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Scottish & Southern Electricity Networks

TRANSMISSION

SSEN Transmission Response to RIIO2 Draft Determinations

September 2020

Scottish Hydro Electric Transmission plc

Contents

1. Executive Summary

1.1. Overview and Context

The UK is at a critical point in the energy transformation journey. Our future can include the benefits of dramatically lower carbon emissions, a world class energy system and an accelerated green economic recovery. The RIIO-2 settlement is an important contributor to success in making that transformation. How Ofgem responds to the issues raised in response to the consultation on Draft Determinations is critical in determining whether we realise these shared goals.

We are passionate about **delivering a network that enables a Net Zero** future for us all. Our RIIO-T2 Business Plan: A Network for Net Zero[1], is focused on delivering for customers on time and efficiently. This builds on a strong track record over the past decade. We are ready to continue working with customers and stakeholders to realise the energy transformation.

The Draft Determination proposals will cause these goals and benefits to be missed. In this response, we explain clearly why the 33% of unjustified cuts to our baseline allowances, inadequate uncertainty mechanisms, increased and asymmetric risk and the lowest financial returns in GB regulated history lead us to this conclusion. We set out here the changes that, if made in Final Determinations, would realign GB regulated energy networks with net zero pathways and enable RIIO-T2 to act as a catalyst for the green economic recovery.

1.2. The Net Zero Challenge

Do we understand what 'reaching Net Zero' means? The answer is yes. Working with stakeholders, we developed a detailed understanding that was front-and-centre to our Business Plan.

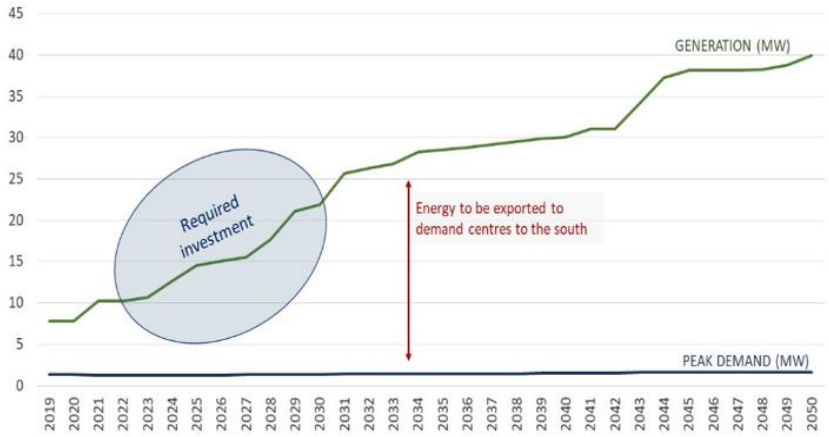
Every year the Energy System Operator (ESO) publishes Future Energy Scenarios (FES) which model the network transformation required to achieve the country's desired future energy system. For our Business Plan, we developed our own stakeholder-led version of future scenarios – focused on the specific characteristics of the renewable rich North of Scotland region. The ESO's 2020 FES publication[2] and our analysis ask the same question – '**what is required to reach Net Zero**?' – and our answers agree.

The north of Scotland transmission network is already exporting three time as much renewable energy as is consumed locally. Under all net zero pathways, by 2030 renewable generation in our network area is set to grow by more than **three times current levels** from 8GW (2021) to 22GW (2030) – see Figure 1.1. This represents known and anticipated renewable generation that **will require a grid connection in the next decade**. This is clean green power that is essential to the decarbonisation of GB. There is low local demand need, so southwards transport of the power is a certain need.

That means that during RIIO-T2 and RIIO-T3 we need to have shovel ready investment solutions to enable low carbon connections when and where required. Stakeholders are unequivocal: we must decarbonise, and as we grow to do that, we need to ensure that our world class reliability and high service quality is maintained.

[1] https://www.ssen-transmission.co.uk/riio-t2-plan/
[2] https://www.nationalgrideso.com/future-energy/future-energy-scenarios/fes-2020-documents

Figure 1.1 – FES 2020 – North of Scotland, Leading the Way dataset



Do we understand what 'Net Zero' means for our network? Again, the answer is yes. We describe this as the Certain View and Likely Outturn Assessment in our Business Plan.

Using our own and the ESO FES we modelled the network investment required to connect this level of generation, while maintaining security of supply and system performance. While we know with certainty where and when investment is required in the short term, the exact timing and location of investment from the middle of the decade is less firm. Working with our stakeholders, our Business Plan was developed to accommodate this uncertainty - we described our Certain View and Likely Outturn Assessment[3].

Our **Certain View** is based on known and confirmed connection and system requirements. We show that our certain investments maintain network reliability while keeping pace with known generation requirements. The Certain View falls short of net zero pathways, however the carefully designed uncertainty mechanisms set out in our Plan would be deployed as needed to 'close the gap'.

Our **Likely Outturn Assessment** is based on our current 'best view' of what might happen during the RIIO-T2 period – a combination of both the Certain View and the use of uncertainty mechanisms. It is our assessment that net zero pathways can be achieved by the end of the RIIO-T2 period and beyond.

Can we deliver this? We can with the Business Plan proposals we submitted.

Through detailed analysis and co-creation with stakeholders, including the essential technology and delivery supply chain, over the past three years we have developed the investment plan and flexibility mechanisms – uncertainty mechanisms – that ensure the crucial pipeline of infrastructure investment continues through RIIO-T2 and into RIIO-T3.

- **Certain View** – detailed optioneering and engineering concludes that £2.4bn of investment is needed to connect and transport new generation (Load), maintain the reliability of that transmission network (Non-load) and safely operate a growing network over the next decade.

[3] Page 9 of our RIIO-T2 Business Plan: A Network for Net Zero and our October 2019 Planning for Net Zero Scenarios http://www.ssen-transmission.co.uk/media/3732/planning-for-net-zero-scenarios-certain-view-and-likely-outturn.pdf

- **Uncertain** – well designed uncertainty mechanisms can release funding that allows us to be ready for the network growth of the next decade (£3.8bn+). These must be agile and available as and when the need arises.

Our Business Plan requires a lot from our organisation and others to deliver these targets. Therefore, we evaluated our delivery capability – would we be able to flex from the Certain View investment levels up to the range of higher investment required to achieve net zero pathways? We concluded that our base programme of £2.4bn is essential to ensuring we will have the supply chain capacity, the internal skills and resources and the infrastructure to deliver the investment required for net zero. The bigger the gap between the Certain View baseline and the net zero pathways then the more challenging that 'flexing up' becomes.

Does our Plan clearly set this out? Again, the answer is yes. Our Business Plan clearly sets out everything we need to deliver on our stakeholders' expectations.

In our Plan we turn strategy into delivery through the development of projects in consultation with our stakeholders. These were rigorously costed and benchmarked for efficiency with clear measurable outputs to which our performance could be measured. We are committed to being open and transparent, operating our business to the high social and environmental standards expected by our customers and stakeholders.

Our Plan included investment in:

- core load **growth** network areas providing increased local and strategic capacity, our Load Related Expenditure (LRE);
- maintaining the **reliability** of the network transporting the increasing levels and uses of green energy, our Non-Load Related Expenditure (NLRE);
- **technology** and **infrastructure** to improve the resilience of a larger, more complex system, e.g. fit for purpose warehouses, a secure System Operations control room and asset condition monitoring;
- a **skilled and diverse** base of employees able to design and deliver the network solutions of the next decade;
- leading our peers in delivering investment in the most **sustainable way**; and
- innovative solutions to **deliver efficiency savings for consumers**.

The GB transmission system is long life critical national infrastructure. We take our duties as good asset stewards seriously. Our Business Plan recognises the needs of current and future customers, including the vulnerable and fuel poor communities in the north of Scotland. We are a GB business that operates in the north of Scotland, but transports the renewable power that the whole GB needs to decarbonise its economy. Actions we take during RIIO-T2 will impact on our ability to deliver during RIIO-T3, and impact on the GB energy system out to 2050.

We set out a building block approach to demonstrate how we deliver necessary network investment out to 2030 and beyond. We co-created this with all GB stakeholders ensuring it delivered what they needed and when they needed it. We tested the Plan's ability to cope with different scenarios. We confirmed the financial package required to continue to attract the investment finance this.

We achieve all this for an increase of £2 per household, per year by 2026[4].

Can the RIIO-T2 Draft Determinations deliver Net Zero? On this question the answer is no.

Achieving net zero greenhouse gas (GHG) emissions is a great challenge to all sectors of society and, indeed, all of us individually. We all have a part to play. While we welcome Ofgem's commitment to step up to the challenge of achieving net zero GHG emissions targets, our analysis demonstrates that the RIIO-T2 Draft Determinations incorporate unnecessary barriers to timely, cost effective action.

Ofgem has not assessed whether the proposals it sets out in its Draft Determinations provide the network investment and the flexible investment solutions we collectively need to keep net zero targets on track by 2026. Falling behind net zero pathways over the next five years will make it harder to get back on track in future years. This will cost consumers more in the long term.

In this response we highlight where the gaps in Ofgem's RIIO-T2 proposals are. We demonstrate the negative impact these will have on all our ability to meet the net zero challenge. We prove that rather than facilitate renewable connections, these proposals will frustrate the decarbonisation of our energy system.

1.3. Our response to the Draft Determinations

Draft Determinations fall significantly short of Ofgem's stated aim enabling network licensees to delivering net zero at the lowest cost to the consumer, while maintaining world class levels of system reliability. Our Business Plan set out detailed evidence-based proposals to aim that aim. Instead of enabling our Plan, the proposals:

- introduce a **barrier to GB and Scotland reaching the necessary energy decarbonisation targets** through the timely connection of renewable generation and low carbon technologies to support the electrification of heat and transport *by proposing uncertainty mechanisms that would take too long to implement such as the Large Onshore Transmission Investment (LOTI) mechanism.*
- **risks the reliability** of the network at critical infrastructure sites *by deferring replacement of aged assets through the significant proposed cuts to our evidence-based NLRE investment programme to the detriment of consumers.*
- **jeopardises necessary investment** in skills, sustainable investment, customer service, innovation and the societal benefits which these bring at a time we need them most *by proposing a one-third reduction to our Certain View – the critical mass required from which to have the capacity and capability to flex investment requirements up to net zero pathways.*
- fails to consider the needs and **ambitions of our stakeholders** *through severe cuts to our NLRE which jeopardises reliability and through blanket unjustified cuts to our overheads leaving our environment and customer service initiatives in tatters.*

Our concerns are the result of a careful review of the published RIIO-2 Draft Determination documents and the additional methodology papers or cost assessment files provided by Ofgem post publication date.

The table overleaf summarises our most significant concerns with the proposals.

[4] This includes inflation.

Table 1.1 – Draft Determination Key Issues

AREA	ISSUE AND EVIDENCE	VALUE
Pre-construction *(section 2)*	Ofgem has removed basic funding required to develop customer and system investment up to 2030. Its solution would delay connections by at least a year while we wait for enhanced customer development confirmation.	£80m
Cost assessment - errors *(section 2)*	Within the consultation output we have identified £172m of calculation and methodological errors (alongside the £82m RPE omission) and inconsistencies within Ofgem's assessment[5]. These must be remedied.	£361m
Unjustified efficiency cuts *(section 2)*	Ofgem has added unjustified efficiency cuts (c£190m). These are in addition to the above mentioned errors and in excess of the £123m+ of efficiency we have incorporated in our plan.	
Rejected critical investment *(section 2)*	Over £300m of investment in replacement of aged renewable generation connection assets, network reliability, Critical National Infrastructure and smart technology has been cut. This unreasonably jeopardises network reliability, increases risk, delays efficiency improvements and increases the investment burden on future price controls.	£338m
	Unjustified cut to core allowances	**£780m**
Indexed allowances *(section 2)*	Ofgem **failed to include** allowances which it had calculated for Real Price Effects (RPEs) within its Draft Determination document and Totex tables.	£82m
BPI *(section 3)*	Ofgem also levies a penalty of £32m based on its unjustified efficiency and critical investment cuts as well as its errors. This must be removed for Final Determinations and our efficiency and ambition rewarded.	£32m+
Net Zero uncertainty mechanisms *(section 4)*	Rather than enabling Net Zero, Ofgem's proposed regulatory mechanisms introduce delays and bind up network investment in red tape. This will not permit investment in capacity to meet customer requirements.	**Delayed investment** **Failed Net Zero Targets**
Financeability *(section 5)*	Ofgem has ignored market evidence to select a set of financial assumptions which create the lowest regulatory return ever in GB. Its actions deter international investment in the Net Zero transformation and threatens the financeability of our national infrastructure and the UK's attractiveness to global investors.	**Financeable networks & credit ratings**
RIIO-T2	**The result:** failure to meet 2030 **Net Zero targets** + missed opportunity from **green recovery** + lower **service** for our customers + failure to attract **essential investment**	✗

The issues identified above represent a roadblock to the UK, and Scotland's, 2030 and 2050 targets and climate ambitions.

[5] £254m includes the omission of RPEs from core Totex tables within the Draft Determination documents.

1.4. A legitimate settlement for customer and company

Clearly defined issues: In this detailed consultation response we are clear on where our concerns with Ofgem's Draft Determinations lie and the evidence base and analysis that underpins our concerns. We are also clear on the areas where we support its conclusions. Ofgem must take full account of the evidence we have submitted as part of the RIIO-2 price control process, including this consultation response, and reconsider its decision for its Final Determinations to remove the flaws we have identified. We remain committed to working constructively with Ofgem, stakeholders and industry to resolve all these issues in the limited time remaining.

Clear solutions and resolution: The network price controls are among the key regulatory tools that Ofgem has to facilitate net zero at lowest cost to consumers[6]. The legitimacy of the price control outcome is important to our stakeholders, to the regulatory process and to us. To achieve legitimacy the process needs to be based on sound evidence, accurate models, and reasonable choices as to methodology and application. It also needs to represent a logical outcome in light of the challenges ahead and what our customers and stakeholders want.

For our part, having taken full account of Ofgem's challenges and comments in the Draft Determinations, we have clearly outlined our key concerns and proposed solutions in this response. We remain committed to a robust and evidenced-based approach to reach final proposals for the forthcoming price control period. We trust our detailed and thorough response also allows wider stakeholders to better understand some of the opaque proposals put forward within the Draft Determinations and engage appropriately.

Confirmed change: Our consultation response reflects our views of Ofgem's Draft Determinations as they were published on 9 July 2020. We have noted several developments since publication through bilateral and industry meetings with Ofgem. Our response has attempted to highlight these changes. However, we reserve our position in respect of these issues until such point Ofgem can confirm the policy intent and associated licence drafting.

Continued engagement*:* We believe that due to the scale and range of issues identified by ourselves, other network companies and stakeholders, **it is incumbent on Ofgem to release and update to its assessment and determination ahead of the Open Meeting process in October**. This should include, at a minimum, Ofgem's response on the modelling errors, design of uncertainty mechanisms and policy developments. This will be paramount in ensuring effective Open Meetings and effective stakeholder engagement. We consider that Ofgem's process to date has failed to capture our stakeholder views, and this is particularly true of institutional investors. Engaging in or responding to Draft Determinations does not equate to satisfaction with the outcome.

[6] Page 16 https://www.ofgem.gov.uk/system/files/docs/2020/02/ofg1190_decarbonisation_action_plan_web_0.pdf

1.5. Our consultation documents and remedies

Our response to the RIIO-T2 Draft Determinations is structured as follows:

- **Key issues document** – in the sections that follow, we provide an overview of the key concerns with Ofgem's Draft Determinations and the robust justifications and evidence-base underpinning our position. Our remedies are clear:
    - Correct errors and reinstate unjustified cuts in cost allowances (section 2)
    - Reverse unjustified, illogical Business Plan Incentive penalty (section 3)
    - Design appropriate uncertainty mechanisms that will achieve net zero (section 4)
    - Set a fair cost of capital commensurate to attracting investment (section 5).

  We provide the comprehensive evidence to substantiate our position, cross-referencing to the detail provided within the answers to the consultation questions and associated annexes, where appropriate.
- **Consultation questions** – our appendix addresses every question asked by Ofgem ("Response to Ofgem's Draft Determination Questions"), together with comprehensive evidence to support our responses (such as revised Engineering Justification Papers), and those important questions not asked by Ofgem (including our view on the Business Plan penalty levied on us ("SHE Transmission - Business Plan Incentive (BP[7]I)")) and our view on the low Totex Incentive Mechanism Sharing Factor proposed for us ("SHE Transmission - Totex Incentive Mechanism (TIM)").
- **Third party evidence and review** – Ofgem's Draft Determinations and our consultation response has been reviewed and tested by expert advisors in relation to: the cost assessment process and models; ongoing efficiency analysis; productivity growth; financeability; cost of equity; asset risk relative to debt risk premium; and borrowing costs. These are included where possible to enable all stakeholders to gain a full understanding of the issues addressed in our response.

1.6. Summary

We developed an ambitious and challenging plan for the RIIO-2 period which meets the expectations and needs of energy consumers, customers and stakeholders alike. This Plan reflects the ambition to tackle the climate emergency, to ensure a reliable and available transmission network, to improve resilience and security of supply, to act sustainably and earn the trust of our stakeholders, and to deliver this cost effectively for GB consumers. We remain committed and ready to deliver this Plan.

The Draft Determinations currently do not allow us to achieve this ambition. Nor do they take the steps to enable and encourage the decarbonisation of energy as promised in Ofgem's Decarbonisation Action Plan[8]. We welcome Ofgem's consideration in full of the evidence that we have put forward in this response – we remain open to working constructively with Ofgem and relevant stakeholders before the Final Determinations so that together[9] we can deliver an outcome in the interests of both current and future consumers.

[7] T2BP-DD-SHE-004 SSEN Transmission - Business Plan Incentive (BPI)
[8] https://www.ofgem.gov.uk/system/files/docs/2020/02/ofg1190_decarbonisation_action_plan_web_0.pdf
[9] As intended by Ofgem's decarbonisation Action Plan
https://www.ofgem.gov.uk/system/files/docs/2020/02/ofg1190_decarbonisation_action_plan_web_0.pdf

2. Draft Decision on Outputs: Need and Costs

We provide indisputable evidence that cuts to our submitted Business Plan should be reinstated. Our Plan is based on a "Certain View" where we, and our stakeholders, are confident of the need to invest now, are confident that the right option has been identified, and confident that the costs are efficient. We revisited and thoroughly tested this view of certainty following Draft Determinations, reaching the evidence-based conclusion that reinstating cuts to our Plan is both necessary and efficient.

2.1. Introduction

In the Draft Determinations Ofgem proposes to reduce our baseline allowance from £2,388m[10] to £1,609m. The evidence is clear, the cut should be re-instated. Each proposed disallowed cost and our response is detailed below, each of which we consider to be unreasonable in the sense that they cannot be supported by the evidence (as will be explained further in the following subsections).

