key principle for intergenerational fairness is that the rate of depreciation should be set so that different generations and types of consumers pay network charges broadly in proportion to the value of network services they receive."[97], i.e. asset lives and fast money rates should be set to reflect the use consumers have of our spend. Cashflows from RAV differential should therefore reflect the lives of the assets to which the spend included in the RAV differential relates.

We do not believe it is reasonable for future consumers in the 2060s to be paying for assets that are unlikely to be on the network. The remaining length of RAV differential should be reduced to a maximum of 10 years which would write the balance off by 2036 at the latest, so this results in a sensible regulatory asset life of 40-45 years for most of the balance. Hence, this proposal improves intergenerational fairness. These impacts are specific to NGET as only we have a material value and length of RAV differential.

[96] Ofgem, Consultation on the onshore electricity transmission Early Competition commercial framework, October 2024, para 7.6
[97] Ofgem, RIIO-3 SSMD, Finance Annex, 18 July 2024, para 8.4, p167

9.3.3. Summary

We have provided evidence that a reduction in regulatory asset lives from the current 45-years in RIIO-T2 and acceleration of the RAV differential is required for intergenerational fairness and in order to satisfy Ofgem's principal statutory objective to protect the interests of existing and future consumers.

9.3.4. Capitalisation rates

We support retaining ex-ante capitalisation rates for allowed totex, consistent with RIIO-T2 guidelines. This approach provides simplicity, requires fewer judgements, and does not add additional unpredictability into revenue projections throughout the price control period. Capitalisation rate 1 applies to Baseline (non-variant) expenditure and Price Control Deliverables. Capitalisation rate 2 applies to Uncertainty Mechanisms. Based on the current levels of opex and capex included in our RIIO-T3 plan, our natural capitalisation rates for capitalisation rate 1 are set out below:

Table 6: Natural capitalisation rates for capitalisation rate 1

	2027	2028	2029	2030	2031	T3 average
Capitalisation rate 1	86%	87%	82%	75%	66%	79%

The table above illustrates that our natural capitalisation rate 1 declines significantly over the course of T3. This trend is primarily driven by the proportion of our capital expenditure related to pipeline projects growing (and so baseline falling) to reflect the higher uncertainty as we progress through the price control.

Ofgem has proposed retaining the opex escalator as an automatic mechanism for varying operating costs associated with capital investments delivered through Uncertainty Mechanisms but has not provided guidance in relation to reporting opex associated with variant capex activity, or confirmed how the Opex Escalator will work. We are keen to work with Ofgem to design an Opex escalator mechanism for RIIO-3. In the meantime, given the uncertainty around how this will operate, we have not included opex associated with variant activity (with the exception of a relatively small amount of network operating costs associated with NESO consequential costs). There will be a level of opex associated with variant activity, and our capitalisation rates may need to change to reflect the updated calculation of natural capitalisation rates once this is captured, depending on the approach Ofgem decides upon. This additional anticipated opex has been captured within our totex sensitivity analysis and we are therefore confident our financeability statement will not be materially impacted by this (on the assumption we receive corresponding opex allowances).

The high level of capex activity in RIIO-T3 is a result of the step change in investment in large, long-term projects, many of which will still be under construction at the end of T3. Once these assets are commissioned, and require inspection and maintenance as part of our asset base, we anticipate that capitalisation rates will reduce to reflect this (i.e. opex rates will need to increase to reflect this activity).

9.3.4.1. Proposed capitalisation rates

In our proposed package, we suggest using the annual natural rates for capitalisation rate 1 in RIIO-T3 in line with Ofgem's working assumptions. This decision is based on the significant difference in capex to opex throughout the RIIO-3 period. If an average rate were used in Ofgem's assessment of NGET, the weighting of capex in our submission, which is heavier in the initial years of the price control, would result in increased revenues in years where it is not necessary from a financeability perspective, compared to the latter years when financeability is more challenging.

Our proposed capitalisation rate 2 of c. 93% is based on the natural rate in our plan and reflects an additional level of capitalisation (+6%) to meet financeability requirements based on what is in our current business plan. Depending on the treatment of additional opex associated with variant capex, any changes to the fast money percentage for variant activity as a result of additional opex is in addition to the current fast money proposal.

If Ofgem does not adjust the RAV differential, then a higher fast money rate will be required to ensure financeability at our target credit rating.

10. Financeability assessment

10.1. Our approach to the financeability assessment

We have defined financeability as:

- generating sufficient cashflow to maintain more than one investment grade credit rating and achieving Baa1/BBB+ thresholds for debt metrics during the RIIO-3 period;
- the ability of the notional company to maintain a dividend of 3%; and
- the cost of equity set at a level that reflects investor requirements under current market conditions to enable us to attract the significant new equity required.

An investment grade credit rating that achieves Baa1/BBB+ thresholds is essential to ensure strong access to debt capital, including at times of high market stress, and to ensure costs are kept low for consumers. This gains additional importance at this time of heightened investment to maintain strong financial resilience, and to send a positive signal to equity investors by maintaining credit worthiness. Given the need to raise significant levels of new debt, it is vital that the regulatory precedent to target Baa1/BBB+ is maintained to protect from any market access issues. For example, looking at the USD IG market, during the financial crisis in 2008 there was a three-month period with no issuance from 'BBB-' corporate borrowers and the majority of issuance was from 'single A' rated borrowers. The credit ratings are also particularly important as equity injections are already substantial to maintain gearing close to 55% in the notional company.

10.1.1. Target thresholds for key financial ratios

The following table shows key metrics used by S&P and Moody's. The Moody's scorecard has a range of judgemental and quantitative metrics that impact the overall weightings and outcome.

Table 7: Key metrics used by S&P and Moody's

	Ratio	Threshold/ Range	Rationale
S&P	FFO / Net Debt measures the ability of a company to pay off its debt using available cash	9-11%	Based on S&P thresholds to achieve BBB+ for this core metric
Moody's Implied Scorecard	Adjusted interest cover ratio (AICR) measures how many times a company can cover its interest payments using available cash	1.4x – 2.0x	Based on Moody's methodology to achieve a Baa1
	Net Debt / RAV ensures we maintain an efficient financing structure	75% - 60%	Based on Moody's methodology to achieve a Baa1. Please note, NGET targeted notional gearing is 55%
	FFO / Net Debt measures the ability of a company to pay off its debt using available cash	11-18%	Based on Moody's methodology to achieve a Baa1
	RCF/Net debt is an indicator of a network's cash generation relative to its net debt	7-14%	Based on Moody's core metric to achieve Baa1

In addition, the Moody's scorecard also considers the scale and complexity of the capital programme. This measures the size and impact of the programme versus the existing asset base.

Our baseline plan outlines £10.9bn of totex over the 5-year price control period. However, in order to support the achievement of Net Zero by 2050, our projected spend in the pipeline has increased significantly compared to T2. This represents an additional £23.7bn in totex, bringing the total to £34.6bn (this includes a future ongoing efficiency target 0.7%, £0.4bn p.a.). Our modelling indicates

that funding the required investment will necessitate us raising approximately £9-10bn (nominal) of new equity capital for the notional company over the duration of RIIO-3 to maintain gearing close to 55%.