Table 2.1 - Cost Disallowance Issues

AREA	ISSUE	REMEDY
Pre-construction *(section 2.2)*	Ofgem has cut funding for project development threatening the readiness of renewable generation investment to deliver 2030 targets. Ofgem's proposals to log up costs and recover in RIIO-T3 pose an unacceptable risk for licensees and will hinder innovation..	**£80m+ requirement:** reinstate core strategic project funding and approve revised baseline of £153m subject to end of period true-up. Approve an in-period reopener for projects that come forward during the period.
Overheads *(section 2.3)*	In calculating an overhead reduction based on a reduced capital programme Ofgem makes an error in deduction, which cuts more of the overhead than is associated with the reduced capital program.	**Correct a £70m modelling error:** reinstate our efficient costs deducted in error and reward our efficiency through the Business Plan Incentive.
Network Operating Costs *(section 2.3)*	By using historical data before we built a HVDC network, Ofgem fails to account for the simple fact we have both an AC and HVDC to repair and maintain in our NOCs allowance.	**Correct a £45m disallowance:** using the data provided include justified, tendered costs of £45m in allowances, maintaining critical infrastructure for northern renewables.
Risk *(section 2.3)*	Ofgem's method assumes outturn costs include risk, yet the vast majority of our costs are not based on outturn costs and so do not include risk. Ofgem fails to account for other elements of risk including volume risk.	**Correct a £57m methodological error:** revise assessment models to match published methodology and so doing reinstate risk costs of £57m of efficient benchmarked costs.

[10] Our original Business Plan baseline of £2,356m plus £32m for landowner compensation to align with the approach from other TOs.

Frontier shift *(section 2.4)*	The extreme productivity challenge is not substantiated by the empirical evidence, or regulatory precedent, nor is it consistent with Ofgem's other draft decisions. The effect of this includes double counting of efficiency reductions.	**Remove unjustified £98m efficiency cut:** Ofgem's additional efficiency challenge of £98m which double counts the embedded £123m+ in our Business Plan and is fundamentally flawed.
Unit cost efficiency *(section 2.4)*	A combination of issues results in unit costs being unjustifiably cut, most notably Ofgem do not account for project specific factors and makes the wrong assumption that RIIO-T1 projects will be as per RIIO-T2 projects.	**Reinstate unjustified £86m cuts:** Ofgem fails to consider evidence provided for atypical project costs leading to cuts, particularly for underground cable.
Non-load project need cut *(section 2.5)*	Ofgem sought more evidence and optioneering before it could support £323m of investment in replacement of aged renewable generation connection assets, network reliability, Critical National Infrastructure and smart technology. This has been provided and to retain its Draft Determination position would be an error based on both the original and enhanced evidence provided.	**Reinstate justified engineering need:** Ofgem must reintroduce investments where we have addressed its concerns. We have been able to accommodate some limited investment deferral to RIIO-T3. Ofgem should accept this revision and approve allowances and outputs totalling £284m.
RPEs *(section 2.3)*	£82m of RPEs is excluded from our baseline allowances despite Ofgem making a commitment to include.	**Correct a £82m missing allowance error:** include £82m of RPEs missed from baseline allowances.

2.2. Pre-construction

Pre-construction activity is essential in enabling us to meet customer connection dates, deliver increased network capacity and reduce reliability risks at the right time and efficiently. Ofgem has cut to opening allowances by over £80m[11] jeopardising the delivery of timely and efficient network investment.

This cut is unjustified and makes no sense. There is certainty in need for pre-construction. The pre-construction process is critical for the successful delivery of the increasing renewables-driven investment in the network and specifically to ensure that we are ready to connect and transport new power generation at the right time and in the right location. We have an obligation to respond to these requests under our licence. The price control should allow funding for certain activities.

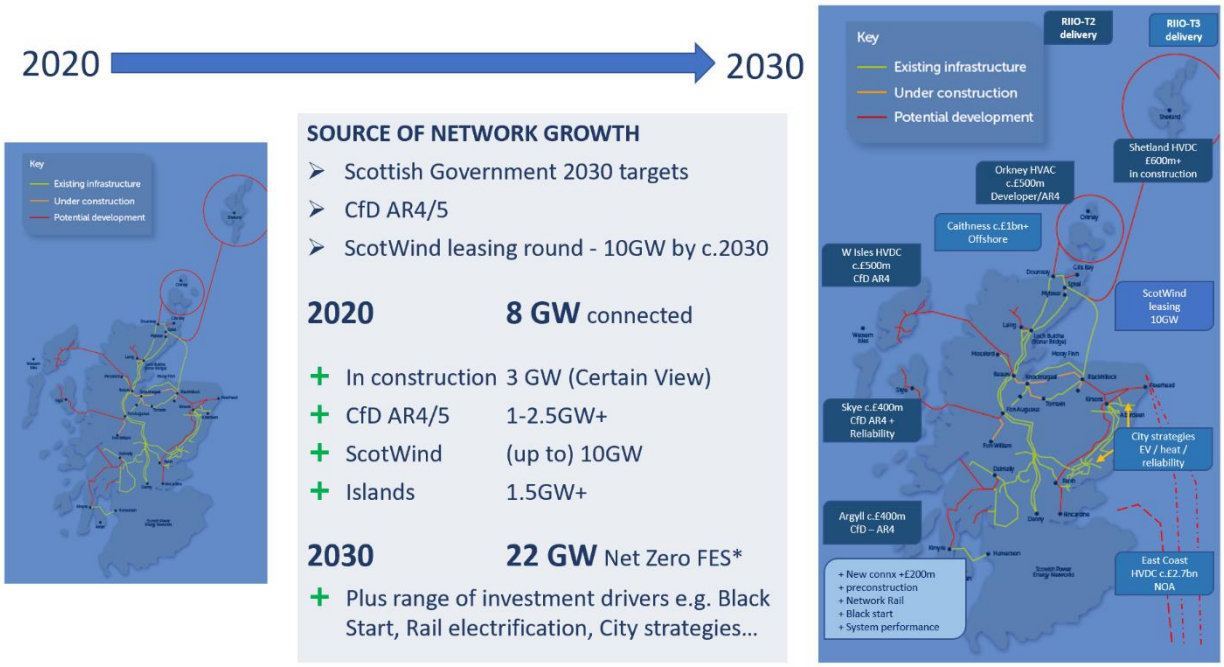
There is a clear and immediate need for pre-construction funding as the increasing renewables-driven investment challenge is real and upon us. For example, for the Skye investment strategy the need to develop solutions for delivery by the end of RIIO-T2 is so strong we have already commissioned the work

[11] This £80m is the capex cut for our proposed large strategic schemes, including opex it increased to £89m. The £13m for pre-construction of NLRE to be delivered in T3 has also been disallowed and this is accounted for in the "£338m of rejected critical investment".

starting in RIIO-T1. We have started to spend at risk as the timeline highlights that pre-construction activities need to be initiated now to meet required connection dates.[12]

The Draft Determinations proposals are unreasonable in failing to take account of the clear evidence available for the certain need of the projects in question. By the end of 2020 8GW[13] of generation will be connected to our network (see **Figure 1.1** in section 1). To meet net zero emissions targets in ten years we need to get to 22GW. Put simply, it requires, at a minimum, for SHE Transmission to build the infrastructure to connect the generation we know about now and listed on the right-hand side of **Figure 2.1** below to happen. At the very least, that must be our ambition and we must plan for that. It is imperative we have the pre-construction allowances to do so. Delay is not an option.

Figure 2.1 - The 2030 Generation Challenge



*North of Scotland dataset for Leading the Way scenario, FES 2020

There are clear benefits to investing in the pre-construction process. Costs incurred at this stage allow us both to optimise costs during the subsequent construction stage and to identify innovative and whole system solutions. Stakeholders have told us that it is essential that they are actively involved in this early stage of project development to ensure satisfactory outcomes. By completing relevant studies and securing necessary consents in parallel with the regulatory assessment process we control the potential for delays to connection and reduce capacity constraints. This process ensures that once the need is confirmed our execution phase delivers on time and on budget.

However, Ofgem ignores the immediate and certain need for, and the benefits that accrue from, pre-construction investment. Instead Ofgem remove a substantive proportion from our baseline allowances,

[12] See Table 21 in our T2BP-PAP-0016 Pre-construction Funding Paper.
[13] The total connected renewable generation is expected to be 6.8GW.

proposes we incur these costs at risk during RIIO-T2 and apply for recovery at the close out (during RIIO-T3) for Ofgem to then decide if costs could be recovered. This would be subject to a need and efficiency review. There are costs and risks associated with such an ex post regulatory process; costs which are ultimately borne by the GB energy consumer.

This proposal is at odds with what RIIO price controls ae explicitly be designed to do, i.e. provide cost certainty to networks ahead of investing, or at the latest, during the control period once uncertainty has reduced. It is also at odds with Ofgem's position on PCDs where Ofgem state:

> *"[w]e will establish price control deliverables where appropriate. For these, we will provide a **revenue allowance to enable delivery** [emphasis added] … Where deliverables are no longer needed due to a change in circumstances, we will put in place mechanisms for consumers to be automatically refunded".*[14]

A departure from Ofgem's established Framework position illogical and unreasonable. Pre-construction funding enables us to make the right decisions at the right time without fear of regulatory hindsight and the resulting material risk to our revenues. The PCDs ensure we deliver the outputs we have been funded for.

We are not seeking to outperform pre-construction allowances and propose that these are not subject to the TIM Sharing Factor.[15] Any unspent allowances will be returned to consumers in full. We seek the allowances to ensure that we have the resources to tackle the significant challenge ahead of delivering a pathway to net zero, without delay.

We provide a detailed response in SHET Q6 and ET Q11 and in three pre-construction supporting papers[16] which justifies a re-instatement (plus a small increase) of our baseline pre-construction allowance.

2.3. Errors of calculation or methodology

Certain errors in Ofgem's cost assessment – in calculations and application of particular methodologies - result in a £254m negative impact to our baseline allowances[17]. These clear flaws in the assessment process render RIIO-T2 investment unaffordable and delay delivery of net zero targets.

During the RIIO-T2 process no cost assessment model options were presented by Ofgem prior to the Business Plan submission. The first time TOs were provided with any information on the structure of the cost assessment models or the modelling assumptions was within the sections of the published Draft Determinations and in the subsequent weeks as Ofgem has released its modelling data to the networks. **Ofgem has missed the opportunity for feedback on how it might avoid many of the issues and errors we are now identifying within this response.** We set out a detailed response to these cost assessment development issues in response to ETQ9.

[14] Ofgem (July 2018), RIIO-2 Framework Decision, paragraph 5.24. https://www.ofgem.gov.uk/system/files/docs/2018/07/riio-2_july_decision_document_final_300718.pdf
[15] See our supporting appendix "True Up, Logging Up and Re-openers: SHE Transmission RIIo-T2 Proposals".
[16] T2BP-PAP-0016 Pre-construction Funding Paper, T2BP-PAP-0017 PCF for T3 LRE Schemes, T2BP-PAP-0018 PCF for T3 LRE Scheme
[17] £172m methodological errors and £82m RPE omission

If the four cost assessment errors addressed in this subsection go uncorrected, they would together produce a settlement under which we no longer have the capability to deliver even the minimum necessary network investment during RIIO-T2.

In summary they are as follows:

- **Overheads £70m** (see SHET Q10)

  Ofgem commissioned consultants ECA to model the efficiency of network overheads and recommend a model by which it can assess efficient network allowances for RIIO-T2. ECA conclude that across its modelling SHE Transmission is the most efficient network for Business Support Costs (BSC) and Closely Associated Indirect (CAI) overheads. Ofgem uses this modelling in its cost assessment process. Intuitively, as we are benchmarked as the frontier efficient licensee, it would be expected that efficiency-related cuts would be zero.

  However, when arriving at its proposed allowances for our overheads, Ofgem has incorrectly combined a workload adjustment and cost assessment policy to always select the lowest available cost. The error is buried within a raft of spreadsheets. Ofgem has calculated, using its econometric model, efficient CAI overheads of £297m, therefore proving we are the most efficient network having submitted £245m. It also calculates how much lower those efficient overheads would be with a reduced capital programme (£84m lower).

  Ofgem should have deducted its modelled workload adjustment from its modelled costs to arrive at the benchmark allowance (£213m) and compare it to our submitted and workload adjusted costs(£220m). Rather, it mistakenly deducts £88m from our lower efficient submitted costs. This results in an error of at least £70m.

  This is a clear error in modelling approach and application, which Ofgem now acknowledge.[18]

  This is one of many we identify in the cost assessment approach undertaken by Ofgem in setting totex allowances and we respond to the approach in full in ET Q9 following our own internal review and an independent external review[19].

[18] In a bilateral with Ofgem on 2 September 2020 Ofgem acknowledged this modelling sequencing error and agreed to amending it.
[19] Oxera: Ofgem's TOTEX assessment approach at the RIIO-ET2 draft determinations: a review, August 2020

Figure 2.2 – correct comparison of CAI costs

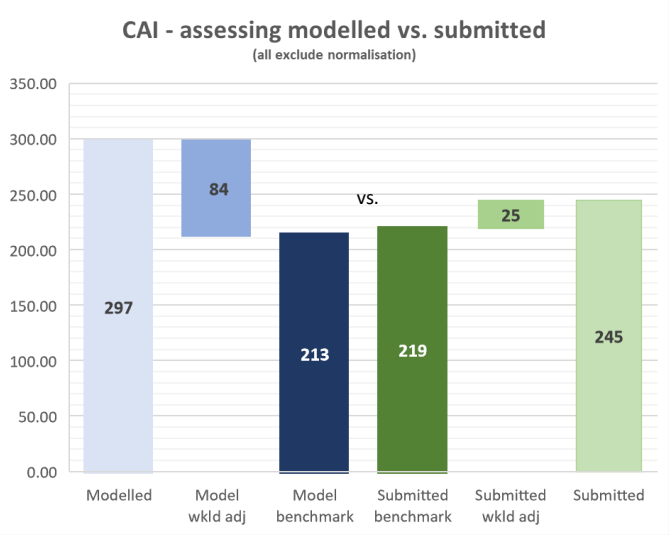
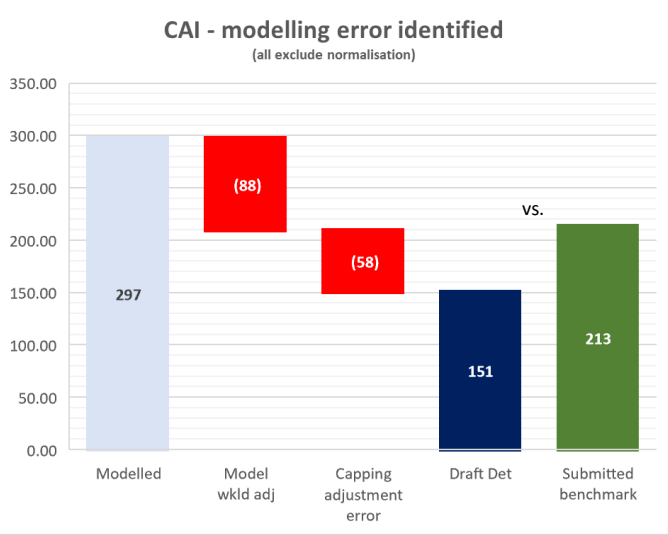


Figure 2.3 – Draft Determination modelling error



- **Network Operating Costs £45m** (see SHET Q9)

  We have a competitively tendered contract, approved by Ofgem, with an external contractor to maintain the new Caithness Moray HVDC which entered service in early 2019. Ofgem has failed to take into account of these costs in setting operating cost allowances for the RIIO-T2 period.

  The error arises because Ofgem's cost assessment models project forward historic costs (2013-2019) from a time period when the HVDC cable, and therefore costs, did not exist, meaning that they cannot account for the operating costs of the HVDC link. The asset only become operational in late 2018 and therefore, only a few months of costs were included to calculate the average annual operating costs for RIIO-T1 (average of first six years).

  Furthermore, Ofgem requested volume metrics to accompany the forecast costs for other Network Operating activities. Despite having received these data, Ofgem did not use them in the cost assessment process but rather asserts in the Draft Determination that we did not provide satisfactory evidence[20]. We strongly disagree with this assertion.

  Instead of checking the logic of the modelling results and taking into account the comprehensive volume data that we provided, Ofgem has unreasonably proposed a cut to our allowances for Network Operations despite significant growth in our network size. This would leave us with a choice between maintaining the HVDC network or the AC system – but not both. These issues have resulted in an error of £45m.

  This is a clear error in modelling approach and misuse of data.

- **Project Risk allowances £57m** (see SHET Q6)

  Our Business Plan established a sound basis for our future forecast risk allowances and in so doing was intended to provide Ofgem and stakeholders with high confidence in these costs. We utilised a

[20] 'it has not provided satisfactory evidence to substantiate that claim'. Consultation - RIIO-2 Draft Determinations – Scottish Hydro Electric Transmission, paragraph 3.83

wide pool of data of over £2bn of RIIO-T1 projects to calculate the average increase in project costs from before the construction phase began to the outturn costs. This produced an average 8.2% uplift.

We noted the opinion of our external advisors, Arcadis, that these uplifts were lower than they would normally expect for similar programme of projects. In our capital efficiency supporting documents we highlighted this to Ofgem. We also noted that our modelling method will have 'netted off' genuine productivity gains (reduction in costs) achieved during RIIO-T1 against the upward risk cost pressure meaning that the real risk rate was therefore higher. We calculated this will result in customer benefits of up to £40m during RIIO-T2.

Ofgem's method for Draft Determinations erroneously assumes risk is embedded in our submitted RIIO-T2 project costs. This would only be that case if our project costs were based on RIIO-T1 outturn rates, but the vast majority (73%) of our project costs are not; they are based on tender or framework rates and these do not include risk[21]. There is therefore a clear error in the consistency of Ofgem's methodology with its modelling.

Furthermore, Ofgem incorrectly assumes that outturn unit costs contain all risk, even though in accompanying guidance it describes this as 'elements' of risk. It has unreasonably ignored the evidence we provided[22] showing that volume risk is a real and material cost that networks incur and failed to take this into account in its calculation. This, and the methodological issue above, results in an error of at least £57m.

This is a clear *error in interpretation of data and its application.*

- **Real Price Effects (RPEs) £82m** (see Core Q10)

  Ofgem has committed to include indexed allowances for the movement in input prices excluding inflation[23], i.e. RPEs. However, the Draft Determination proposed allowances[24] do not account for this allowance. Through examination of the gaps between the RIIO-T2 Price Control Financial Model (PCFM) and the Draft Determination proposed allowances[25], and using reconciliation files provided to us, we are able to establish that – on Ofgem's own analysis - our RPE allowance is £82m. This should be reflected in our final (published) baseline allowances.

  This is a clear omission.

Collectively, the errors we have identified in this subsection lead to a lower opening RIIO-T2 allowance of over £250m. These are erroneous cuts for which there can be no corresponding compensation elsewhere in the settlement and in and of themselves (i.e. before taking into account the other cost-related errors addressed in this section) render the task of delivering five years of Net Zero investment impossible.