In section 6 of this annex, we detail the investability requirements in order to raise the equity financing required. This includes a dividend cover ratio of at least 1.4 in order to be competitive with other regulated utilities. We test this as part of our financeability assessment.

10.1.2. Process

The financial model owned and developed by Ofgem generates revenues and financial ratios for the financeability assessment. It utilises the financial parameters and totex business plan inputs provided by the networks. National Grid has completed and submitted the financial model as published by Ofgem on 30 September 2024. Our financeability assessment and assurance are primarily based on this model, as the outputs are sufficiently complete and reliable. However, where gaps exist in the assessment, we supplement our view with our own analysis to ensure a comprehensive evaluation.

The financeability assessment is on our full baseline and pipeline expenditure per the business plan guidance (referred to as “best view”). We stress test the financeability assessment of the notional and actual company based on Ofgem’s proposed scenarios to assess the impact of risk. We also test financeability against our own risk scenarios based on our assessment of business and macroeconomic risks.

10.2. Financeability assessment of Ofgem’s working assumptions on the notional company

Ofgem asked all companies to use placeholder working assumptions in their business plans to assess the financeability of both the notional and actual company in the first instance.

Table 8: Ofgem working assumptions

Parameter	Ofgem working assumptions
Allowed return on equity	5.05% at 55% gearing*
Incentive performance	Nil
Dividend yield	3%
Gearing	55%, set at beginning of RIIO-3 and maintained throughout the period
Allowed debt return	Full indexation, 11-15 year trombone** Nominal allowance on fixed rate debt 25bps of additional borrowing costs
Debt profile	30% inflation linked debt throughout the period with RPI debt switched to CPIH
Inflation index	CPIH applied to the equity and ILD portion of the RAV
Depreciation	45 years
Capitalisation rates	Annual natural rate for baseline and pipeline

* Ofgem have updated the risk free rate in their working assumptions, using the SSMD risk free rate would be 5.03%
** The Ofgem working assumption for cost of debt does not align to the SSMD (RAV weighted methodology)

Table 9: Key metrics based on Ofgem’s placeholder working assumptions – notional company

	RIIO-T2			RIIO-T3			
Quantitative Metrics	**25/26****	**26/27**	**27/28**	**28/29**	**29/30**	**30/31**	**Average**

S&P : FFO / net debt	**10.63% / BBB+**	**10.00% / BBB+**	**8.87%/ BBB**	**8.60% / BBB**	**8.66% / BBB**	**8.63% / BBB**	**8.95% / BBB**
Selected Moody's Metrics:*							
Scale and complexity of capital programme	Baa	B	B	B	B	B	B
AICR	1.91	1.92	1.85	1.81	1.74	1.73	1.81
Net Debt/RAV	53%	61%	62%	62%	61%	60%	61%
FFO/Net Debt	13.09%	9.93%	9.36%	9.07%	8.61%	8.51%	9.09%
RCF/Net Debt	10.60%	7.80%	7.25%	6.96%	6.50%	6.37%	6.98%
Indicated rating from Moody's Grid	**A3**	**Baa2**	**Baa2**	**Baa2**	**Baa2**	**Baa2**	**Baa2**

*Key metrics shown for Moody's that reflect outcomes on financial metrics. Full scorecard available in the Business Plan Financial Model (BPFM)

** The RIIO-T2 numbers in Ofgem's working assumptions are being impacted by the fast/slow switch in the BPFM. We show the correct calculations for 25/26 in the NGET proposed assumptions later in this section

The table above demonstrates how these placeholder working assumptions do not result in a financeable outcome, and we set out the details of the financeability challenge below:

- As shown above, the assessment of Ofgem's working assumptions does not meet the required thresholds of Moody's Baa1 and S&P BBB+.
- The addition of the nominal allowance for fixed rate debt has provided additional cash to support financeability but does not solve the overall cash requirements to meet credit rating targets. This is driven by a number of factors including the size of the capital plan.
- The large capital programme is putting pressure on key financial metrics including S&P FFO/Net Debt and Moody's FFO and RCF/Net Debt requiring additional support to meet the required ratings. These metrics are on a downward trajectory falling under threshold during the RIIO-T3 period. This is because net debt is increasing faster than net cashflow.
- The Moody's scorecard is heavily impacted by the scale and complexity of the capital programme metric. The average investment to RAV is forecast to be 22% in RIIO-T3, roughly double the expectation for RIIO-T2. Within the methodology this component is then weighted and accounts for approximately c.40% of the overall score, placing pressure on other metrics to perform better. In section 5 and Appendix 2, we provide more detail on the increase in forward looking risk from the scale of our investment programme.

The package is also not investable for equity holders:

- The evidence on market cross checks supports a cost of equity above Ofgem's working assumption (5.0% CPIH real at 55% gearing) to provide an attractive and investable proposition that can compete with the international demands for capital.
- Market cross checks used by Ofgem also point towards a higher level of return.
- Our proposal for cost of equity is 5.83% at 55% gearing (6.31% at 60% gearing) in line with market evidence.
- We provide further information on our evidence on cost of equity in section 5 of this annex.

We have also evidenced in section 6 of this annex that equity holders are concerned with stable levels of dividend cover, net/ EBITDA, EBITDA/RAV and earnings/ RAV. This is of critical importance so that the equity required can be attracted to the UK transition.

- Dividend cover on average is just 1.2 times earnings during the RIIO-T3 period, and below investor expectations for regulated utilities.
- In Ofgem's working assumptions, earnings growth is lagging asset growth by around 10% over the 5-year period. It is important that earnings growth keeps up with asset growth to support a strong overall investor proposition during the period of high growth.

Scenario testing under Ofgem's working assumptions

Within Ofgem's BPFM, various predefined scenarios are provided, encompassing factors such as under/overperformance against totex, high/low interest rates, and inflation. NERA has conducted an analysis on our behalf by running our investment plan using Ofgem's working assumptions against these scenarios.[98] The results under Ofgem's stress testing scenarios give the same result (Baa2), with the exception of the 10% totex overperformance scenario, which generates results consistent

[98] NERA, Financeability Analysis for NGET over RIIO-T3 BPFM Ofgem Scenario Modelling, December 2024

with a Baa1 rating, and the low RoRE performance scenario which provides results consistent with a Baa3 rating. The impact of these scenarios is outlined below:

	Totex outperformance						Low RoRE					
	2027	2028	2029	2030	2031	Average	2027	2028	2029	2030	2031	Average
Moody's indicated outcome	Baa1	Baa1	Baa1	Baa1	Baa1	Baa1	Baa2	Baa2	Baa3	Baa3	Baa2	Baa3
S&P FFO/ net debt	10.0%	8.8%	8.4%	8.4%	8.3%	8.8%	8.0%	6.9%	6.5%	6.5%	6.4%	6.9%

Moody's scorecard indicated outcomes and S&P FFO/ net debt for all Ofgem's scenarios are shown in Appendix 3. Complete financial projections are in the models referenced in Appendix 5.