[21] 'removing risk and contingency components associated with assets where our applied benchmark unit costs were set by historical levels, because it already includes the relevant outturn risk', Consultation - RIIO-2 Draft Determinations - Electricity Transmission Annex, §3.26
[22] Supplementary Questions SHETL_SQ_CA_74, SHETL_SQ_CA_75

[23] 'Include adjustments for RPEs for all network companies based on forecasts of input price indices in upfront allowances.' Consultation - RIIO-2 Draft Determinations - Core Document, p44
[24] Consultation - RIIO-2 Draft Determinations – Scottish Hydro Electric Transmission, Table 13
[25] Consultation - RIIO-2 Draft Determinations – Scottish Hydro Electric Transmission, Table 13

2.4. Unjustified efficiency cuts

Ofgem has compounded the cuts outlined in the preceding subsection by proposing two further areas of cost reduction that lack a sound empirical basis and are in excess of efficiency benefits already included in our base Plan, ultimately resulting in a further unreasonable reduction in our allowed costs.

Frontier Shift: Ofgem's proposed efficiency stretch is excessive and cannot be considered a reasonable conclusion based on the empirical evidence (see Core Q11)

Ofgem has proposed ongoing efficiency reductions to all network's base allowances at historically excessive levels, 1.2% for capex and 1.4% for opex. This was informed by the conclusions of its economic advisors, CEPA. We provided an assessment of ongoing efficiency potential within our Business Plan drawing on the expert advice and analyses of Oxera. This concluded that the efficiency potential range was just 0.3-0.8% for totex, significantly lower than Ofgem's proposed efficiency reductions.

We have identified the sources of difference between these ranges, which result from Ofgem's unreasonable and extreme choices both in respect of both methodology and application. We provide a more comprehensive response and references to Oxera's expert analysis in the accompanying consultation question answers. The issues identified include the selection of inappropriate productivity measures, comparator sectors, and time periods, which introduce an upward bias, as well as the introduction of double counting through additional innovation stretch efficiency and failure to take account of ongoing efficiency assumptions in our Business Plan.

The analysis undertaken reveals that the Draft Determination proposals represent an extreme and unrealistic productivity challenge which is not substantiated by the empirical evidence, and is inconsistent with both regulatory precedent and Ofgem's GD2 Draft Determinations where Ofgem better account for cost complementarities, trade-offs and potential reporting inconsistencies[26]. The issues identified confirm that the efficiency challenge greater than can be justified. The financial impact of this unjustified cut is £98m during RIIO-T2.

Unit Cost adjustments: Ofgem has incorrectly reduced load and non-load related project allowances by £86m through an unreasonable failure to account for the additional justification we have provided on the source and driver of atypical costs (see SHET Q6 and Q7)

As part of its cost assessment process Ofgem has developed a benchmarking tool for the lead and non-lead assets within load and non-load related expenditure (LRE and NLRE) - the Project Assessment Models (PAM). We highlight some of the flaws in the economic assessment adopted in our response on totex cost assessment ET Q9 and supporting evidence provided by Oxera[27].

Within the PAM, Ofgem benchmarks direct asset costs against the lower of historic RIIO-T1 industry median, forecast RIIO-T2 industry median or the company submitted unit cost. This approach results in an £86m reduction in our allowances during RIIO-T2.

A large proportion of this cut (around a £67m) concerns our 132kV and 275kV underground cables.

[26] Oxera: Ofgem's TOTEX assessment approach at the RIIO-ET2 draft determinations: a review, August 2020, section 4.1.2
[27] Oxera: Ofgem's TOTEX assessment approach at the RIIO-ET2 draft determinations: a review, August 2020

Within our Business Plan we recognised these assets exhibited a significant increase in unit rates between price controls and that this was as a result of changes in cost drivers and not efficiency. We therefore noted that simple unit cost comparisons alone do not reveal the drivers of cost and presented a range of additional information[28]. This information demonstrated that RIIO-T1 cable projects typically comprised long lengths (average project length was 7.5km) along agricultural routes (resulting in overall relatively low unit costs) but that during RIIO-T2 over 60% work is within substations in brownfield sites of which there is a significant proportion of short lengths (average length 0.8km) (resulting in overall relatively high unit costs). We have highlighted to Ofgem that in its benchmark data set there are no short lengths (<1km) of 132kV installation during RIIO-T1 and only two at 275kV for which the average cost/km is over £17m/km.

Our response to Draft Determinations provides a range of quantitative and qualitative evidence to demonstrate that the higher unit costs within our Business Plan are the direct result of project specific factors, justifying a change in the average scope between price controls. We have also provided additional reference points from recent tenders to demonstrate the confidence that can be placed on our forecast cost composition.

This information justifies the acceptance of our proposed costs and reinstatement of £86m of LRE and NLRE allowances during RIIO-T2.

2.5. Rejected critical investment

Following a review of the evidence we believe our original Business Plan proposals remain sound and justified. With this response, we provide further independent and robust evidence for the proposed disallowed investment (see SHET Q7 and the associated Engineering Justifications Papers referred to therein). However, we recognise that there is an element of engineering judgement and following further engagement to explore the difference of views between Ofgem engineers and our engineers we propose some limited and careful adjustments to our investment proposals, i.e. where there is some scope to defer expenditure with a clear understanding of the associated risk. We firmly believe our slightly revised submission is fully justified. Any further cuts cannot be justified.

Non-Load Related Expenditure (CAPEX)

Non-load related expenditure (NLRE) is capital expenditure that comprise “core” works to replace and refurbish assets on our network that have reached the end of their safe and reliable working life.

We strongly disagree with Ofgem’s rejection of 10 of the 28 Non-Load Core schemes and four of the non-operational capex schemes. We provided robust Engineering Justification Papers (EJPs) that demonstrated there was a definite need for all schemes included within our Business Plan to proceed as per the outlined scope and within the RIIO-T2 period. We detailed the need (including Asset Condition Reports), options, scope, costs and benefits of each project, ultimately reaching the conclusion that RIIO-T2 was the optimal time to undertake these asset management works to deliver best value to

[28] This included Project Cost and Efficiency Reports and SHET Q6 and SHET SQ7.

consumers, ensure the safe and secure operation of our network, and deliver the reliability levels expected by consumers and customers.

Nonetheless, we have undertaken a thorough review of all 10 rejected NLRE projects. We have addressed each specific concern raised by Ofgem to ensure we continue to make the right decisions, at the right time and the right way for consumers and stakeholders. At a detailed level, we:

- appointed an independent consultant, Polaris Diagnostics & Engineering Ltd, to provide an independent view on the condition of the Transformers at the sites in question;
- undertook enhanced optioneering that more fully considered all options including a "do nothing" and "enhanced monitoring and maintenance" options. This included Cost Benefit Analysis (CBA) to demonstrate the most economic and efficient solution for the consumer. Where relevant, we supplemented our optioneering analysis to further highlight why a "do nothing" option is inappropriate and have expanded upon the other appropriate options available; and
- undertook rigorous ongoing engagement with Ofgem since Draft Determinations to fully understand its concerns, share drafts and ensure we can provide requested information within the tight eight-week consultation deadline. While we were disappointed that these issues were not raised via the supplementary question (SQ) process ahead of Draft Determinations, we welcome the constructive engagement with Ofgem's Engineering team post Draft Determinations. Feedback to date has been positive and we believe we have addressed each and every concern Ofgem has raised.

We consider that we have addressed the challenges raised in Ofgem's Draft Determinations regarding the projects in question. By strengthening both the needs case and optioneering and providing additional supporting evidence on an ad-hoc basis where required, our revised EJPs should leave Ofgem in no doubt of the need, the proposed solution and the costs. In light of this evidence we consider that Ofgem should reverse its decision on these schemes and approve them as part of its Final Determinations on the basis as set out in the revised EJPs.

For the 10 core NLRE projects we have revised our original Business Plan submission from £189.6m to £169.5m, a reduction of £20.2m (see Table 2.2). The key driver for this is refurbishment (rather than replacement) and reduced scope at the two sites – Tummel Bridge and Keith, respectively. This change has occurred due to the installation of load management to remove a key issue (Tummel) and a decision to do works at Keith over more than one price control period to secure the short-term operability of the site. For the remaining eight projects, for seven projects we preserve our original submission in terms of scope and cost and for one project, Broadford, the scope, and therefore associated costs, is increased[29].

Non-operating Expenditure

For the four non-operational capex projects we revise our original Business Plan submission from £133.1m to £114.4m, a reduction of 18.7m. The key drivers for this reduction are set out in Table 2.3.

[29] This was to account for the cost of generation not included in the original Engineering Justification Paper.

Table 2.2 - Revised Core Non-Load Related Expenditure Projects (substation works)

PROJECTS	SHET BP (£M)	UPDATED BP (£M)	CHANGE AND JUSTIFICATION
Sloy (H)	45.3	45.3	Retaining our original submission, with additional justification including support from an independent consultant. Wider optioneering considered.
Kilmorack Aigas (H)	27.5	27.5	Retaining our original submission, with additional justification including support from an independent consultant. Wider optioneering considered.
Culligran (H)	14.3	14.3	Retaining our original submission, with additional justification including support from an independent consultant. Wider optioneering considered.
Deanie (H)	14.6	14.6	Retaining our original submission, with additional justification including support from an independent consultant. Wider optioneering considered.
Quoich Tee (H)	13.6	13.6	Retaining our original submission, with additional justification and wider optioneering considered.
Tummel Bridge (H)	14.8	3.8	Decreased our original submission following consideration of further options, including refurbishment.
Broadford substation works	1.0	2.6	Increased our original submission following an increase in scope.
St Fillans substation works	6.8	6.8	Retaining our original submission, with additional justification including support from an independent consultant. Wider optioneering considered.
St Fergus Mobil substation works	12.7	12.7	Retaining our original submission, with additional justification and wider optioneering considered.
Keith substation works	39.0	28.3	Decreased our original submission following consideration of further options, including refurbishment.
Total	**189.7**	**169.5**	

* "H" denotes a Hydro connections site.

Table 2.3 - Non-Operating Expenditure Projects

PROJECTS	SHET BP (£m)	UPDATED BP (£m)	CHANGE AND JUSTIFICATION
Transmission Comms Upgrade	31.1	26.4	Scope has been reduced to "Responsible Operator" – single fibre line rather than dual cable in all identified sites.
ICPM	45.5	32.5 (18 /14.5)	This EJP has been split into two: ICPM (£18m) and DLR (£14.5m) with strong support from an independent consultant
Warehousing	40.3	39.2	Retaining a two-site solution with a slightly reduced costs that have been benchmarked by an independent expert consultant
Resilience – Operations Centre	16.3	16.3	The need for a new operations centre is supported by an expert consultant and is necessary to ensure a safe and secure network. This is a CNI site and the current arrangements are not fit for purpose. No change proposed.
Total	**133.1**	**114.4**	

2.6. Conclusion

Ofgem should correct all errors in its assessment, use models that apply the intended methodology, apply robust and justified approaches, review and support the revised engineering justifications we have provided and reinstate (and increase) pre-construction allowances to deliver Net Zero investment.

Failure to do so will have a material adverse impact. The bulk of Ofgem's decision is to reject or defer activities, rather than drive efficiency. This will not only impact on network reliability and resilience but jeopardises the delivery of timely and efficient network investment required for Net Zero. With the growth of renewables and increased reliance on electricity through digitalisation and the electrification of heat and transport - now is not the time to risk reliability and lose trust. Less activity also means less investment, less jobs and less economic output, threatening the Green Recovery.

If Ofgem do not correct these errors, it also risks further disenfranchising customers and stakeholders by discounting their views in Final Determinations.

3. Draft Decision on Incentives

To ensure Ofgem's policy intent on incentives is realised, to avoid creating disproportionate downside risk, and to avoid punishing strong past performance, errors in computation and application of the incentives must be corrected.

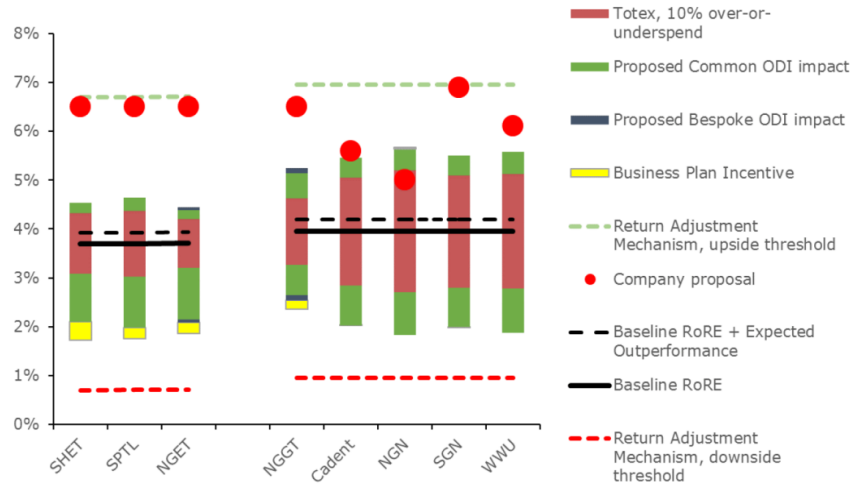
Our significant BPI penalty should be removed and replaced with a reasonable, evidence-based reward (c£25m), recognising the efficiency and added value of our plan. Our TIM Sharing Factor should increase to nearer 50%, commensurate with historical levels. The SF_6 & IIG and ENS incentives should be more symmetrical in its upside and downside potential.

3.1. Introduction

Ofgem's claim that RIIO-T2 is a highly incentivised settlement that will deliver a balanced package, benefiting customers and network companies, is not substantiated by the Draft Determinations. As we stated in our response to the Sector Specific Methodology consultation, the Draft Determinations suffer from a 'say-do' problem: while the rhetoric is aligned with the sound economic principles of RIIO, it lacks the substance to deliver the consumer benefits which stakeholders are asking for.

The potential transmission incentive package - Business Plan Incentive (BPI), including the Consumer Value Proposition (CVP), Totex Incentive Mechanism (TIM) and Output Delivery Incentives (ODIs) - is materially less than the incentive package for RIIO-T1. They do not enable the best performing companies who deliver for consumers to reach the upside returns that Ofgem considers plausible. This is particularly relevant when considered in parallel with the proposed unprecedented lower cost of equity (described in section 5) and totex cuts (described in section 2) as such, the Draft Determinations do not represent a balanced package.

Figure 3.1 - Ofgem Analysis of Return on Regulatory Equity (RoRE) Range[30]



[30] Ofgem RIIO-2 Draft Determinations – Core Document, Chapter 6, Figure 5.

We set out in the table below key ways in which Ofgem can address this imbalance.

Table 3.1 – Incentives: Draft Determinations to Final Determinations

IM	ISSUE	SHE TRANSMISSION REMEDY
Business Plan Incentive (BPI) *(section 3.2)*	Ofgem fails in its policy intent for the BPI to be capable of upside reward for cost efficiency for TOs. This results in a substantial and unreasonable downside penalty for us (£32m) which fails to take into account the robust justification for our costs and therefore amounts to an erroneous application of the BPI penalty (section 3.2).	Account for the clear evidence presented in this response and remove the BPI penalty which is subjective and lacks coherent justification. Replace with a reward based on recognising our cost efficiency (c£5m)
Consumer Value Proposition (CVP) *(section 3.3)*	Ofgem fails to recognise the additional value of our CVPs despite the clear evidence and stakeholder support. Ofgem's application of the CVP fails in the policy intent to reward ambition, granting rewards for only 2 out of 117 CVPs put forward by network companies overall.	Follow policy intent and recognise the clear evidence of additional qualitative and quantitative value in biodiversity, science based targets and commercial & connections services. Approve parts of our Consumer Value Proposition (CVP) to the value of +£3.6m to £21.5m (excluding Biodiversity Net Gain).
Totex Incentive Mechanism (TIM) Sharing Factor *(section 3.4)*	The low (30.9%) Sharing Factor is an outcome at odds with our track record and with company's past performance. It is perverse where we, a network with relatively low historical totex RIIO-1 underspend, are punished with a low Sharing Factor and other networks with relatively high totex RIIO-1 underspend are rewarded. The low Sharing Factor also fails to account for the evidence of cost certainty we provided to Ofgem and there are errors in the calculation.	Set the Sharing Factor at a level commensurate to historical levels (50%). This has demonstrably driven efficiencies and would reflect our strong track record. At a minimum, correct for the identified calculation errors and account for our evidence of cost confidence to more accurately aligns with the other TOs
Output Delivery Incentives (ODIs) *(section 3.5)*	Significant variation in the incentive potential across the transmission and gas distribution sectors, heavily weighted on the downside for the TOs. Failure to not only account for a strong track record but to calibrate incentives that punish our strong RIIO-T1 performance.	Adjust ODIs to reflect our strong RIIO-T1 performance and the disproportionate downside risk including: (i) reducing the 3% ENS collar; (ii) removing the blanket 15% improvement factor for SF_6 and other IIGs; (iii) applying any environmental scorecard ODI across all TOs; and (iv) removing the application of the NARMs funding adjustment.
The result	✘ Failure to have an incentive-driven price control both in RIIO-T2 and beyond, and instead producing a price control that will inhibit ambition and innovation to meet meets stakeholder needs at the lowest cost.	✓ An incentive driven RIIO-T2 price control, that will foster ambition and innovation to meet meets stakeholder needs at the lowest cost, setting the bar for future controls.

3.2. Business Plan Incentive (BPI)

We demonstrate below that the Business Plan Incentive (BPI) penalty should be removed in full by Final Determinations and our cost efficiency in closely associated indirect costs (CAI) and our Consumer Value Proposition (CVP) should be rewarded.

The intention of the BPI is to reward or penalise licensees based on the cost efficiency and quality of the submitted business plans. Ofgem's Draft Determinations propose to levy a £32m penalty (capped from £47m) based on disallowed costs. This results in the maximum possible penalty that we could have received based on the +2% cap. This penalty is almost exclusively the result of Ofgem making an error in the assessment of risk allowance, reaching a different engineering view on specific projects and deciding we should apply for pre-construction funding later and not upfront (all of which errors we have addressed above). None of this was due to submitting inefficient costs.

Further, although Ofgem has stated we will receive a reward for the quality/ambition of our plan (via the CVP mechanism) in recognition of our leadership position on biodiversity, the quantum of the reward is yet to be determined and we received no reward for other areas of additional value (see section 3.3).

We outline below the reasons why this unwarranted and unreasonably high penalty should be removed in full by Final Determinations.

We further demonstrate the following regarding cost efficiency and penalties imposed:

- Ofgem fails in its policy intent for the BPI to be capable of upside reward for cost efficiency for TOs, leaving only substantial and unreasonable downside penalties (see section 3.2.1); and
- Ofgem fails to take into account the robust justification for our costs and therefore erroneously applies the BPI penalty (see section 3.2.2); regarding quality and ambition of the plan:
- Ofgem fails to recognise the additional value of our CVPs in its Draft Determinations (see section 3.3.1); and
- Ofgem's application of the CVP fails in the policy intent to reward ambition, granting rewards for only 2 out of 117 CVPs put forward by network companies overall (see section 3.3.2).

The result of the BPI is at odds with our strong track record and with Ofgem's Business Plan Guidance which stated it is appropriate for Ofgem "to consider proposals for the RIIO-2 period in the context of each company's past performance"[31]. It is inappropriate to impose such a substantial and arbitrary penalty on a company which is continually striving to improve and provided a high quality and ambitious Business Plan:

- Our Plan was co-created with our stakeholders, will deliver Net Zero and for £7/year offers value for money; a cost which was endorsed by our stakeholders when we tested our draft plan with them.

[31] https://www.ofgem.gov.uk/system/files/docs/2019/10/riio-2_business_plans_guidance_october_2019.pdf page 9.

- Our track record is unrivalled. We are already leading on Net Zero and sustainability. We transport three times more green energy than is used in the north of Scotland, our Science Based Targets to reduce greenhouse gas emissions are verified as being the most ambitious not just in the sector (1.5 rather than 2 degrees target) but globally, and our environmental improvements are award winning (e.g. net gain biodiversity).
- Our RIIO-T1 output performance is exemplary. We have delivered a substantive capital investment on time and under allowance, spending >97% of RIIO-T1 allowances. We are not a network that significantly underspent on our totex allowance and have benefitted through the TIM Sharing Factor. Instead, we operate a socially responsible business with commitments including Fair Tax, Living Wage and Green Bonds and have led on a Covid supplier initiative.

This is plainly not a network that deserves a £32m penalty before RIIO-2 starts. We believe we have been unjustifiably penalised for listening to stakeholders including consumers and responding to their expectations.

This approach from Ofgem will negatively impact on future price controls; licensees won't be incentivised to propose stretching costs or ambitious stakeholder-led proposals in their Business Plans. This is not in accordance with Ofgem's statutory duties to protect the interests of existing and future customers, including the impact on the environment. Protecting consumers means ensuring licensees are financeable. However, Ofgem is proposing to grant de minimis rewards together with unacceptably high and arbitrary financial penalties on companies that have sought to provide challenging Business Plans based on extensive consultation with stakeholders. The BPI encourages mediocracy and stifles ambition. This belief will be fresh in the minds of transmission and gas networks as they develop RIIO-3 plans in three years' time and firmly in the minds of electricity distribution networks now.

3.2.1 Cost efficiency: policy intent and reasonableness

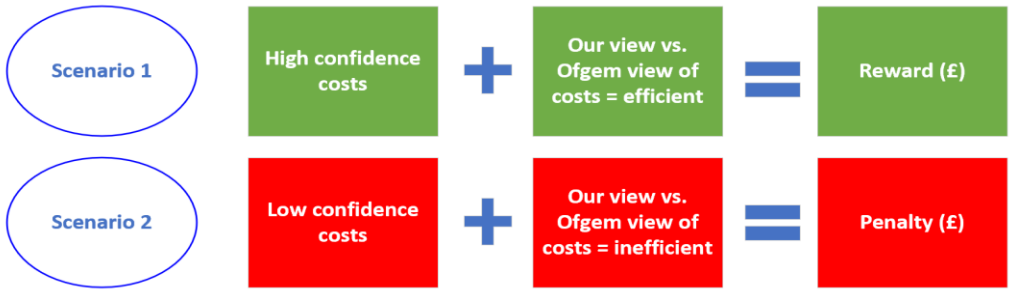
Policy intent vs application

According to Ofgem, the purpose of the BPI is to: "to encourage network companies to submit ambitious Business Plans that contain the information Ofgem requires to undertake a robust assessment of the Business Plans"[32]. However, the Draft Determinations have made clear that the way in which Ofgem proposes to apply this novel mechanism is as a means to penalise, rather than reward, companies. The evidential bar is highly opaque and subjective – both in terms of which costs meet the "high confidence" threshold and in terms of which costs in the "low confidence" category attach a penalty on the basis that they are "poorly justified". It is entirely contradictory to encourage companies to provide ambitious plans, and then penalise them when certain costs are not allowed, particularly at the level of penalties being put forward by Ofgem in the Draft Determinations. Should Ofgem proceed with this mechanism in the manner it has proposed, it will ultimately disincentivise companies putting forward ambitious proposals and encourage a trend to mediocrity – an outcome which is entirely at odds with its alleged intention and Ofgem's statutory duties.

[32] Ofgem, DD - Core Document, para 10.25.

For a penalty to apply two conditions must be satisfied: 1. that the costs are allocated as "low confidence" (i.e. Ofgem considers it does not have independent evidence to set the costs confidently) and 2. the costs are deemed to be poorly justified (i.e. scenario 2 in the figure below).

Figure 3.2 - BPI Application



It is evident from the application of this policy that Ofgem's approach in biased in favour of scenario 2 over scenario 1 in Figure 3.2. This is for two main reasons:

- First, Ofgem wrongly allocates a proportion of our high confidence costs into low confidence. This is important because, as Ofgem itself states, "[o]ur assessment of confidence has a material impact on each company's scope for being subject to penalties or rewards"[33] - only low confidence costs are subject to penalties under Stage 3 and only high confidence costs are subject to rewards under Stage 4. It is telling that there have been £0 rewards granted to any company at Stage 4 and yet £263.3m of penalties proposed at Stage 3.[34] See section 3.2.2 for examples of "low confidence" costs which we consider should have been classified as "high confidence".
- Second, the cost assessment methodology adopted by Ofgem results in downward bias. An independent report by Oxera, concludes that the "The principal feature of Ofgem's cost assessment framework is that it *removes* the impact of potential positive modelling errors on companies' TOTEX allowance by capping funding at the business plan level but *retains* the impact of negative modelling errors by applying the most stringent benchmark in several cases".[35]

The Oxera report sets out in more detail how the specific mechanics of Ofgem's cost assessment framework lead to a downwards biased totex allowances for the sector, and how this constitutes a departure from regulatory precedent in energy and other sectors. By adopting a framework that leads to downward bias, a TO can never be deemed "efficient" and therefore be rewarded under the BPI.

Moreover, even when our costs are deemed high confidence and the modelling results confirm our costs as efficient, we still are not in receipt of a BPI reward. This is illustrated by the CAI costs. Nine of

[33] Ofgem, DD Core Document, para 10.10.
[34] Ofgem, DD Core Document, Table 15.
[35] Oxera: Ofgem's TOTEX assessment approach at the RIIO-ET2 draft determinations: a review, August 2020, section 3.2

ten benchmarking models explored by Ofgem, including the model adopted, reveal that we are efficient against the benchmark. In fact, industry leading efficiency is demonstrated.[36]

This would fall into Ofgem's categorisation of a "high confidence cost" as it can be benchmarked. Yet Ofgem's assessment reaches the conclusion that our stretching and ambitious baseline costs do not receive a reward. This is a clear example of implementing a flawed methodology that does not align with the policy intent.

Reasonable application: the BPI should not be applied to projects which are rejected at the need assessment stage

Within Ofgem's Business Plan Guidance, Ofgem states that "any costs deemed to be poorly justified and removed by Ofgem from the companies' forecasts through this *cost assessment process* [emphasis added] will be subject to a penalty"[37].

Those projects which are rejected at the needs assessment stage do not progress to cost assessment[38] and therefore could not been deemed inefficient or otherwise and should not be subject to the BPI penalty. The purpose of the BPI is purportedly to reward or penalise companies for "poorly justified cost forecasts"[39]. It is therefore illogical and unreasonable to apply the BPI to costs which are rejected at the needs assessment stage. This position is supported by the following reasons:

- **policy not articulated:** at no point during the RIIO-2 process (be that through formal consultations or other Ofgem engagement) was it articulated that costs associated with the removal of schemes based on Ofgem's view of need would be subject to a penalty under the BPI. A footnote in Ofgem's updated RIIO-2 Business Plan Guidance in 31 October 2019 (which was not subject to consultation and a month prior to submission of final plans) stated that the stage 3 penalty could also apply to costs associated with activity volumes removed from the Business Plan but Ofgem does not articulate a policy shift[40]. Also, through the bilateral engagement with the Ofgem Cost Assessment team, it was communicated that only projects that reach costs assessment would be subject to the BPI.[41] This was also our logical assumption, i.e. removing projects in full at the engineering assessment stage means removing the baseline costs in full. Therefore, consumers are never at risk of overpaying for these (due to inefficient costs being allowed). It is all the more important that policy changes with such significant implications for licensees (this resulted in £32m penalty for SHE Transmission) be clearly articulated, justified and consulted upon.
- **contrary to Ofgem's policy objectives**: applying such a policy and penalising the full cost of those projects removed based on an engineering judgement is not promoting ambitious business plans or incentivising efficient costs. Additionally, this is completely out of step with the RIIO-2 stakeholder-led approach – it punishes licensees for listening to stakeholders and

[36] ECA (2 May 2020), *RIIO-GD2 and T2: BSC and CAI assessment methodology*, Table 17
[37] https://www.ofgem.gov.uk/system/files/docs/2019/10/riio-2_business_plans_guidance_october_2019.pdf page 46
[38] The process was explained by Ofgem as: each project (each EJP) was subject to an engineering assessment to determine if the need and scope was justified. If it was, then that project would progress to the cost assessment team to determine if the allowed costs where the cost efficiency would be determined. If it was not justified, the project would not proceed to cost assessment,
[39] https://www.ofgem.gov.uk/system/files/docs/2019/10/riio-2_business_plans_guidance_october_2019.pdf page 46

[41] Bilateral with SHE Transmission and Ofgem Cost Team on 9 June 2020.

responding to their expectations. This approach from Ofgem will negatively impact on both current and future price controls.

- **not appropriate for needs assessments:** at the needs/engineering assessment stage, each load and non-load project was the subject of its own detailed EJP, providing significant detail on each project which should allow Ofgem to make a well-informed decision. It is therefore not in line with the purported purpose of the mechanism - to reward or penalise companies cost efficiency as these projects don't reach cost assessment.

Given all of the above, it is unreasonable to apply a penalty based on a difference of engineering opinion (that can be openly debated based on clear evidence). Assuming there is room for argument on need (which is not the case here, for the reasons set out above), while Ofgem may take a different view from the network company, it does not follow that the company's view was unreasonable. Removal of allowances would be "penalty" enough but to overlay with a financial penalty is completely unreasonable, particularly when there are errors in the application of BPI mechanism (as noted below).

Reasonable application: the BPI imposes an arbitrary penalty on TOs using a subjective standard

As outlined in response to the SSMD,[42] we have a number of fundamental concerns with the introduction of the BPI, including that the assessment criteria is currently ambiguous. Rather than being addressed, these concerns have been exacerbated by the application of the BPI in the Draft Determinations and Ofgem's illogical and unjustified proposal to impose the maximum penalty on us.

It is unreasonable for Ofgem to impose such a disproportionately high and arbitrary penalty for not meeting a standard of evidence which is not clear and highly subjective. We strongly dispute the conclusions that Ofgem has reached in deciding (a) what constitutes high vs low confidence; and (b) the "low confidence" costs which have a penalty attached to them, as we consider that these conclusions lack compelling evidential support (see section 3.2.2 below). The applied approach disproportionately penalises TOs due to the nature of their high value, commonly bespoke investment requirements. Ofgem has a statutory duty to act proportionately and transparently, and the imposition of the BPI is clearly contrary to these fundamental principles of good regulation.

3.2.2 Cost efficiency: removal of SHE Transmission penalty

The evidence presented above (see sections 2.3 and 2.5 and in our supporting evidence[43]) comprehensively demonstrates that our costs for risk, pre-construction and NLRE are justified and should be reinstated, and therefore the proposed BPI penalty will be removed. As demonstrated in Table 3.2 below, this alone would remove £43.1m of the (pre-cap) penalty. Full line by line details of this is provided in our appendix "T2BP-DD-SHE-004 SSEN Transmission - Business Plan Incentive (BPI)" and the associated excel file. We demonstrate that:

[42] SSEN, RIIO-2 Sector Specific consultation response, 14 March 2019, page 98-99.
[43] This includes the revised Engineering Justification Papers and our appendices "Pre-construction Funding Paper", "PCF for T3 LRE Schemes" and "PCF for T3 NLRE Schemes".

- much of our costs should be categorised as “high confidence” and not “low confidence” as our costs are subject to tender rates, based on framework rates or are costs based on previously incurred rates on relevant projects in T1. This is true for risk costs (which are benchmarked) and pre-construction costs (which are also subject to an uncertainty mechanism[44], a key principle in allocating costs as “high confidence”);
- missing data from the Project Assessment Model (PAM) resulted in a penalty and this error must be corrected;
- the need for component parts/assets within specific projects that have been allocated “low confidence” is justified, removing the blunt application of “low confidence” and penalty to the full project cost; and
- the costs are not inefficient but justified due to regional/locational or project-specific factors. Therefore they are not subject to a penalty.

This first point is vital not only in removing the proposed Draft Determinations penalty but also as Ofgem consider our revised submission for NLRE and pre-construction ahead of Final Determinations.

In line with Ofgem guidance, these costs should be categorised as “high confidence” for the purposes of the BPI (and the TIM Sharing Factor). Recently returned tenders, rates based on recent tenders and realised actual costs are all clearly specified in Ofgem’s Sector Specific Methodology Consultation and Sector Specific Methodology Decision as evidence in classifying baseline costs as high confidence[45] (with Ofgem considering realised actual costs as the “strongest evidence a company could provide”[46]). Further, as we propose an end of period symmetric true-up as well as PCDs for pre-construction this adds weight to the ability of Ofgem to deal with uncertainty, a key principle in allowing costs to be set as high confidence[47], which Ofgem has failed to acknowledge at Draft Determinations. This error should not be repeated at Final Determinations.

There is a further point on pre-construction funding. Ofgem has not yet confirmed its definition pre-construction, which may ultimately differ from ours. If any disallowed costs at Final Determinations stem from this definitional point, it would be unreasonable to apply a penalty (see ETQ 11).

For a reward to apply, the two conditions set out in scenario 1 of Figure 3.2 must apply. We meet both for our CAI costs. Our analysis clearly demonstrates that correction of the errors in both totex modelling and cost allocation would result in reward for our opex efficiency to the value of around £5m. We would expect at least this level of reward at Final Determinations.

More generally, we consider it highly troubling that Ofgem has assessed its costs in such a way which results in a level of penalty far higher than could have ever been reasonably anticipated. Ofgem’s BPI

[44]RIIO-2 Sector Specific Methodology Consultation page 92, paragraph 9.44 bullet 2. https://www.ofgem.gov.uk/publications-and-updates/riio-2-sector-specific-methodology-consultation
[45] RIIO-2 Sector Specific Methodology Decision, paragraph 11.37 https://www.ofgem.gov.uk/system/files/docs/2019/05/riio-2_sector_specific_methodology_decision_-_core_30.5.19.pdf
[46] RIIO-2 Sector Specific Methodology Consultation page 93, paragraph 9.44 bullet 1. https://www.ofgem.gov.uk/publications-and-updates/riio-2-sector-specific-methodology-consultation
[47] RIIO-2 Sector Specific Methodology Consultation page 92, paragraph 9.44 bullet 2. https://www.ofgem.gov.uk/publications-and-updates/riio-2-sector-specific-methodology-consultation

proposal would seriously undermine certainty in the regulatory framework, which is vital for all relevant stakeholders including investors, particularly in the current uncertain investment climate.

Table 3.2 - BPI Penalty/Reward: Draft Determinations to Final Determinations

PENALTY/REWARD DRIVER	DD PENALTY /REWARD (£m)	FD PENALTY /REWARD (£m)	COMMENTS
Project Removal	-30.4	0	Reinstatement of disallowed schemes through revised EJPs will remove penalty.
Pre-construction	-8.0	0	Revised baseline allowance following additional evidence, plus categorising as "high confidence" (as costs based on tenders or previous project and has an associated UM) will remove penalty.
Risk Reduction	-4.7	0	Correction of methodology error and reinstatement of risk allowance, plus categorising as "high confidence" (as costs are based on T1 outturn projects and benchmarked) will remove penalty.
Low Confidence Tag, Asset Efficiency & Risk reduction	-3.7	0	This concerns four projects. Further evidence of need and cost will remove "low confidence" tag and therefore, penalty will not apply. Risk should be corrected as per above.
Missing Data/PAM Error	-0.6	0	Correction of the missing asset data within the PAM will result in the penalty being removed.
Operating costs	0	+c5.2	Correction of errors to opex cuts and recognition of efficiency in CAIs will result in an reward for recognised efficiency.
CVP	Tbc	+£3.6m to £21.5m (excluding BNG)	By following the policy intent and recognising the additional qualitative and quantitative value in biodiversity, science based targets and commercial & connections services (section 3.3) our CVPs should be rewarded.
Total	**-47.3**	**£8.8m-£28.1m+**	

3.3. Consumer Value Proposition (CVP)

3.3.1 Allowance of our CVP proposals

Despite the poor guidance and evolving picture, we took a **clear strategic approach to our CVP** proposals, identifying initiatives, ensuring that such initiatives were above BAU, ensuring stakeholder (including User Group) support, providing a monetisation where possible and committing to returning any reward for outputs not delivered (see Figure 3.3). In following our above approach, this result was justifiable and evidence-based **CVPs that should be rewarded to the sum of c£25m** through Stage 2 of the BPI.

Despite our thorough and rigorous approach, Ofgem failed to recognise our ambition, except in biodiversity, and in doing so has failed to follow through in its policy of rewarding ambitious and high quality plans and failed to take account of the fact that these were co-created with our stakeholders.

Figure 3.3 - CVP Approach

Stage 1: Minimum requirements	• How do we meet Ofgem BP Guidance minimum requirements, made a step change from RIIO-1 to RIIO-2 and compare to benchmarks? •*First compulsory, other two strengthen proposal*
Stage 2: Stakeholder support	•Is there evidence that this is something consumers value? •*Key evidence that proposal incorporates what consumers and stakeholders value*
Stage 3: Monetisation	•Can the proposed CVP be monetised? If so, how? •*Demonstrate a reasonable approach, setting out workings and assumptions that results in a net value*
Stage 4: Qualitative CVPs	•If it can't be monetised or the net benefit is small, add to qualitative CVP provided Stage 1 and 2 are satisfied •*Qualitative proposals still add value*
Stage 5: Return commitment	•How will we hold ourselves to account for delivering additional value to consumers? •*Qualitative assessment through Enhanced Reproting Framework with final judgement at close out*

We set out a detailed response to Ofgem's Draft Determinations on our CVP in Q4. Notable is our revised position in three key areas in response to Ofgem's feedback:

1. **Biodiversity Net Gain (CVP 3A):** We strongly agree there is clear value in aiming for BNG in our RIIO-T2 projects. We have been led by stakeholders in setting challenging, ambitious targets for RIIO-T2, ahead of both regulatory and legislative change in Scotland. In response to Ofgem's decisions we proposed several alternatives to valuing BNG including taking our own initiative to engage with NGET. Despite efforts to come to an agreed approach there's been limited direction or engagement from Ofgem despite its previous commitment to do so and we are advised this will now take place after the 4 September. Nonetheless, we will continue to pursue the necessary engagement to reach a position. Therefore, for the purposes of this response we have been unable to provide a revised value for BNG.
2. **Commercial and Connections (CVP 2):** Connecting renewables is our BAU. However, our CVP outlines how we can transform our role as a TO that reacts to customer requests for connections to a customer centric business beyond the BAU. This approach was co-created with our stakeholders including our User Group. Our services are intended to stimulate the engagement, connect low carbon technologies quicker, open opportunities for new entrants to connect renewables (such as local and community generation) and ensure our customers get the most out of their connection based on their evolving requirements after they are connected. Our policy initiatives in this space are ambitious, bold and industry leading. They are beyond minimal requirements and essential to delivering Net Zero. For the purpose of monetizing the value, we have revised our previous CVP submission of three distinct CVPs (CVP 2 A, B and C) and combined into one simplified CVP. Responding to Ofgem's concerns in the Draft

Determinations, we used an evidence-based approach to monetise the impact based on our RIIO-T1 track record to forecast potential impact on RIIO-T2 to respond to Ofgem's feedback. We have proposed a revised the value for this CVP (2) as £12.8m.