Having identified and explained the financeability challenges with Ofgem's working assumptions we now set out: 1) management efforts and mitigating actions, 2) regulatory measures which should be taken alongside the management efforts or mitigating actions, 3) consideration of other applicable measures to aid financeability, and 4) that statements and conclusions are supported by evidence and justification.

10.3. Management efforts or mitigating actions

In section 6.2 of our main business plan document, we set out the steps we have taken to review the investment plan that is resulting in this outcome to confirm any management action that could be taken to reduce investment. We confirm that the baseline and pipeline expenditure meet the requirements needed to deliver net zero (supports the Future Energy Scenario (FES) 2024 Holistic Transition pathway) and is suitably efficient and ambitious. We also confirm our plan meets consumer requirements. In the section below, we also detail how we have first selected regulatory measures that minimise consumer impacts (for example, equity issuance timing) and those that promote intergenerational fairness.

10.4. Regulatory measures which should be taken alongside management efforts or mitigating actions

We are proposing a financial framework package that complies with Ofgem's broad SSMD framework, and we believe would be both financeable and investable. The framework and initial ranges Ofgem set out in the SSMD can be implemented in a way that will achieve this, but Ofgem will need to use the flexibility it has afforded itself.

The details of our proposed assumptions are set out below.

Table 10: NGET proposed assumptions & how they meet SSMD broad framework

Parameter	NGET proposed assumptions	Justification of how this meets the SSMD broad framework
Return on equity at 60% gearing	6.31% (5.83% at 55% gearing)	Within the Ofgem SSMD range (<6.35%) and supported by parameter evidence
Equity Issuance Timing	Equity to be issued at the end of each period, instead of the start of the next	Permissible under the broad framework of SSMD (see details below)
Asset lives	40 years straight line for new additions. Acceleration of the RAV differential over 10 years from the start of T3	SSMD allows for adjusting cash levers where there is new evidence or to solve for financeability challenges. We present evidence based on economic principle and to support financeability
Capitalisation rate	Annual natural rate for baseline, Natural for UM spend +6% fast money adjustment for UMs	

Parameter	NGET proposed assumptions	Justification of how this meets the SSMD broad framework
Index linked debt (ILD) assumption	Index linked debt assumption of 20% in all years of T3.	SSMD set out 30% as a working assumption but recognised that company specific debt structures would be reviewed
Return on debt	RAV weighted trailing average mechanism with 25bps of additional borrowing costs. Implementation of a nominal allowance on fixed rate debt	In line with SSMD and Ofgem's working assumptions
Dividend yield	3%	
Gearing	55%	

We have selected our proposed regulatory assumptions primarily based on economic principles, and available evidence.

Table 11: Evidence & rationale for NGET proposed measures for use as financeability levers

NGET Proposed Measure	Economic Principle / Evidence for change	Rationale for use as a financeability lever
Return on Equity	We set out in section 5 the rationale for the cost of equity that is required to attract the equity financing needed. We set out further detail on how this is in the consumer interest in section 11	Not applicable – our evidence on cost of equity is driven by market cross checks. and other evidence on the return required for an investable package.
Equity issuance in the notional company moved to the end of each period	Ofgem's modelling injects equity in the notional company to align gearing with notional targets at the start of the next period. We suggest that equity injections should be modelled as occurring at the end of the period to align with how closing gearing is used by credit agencies.	This adjustment increases the equity required and makes a significant improvement to financeability at a low cost to consumers. This reduces the need for further measures to secure financeability.
A reduction in the assumption for index linked debt to 20%	The size of the GBP inflation linked debt market (c.£440m p.a.) is not large enough for us to maintain 30% of our debt portfolio – further detail in section 8.	Not applicable – our evidence is based on the change needed due to the size of the market not being enough for the increase in debt required.
40 years asset lives for new additions	There is evidence of a reduction in asset lives for new additions – further detail in section 9	Our proposals are supported by evidence and economic principles and support financeability. Any further adjustment to address short term financeability concerns will reduce the transparency of how cost recovery is set to match the benefits consumers receive.
Acceleration of the RAV differential to 10-years	Acceleration to 10-years (from T3) improves intergenerational fairness and there is technical evidence for this change – detail shown in section 9.	
6% additional fast money for uncertainty mechanisms	The justification for this is shown in section 9.	The simplest to understand and arguably most economic lever to use. However, use should be limited to marginal changes otherwise the impact of bringing cash forward is unlikely to be sustainable

NGET Proposed Measure	Economic Principle / Evidence for change	Rationale for use as a financeability lever
		in the long term, will be disregarded by ratings agencies and will create intergenerational mismatches in bills.

In our proposed package, we propose using the annual natural rates for capitalisation rate 1 in RIIO-T3 in line with Ofgem's working assumptions. This is because there is a significant difference in capital expenditure to operational expenditure in different years of the RIIO-T3 period.

10.5. Financeability assessment against our proposed financial package

The regulatory assumptions that we propose based on market evidence, economic principles and considering fairness to consumers meet the requirements for a financeable outcome in the notional company when combined with our investment plan (c.£35bn over T3).

Table 12: Key metrics based on NGETs proposed assumptions – notional company

	RIIO-T2	RIIO-T3					
Quantitative Metrics	**25/26**	**26/27**	**27/28**	**28/29**	**29/30**	**30/31**	**Average**
S&P : FFO / net debt	**14.06% / BBB+**	**14.10% / BBB+**	**13.33% / BBB+**	**12.95% / BBB+**	**12.64% / BBB+**	**12.32% / BBB+**	**13.07% / BBB+**
Selected Moody's Metrics:*							
Scale and complexity of capital programme	Baa	B	B	B	B	B	B
AICR	2.15	2.00	1.97	1.95	1.90	1.87	1.94
Net Debt/RAV	53%	55%	55%	55%	55%	55%	55%
FFO/Net Debt	15.32%	14.00%	13.61%	13.35%	12.85%	12.50%	13.26%
RCF/Net Debt	12.75%	11.54%	11.16%	10.90%	10.40%	10.05%	10.81%
Indicated rating from Moody's Grid	**A3**	**Baa1**	**Baa1**	**Baa1**	**Baa1**	**Baa1**	**Baa1**

*Key metrics shown for Moody's that reflect outcomes on financial metrics. Full scorecard available in the Business Plan Financial Model (BPFM)

Our proposal meets the requirements for a financeable and investable outcome for equity investors. The cost of equity we propose is competitive against other investment opportunities and our proposal aligns earnings growth with asset growth to support acceptable dividend yields for investors when compared with other potential investment opportunities. Complete financial projections are in the models referenced in Appendix 5.

Stress Testing

In order to secure the essential objectives for consumers and society of the energy transition, a fair balance in the package between affordability for consumers and providing an investable outcome for investors must be achieved.