3. **Science Based Target (CVP 6):** We are the world's first network operator to set a science-based (SBT) target in line with the Paris agreement at 1.5°C warming which is consistent with a net zero pathway. This is above Ofgem minimum requirements that require an SBT at a minimum 2°C scenario to be set. We have set a high standard and benchmark for other to follow. This ambition has not been recognised by Ofgem. We presented this as a qualitative CVP in our Business Plan, which we have now monetised to provide Ofgem with the evidence it feels it requires to justify a reward. Although monetisation is not a pre-requisite for a reward,[48] Ofgem has focussed solely on a quantitative approach whereby only elements that can be monetised are considered for a reward. We are not waiting until the start of RIIO-T2 to set our SBT nor have we gone for the minimal option. Effort and action taken now will have a permanent benefit to future consumers. We have proposed a revised the value for this CVP (6) as a range of £3.6m to £8.7m.

Our CVP proposals, despite minimal guidance from Ofgem, provide a package of initiatives that demonstrate the ambitious and innovative nature of our Business Plan in delivering a Network for Net Zero. The changes that we make today have a demonstrable permanent value for future consumers - whether that's displacing carbon off the system quicker, taking an ambitious target to reduce our own GHGs emissions or leaving the environment of our sites in a better state than when we arrived. We have taken an evidence-based, robust approach to value only those initiatives in which we have set a real and significant challenge beyond the BAU or minimum requirements. This meets the policy intent (as discussed below) of the CVP to incentivise monopoly network operators.

3.3.2 CVP: policy vs. reality

Despite the aforementioned unclear, evolving and late guidance on the CVP from Ofgem[49], what remained consistent was the policy intent from Ofgem. From the Framework Decision in July 2018 to the Business Plan Guidance in June 2019 when CVPs were first outlined and the final Business Plan Guidance in October 2019 the intent was clear: there would be an incentive on companies to submit innovative high-quality business plans[50] developed through engagement with stakeholders. As such, demonstrating ambition and added value to meet our stakeholders' expectations was always at the forefront of our Business Plan proposals.

[48] https://www.ofgem.gov.uk/system/files/docs/2019/10/riio-2_business_plans_guidance_october_2019.pdf . On page 53 Ofgem state "where *possible* this evidence should be quantitative" [emphasis added] but this does not exclude a CVP being rewarded.
[49] Please see our full response to this in Core Q37.
[50] Framework Decision 2018 ruled out fast-tracking but identified a need to for alternative incentives on companies to submit "high quality" business plans. Sector Specific Methodology Decision 24 May 2019 –references the four-stage Business Plan Incentive assessment with limited detail on stage 1 (minimum requirements) and stage 2 (ultimately the CVP). The term CVP did not exist. Key: refers to a qualitative assessment and that the Business Plan Guidance will set out how that qualitative assessment will be undertaken. Business Plan Guidance – 3 June 2019 – first publication with detail of the CVP including monetisation (updated 9 September and 31 October).

The summary rejection by Ofgem of our CVP proposals outlined above[51] has been repeated across the transmission and gas distribution sectors, and in doing so, Ofgem has failed to follow through in its policy of rewarding high quality plans.

The monetisation of CVP was, in practice, the only way in which network companies could earn an upfront reward through the BPI. Despite Ofgem's policy intent to provide companies with upfront rewards for delivering high-quality ambitious business plans, very few rewards were provided in the Draft Determinations. In fact, out of 117 CVP proposals put forward by network companies (with a total value of over £5.5bn), only two were granted a reward (calculated by Ofgem as £1.6m each). As noted, our biodiversity CVP was accepted in principle by Ofgem, subject to agreeing a valuation methodology.

For this to emerge systemically across the network sectors is not down to a lack of ambition on the part of the licensees particularly given the User Group and Customer Engagement Group support for CVPs. Rather, the late and poor guidance, the changing methodology, and poor assessment at Draft Determinations has driven the outcome – Ofgem has not been clear on what it has wanted or how it would measure quality and ambition, and this has left making its assessment challenging.

Nonetheless, the policy intention of ambitious and quality business plan has remained and stakeholder support demonstrates that we have certainly delivered on it. There is no doubt the CVPs we have outlined above are ambitious in comparison to our peers and deliver additional consumer value. This was the policy intent of the CVP and we delivered on it. It is imperative that Ofgem recognises this and does not allows its own process shortcomings to "design-in" a wrong outcome and one that is inconsistent with its policy intent. Ofgem has been less cautious about applying penalties for what it deems poor quality business plans (i.e. those plans that are deemed not to have met minimum standards). The approach is wholly inconsistent.

Looking forward to future price reviews including RIIO-3 and ED-2, there is little incentive (and actually a strong disincentive) for network companies to put forward ambitious plans. The clear signal from Ofgem to network companies is to aim for minimum standards and not to respond to stakeholder ambitions as there is little benefit (and potential penalties) in seeking to do more. The only potential (limited) rewards are through the delivery incentives (the TIM and ODIs) once baseline allowances have been set. Again, this is inconsistent with Ofgem's policy intention.

Ofgem must recognise our ambition – through the clear strategic approach we have taken – and reward accordingly. Failure to do so would be an erroneous and unjustifiable failure to reward quality and ambition within the plan.

[51] Also detailed in response to Core Q4

3.4. Totex Incentive Mechanism (TIM)

Ofgem proposes a TIM Sharing Factor of 30.9% for SHE Transmission but a 39% for the other TOs, SPT and NGET. Ours is the lowest of all network companies including the GDNs; a perverse outcome based on past performance.

We retain our consistent position[52] that a 50% Sharing Factor in line with historical practice should be set. A strong Sharing Factor has been proven to drive in-period efficiency that will keep costs down for current and future consumers; to move away from successful practice makes no sense for consumers.

Even following Ofgem's blended Sharing Factor approach, our blended Sharing Factor should be 41.3%. We present clear and unequivocal evidence of this (see appendix "SHE Transmission – Totex Incentive Mechanism"). In line with Ofgem guidance, there is a large proportion of our costs that have been misallocated as "low confidence" but should be "high confidence" (affecting both BPI (see section 3.2.2) and the TIM) as they are:

- realised actual costs in RIIO-T1;
- arrived at via a competitive process or other market testing;
- based on other independent benchmarking (e.g. industry or international benchmarks); and/or
- uncertainty mechanism will be implemented and applied.[53]

While the final TIM rate (if adopting Ofgem's blended Sharing Factor) will ultimately depend on the final totex, it is imperative that Ofgem review this evidence and apply it ahead of Final Determinations and ensure that all errors in cost confidence allocation in Draft Determinations are corrected.

This outcome of the lowest Sharing Factor of all network companies is clearly at odds with our track record and, as noted above, with Ofgem's Business Plan Guidance "to consider proposals for the RIIO-2 period in the context of each company's past performance"[54]. We delivered a substantive capital investment on time and under allowance, spending >97% of RIIO-T1 allowances. We are not a network that significantly underspent on our totex allowance and, in comparison to other networks, our underspend is significantly lower. This is clearly evidence of confidence in our cost forecasts. Yet we have a perverse outcome; relatively low historical totex RIIO-1 underspend is punished and relatively high totex RIIO-1 underspend is rewarded. This outcome is not only illogical but unreasonable.

Finally, Ofgem proposes to further dampen the incentive properties of the TIM by removing – without justification or explanation – a significant proportion of our baseline totex that can be subject to it. This includes our East Coast 400kV Incremental Upgrade, which comprises almost a quarter of our RIIO-T2 load related allowances. We discuss this in more detail in our appendix "T2BP-DD-SHE-010 True up, Logging Up and Re-openers - SSEN Transmission RIIO-T2 Proposals".

Ofgem give no rationale for its proposals. It does not state why the East Coast 400kV Incremental Upgrade scheme should be treated differently to, for example, cross over volume driver schemes where

[52] We strongly advocated for a 50% Sharing Factor in response to Ofgem Sector Specific Methodology Consultation.
[53] RIIO-2 Sector Specific Methodology Decision, paragraph 11.37 https://www.ofgem.gov.uk/system/files/docs/2019/05/riio-2_sector_specific_methodology_decision_-_core_30.5.19.pdf
[54] https://www.ofgem.gov.uk/system/files/docs/2019/10/riio-2_business_plans_guidance_october_2019.pdf page 9.

the TIM applies. Ofgem has also failed to consider the consequences of its proposals including reduced incentives to innovate and reduced incentives to seek cost efficiencies that will form the basis of many costs for RIIO-T3 and beyond. This, we believe, is not in the long term interests of consumers and goes against the established strength of GB utility regulation.

3.5. Output Delivery Incentives (ODIs)

Ofgem claim it has set strong quality-of-service targets, particularly in key customer priority areas such as connections, reliability and environmental impact. Companies would have financial ODIs worth -1.1% to +0.2% RoRE in electricity transmission, -0.8% to +0.4% in gas distribution, and -0.7% to +0.6% in gas transmission (Figure 3.4). But there are a number of objections and shortcomings to this claim.

Figure 3.4 - Ofgem Analysis of RoRE Value of ODIs

First, Ofgem fails to explain its rationale for the variation in the upside and downside potential of the ODIs across the sectors, and in particular the significantly asymmetrical position in ET, which is in stark contrast to the symmetrical position for GD. It fails to set out why TOs should face such a downside and limited ODI upside. This is an unacceptable level of liability; as we highlight throughout this response (with further detail provided in due course in our response to Ofgem's Impact Assessment), we see no evidence of Ofgem having calibrated the overall impact of asymmetric risks.

Second, this is exacerbated as Ofgem fails categorically to account for track record in performance and in fact does the opposite to what it proposes in its SSMD (see points below on Energy Not Supplied (ENS) and SF_6 and other Interruption and Insulation Gases (IIG)). In some cases Ofgem has failed to provide any financial incentive in key areas which have delivered, and stakeholders supported continued, increased performance like the Environment and Stakeholder Engagement.

We stand by our view that the incentive package is weak and will drive mediocracy if Ofgem retains this short-term penal thinking. By neither looking back (to track record and performance) nor forward (to RIIO-3 or RIIO-ED2) but having a singular focus on dampening incentives, Ofgem fails to follow the process it set, and risks delivery of stakeholder requested. Therefore, we believe that the following simple changes are required:

- **Energy Not Supplied (ENS):** to reduce the downside collar. The proposed 3% collar represents a significant asymmetric risk with significant downsides (potentially in excess of £13m per annum). This is an unreasonable liability. We consider there to be strong justification for reducing the collar to 1.9% to reflect the shorter RIIO-2 period. In addition, the 3% collar

appears even more unbalanced given the overall incentive package set out within Ofgem's Draft Determinations and the scale of cuts and penalties elsewhere (see response to ET Q8).

- **SF_6 and other Interruption and Insulation Gases (IIG):** Ofgem to remove a blanket 15% improvement factor for all TOs. A blanket application punishes stronger performers, who by the strength of their performance, have less scope to outperform and greater scope to underperform. As by far the leading performer on SF6 and IIG leakage, we argue our T1 average leakage rate is sufficiently challenging and ambitious for RIIO-T2 (0.38%) (see response to ET Q6). Going beyond that would require regulatory approval for replacement of assets ahead of need (as we describe above, even for assets where there is a need that has been disallowed – this has a consequential impact on SF6 and IIG).
- **Environment**: Ensure that any ODI-F is consistent across TOs (see response to ET Q6).
- **NARMs:** Ofgem to remove the application of the NARM funding adjustment. Ofgem is proposing a NARM Funding Adjustment and Penalty Mechanism to calculate financial adjustments and penalties for all potential delivery scenarios. However, the NARM funding adjustment results in a significant and unjustified penalties to our baseline allowance as outlined in our response to NARM SQ3. The funding adjustment principle disincentivises TOs from over-delivering even when it is in the right interests for the consumer to do so, as it may result in us not being able to recover the cost for justified over-delivery. We propose that Ofgem removes the NARM funding adjustment from the ET sector and instead undertakes a scheme-by-scheme assessment through the T2 close out process to assess any potential over or under delivery and to make accurate cost adjustments (see responses to NARM SQ3 and SQ4).

4. Draft Decision on Net Zero Uncertainty Mechanisms

The uncertainty mechanisms must be amended to facilitate the network investment required to maintain a Net Zero pathway during RIIO-T2 and T3. It must seek to avoid a timing misalignment and processes bound in red tape which will not permit investment in capacity to meet customer requirements.

The volume driver needs appropriate unit costs allowances, the MSIP and LOTI both require decisions within six months of applications to Ofgem and there must be an in-period mechanism to release pre-construction funding as new large strategic projects come forward for development.

4.1. Introduction

At set out in the introductory section, we support Ofgem's approach of setting baseline allowances where certainty of need and costs can be demonstrated (though we disagree with Ofgem's assessment of need and costs in certain case, as outlined in section 2). We also agree in principle with the use of uncertainty mechanisms during the price control period as a means of responding to unforeseeable developments, provided that such uncertainty mechanisms are only employed in relation to developments that are genuinely unforeseeable, that there is "*clarity between all parties around the processes for recovering these costs*[55]" and that applications are resolved in a sufficiently timely manner. This is the "Certain View" approach on which our RIIO-T2 Business Plan was based.

Baseline allowances with well-designed uncertainty mechanisms was also the approach we established, adopted and tested in RIIO-T1 and why we proposed continuation with it in RIIO-T2. As our track record demonstrated, it evidently worked for both company and consumers with over two-thirds of our RIIO-T1 investment released through uncertainty mechanisms. We have delivered over £3bn capital investment on time and under allowance, spending >97% of RIIO-T1 allowances. We are not a network that significantly underspent on our totex allowance. Rather, we are a network that has delivered on all our RIIO-T1 outputs – environmental, connections, customer service - and Ofgem has recognised this in its latest annual performance report.[56]

Unfortunately, rather than build on and learn from the success of uncertainty mechanisms in RIIO-T1, the Draft Determinations proposes revisions to the mechanisms that introduce barriers to timely, innovative and cost effective investment. The uncertainty mechanisms proposed in the Draft Determinations:

i. do not have a sound evidence-based analytical basis;
ii. fail to demonstrate how these will work in practice to meet network users' and stakeholders' expectations;
iii. remain ill-defined, awaiting long promised guidance; and

[55] CMA SONI Final Determination, para. 6.45.

[56] https://www.ofgem.gov.uk/system/files/docs/2020/02/riio-et1_network_performance_summary_2018-19.pdf

iv. would take significant time and cost to achieve a regulatory decision.

We are extremely concerned. During the development of our Business Plan, stakeholders were clear that the risk of uncertainty mechanisms was delay and inefficiency in essential investment. We worked hard to address stakeholders' comments and demonstrate that the mechanisms we proposed would be agile and responsive to meet users' needs. Ofgem appears to have completely disregarded all of this, the detailed analysis to support the mechanisms we proposed in our Business Plan and any lessons that might be learned from the RIIO-T1 period.

To be clear, with these Draft Determinations, net zero targets will not be achieved.

The key mechanisms relevant to achieving net zero pathways during the RIIO-T2 period are:

- Volume driver for demand and generation connections;
- Medium Size Investment Projects (MSIP); and
- Large Onshore Transmission Investment (LOTI).

These mechanisms have to work as our baseline proposals (even before Ofgem's cuts to the Certain View) are not consistent with net zero pathways. The uncertainty mechanisms will 'close the gap'. Two of these critical mechanisms – the Volume Driver and LOTI – build on existing, and successful RIIO-T1 uncertainty mechanisms. The third – MSIP – seeks to put in place a mechanism for funding investments of <£100 million, including those triggered by third parties[57].

We describe below a summary of our analysis that leads us to conclude that these mechanisms, as proposed, do not meet the net zero challenge (see Table 4.1). There is more detail in our full response (ET Q10, ET Q13 and our appendix "Uncertainty Mechanisms - Generation and Demand Volume Driver"). It is evident that the proposed mechanisms do not meet the intent:

- That the regulatory mechanism and process is clear and transparent to all stakeholders;
- The regulatory design and process is proportionate;
- That the mechanisms release allowances that credibly align with forecast efficient expenditure;
- That the mechanisms achieve timely funding decisions in advance of construction; and
- It is demonstrable that the mechanisms will achieve legislated government policy.

We argue for urgent ongoing engagement with Ofgem to remedy these issues for Final Determinations as it is vital that these mechanisms work to achieve these outcomes.

[57] SHE Transmission proposed two tailored mechanisms in our Business Plan to address this gap, pages 80-81 of our Business Plan https://www.ssen-transmission.co.uk/riio-t2-plan/

Table 4.1 – Uncertainty Mechanisms: Draft Determinations to Final Determinations

UM	ISSUE	SHE TRANSMISSION REMEDY
Volume Driver *(section 4.2)*	Mechanisms based on calculation and modelling errors and the proposed the unit cost allowances (UCAs) significantly fall short of appropriately reflecting the investment required to connect renewables to our network.	**Option 1:** use of Ofgem Model if: (i) all errors corrected, (ii) models are statistically sound; and (iii) the UCA rates are fair, cost reflective and aligned with individual TO technical requirements and the uncertainty each face in the possible mix of future projects. **Option 2:** in the case of failure of the above, revert to our evidence-based volume driver model which meets the above three criteria.
LOTI *(section 4.3)*	Prescriptive in the regulatory process with fixed points for making submissions, for example the Final Needs Case cannot be submitted until all material planning consents have been secured, and fixed assessment periods of in total 30 months (note this excludes consultation periods).	A commitment from Ofgem to reach a decision on need within six months of receipt of a full, evidence-based submission.
MSIP – for generation and demand connections *(section 4.3)*	A restricted window in 2024 is not aligned with network users' needs and other project activities (e.g. CfD process) and it excludes all projects <£25m that can't be funded via the volume driver creating a regulatory gap.	(i) A commitment from Ofgem to reach a decision on need and costs within six months of receipt of a full, evidence-based submission; (ii) Removal of proposed reopener window to allow for licensees to approach Ofgem when the need arises; and (iii) to include all projects under £100m that are outliers in the volume driver model.
Pre-construction *(section 4.4)*	Ofgem disallowed baseline funding, suggesting we take the risk on £113m on schemes we know of now plus the risk on any new schemes until Close Out of the control.	Provision of evidence-based baseline **with commitment to return un-used allowance** plus an in-period re-opener for new schemes or significant change in scope for existing schemes.
Re-openers* (refer to "True up, Logging Up and Re-openers: SHE Transmission RIIO-T2 Proposals").	There are regulatory gaps in the re-opener package (pre-construction, landowner compensation**, elements excluded from the MSIP re-opener) placing unjustifiable and unreasonable risk on the TOs exacerbated by the suggested materiality thresholds place and the suggestion of "true up" in some resulting in a further dampening of the incentive package. Overall, the proposed approach to re-openers is ambiguous and unclear.	(i) Fill the regulatory gap with the provision of well design and clear re-openers, (ii) set no materiality for areas entirely outside our control or at a level that reflects the cost of the regulatory burden for undertaking the assessment, and (ii) use true up or logging up only in exceptional and clearly pre-defined circumstances as they should be in ex ante output- and incentive-based regulation.
The result	✘ Failure to meet 2030 Net Zero target	✓ Meet 2030 Net Zero targets

*R-openers are in the table for completeness of the UMs. This Main Document focuses on the UMs essential to achieving Net Zero and therefore our position on other re-openers is not repeated in this context. However, addressing the issues are fundamental to a fair and balanced RIIO-T2 outcome and one without regulatory gaps. Detail is provided in response to the following questions as well as the aforementioned appendix: Core 12, 19, 20, 21, ETY Q13 and SHET Q12.
**Our proposal is for logging up as opposed to a re-opener but with no mechanism at all, this leave a significant gap.

4.2. Volume Driver

As the TO in the North of Scotland, we have a legal obligation enshrined in our licence to facilitate reasonable requests for connection of new generation customers to our network and must ensure our network is capable of meeting demand requirements. Our track record over the past decade is timely connection, working with our customers and stakeholders to innovate and respond quickly to changing network users' requirements.

The existing RIIO-T1 volume driver mechanism for generation and demand connections is a critical mechanism for providing timely innovative connections. It is designed to automatically adjust revenue to enable new connections to our network as and when required and is based on pre-set unit costs. This automatic mechanism provides confidence and certainty about the regulatory framework for connecting renewables in a timely manner under a proportionate regulatory burden. While there are always lessons to learn, in general the RIIO-T1 volume driver mechanisms has been highly effective.

As outlined in our Planning for Net Zero Scenarios paper[58], generation connections could credibly exceed our Certain View by more than 2.5GW in RIIO-T2 if net zero pathways are achieved. On this basis, our Business Plan proposed the continued use of a volume driver mechanism to ensure TOs can recover costs for works associated with the provision of uncertain, customer-driven generation and demand connections. We proposed modifications to the mechanism to address Ofgem's and stakeholders' views that allowances could be more closely aligned with forecast expenditure (reducing the risk for windfall gains and losses on a project-by-project basis).

The Draft Determinations appear to have largely disregarded our detailed analysis, modelling and proposals for the RIIO-T2 volume driver. The design and parameters of the mechanism proposed in the Draft Determinations (and data files subsequently provided by Ofgem) are flawed and have the potential to delay connections. **Accordingly, we do not support the volume driver mechanism as proposed by Ofgem in Draft Determinations.**

In summary, the proposed volume driver mechanism is based on modelling errors that must be resolved for Final Determinations. As a consequence of these modelling errors, the proposed the unit cost allowances (UCAs) are significantly lower than our forecast expenditure. Applying the proposed UCAs against our RIIO-T1 portfolio of projects and actual cost of connections, we have resulted in a windfall loss of £120m[59]. This is not a balanced position.

To remedy the issues we have identified, Ofgem must:

1. correct all the errors identified and follow a robust process to assure the data input to the models;
2. ensure the models are statistically sound; and
3. ultimately, ensure the **UCA rates are fair, cost reflective and aligned with individual TO technical requirements and the uncertainty each face in the possible mix of future projects**

[58] https://www.ssen-transmission.co.uk/riio-t2-plan/planning-for-net-zero-scenarios-certain-view-and-likely-outturn/
[59] There is no reason to expect that portfolio of projects will differ substantively from RIIO-T1 to RIIO-T2.

However, it remains our view that Ofgem should adopt the volume driver we proposed in our Business Plan. Ofgem has not opined on it. Our proposal is the optimal, evidence-based option. We set out in detail our significant concerns with the Ofgem proposals in our Supplementary response on the volume driver ("T2BP-DD-SHE-006 SSEN Transmission - Uncertainty Mechanisms - Volume Driver").

4.3. MSIP and LOTI

The MSIP and LOTI mechanisms as proposed in the Draft Determinations have a significant impact and consequence for GB's success (or otherwise) in achieving net zero targets.

These two mechanisms will be relied upon for the granting of regulatory approvals for the critical infrastructure investments required to connect and transport energy from renewable generators in the north of Scotland. As described above, the capacity of connected renewable energy in the north of Scotland must grow to over 20GW by 2030 if net zero targets are to be realised. This requires sustained and significant investment in grid capacity over the coming decade. This is certain. Effective uncertainty mechanisms need to be designed with achieving that outcome at the front-and-centre.

Draft Determinations fail categorically and unambiguously in this task. In summary, the current structure of both mechanisms is entirely unworkable due to the assessment requirements and their associated timings which are not aligned with network users' needs and other project activities, particularly planning and consent.

There is no analysis in the Draft Determinations that illustrates how MSIP and LOTI have been designed to align with net zero pathways. Our analysis of the required investment in the north of Scotland shows no room for multi-year regulatory approval processes.

The key drivers for renewable generation in the north of Scotland are likely to be the outcome of the next Contract for Difference (CfD) auction round and the outcome of the ScotWind leasing. These give a clear and certain signal as to when investment will be required. There is a credible pipeline of up to 2.5 GW of eligible generation developments, including on remote Scottish Islands, that might participate in the CfD round for connection forecast to be 2025/26 and 2026/27. Successful generators will reasonably expect us to deliver connections (and associated infrastructure) on time, and for the regulatory framework to enable that. Construction works should commence in late 2021 and 2022 (with pre-construction in advance of that).

Neither the MSIP nor the LOTI mechanisms are designed with timely CfD connections as the driver, for example, by aligning regulatory approvals for investment with the certainty of the CfD auction result.

Under LOTI the proposed 3 to 6-month approval period for a Final Needs Case (FNC) is only after a 12-month review of an Initial Needs Case (INC), resulting in a minimum 16-18 month Needs Case review before approval, followed by commencement of the project assessment (PA), which will then take another 9 to 12 months. In addition, Ofgem proposes that this process is sequential and each time would be tied to project milestones. It is evident that a 30 month prescriptive regulatory process will result in delay in critical investment.

The MSIP mechanism has single re-opener window in 2024 which is unworkable in practice. With a window for networks to apply for funding restricted to 2024, and an unconstrained timescale for reaching a regulatory decision, it is evident that RIIO-T2 will be largely complete before the funding is approved and released. This is therefore an ineffectual mechanism as currently designed.

In order to address these concerns, we propose that for both LOTI and MSIP:

- Ofgem should commit to making a decision within six months of receiving a submission;
- Submission can be made at any time based on the project delivery programme, depending on the project this might be before or after planning consent submissions; and
- Submissions for need and cost can be made individually or concurrently, again based on the appropriate requirements for the project.

Given the quantum of the investment that will be funded under MSIP and LOTI – together potentially multi-billion – it is unreasonable to expect licensees would invest in advance of regulatory approval. Given our experience with the Scottish islands links, where Ofgem has placed additional conditionality on approval, this is certainly our position. Thus it is critical that regulatory approval is designed into the uncertainty mechanisms to be achieved in advance of the start of construction.

4.4. Pre-construction

Finally, to complete the picture, to reiterate our comments in section 2.2 above, upfront funding for pre-construction is essential to efficient investment, alongside an in-period uncertainty mechanism. It is justified and must be allowed.

The Scottish Government forecasts 8-10 GW of offshore wind connections in the late 2020's. This would double the existing generation connected to the north of Scotland network and so require significant strategic investment. Strategic investment in electricity transmission can take ten years to develop, design, assess options, engage with stakeholders and build. Many studies have shown that comprehensive and thorough pre-construction is essential to ensure timely, cost effective delivery. This is our experience based on our track record of capital investment delivered on time and under budget, such as our £1bn Caithness-Moray HVDC subsea cable energised in 2019 which proved up to 1,200MW of capacity to transmit power from renewable energy sources from across the far north of Scotland . It is also a strong point of feedback from our stakeholders, who consistently expressed a desire to be engaged early and participate in the co-creation of infrastructure so as to manage the impact on their communities and environment.

It is of concern, therefore, that the Draft Determinations does not propose baseline funding for this certain need for pre-construction and instead suggests that this expenditure be subject to an ex-post review in 2026/27. Such a regulatory approach is contradictory to baseline funding for known need and introduces caution on the part of the licensee in the knowledge that any monies spent might not be allowed. Our response sets out detailed proposals and justification for an upfront allowance, along with an annual in-period re-opener. Together these proposals will enable the timely progression of necessary pre-construction.

5. Draft Decision on Financial Package

As is currently proposed in Draft Determinations, Ofgem has provided a financial package which is not financeable and will cause significant financeability pressure, under-compensate investors and put investment at risk to the detriment of consumers.

Ofgem has made a series of errors in determining the cost of equity and the cost of debt which has resulted in Ofgem relying on incorrect and unjustifiable assumptions of the notional company to 'mask' the financeability issues in RIIO-T2 caused by these errors.

We set out in detail our response to the financial elements of RIIO-T2 that result in the above consequences, answering the questions posed by Ofgem in its Draft Determinations consultation. This main response details our view on the material aspects of the price control summarised below in Table 5.0. Here we provide a summary of the area and issues alongside an associated remedy. This must be read in conjunction with this section, supporting evidence and question responses.

Table 5.0 – Summary of Finance Issues and Remedy for DDs

AREA	ISSUE	REMEDY
Cost of Equity *(section 5.1)*	Ofgem has set the cost of equity range too low based on observable market evidence as set out in section 5.1. Ofgem has made a series of errors in setting the cost of equity therefore causing equity and debt financeability issues.	Ofgem need to correct for the errors identified in the setting the cost of equity. This includes adjusting each parameter of the cost of equity CAPM and placing less weight on inferior cross checks. **The cost of equity should be in line with our business plan proposals at 60% gearing and at least in the middle of the range proposed by Oxera[60].**
Cost of Debt *(section 5.2)*	Ofgem has incorrectly undertaken its analysis to reach a conclusion on the cost of debt index choice and calibration for RIIO-2. Ofgem has incorrectly switched to the utilities index therefore introducing credit risk while also excluding additional costs of borrowing leading to a material risk of underfunding interest costs in RIIO-T2. Ofgem's analysis also does not consider the criteria for using a bespoke mechanism for SHE Transmission and applies this mechanism in error absent robust analysis.	**Ofgem must switch back to the iBoxx A/BBB non-financial corporate bond index and use the appropriate calibration of the trombone to cover the additional costs of borrowing. This includes an allowance for CPIH linked debt as well as the new issue premium observable in the market evidence. Ofgem should also apply a consistent index across Transmission as no bespoke mechanism can be justified based on the evidence.**
Aiming up *(section 5.3)*	Ofgem has aimed down on the cost of equity in its range putting at risk investment and increasing the risk of setting the cost of capital too low.	**Academic and empirical evidence support that aiming up in the cost of equity is in consumers interests due to the cost of underinvestment by setting the cost of equity too low.**

[60] Oxera (2020), 'The cost of equity for RIIO-2'

Outperformance Wedge *(section 5.3)*	Ofgem has included a 22-25bps reduction to the allowed return on equity to account for expected 'outperformance' in RIIO-2. This concept is flawed and evidence shows this leads to a cost to consumers of the same order when considering the impact on RIIO-3. Ofgem's analysis is also constructed in error to justify the size of its wedge. This is also credit negative and the ex-post adjustment drives inappropriate and damaging incentive properties.	**Ofgem should remove the mechanism on the basis of the interest to consumers and regulatory best practice.** Evidence illustrates that this is an error both in principle and in calibration and is a poor substitute for using regulatory tools for setting a good price control.
Financeability Analysis *(section 5.4)*	Ofgem has introduced and changed a number of notional company assumptions to 'mask' a financeability issue within RIIO-T2. To '*solve*' credit ratings issues with its DDs, Ofgem has relied upon an incorrect analysis of RPI Indexed Linked Debt, endogenously adjusted gearing to 55%, utilised the outperformance wedge of 22bps and relied upon the switch CPIH. We show that when correcting for these errors Ofgem has set the evidence supports the view that the cost of equity has been set too low. We also note that Ofgem's own financeability analysis does not support dividend yields of 3% and gearing of 55% while also showing that the 3% dividend yield assumption is too low compared to other sectors. When undertaking plausible downside analysis, we note credit ratios would be too low or sub-investment grade further evidencing errors in Ofgem's financeability analysis.	**We have set out in our response the significant concerns with the financeability of the Draft Determinations as a whole. In its financeability assessment, we proposed that Ofgem:** - **Ofgem must correct the cost of equity and not rely upon a series of temporary and flawed assumptions to justify its financeability analysis;** - **Ofgem should adjust the financeability assumptions for the notional company; and,** - **undertake a plausible range of scenarios to ensure the target credit rating of BBB+/Baa1 can be achieved in RIIO-T2.**
Other issues	We identify a number of errors and issues with Ofgem's DD including introduction of an incorrect Time Value of Money adjustment, errors in the calculation of the 'outperformance wedge' data, and failure to adequately consider pass-through treatment and Fair Tax Mark (FTM) in the tax proposals.	**Ofgem needs to re-evaluate a number of these proposals and correct for errors including introduction of novel approaches to tax, the time value of money and reliance on inaccurate data from its own and other regulator's price controls**

Each section addresses the evidence and issues with the appropriate remedy accordingly and is structured as follows:

5.1 Cost of Equity – this section sets out our response to Ofgem's cost of equity position in the DD with substantial supporting evidence. In this section we set out why we disagree with Ofgem's analysis for the Cost of Equity, why Ofgem has made a series of errors, and needs to correct for these errors at Final Determinations for RIIO-T2.

5.2 Cost of Debt – we explain our evaluation of the cost of debt proposals in the DD including providing detailed analysis and evidence in response to the errors Ofgem has made in reaching its draft decision on the cost of debt mechanism. This includes analysis on the choice of indexation, calibration, and the additional costs of borrowing that regulated networks are exposed to.

5.3 The Outperformance Wedge and Aiming up – in this section we set out why we disagree with Ofgem's outperformance wedge in particular why it is likely to cause harm to consumers due to its adverse incentive properties. We also critique Ofgem's analysis on calibrating such a mechanism and how Ofgem has incorrectly relied upon price controls outside of RIIO-T1 while also erroneously analysing RIIO-T1. In this section we also provide evidence around how aiming up on the cost of equity is in line with best regulatory practice but also in the interest of consumers.

5.4 Financeability Analysis – we set out our analysis of Ofgem's financeability assessment where we highlight that Ofgem has used a series of measures in error to mask a credit rating and financeability issue caused by setting the cost of capital too low. We show that under a plausible range of downside risks due to the significant totex efficiency challenge and outperformance wedge that the equity buffer is reduced and there are significant financeability concerns.

In addition to the areas above, we also present our **Relative Risk to UK Water** (section 5.5), summarising the observable market evidence which compares UK Water to UK energy networks in response to Ofgem's incorrect conclusion that the risk profile is similar. There is significant evidence both quantitative and qualitative that demonstrates that energy networks are significantly higher risk than UK Water.

We have also covered the other finance issues set out in the Draft Determinations including Capitalisation Rates, RIIO-T1 Close Out and Annual Iteration Process, Directly Remunerated Services, RAMS, and Time Value of Money in our detailed question responses.

5.1. Cost of Equity

In this section we summarise our evidence and response to Ofgem's proposed Cost of Equity (CoE) range. This is based on the evidence and analysis undertaken by Oxera since the commencement of RIIO-2 and its first report in February 2018 on behalf of the ENA[61]. In particular this includes evidence collated and submitted to the CMA as part of the ENA's response to the NERL appeal on RP3 and the water companies' appeal to the CMA on PR19. This evidence is collated and presented by Oxera in an updated version of its report from February 2018 and November 2019[62] and included as part of our submission to the Draft Determinations. The primary issues have been identified where Ofgem has made an error which include where Ofgem has:

1. Incorrectly relied upon the CPI back cast that was utilised by the UKRN study by Wright et al (2018) when estimating the real TMR.
2. Relied upon the geometric rather than the arithmetic average when calculating the historical TMR.
3. Incorrectly calculated the debt beta and not relied upon market and academic evidence in reaching its conclusion.
4. Relied upon UK Water asset beta comparisons in error in relying upon its range for the observed asset beta.
5. Not utilised an appropriate proxy for the Risk Free Rate (RFR) in the calculation of the CoE using the Capital Asset Pricing Model (CAPM).
6. Aimed at the bottom of the range in the CoE therefore breaking from regulatory precedent and putting investment at risk to the detriment of consumers.
7. Failed to properly account for the higher risk of energy networks relative to UK Water when setting the CoE or in its evaluation of the overall package of potential returns set out in section 5.5.
8. Erroneously applied the Miller-Modigliani (MM) theorem by misinterpreting academic literature where its estimates for the CAPM violate the MM proposition.
9. Relied upon inferior cross checks including misinterpreting evidence and placing undue weight on CoE comparisons to push down its estimate for RIIO-2. Ofgem should be relying on directly observable evidence including the ARP vs DRP cross check to inform its CAPM estimate on the CoE.
10. Not given due consideration to evidence presented to them over the RIIO-2 period including placing more weight on methodological changes when calculating the CoE meaning almost 80%

[61] Oxera report, The cost of equity for RIIO-2 – A review of the evidence, Prepared for the ENA, (Feb 2018) available at: https://www.oxera.com/wp-content/uploads/2018/07/ENA-cost-of-equity_2018-02-28.pdf.pdf
Oxera reports referenced in this submission have been included as appendices to OXera's Cost of Equity report dated September 2020 submitted on behalf of the ENA to Ofgem.
[62] Oxera report, The Cost of Equity for RIIO-2, Prepared for the ENA, (Nov 2019)

of the changes are due to changes in methodology or Ofgem specific adjustments and not market data[63].

We have summarised the updated range as calculated by Oxera correcting for errors above prior to then summarising the evidence for the errors made by Ofgem in calculating the RIIO-2 CoE. We have then summarised our view of the cross checks used by Ofgem or other parties in setting the CoE for RIIO-2.

5.1.1 Updated CoE Range

Table 5.1 below summarises the RIIO-2 CoE estimates comparing Oxera's 2019 submission as part of our Business Plan and the updated range based on updated market evidence[64]. This table shows that Oxera do not consider Ofgem's evidence on key parameters in estimating the CoE robust and reach a similar conclusion to our Business Plan submission. Oxera estimate a CPIH-real CoE range of 6.00% to 7.08% whereby we proposed a CoE of 6.5% CPIH-real in the middle of the range as the most appropriate. We evaluated our Business Plan for financeability considering the target credit rating of BBB+ and using the natural capitalisation rate of 90% (see our section on capitalisation rate and financeability).