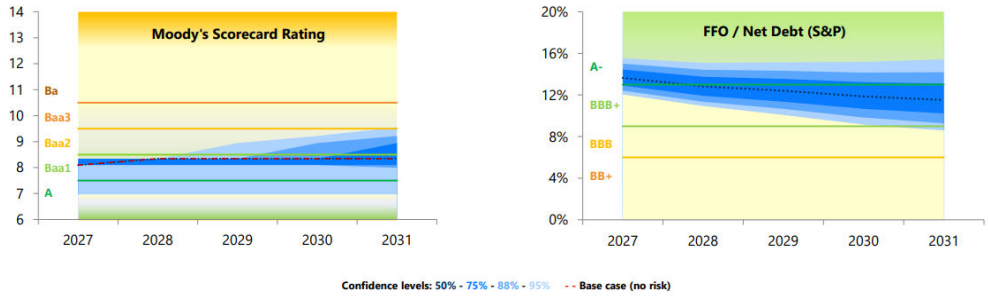
We have tested our package against a range of macroeconomic and operational scenarios to forecast the headroom in the notional company to absorb downside risks, and the associated resilience that our package allows that is critical for the success of our operations.

10.5.1. Our risk scenarios encompass a range of factors that we consider plausible risks. These include:

1. **Connections:** see Appendix 2 for more details.
2. **Cyber:** see Appendix 2 for more details.
3. **Construction risk:** see Appendix 2 for more details.
4. **Achieving efficiencies:** see Appendix 2 for more details.
5. **Major system or asset failure:** see Appendix 2 for more details
6. **Delivery risk:** see Appendix 2 for more details.
7. **Incentive performance:** Considering the risks associated with meeting performance incentives set by regulatory frameworks.
8. **CPIH inflation:** Evaluating the impact of CPIH inflation on our operations and financials.

9. **Risk-free rate - 20Y ILG yields:** Assessing the risks associated with changes in the risk-free rate based on 20-year Index-Linked Gilts yields.
10. **Cost of debt - iBoxx Utilities yields (FY):** Evaluating the risks associated with changes in the cost of debt based on iBoxx Utilities yields (annual).
11. **Higher leverage scenario:** This is to test the scenario where the equity financing required cannot be attracted to the sector.

10.5.2. NERA have considered deterministic and stochastic scenarios for these risks; please see their reports attached to this submission for full results.[99] [100] Complete financial projections are in the models referenced in Appendix 5. The headline results for the stochastic modelling are detailed below:[101]



Our testing of scenarios show that the overall headroom in the Moody's implied scorecard is tight as it is impacted by the following factors:

- In the indicated implied scorecard, Moody's include a quantitative calculation for the scale and complexity of the capital programme in addition to any qualitative assessment they may make.
- This metric (capex/RAV) is 2 notches below Baa threshold for the majority of T3, and this is impacting the overall scorecard. There are limited actions we can take to improve this, as the investment plan is aligned to the NESO 2024 Holistic Pathway per business plan guidance.
- As we explain earlier in this section, this metric accounts for c.40% of the overall score as the Moody's methodology gives greater weight to metrics with poorer outcomes.
- In the downside scenarios, S&P FFO/net debt and most of the Moody's financial metrics are either at or below threshold for a Baa1/BBB+ rating.
- For Moody's this, combined with the scale and complexity measure, is having an overall impact on the implied scorecard bringing it below Baa1. This is demonstrating that our proposed package is tight and does not give a large amount of protection for downside risk. To maintain an implied scorecard rating of Baa1, the overall score should be below 8.5 and our proposed package achieves a score of 8.3.
- We also note that the Moody's implied scorecard is not a definitive outcome and Moody's will make further judgements when determining a final rating which may be below the scorecard indicated outcome. Our experience is that Moody's will use the scorecard indicated rating or in some cases provide for a lower rating to reflect added uncertainty or other factors.

The downside stress tests that result in Moody's implied rating dropping to a Baa2 relate to underperformance on totex and delivery risk resulting in ODI and licence breach penalties. The higher leverage scenario, where equity financing cannot be attracted to the sector, also results in the rating falling to Baa2 based on NGETs proposed assumptions, with all financial metrics deteriorating significantly. We note, that based on Ofgem's working assumptions, the financeability assessment is already at a Baa2 level, and the higher leverage scenario would result in the Moody's indicated scorecard rating dropping to a Baa3 rating. This would have significant implications for both debt and equity financing.

This is supporting our previously submitted evidence (in SSMC) how these new incentives and licence breach risks, as a result of the ASTI framework, were causing forward looking risk to increase. Our proposed package can support the level of investment required, but it also leaves the risk of

[99] NERA, Financeability Analysis for NGET over RIIO-T3 BPFM Ofgem Scenario Modelling, December 2024
[100] NERA, Financeability Analysis for NGET over RIIO-T3 Notional Stochastic Modelling Results, December 2024
[101] Please note, NERA in their final reports for NGET have assumed 1yr average ratios for Moody's implied scorecard as opposed to 3yr average. This does not have a material impact on outcomes.

financeability eroding should the challenging risk landscape (for example, scale of investment, new technology, supply chain and labour constraints) result in adverse outcomes. This analysis underlines that it is critical that the final package for RIIO-T3 reflects the increased risk outlook and also includes sufficient cash flows to protect investors and consumers in downside scenarios.

10.6. Consideration of other measures to aid financeability and confirmation that our statements and conclusions are supported by evidence and justification

We also considered alternative measures to aid financeability. As stated above, our choice of regulatory drivers has been guided by economic principles and the available evidence. We have therefore discounted other financeability levers that do not have the same rationale. These include:

- **A reduction in dividend yield from the notional assumption of 3%:** In section 6 of this annex, we set out the strong rationale for maintaining an attractive investor proposition at a time when this plan requires £9-10bn of equity financing. A reduction would be counter intuitive at this time due to the negative message it would send to equity investors, and the evidence we present in section 6 demonstrates that a dividend of 5% would be in line with investment opportunities we are competing with.
- **A reduction in gearing:** In section 7 we discuss gearing. A reduction in assumed gearing would increase the requirement for new equity funding even further. This is unrealistic and counter-intuitive, with the more plausible outcome being that companies will look to rely more heavily on debt capital markets for financing in a period of increased capex. We also note that the Moody's Baa1 range for gearing is 60-75%. The current notional gearing of 55% is already below this range, and to move any lower would move further away from well understood market norms.