Table 5.1 – Summary of RIIO-2 Cost of Equity Estimates

Cost of Equity	Oxera current evidence		Oxera 2019		Ofgem DD	
	Low	High	Low	High	Low	High
Real TMR (%)	7.00	7.50	7.00	7.50	6.3%	6.8%
Real RFR (%)	-1.00	-1.00	-1.20	-0.79	-1.5	-1.5
ERP (%)	8.20	8.29	8.20	8.29	7.73	8.23
Asset Beta	0.38	0.41	0.38	0.41	0.34	0.39
Debt Beta	0.05	0.05	0.05	0.05	0.13	0.13
Equity Beta at 60% gearing	0.88	0.95	0.88	0.95	0.66	0.79
Real Cost of Equity at 60% gearing (%)	**6.00**	**7.08**	**5.98**	**7.09**	**3.64**	**5.00**
Equity Beta at 55% gearing	0.78	0.85	0.78	0.85	0.60	0.71
Real Cost of Equity (%)	**5.27**	**6.23**	**5.22**	**6.26**	**3.18**	**4.40**

Source: Oxera analysis adjusted to 55% and 60% gearing and do not including the 22-25bps downward adjustment for expected outperformance as advocated by Ofgem.

We note that Ofgem has utilised *cross checks* in line with its proposed 3-step approach to reduce the cost of equity prior to applying the outperformance wedge (i.e. the Allowed vs Expected outperformance wedge of 22bps for Transmission and 25bps for Gas Distribution). The CoE is therefore reduced by Ofgem to 3.93%-4.20% prior to this outperformance wedge and down to 3.70-3.95% after applying the outperformance wedge.

[63] Oxera (2020), 'The cost of equity for RIIO-2' page 60 figure A1.2
[64] Oxera (2020), 'The cost of equity for RIIO-2'

5.1.2 Cost of Equity Parameters

When evaluating the CoE, we have considered each parameter within the CAPM which is the primary source of determining the CoE.

TMR

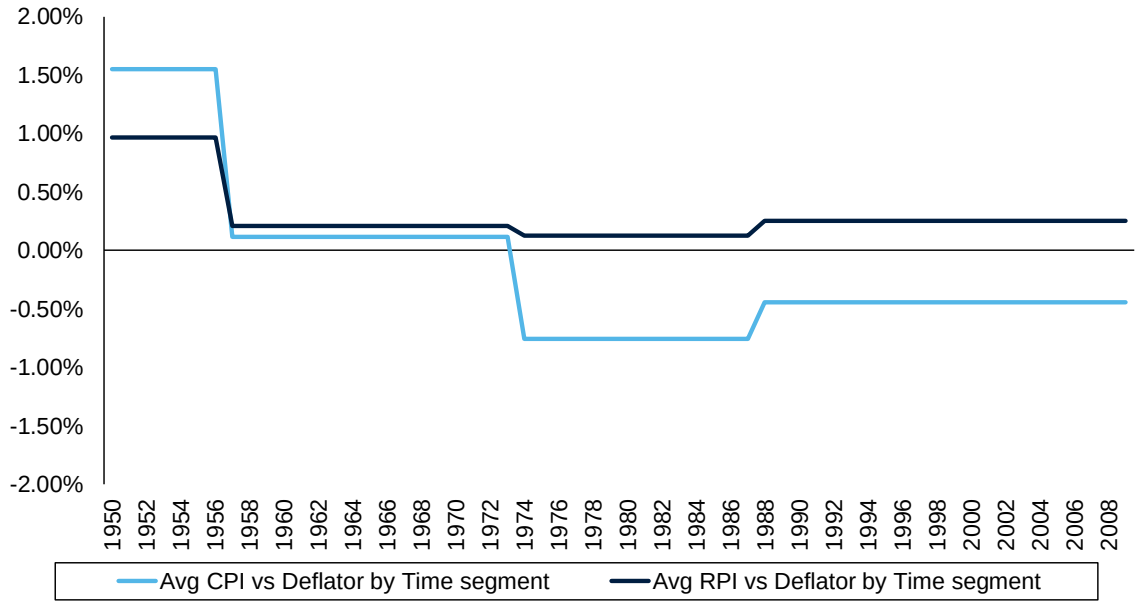
There has been a significant amount of evidence and analysis collated and reviewed as part of estimating the TMR which affects multiple regulated sectors. We have seen this issue arise as part of the appeal to the CMA by NERL for RP3 and also by the Water companies' for PR19. Oxera has provided a significant body of evidence as part of these appeals including in particular for the ENA. The August 2020 report brings this evidence together while referencing other more detailed supporting reports accordingly.

The primary issue with Ofgem's approach in reaching its TMR range is that Ofgem has erroneously relied upon historical inflation data which is not reliable. This *novel* approach to adjusting for inflation is not widely recognised as a reliable approach to estimating TMR by several parties including Oxera as set out previously in responses to the RIIO-2 Framework Consultation[65] and the SSMC[66]. Ofgem has relied upon the analysis by Mason, Pickford, Wright (MPW)[67] and the TMR recommendations they made which rely upon CPI as the reference measure of inflation when analysing historical real market returns going back to 1990. MPW then recommends using CPI inflation published by the Bank of England (BoE) Millennium dataset. MPW estimate a TMR of 6-7% (CPI-real) based on long-run realised returns.

Oxera set out that when utilising the 2020 edition of the Dimson, Marsh and Staunton (DMS), the nominal returns are the starting point as opposed to the real returns. This is because DMS rely upon a Hybrid of RPI and CPI inflation to deflate the nominal TMR. CPI estimates prior to 1988 are essentially estimated ex-post and are based on estimating the formula effect back to 1950 and relying on the Consumption Expenditure Deflator (CED) to estimate the CPI index over that period prior to 1950. The CED estimates predate the publication of CPI in 1997 and therefore closely resembles the RPI measure of inflation thereby using the Carli method of averaging and not the Jevons method. This is supported by the analysis undertaken by National Grid[68] in Figure 5.1 below showing the comparison of RPI to CED and CPI to CED.

[65] RIIO-2 Framework Consultation (Mar 2018)
[66] Ofgem RIIO-2 SSMC Finance Annex (May 2019)
[67] We have excluded Burns from the reference to this particular point as he disagreed with the other authors on a number of areas as set out in the UKRN study.
[68] National Grid (2020), 'Total Market Returns, (Jan 2020), p11

Figure 5.1 – National Grid Analysis of differential over time between CPI and CED and RPI and CED



This illustrates that over time, the differential between CED and RPI is constant at around 20bps, whereas CPI varies significantly over time. The alternative is to re-calculate CPI using historical data but this is not available to truly estimate CPI using today's methodology which is not the case for RPI. The ONS has been unable to locate the information used to construct historical CPI estimates and has been unable to replicate them as noted by Oxera. The ONS is therefore currently revising the back cast of historical CPI and therefore the current series used by MPW and therefore Ofgem is not a reliable CPI dataset.

As a result, Oxera set out that the historical TMR should be calculated using the *official* RPI inflation measure and Oxera set out two possible methods for achieving this. Oxera's preferred method is to add the forecasted RPI-CPIH wedge to RPI-real historical returns restated using today's RPI methodology. The alternative is to deflate nominal returns by CPI inflation, adjusting for the bias in the historical estimates of CPI. Oxera created an adjusted RPI series as part of its work for Heathrow Airport Limited (HAL)[69] submitted to the CMA in the NATS appeal and when applying either method the results are similar when deflating the TMR. **This is statistically and empirically the more robust approach than the unreliable method used by Ofgem.**

Oxera conclude that *'A regulator should not intentionally use an unreliable and inconsistent inflation measure. To the contrary, our goal is to generate a comparable, consistent inflation measure across the entire time series, otherwise any calculation of a historical real TMR will be inconsistent with the way that inflation is measured today[70].'* This summarises quite clearly the error Ofgem has made in reaching their Draft Determination CAPM based CoE.

[69] Oxera 'Estimating RPI-adjusted equity market returns, prepared for HAL (Aug 2019)
[70] Oxera 'The cost of equity for RIIO-2' (Sept 2020), para 2.21

Arithmetic vs Geometric

When converting a historical average to an unbiased market discount rate using the TMR, the arithmetic average is a more appropriate measure than the geometric. Cooper (1996)[71] calculates a discount rate investors should use to given an unbiased estimate of the present value of future cash flows. In doing so Cooper (1996) concludes that the TMR should be at least as high as the arithmetic average of historical returns. This is as opposed to the JKM estimator[72] which is not seen as the appropriate discount rate for investors when evaluating future cash flows. The JKM estimator is an unbiased estimator of the growth rate to use to project the future value of a portfolio of securities and not that used for by investors or for capital budgeting decisions. Therefore the JKM estimator is not the most appropriate methodology when setting a price control as the priority is to determine what rate do investors use to discount future cash flows. **Ofgem continues to misunderstand the difference between compounding and discounting in its estimate of TMR and has therefore incorrectly used the geometric average of historical equity returns which produces a lower estimate than undertaken by Cooper (1996)[73].** The Ofgem approach understates the allowed return compared to the discount rate used by investors when valuing regulated companies and when companies make decisions about capital budgeting through investment appraisals. This is how we make capital budgeting decisions as a company and as a listed company we also consider that this is the appropriate practitioner approach.

TMR Range

As of the DMS 2019 report, the long-run geometric and arithmetic averages of real UK equity market returns were 5.4% and 7.2% respectively. The DMS 2020 edition shows UK equity market returns of 5.5% and 7.3% meaning the nominal UK equity market returns are 9.3% and 11.1% showing an upward increase in the TMR. **When accounting for the downward bias of using the indirect approach, correcting for Ofgem's errors on the inflation measure and over-reliance on inferior or inappropriate cross checks (see further details below) Oxera conclude that the TMR is 7.0 to 7.5%.**

Risk Free Rate (RFR)

Oxera[74] has updated its methodology due to recent work submitted to the CMA on whether sovereign yields are a good proxy for the rate of return on a zero-beta asset. The academic evidence sets out that for the CAPM the RFR is defined as a zero-beta asset that investors borrow and lend at. Oxera find that using spot yields on government bonds underestimates[75] the practical value of the RFR for use in the CAPM. The impact of this underestimation inadvertently violates the Modigliani-Miller (MM) proposition that the WACC should be invariant with respect to the level of gearing. Oxera find that, as Ofgem has

[71] Cooper, I. (1996) 'Arithmetic versus geometric mean estimates: Setting discount rates for capital budgeting', *European Financial Management*, 2:2 1996 pp 156-67
[72] Jacquier, E., Kane, A. and Marcus, A. (2005), 'Optimal Estimation of the Risk Premium for the Long Run and Asset Allocation: A Case of Compounded Estimation Risk', *Journal of Financial Econometrics*, 3:1, 37-55.
[73] Cooper, I. (1996) 'Arithmetic versus geometric mean estimates: Setting discount rates for capital budgeting', *European Financial Manthe RFR for agement*, 2:2 1996 pp 156-67
[74] Oxera (2020), 'Are sovereign yields the risk-free rate for the CAPM?', prepared for the Energy Networks Association, 20 May.
[75] Sharpe, W. (1964), 'Capital asset prices: A theory of market equilibrium under conditions of risk', *Journal of Finance*, **19**:3, pp. 425–442.

estimated the CPIH-real RFR as -1.5%, they have violated this assumption through using the spot yields on government bonds.

Government bonds have high credit ratings and therefore are often used as an appropriate proxy for the RFR given the low default risk. Oxera highlight that the unadjusted spot yields on government bonds are not suitable within the CAPM framework which does not specify that it should be a government bond, just a zero-beta asset[76]. Oxera set out in its report that government bond yields underestimate the RFR due to two reasons[77]:

1. A substantial convenience premium for government bonds as they possess safety and liquidity characteristics pushing the rate below that of a true zero-beta asset. A premium would need to be applied to adjust this spot rate upward to account for this[78] as they are not considered an appropriate benchmark for *"riskless"* rates[79].
2. The CAPM assumes all investors can borrow and lend at the same RFR but in reality non-sovereign investors face higher borrowing rates than those faced by governments. Oxera note that Berk and De Marzo (2014) state that *'practitioners sometimes use rates from the highest quality corporate bonds in place of Treasury rates in [the CAPM equation]'* [80]

As a result of this evidence, Oxera calculate two different approaches to address the use of UK spot yields as the RFR. They consider both adding a premium to the spot rate or to use AAA-rated corporate bonds adjusted for default risk. They note the spread is 70-80bps and then rely upon academic evidence that sets out the required adjustments for both these approaches. Another point outcome when adjusting for this issue is that the MM theorem holds and there is less variability in the WACC for a change in gearing. When adopting method 1, i.e. applying a premium to the spot rate on government yields, leads to an estimated RFR of -0.90% compared to method 2, i.e. AAA-rated bonds adjusted for default risk with an estimated RFR of -1.07%. **Oxera then use the mid-point between these two methods to arrive at an RFR of -1.0% in its CoE range albeit their preferred method is using the adjusted AA-rated bonds.**

Risk and Beta

The primary financial measure of risk is beta which is to measure systematic risk and does not capture company specific risks or other sources of risk such as political or regulatory risk[81]. This is the equity beta and is affected by the asset beta which ignores the capital structure, with the gearing and debt beta which reflects the level of debt and risk of default on the debt. Oxera set out the evidence on beta

[76] Brennan, M. (1971), 'Capital Market Equilibrium with Divergent Borrowing and Lending Rates', *The Journal of Quantitative and Financial Analysis,* **6:**5, December, p. 1204.
[77] Oxera (2020), 'Are sovereign yields the risk-free rate for the CAPM?', prepared for the Energy Networks Association, 20 May.
[78] Krishnamurthy, A. and Vissing-Jorgensen, A (2012), 'The Aggregate Demand for Treasury Debt', *Journal of Political Economy*, **120**:2, April, pp. 233–67.
[79] This is not currently reflected in Ofgem's methodology for RFR indexation within the cost of equity and therefore this would need to be incorporated to account for these adjustments accordingly.
[80] Berk and DeMarzo (2014), *Corporate Finance. Third Edition*, p. 404.
[81] Oxera (Aug 2020) summarise analysis of an event study undertaken for National Grid around regulatory announcements and identify a material shift in risk caused by regulatory cycles and announcements.

estimates for the CAPM and consider the choice of comparators, technical estimation issues, debt beta, asset beta and the relationship of gearing. We have set out our thoughts with reference to this evidence below.

Asset Beta

Oxera's previous methodology[82] used a European and UK comparator set of energy networks and took the high end of the range formed on 2yr and 5yr averages for the sample. In updating the methodology, they have continued to rely upon liquid stocks considering just a UK sample including UK Water, as well as a European sample of energy networks. Oxera argue that UK Water and Energy Networks have distinctly different risk profiles and therefore energy comparators both UK and European are more appropriate[83]. We have reviewed the relative risk of UK Water to UK Energy Networks in section 5.5 of our response to the DD.

Oxera highlight the errors made by CEPA's analysis for Ofgem, including the use of illiquid stocks in its comparator set[84]. In addition to this European comparator set, Oxera has used National Grid's 5-year asset beta of 0.38 as the low end of its range, and the 5-year average asset beta across all comparators of 0.41 as the high end of its range[85]. Oxera's range is 0.38-0.41 and focus on quantifying the non-CAPM risks elsewhere in its analysis and do not use this cut-off to generate the asset beta range[86]. They note that their range is '*conservative*' as the CAPM does not account for other risks networks are exposed to which they have quantified in their study.

We also note that in Ofgem's analysis, they equate the risk of UK energy networks to UK Water when justifying the asset beta range. There seems no justifiable reason why National Grid in particular is not an appropriate asset beta that should carry substantially more weight than UK Water comparators. Although National Grid has trended higher than UK water betas, it is also likely to be an underestimate of the National Grid beta estimate. As we had set out in our Business Plan and associated Frontier Economics[87] reports on beta decomposition, we have shown that the lower risk US business of National Grid pulls the beta estimate down. Oxera simplify this by comparing electricity and gas networks beta between the UK and US showing a differential of 0.30 with the UK higher in electricity.

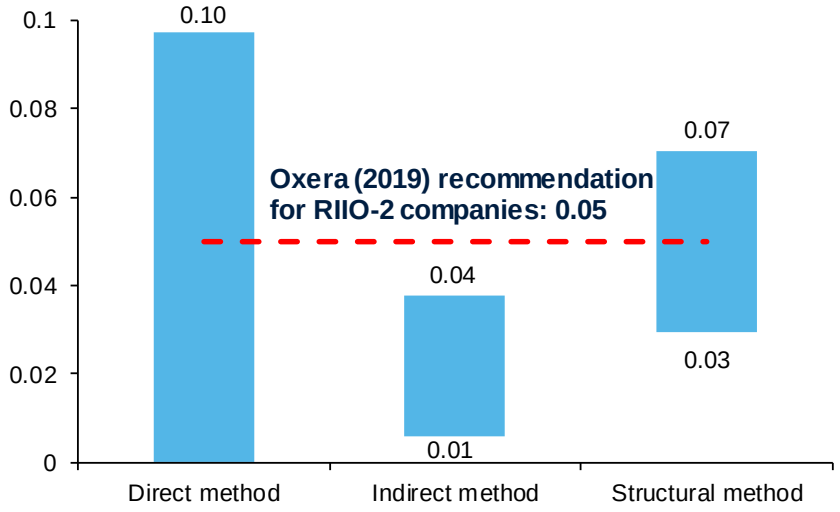
Debt Beta

Oxera[88] has undertaken a substantial amount of analysis on debt beta using observable market data. They review the CEPA report[89] and illustrate that considering two methods for estimating debt beta using the direct and indirect methods that the debt beta Ofgem selects is unjustifiably high. Oxera provide evidence on debt beta which is best summarised by way of Figure 5.2 below. This shows that

[82] Oxera (2018), 'The cost of equity for RIIO-2', 28 February 2018
[83] Oxera (2020), 'The cost of equity for RIIO-2'
[84] CEPA (2020), 'RIIO-2: Beta estimation issues', 9 July.
[85] Oxera (Aug 2020) state that *'the economic disruption driven by COVID has dramatically increased volatility in 2020. As a result, both 2-year betas and the European comparators have drifted away from their historical norms.'*
[86] This is to address Ofgem's earlier criticism that the previous methodology was too arbitrary to justify focusing on the top half of the Oxera range.
[87] Frontier Economics (Jan 2020), 'Beta Decomposition' a report for National Grid and SSE
[88] Oxera (Jun 2020), 'Estimating debt beta for regulated entities', prepared for the ENA, repeated again for Oxera (2020), 'The cost of equity for RIIO-2'
[89] Oxera (2020), 'Estimating debt beta for regulated utilities', 4 June.

Ofgem's estimate of 0.125 debt beta is based on incorrectly referencing Oxera analysis. The more appropriate level is around 0.05 which is consistent with RIIO-ED1 and that used by the CMA for the NIE decision. Additionally, the data for UK water shows a debt beta no higher than Oxera's estimate when using the indirect method and broadly in line with Oxera's estimate when using the direct method.

Figure 5.2 – Evidence on debt beta



Oxera[90] also corrects CEPA's errors in its report and after correcting for these errors reach the same conclusion as its own report in that the debt beta should be around 0.05. Additionally, Oxera finds that the academic evidence (Fama and French (1993)) was mispresented by CEPA in its report supporting Oxera's debt beta estimate.