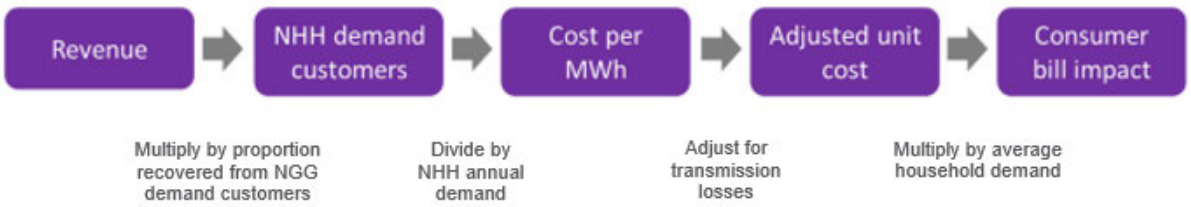
10.7. Board Assurance

The Board can provide the required assurance (see Appendix 1) that, in its opinion, NGET's Business Plan is financeable (as defined earlier in this section) on both a notional and actual capital structure basis based on the regulatory assumptions that NGET proposes in our business plan submission. The details of the evidence and justification for our proposals are set out in this finance annex.

11. Impact on energy bills

In recent years we've seen the impact on consumer energy bills of geopolitical turmoil like the war in Ukraine. Not being able to predict the cost of energy bills has been an enormous challenge for domestic consumers and businesses too. Our analysis indicates that investing in the transmission network will reduce consumers' exposure to these price shocks in the future by bringing more home-grown, green energy onto the system and reducing Britain's dependence on energy imports.

The consumer bill is expressed as National Grid's element of the TNUoS tariff passed on to households by suppliers. We use the following simple top down five step process to forecast the RIIO-T3 consumer bill:

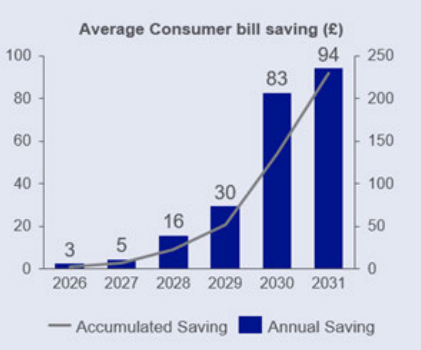


Our approach is based on the charging methodology and inputs from 2023-24, so our forward-looking estimates, such as demand assumptions, do not include potential future changes to these variables.

Transmission represents a relatively small fraction of the total electricity bill. Using this methodology, on average across the RIIO-T3 period, National Grid's direct charges to end consumers account for c4% of the average household electricity bill. This is £39 p.a. in 2031 based on Ofgem's placeholder working assumptions and our RIIO-T3 investment plan (an increase of £16 p.a. from the expected cost of £23 p.a. in the final year of RIIO-T2). This is due to the higher level of investment and the introduction of a nominal allowance for fixed rate debt.

Analysis suggests that, of the total electricity bill for the average household customer, the transmission element would be c.£44 p.a. in 2031 based on NGET's proposed assumptions. The difference between the Ofgem placeholder working assumptions and NGET's proposed assumptions is c. £5 p.a. Only c. £1 of this relates to the proposed increased in cost of equity to attract investment, with the remaining c.£4 relating to the net present value neutral consumer assumptions that we propose.

However, whilst we forecast an increase in transmission costs, we expect that these costs are likely to be more than offset by reductions in the costs of managing the energy system if our investment to expand the capacity of the transmission network does go ahead. Modelling shows a £12bn saving in constraint costs during the RIIO-T3 period. This represents a £94 annual saving for the typical consumer by the end of 2031 - as shown in the chart opposite. These consumer benefits are directly reliant on a financial package that is investable and can attract the investment required to deliver the future energy system.



This analysis uses the latest information available from NESO, which is based on the Leading the Way 2023 scenario and not the 2024 Holistic Transition pathway. Having reviewed the underlying generation mix in these scenarios, we are confident in drawing the same conclusion on the quantum of the reduction our plan will have on constraint costs. Consumer research shows that across all socio-economic groups there is support for the proactive approach we are taking to front-load investment in the network. However, the same research shows that there are some consumers who cannot bear any increase in energy bills, which is why we will continue to play our role, alongside Ofgem and Government in supporting consumers in vulnerable situations. We outline the steps we are taking in this area in section 4.2 of the main business plan document (making a positive contribution to our communities and supporting consumers in vulnerable situations).

12. Appendices

Appendix 1: Financeability assurance statement

Financeability Assurance Statement

The Board can provide the required assurance that, in its opinion, National Grid Electricity Transmission's (NGET's) RIIO-T3 Business Plan is financeable (as defined below) on both a notional and actual capital structure basis based on the regulatory assumptions that NGET propose in our RIIO-T3 Business Plan submission. Importantly, our proposed regulatory assumptions are within the ranges and options that Ofgem allow for within its Sector Specific Methodology Decision (SSMD) for the financial framework. We are satisfied that these regulatory assumptions and conclusions are duly supported by evidence and are clearly in customers' interests.

In contrast, the Board has identified financeability challenges using Ofgem's working assumptions in the Business Plan Financial Model (issued on 30 September 2024). As a result, the Board has been unable to satisfy itself that NGET's Business Plan is financeable using such working assumptions – on either a notional or an actual capital structure basis – as credit metric thresholds are not achieved in the RIIO-T3 period, and cross checks on the cost of equity show it is not sufficient. We provide details of these financeability challenges, together with the management efforts and mitigating actions that have or could reasonably be taken to address them, and the regulatory measures – comprising the updated regulatory assumptions proposed in NGET's Business Plan – that we consider are necessary to achieve financeability.

For the purpose of assessing financeability, we have defined financeability as:

- generating sufficient cashflow to maintain more than one investment grade credit rating and achieving Baa1/BBB+ thresholds for debt metrics during the RIIO-3 period.
- the ability of the notional company to maintain a dividend of 3%.
- the cost of equity set at a level that reflects investor requirements under current market conditions to enable us to attract the significant new equity required.

An investment grade credit rating that achieves Baa1/BBB+ thresholds for debt metrics is essential to ensure strong access to capital and subsequently keep costs low for consumers. This gains additional

importance at this time of heighted investment to ensure strong financial resilience, and also not to send a negative signal to equity investors.

This statement is made in the context of the prevailing market conditions, using internal modelling of credit metrics rather than testing with credit rating agencies. In making this statement, we are not setting out that the framework is sufficient to maintain financeability post the RIIO-T3 period.

In addition, our financeability assurance statement assumes that the broad financial and wider regulatory package that will be proposed at draft determination will be investable and enables attraction of the financing needed for the UK transition at this critical time. For example:

- a fair opportunity to outperform through the design of the incentive framework
- earnings growth that matches asset growth and supports acceptable dividend yields for investors when compared with other potential investment opportunities.

Appendix 2: Risk

In this section, we share our general approach to risk management, for how we identify, assess and manage risk. We explain our approach to risk management. We then identify and assess each key risk and establish scenarios for each risk. We use these scenarios in section 5 to inform our proposal for beta and in section 6 to inform our proposal for gearing. We also use these scenarios in section 10 as part of assessing the financeability of our totex plan under Ofgem's working assumptions and our proposed assumptions. This section and section 10 address Business Plan Guidance para 7.10 (1-3).

Our general approach to risk management

This assessment is based on the inherent characteristics of energy networks and the regulatory frameworks in which networks operate. While risk and uncertainty are not new to the energy sector, we expect risk to increase in RIIO-T3 due to delivering larger, more complex projects, supply chain constraints, intense competition for materials and labour and new licence conditions and penalties for late delivery. We evidenced these changes in our SSMC response.[102] The regulatory framework determines how the financial impacts of risk are shared between shareholders and consumers.

Given its importance, a risk management process is embedded in all elements of our business as part of our on-going assurance activities. Through a 'top down, bottom up' approach, all business areas identify the main risks to our business model and to achieving their business objectives. Each risk is assessed by considering the financial and reputational impacts, and how likely the risk is to materialise. The business area then identifies and implements actions to manage and monitor the risks as appropriate. The risks and actions identified are collated in risk registers and reported quarterly. This forms a core part of the assurance process and ensures senior management are aware of the key risks and the controls in place to manage them as well as the remediation plans underway to reduce any unacceptable controllable risks down to an acceptable level.

Our approach to risk management for T3

We have used our existing risk management process by extracting risk registers to identify the key existing risks that we face. In addition, we provided as part of our SSMC response PwC's view of risks[103] that are expected to increase from RIIO-T2 to RIIO-T3. Together, these pieces of work identify and assess the risks we are likely to face during the RIIO-T3 price control period.

Where we can quantify the risks, values are agreed for the minimum, maximum and likely impacts, relative to the baseline plan. We use the outputs of this work to inform assessment of our beta, gearing and to set scenarios to assess our financeability.

Responses to risks are to tolerate or accept the risk, transfer or share the risk, mitigate the risk, or avoid the risk.

The decision for who should bear risk is primarily based on who is best to able to influence it and who is best able to bear it. Risk should be allocated to the party best able to control it because, provided this party has an incentive to manage the risk, this should result in the lowest cost outturn for that risk to consumers. Where it is not possible or practical to allocate risk to the party best able to control it (e.g. inflation), risk should be allocated to the party best able to bear it as this should result in the

[102] PwC, Identifying and quantifying risks for RIIO-T3, March 2024
[103] PwC, Identifying and quantifying risks for RIIO-T3, March 2024

lowest cost to consumers. The strength of incentive to manage the risk is also important; stronger incentives should spur innovation, delivery efficiency and performance improvements, benefitting consumers through service improvements and reduced long term costs.

Review of key RIIO-T3 risks

The key risks for RIIO-T3 that we have identified that impact our business plan are as follows.

Table 13: Key risks that impact our business plan

[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

To assess the impact of these risks on beta, we only considered risks that have changed from RIIO-T3; see section 5, Beta sub-section, and PwC report for more details.[104]

We consider the impact of these risks on financeability in section 10. We also consider a 10% totex underperformance risk to more broadly consider risks; see section 10 for more details. [redacted]

Connection of generation & demand

Risk evaluation

A plausible minimum case for connections is our baseline spend plus the extra spend that would result from having to deliver more asset health work due to no longer replacing older assets as a part of connections pipeline spend. The most likely case is the total of baseline and pipeline. A plausible maximum case is the most likely case plus, from the second year of RIIO-T3, one extra substation and one extra overhead line per year, based on their average cost in the RIIO-T3 plan.

How risk is currently managed

Customers drive connection requirements, so volumes are largely outside of the networks control. Investment is not discretionary and is driven by licence obligations and it is on this basis that volume risk was not allocated to networks in T2. The uncertainty mechanisms in place have worked well in ensuring allowances adjust for the outputs customers want, thus protecting networks from changes that have occurred during the price control period.

Risk allocation in T3

We expect the risk to be greater in this period than it has been in the past because the energy system is undergoing rapid changes. As a result, uncertainty mechanisms for future load requirements will

[104] PwC, Identifying and quantifying risks for T3, March 2024
[105] PwC, Identifying and quantifying risks for T3, March 2024

continue to be needed into T3; the exact nature of these mechanisms may look different to RIIO-T2 but we would still expect them to be cost reflective.

Real price effects (RPEs)

[redacted]

Major system or asset failure

Risk evaluation

To understand the assets that should be prioritised for the RIIO-T3 period, we have adopted an asset risk methodology which calculates the probability of failure and the consequence associated with the failure of assets.

However, there is risk that assets may not behave as we anticipate. The probability of failure depends on the asset. A plausible minimum spend case for asset health spend is our baseline spend. A reasonable most likely case is the total of baseline and pipeline spend. A plausible maximum is a 10% increase in spend on the most likely case.

How risk is currently managed

An effective asset management approach which includes a number of preventative and detective controls ensures the risk is managed to an acceptable level. As a business, we have implemented asset management and data management standards with supporting guidelines to provide clarity around what is expected, with a strong focus on what we need to keep us safe, secure and legally compliant. The key features of our approach include:

- assurance that we meet our policies, technical documents and procedures
- development of a capability framework to make sure our people have the appropriate skills and expertise to meet the performance requirements in the standard
- monitoring key performance indicators to ensure we meet our performance expectations
- plans to ensure we undertake the work we need to address outages, resources, funding
- business continuity and emergency plans are in place and practised to ensure we quickly and effectively respond to asset failures. Contingency arrangements for example include site emergency procedures and deploying strategic spares to ensure we can quickly and effectively respond to a variety of incidents.

[106] PwC, Identifying and quantifying risks for T3, March 2024

Risk allocation in RIIO-T3

Networks influence asset volumes and costs with the policies they apply for maintenance and replacement. However, assets may also behave differently than anticipated, so it is appropriate to share totex risk and opportunities with consumers in line with sharing factors.

[redacted]

Construction risk

Risk evaluation

[redacted]

How risk is currently managed

The primary mitigations we have in place to ensure projects are completed on time and to budget are reviews through project governance and the feedback from project completion. Projects are sanctioned with a cost range, which is built up from the risks associated with the project delivery and the planned completion date. Projects are then monitored and reviewed throughout their lifecycle, and

where a project is moving outside of the approved forecast cost or date range, a re-sanction is required. The re-sanction provides an opportunity for a full managerial review of the project. This ensures that the need case for a particular project is not undermined by an increase to the scheme costs and allows alternative options to be considered. There is also a feedback loop between scheme completion and the initial estimation of project costs process. Unit rates for project estimation are updated to reflect recent experience on delivered project and latest market intelligence. This allows learning points from delivered projects to be incorporated into future cost estimates.

A drive to innovate and improve efficiency is also key in managing our cost base. Our innovation plan helps to deliver this strategy by developing new, innovative ways of working which will ultimately deliver consumer benefit by challenging how we design, build and manage our assets. As this will require assuming more risk in the short term, we need to ensure that the framework provides the incentivisation or funding required to enable delivery of efficiencies which will ultimately drive consumer benefit in the long term.

Risk allocation in T3

Our mitigating actions show that we have some control over managing the risks that create the potential for cost over-runs as it is our responsibility to ensure we operate the business efficiently. However, there are also external factors such as unanticipated site conditions which we have limited control over which makes it appropriate to share totex risks in line with the sharing factors. This aligns the interest of both investors and consumers who will benefit from totex savings, but also share the risk of spend levels out-turning higher than expected.

Achieving efficiencies

Risk evaluation

To ensure we remain efficient we have committed to improving our opex and capitalised labour productivity by 0.7% year on year. This is a stretching target given UK productivity performance since the financial crisis. We do not know explicitly how these efficiencies will be delivered but there is a direct relationship with how successfully we are able to adopt technology and innovation in our business models. We have evaluated the impact of not achieving embedded efficiency improvements based on the range of productivity measures outlined in our Cost & Benchmarking annex. Our spend plan includes 0.7% per annum efficiency for baseline spend so we have used a plausible minimum and maximum range of + or – 1% of post-efficiency baseline spend.

How risk is currently managed

We have a Strategy and Innovation team to develop our strategy with regards to new technology, to monitor disruptive technology and business model trends, to deliver innovation projects and act as a bridge for roll-out of new technology and new processes into the core regulated businesses. Our approach therefore includes:

- monitoring technology trends and maturity of new inventions and prototypes
- an innovation strategy developing solutions that address future integrated energy systems
- developing solutions in partnership with customers, suppliers and technology companies
- increased speed at which we implement technologies onto our network.

Risk allocation in RIIO-T3

In RIIO-T2, we had a specific innovation stimulus, to encourage a culture of innovation within the network companies, and support trials that may otherwise not take place within the price control framework. Business as usual activities will deliver our innovation strategy and create consumer benefits in the period and will be funded through our baseline plan. For propositions which deliver whole system benefits beyond the RIIO-T3 period, we are requesting additional funds via the network innovation allowance, so the risk is allocated to consumers through baseline funding and innovation allowances.

[redacted]

[redacted]

[107] PwC, Identifying and quantifying risks for T3, March 2024

Financial Risks

Risk evaluation

Ofgem's RIIO-T3 financeability scenarios include reasonable scenarios for changes in interest rates and changes to inflation. In section 10, we use these scenarios to assess the impact of plausible macroeconomic shocks in these areas. We also consider a scenario where we are unable to raise fresh equity so gearing increases.[108]

How risk is currently managed

Changes in foreign currency rates and interest rates could materially impact earnings or our financial condition but we adopt policies to minimise those impacts. Our policy for managing foreign exchange transaction risk is to hedge contractually committed foreign currency cash flows over a prescribed minimum size. Where foreign currency cash flow forecasts are less certain, our policy is to hedge a proportion of such cash flows. Instruments used to manage foreign exchange transaction risk include foreign exchange forward contracts and foreign exchange swaps.

Our interest rate risk management policy is to seek to minimise total financing costs (being interest costs and changes in the market value of debt) subject to constraints. We do this by using fixed and floating rate debt and derivative financial instruments such as interest rate swaps. We hold some borrowings that are inflation linked to match the nature of our allowances.

Risk allocation in T3

Ofgem propose retaining full indexation to set cost of debt allowances so changes in the market which are outside of our control will continue to be passed on to consumers. Networks have control of their financing and capital structures. As a result of financing and capital structure choices, financing costs may differ from allowances. It is right that networks fully bear this risk in line with the principle of allocating risk to the party best able to manage it. Similar, the costs of financial instruments / hedging and the policies we adopt to manage our financial risk are appropriately allocated to the network.

Investability risk is dependent on the rate of returns and other financial features determined by Ofgem in setting the price control. As it is outside of our control, it is best allocated to consumers.

Appendix 3: Prescribed stress tests on Ofgem working assumptions – notional company

Full stress test results for the notional and actual company are contained in the BPFM Ofgem deterministic scenarios report produced by NERA (published December 2024) for the notional and actual company.[109] Full details of the scenario tests are also in the BPFM.

Please note, NERA in their final reports for us have assumed 1 year average ratios for Moody's implied scorecard as opposed to 3yr average in the BPFM. This does not have a material impact on outcomes. This appendix excludes scenario 1 which relates to the base case. We also note that whilst the Moody's metrics are in line with the BPFM model outputs, the S&P FFO/net debt outputs are misaligned due to a formula error in the Ofgem working assumptions BPFM that was raised on GitLab. This error was not correctly fixed in the instructions from Ofgem. Below we include the corrected S&P FFO/net debt as shown in the NERA report.

High/ low interest rate (Ofgem Scenarios 2 & 3): +/ - 2% compared to base case RfR and iBoxx,												
	High interest rates						**Low interest rates**					
	2027	**2028**	**2029**	**2030**	**2031**	**Avg.**	**2027**	**2028**	**2029**	**2030**	**2031**	**Avg.**
Moody's indicated outcome	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2
S&P FFO/ net debt	9.8%	8.6%	8.3%	8.3%	8.3%	8.7%	9.1%	8.0%	7.7%	7.7%	7.6%	8.0%

[108] For results of this scenario, see NERA, Financeability Analysis for NGET over RIIO-T3 BPFM Ofgem Scenario Modelling, December 2024

[109] NERA, Financeability Analysis for NGET over RIIO-T3 BPFM Ofgem Scenario Modelling, December 2024

High/ low inflation (Ofgem Scenarios 4 & 5): +/ - 2% compared to base case CPIH and RPI												
	High inflation						Low inflation					
	2027	2028	2029	2030	2031	Avg.	2027	2028	2029	2030	2031	Avg.
Moody's indicated outcome	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2
S&P FFO/ net debt	9.0%	7.8%	7.4%	7.5%	7.4%	7.8%	10.0%	8.8%	8.5%	8.6%	8.5%	8.9%

High/ low CPIH inflation divergence (Ofgem Scenarios 6 & 7): +/ - 0.5% compared to base case												
	High CPIH divergence						Low CPIH divergence					
	2027	2028	2029	2030	2031	Avg.	2027	2028	2029	2030	2031	Avg.
Moody's indicated outcome	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2
S&P FFO/ net debt	9.6%	8.4%	8.1%	8.1%	8.1%	8.5%	9.4%	8.2%	7.8%	7.9%	7.8%	8.2%

High/ low RPI inflation divergence (Ofgem Scenarios 8 & 9): +/ - 0.5% compared to base case												
	High RPI divergence						Low RPI divergence					
	2027	2028	2029	2030	2031	Avg.	2027	2028	2029	2030	2031	Avg.
Moody's indicated outcome	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2
S&P FFO/ net debt	9.5%	8.3%	8.0%	8.0%	8.0%	8.3%	9.5%	8.3%	8.0%	8.0%	8.0%	8.3%

Totex out/underperformance (Ofgem Scenarios 10 & 11): actual totex +/- 10% compared to allowed totex												
	Totex outperformance						Totex underperformance					
	2027	2028	2029	2030	2031	Avg.	2027	2028	2029	2030	2031	Avg.
Moody's indicated outcome	Baa1	Baa1	Baa1	Baa1	Baa1	Baa1	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2
S&P FFO/ net debt	10.0%	8.8%	8.4%	8.4%	8.3%	8.8%	9.0%	7.8%	7.6%	7.7%	7.7%	8.0%

High/ low RoRE performance (Ofgem Scenarios 12 & 13): +/-2% RoRE performance												
	High RoRE						Low RoRE					
	2027	2028	2029	2030	2031	Avg.	2027	2028	2029	2030	2031	Avg.
Moody's indicated outcome	Baa1	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2	Baa3	Baa3	Baa2	Baa3
S&P FFO/ net debt	11.0%	9.7%	9.5%	9.6%	9.6%	9.9%	8.0%	6.9%	6.5%	6.5%	6.4%	6.9%

High/ low ILD share (Ofgem Scenarios 14 & 15): +/-5% share of ILD compared to base case												
	High ILD share						Low ILD share					
	2027	2028	2029	2030	2031	Avg.	2027	2028	2029	2030	2031	Avg.
Moody's indicated outcome	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2
S&P FFO/ net debt	9.3%	8.1%	7.8%	7.8%	7.8%	8.2%	9.6%	8.4%	8.1%	8.2%	8.1%	8.5%

Lower distribution (Ofgem Scenario 16): 1.5% dividend compared to 3% base case						
	2027	2028	2029	2030	2031	Avg.
Moody's indicated outcome	Baa2	Baa2	Baa2	Baa2	Baa2	Baa2
S&P FFO/ net debt	9.6%	8.4%	8.1%	8.1%	8.1%	8.5%

Appendix 4: Actual company Analysis

While our assessment has primarily focused on the financeability of the notional company, it is crucial to also evaluate the financeability of the actual company. The responsibility for ensuring the financeability of the actual companies lies with the networks themselves. However, this can only be achieved on a sustainable basis if supported by a package that ensures the financeability of the notional company.

For the actual company assessment, we adjust notional gearing by considering actual gearing levels. We also incorporate actual debt and tax costs, while keeping other financial parameters at notional values. Additionally, we include any cashflows that will be recovered or incurred during the RIIO-T3

period but are related to the previous RIIO-T2 price control. Our assessment aligns with the methodology used by credit ratings agencies, ensuring a comprehensive evaluation of the actual company's financeability.

For the actual company, the results are similar to the notional company and the modelling demonstrates Ofgem's working assumptions do not meet the financeability targets required with the Moody's implied scorecard at Baa2 despite an improvement in some of the metrics driven by lower net debt. This is because our debt tables in the BPDTs that feed the BPFM are based on our proposed assumptions, and without this we would expect the actual company based on Ofgem's working assumptions to have outcomes more in line with the notional company for all metrics.

Our proposed assumptions provide a financeable outcome similar to the notional company. The following tables set out the results of the assessment.

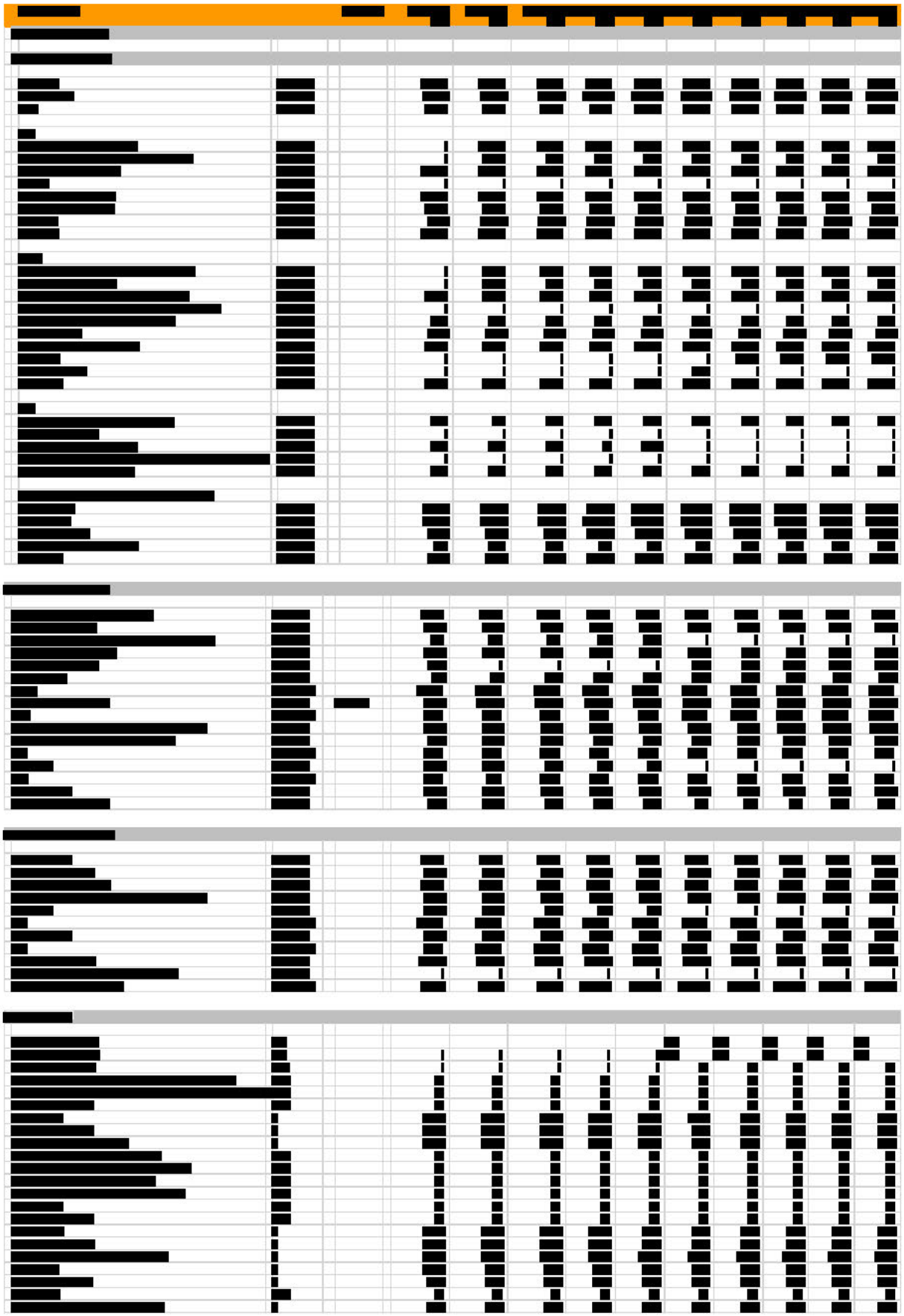
Appendix 5: references to financial models with complete financial projections assessed for this business plan

We submit the following financial models alongside this Finance Annex as part of our Business Plan including the full suite of information requested by Ofgem in order to assess this business plan:

National Grid plc
National Grid House,
Warwick Technology Park,
Gallows Hill, Warwick.
CV34 6DA United Kingdom
Registered in England and Wales
No. 4031152

nationalgrid.com

nationalgrid



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