Gearing and the WACC

Oxera has undertaken comprehensive analysis of the MM theorem when reviewing Ofgem's application of gearing and setting the WACC[91]. They find that its estimates for RFR, debt beta, and cost of debt result in a better fit to the MM model than Ofgem's own estimates. Ofgem has referred to the NATS/CAA appeal to the CMA[92] where they were concerned around changes to the WACC by changes in the gearing when compared to the MM theorem. After correcting for the errors made by Ofgem, the Oxera estimates more accurately fit with the MM model and illustrate the extent of the errors made by Ofgem. As a result, the WACC is not very sensitive to changes in gearing as stipulated by the MM proposition. **Oxera note that Ofgem's manual change to the CoE by 10bps is to force the inputs to comply with the MM theorem where after correcting for Ofgem errors as noted above, it is clear this manual arbitrary 10bps is not required and should be removed by Ofgem.**

[90] Oxera do this in the reports entitled 'The cost of equity for RIIO-2' (2020) and 'Estimating debt beta for regulated entities' (Jun 2020) both prepared for the ENA.
[91] Oxera (2020), 'The cost of equity for RIIO-2', section A2.6
[92] Competition and Markets Authority (2020), 'Provisional Findings Report', Appendix D, para. 4.

5.1.3 Cross Checks

There are several cross checks which can be considered as supplementary evidence to the traditional CAPM approach. Oxera advocated for the use of cross checks in its seminal 2018 study which Ofgem latterly included in both the RIIO-2 Framework Consultation, SSMC and SSMD as part of its CAPM three step process. The primary cross checks SHE Transmission have considered over that period are set out in Table 5.2 below where we have summarised our evaluation of the weighting that should be placed on each cross check. This is based on the reliability or observability of the evidence, availability of academic and market evidence and whether it is a methodological change or it is subject to material judgement.

Table 5.2 – Summary Analysis of Cost of Equity cross checks

Cross Check	Weighting and Reliability
ARP vs DRP	This is a superior cross check as it is based on market data. We therefore place more weight on this cross check when comparing to the CAPM estimate of the CoE.
DDM Models	This is evidence which could be termed a cross check but is subject to input sensitivity and forecast information. The Bank of England model is in line with Oxera's analysis and therefore some weight may be placed on this as a cross check with some careful consideration of the associated inputs.
OFTO returns	This data is unreliable as it is not comparable to regulated networks as an asset class. The data is also not available for interrogation and is likely to be highly sensitive to assumptions as these assets reach maturity. OFTOs have little to no regulatory oversight to verify the actual performance of each OFTO.
Infrastructure fund discount rates and Ofgem's investment manager cross-check	As we have noted, this evidence is considered survey data and therefore does not carry the weight of observable market evidence. When the analysis is corrected for Ofgem errors, it is more supportive of the range proposed by Oxera.
Market to Asset Ratios (MARs)	Oxera analyse MARs noting that the premia can be explained by several factors not attributed to the allowed return on equity. This evidence is therefore not a reliable cross check and little weight should be placed upon this by Ofgem when setting a price control.
Beta re-gearing and MM cross checks	Oxera term this a cross check to validate inputs to the CAPM. Ofgem's point estimates do not comply with this theorem. This is conceptually reliable and has been referred to by the CMA in its Provisional Findings for the NERL appeal[93].

Asset Risk Premium and the Debt Risk Premium

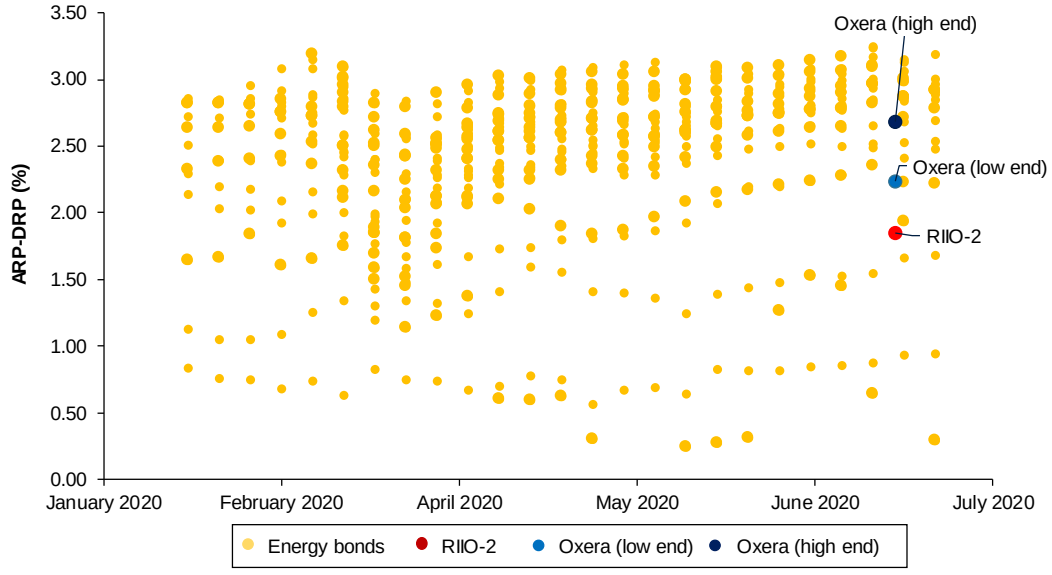
Oxera has provided compelling academic evidence relating to the Asset Risk Premium (ARP) and the Debt Risk Premium (DRP) of regulated networks. Oxera[94][95] analyse the relationship between the ARP and DRP as an appropriate cross check for estimating the cost of equity for RIIO-2. Due to the security

[93] Competition and Markets Authority (2020), 'Provisional Findings Report',
[94] Oxera report, Review of RIIO-2 finance issues – Asset and debt risk premiums, Prepared for the ENA (March 2019)
[95] Oxera report, Asset risk premium relative debt risk premium, Prepared for the ENA (Aug 2020). See Oxera – Asset Risk Premium relative to Debt Risk Premium (ENA report)

ranking of debt over equity, the rule must hold that the premium to equity holders is higher than for debt holders. In providing its analysis, Oxera empirically reviews evidence using market evidence of bonds issued by UK utilities and regulated entities and bonds issued by US utilities. Oxera note in its analysis that Ofgem has understated the asset risk premium differential to the debt risk premium by a significant amount from Ofgem's estimate. Oxera assert that this estimate provides a conservative estimate of the allowed WACC and is therefore more than a simple cross check albeit it does not replace the CAPM derived WACC. We also note that Oxera respond to the misrepresentation of their evidence in their report.

Oxera has also considered UK regulatory precedents in its analysis and present this in the report. They provide analysis summarised effectively by Figure 5.3 below which compares the differential from UK energy bonds to its Cost of Equity range and to Ofgem's range.

Figure 5.3 Comparison of the ARP–DRP differentials implied by Ofgem's and Oxera's estimates to the ARP–DRP differential implied by contemporaneous evidence on UK energy bonds



Source: Oxera analysis

This illustrates that Ofgem's estimate is materially lower than market evidence clearly justifies. Oxera's estimate lies in the 24th percentile and the 58th percentile for the low and high end of its range respectively. As we have set out, Ofgem need to correct for its errors and increase the range for the cost of equity in line with observable evidence. **Oxera conclude that the 50th percentile of the ARP-DRP differential implies a real CoE of 6.35% supporting their CoE range in their report.**

Dividend Discount Model

Ofgem has relied upon weak evidence using the Dividend Discount Model (DDM). In conjunction with CEPA and with reference to Ofwat and the CAA, Ofgem identify a nominal TMR using CEPA's DDM

approach between 7.4% to 8%. Oxera set out in February 2018 and again in 2019 and 2020[96] that when using the BoE's DDM they calculate an RPI-real TMR of 7.5%. Oxera do not place the full weight of evidence on the BoE DDM but note in their report that this still supports their TMR range. We note that Ofgem use a different specification of the DDM in the SSMD relying on long term GDP forecasts in the UK. The use of UK GDP as a proxy for long run dividend growth compared to analyst forecasts or global GDP is not appropriate given 70%-80% of UK companies derive earnings from overseas. We also note this model is sensitive to inputs and therefore not as reliable as directly observable market evidence.

OFTOs

Ofgem refer to OFTO rates of return which is inappropriate due to the nature of these investments. These investments are fully constructed point to point assets and therefore as an asset class hold different risks to operating a large integrated regulated network. This is in addition to the substantial and ongoing construction requirements, regulatory obligations, and other events political and regulatory which affect the ongoing operation and risk profile of regulated networks. The term of investment is 25 years with little to no regulatory oversight and these assets have not yet reached maturity. There is an element of *winners curse* that could reside in these assets whereby we only see the winning party outcome and not the other bidders who lost. Even considering that data, we are unable to rely upon the analysis as this evidence is not available for review. The only critique of this evidence was by the National Audit Office (NAO)[97] who quantified a materially higher rate of return or IRR. We have requested access to this information from Ofgem including considering a confidentiality ring which has been rejected. Based on our own analysis, these *financial bid* models are highly sensitive to the input assumptions. For example, any inclusion in outperformance over the period or a small terminal value significantly increases the IRR more in line with the NAO analysis. Additionally, these structures are typically extremely highly leveraged and benefit from unique financial structures which are not available to regulated networks. Ofgem has incorrectly relied upon this as a valid and reliable cross check.

Investment Managers and Infrastructure Funds

Ofgem continues to incorrectly interpret nominal estimated returns from asset managers and financial organisations. Ofgem previously relied upon infrastructure discount rates and investment managers analysis and continues to rely upon this evidence in the DDs. Ofgem then uses the artificially low investment manager evidence as a CAPM cross check to test its range for CoE, again resulting in a cross check supporting an artificially low estimate of CoE.

In Ofgem's DD, they misinterpret and change some of the investment manager evidence. Specifically, nearly the entirety of the decline in Ofgem's estimated TMR is due to a change in the investment horizon for Schroders. If the original horizon had been used for comparison, Ofgem would have reported a TMR of 7.90% rather than 4.90%. In addition to changing the investment horizon from 30 years to 10

[96] Oxera (Feb 2018), 'The cost of equity for RIIO-2' prepared for the ENA, Oxera (Nov 2019), 'The cost of equity for RIIO-2' prepared for the ENA and Oxera (Sept 2020), 'The cost of equity for RIIO-2' prepared for the ENA
[97] National Audit Office, Review of OFTO Tender Round 1 and 2 (Nov 2011)

years, Schroders also calculates its UK estimate using US data. Given the obvious data outlier and the fact that this is not a direct UK estimate it should be excluded. In essence this data point should be disregarded in the analysis even if it were deemed reliable. The other data point that significantly decreased was Blackrock's estimate. As noted by Ofgem, this is not a like-for-like comparison as Ofgem changes from an EU TMR in December 2018 to a UK TMR in December 2019. Oxera[98] illustrate that investment managers projects increased on average from 7.3% to 9.5% over time and after adjusting for the Cooper (1996) estimator for averaging.

Oxera[99] analysed this information and provided a report outlining why Ofgem's analysis is incorrect as part of our business plan submission. Ofgem misinterpreted the basis for which these estimates are provided publicly where they are heavily regulated by the Financial Conduct Authority (FCA) and therefore cannot be relied upon as a guide to future returns as set out in the FCA Code of Business. Additionally, this evidence can be classed as survey evidence in that it is not as observable as actual outturn performance or indeed expectations of investors. Oxera highlighted that academic research refers to this evidence as less reliable, for example, Brealey, Myers, and Allen (2016) state *"Do not trust anyone who claims to know what returns investors expect."*. The CMA has also commented on the empirical reliability of survey evidence where they *"have preferred to consider underlying data on which survey respondents presumably base their views"*. Survey evidence therefore suffers from significant empirical drawbacks and less weight should be given to it. Oxera note that even if this evidence could be relied upon, Ofgem need to adjust nominal returns from the geometric to the arithmetic average leading to a significant uplift in the nominal TMR which is more in line with Oxera's analysis of the evidence[100].

Market to Asset Ratios

Ofgem also argues that Market to Asset Ratios (MARs) for the three listed water companies (Severn Trent, United Utilities, and Pennon) support its allowed return by way of supporting the PR19 cost of equity proposed by Ofwat. This is at best an inferior reference point that relies upon a range of factors and interpretations as opposed to concrete observable data. The ENA provided evidence to the CMA explaining why Ofwat is wrong to argue that its analysis of MARs supports its case that the cost of equity it set for AMP7 is not too low[101]. Oxera evaluate MARs whereby they can identify drivers for market prices[102]. For example, they find that non-regulated portion of the business, accrued dividends, expected takeover premium can more than explain the premia for Severn Trent and United Utilities. In other words, the premia can be explained without the argument that the allowed return on equity is too high.

5.1.4 RFR Indexation

Cost of equity indexation is not an appropriate mechanism for a price control and introduces further complexity and volatility unnecessarily. The methodology should reflect outturn inflation instead of relying on forward estimates of inflation to adjust to the real RFR. We also note, as above, that the RFR

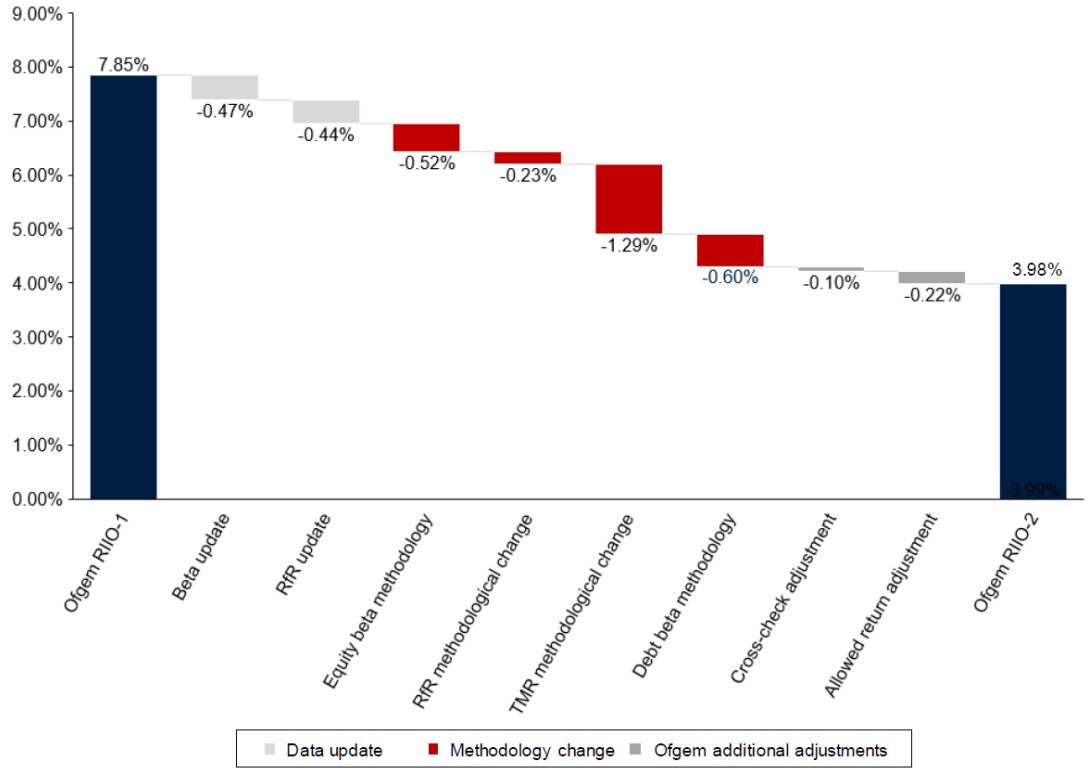
[98] Oxera (2020), 'The cost of equity for RIIO-2' prepared for the ENA.
[99] Oxera report, Review of RIIO-2 finance issues – Rates of return used by investment managers (March 2019)
[100] Oxera report, The cost of equity for RIIO-2, Prepared for the ENA, (Aug 2020)
[101] ENA response in PR19:
https://assets.publishing.service.gov.uk/media/5ed0f2b3d3bf7f45fb321450/Energy_Networks_Association_submission.pdf
[102] Oxera (2020), 'The cost of equity for RIIO-2, prepared for the ENA, section A2.5

rate requires a premium to be applied to be consistent with the MM theorem and reflect an appropriate RFR for use in the CAPM. We also do not believe the relationship between the ERP and the RFR is exactly 1:1 and therefore this methodology should be reviewed over RIIO-2 and at most considered for RIIO-3 as further evidence arises.

5.1.5 Conclusion

As we have set out with comprehensive, observable and robust evidence, Ofgem has made a series of errors in reaching their cost of equity in Draft Determinations for RIIO-2. This is effectively summarised by Figure 5.4 below which illustrates the number of methodological changes Ofgem has relied upon in error to push the allowed return on equity down.

Figure 5.4 – Cost of Equity Bridge between RIIO-1 and RIIO-2[103]



This illustrates that almost 70% is direct methodological changes, almost 10% is Ofgem specific adjustments and the remaining 20% is market data updates only. **We have highlighted throughout this section the errors made by Ofgem across the CAPM parameters and these need to be corrected in Final Determinations.**

[103] Oxera 'The cost of equity for RIIO-2', (Sept 2020) Figure A1.2

5.2. Cost of Debt

We have set out our response to Ofgem's DD in relation to the Cost of Debt in this section. This covers the consultation questions which have been completed in the appendix referencing this section accordingly. This section is structured as followed:

- **Bespoke Mechanism:** we explain that Ofgem has incorrectly applied a bespoke mechanism to SHE Transmission. This section demonstrates that SHE Transmission's RAV growth in RIIO-2 is not materially different to other networks in RIIO-T2 and significantly lower than all other TOs in RIIO-T1: see section 5.2.1;
- **Evaluating the Cost of Debt Funding:** we set out that Ofgem has not undertaken the evaluation on the cost of debt mechanism consistently with its policy or in RIIO-T1. This section illustrates that when considering the appropriate fit of a Cost of Debt mechanism, the sector is more appropriate funded by a trombone index rather than a RAV weighted index overall: see section 5.2.2;
- **Utilities Index:** we illustrate that the Utilities Index is an inferior match to the cost of debt for the sector where this late change introduces credit risk and weakens incentive properties: see section 5.2.3;
- **Additional costs of borrowing and Halo Effect**: this section sets out why we disagree with Ofgem's analysis on the additional costs of borrowing and in particular the halo effect, the new issue premium and the risk arising from the switch to CPIH: see section 5.2.4; and
- **Converting nominal to real debt**: we set out our view on the appropriate means to deflate nominal to real debt and avoid differences in funding due to differences in inflation forecasts and outturn levels: see section 5.2.5.

As part of compiling our response we have undertaken analysis on Ofgem's DD with the support of NERA[104] who have analysed a number of the areas Ofgem set out in its DD including the following:

1. Analysis on the Cost of Debt indexation[105]
2. Reviewing evidence on Additional Costs of Borrowing[106]
3. Reviewing evidence on the Halo Effect[107]
4. The approach to converting nominal debt to real debt[108]

In addition, we have undertaken our own analysis on the bespoke mechanism proposed for SHE Transmission. This section therefore references analysis and conclusions from supporting evidence where appropriate. In assessing the most appropriate Cost of Debt mechanism for our RIIO-T2 Business

[104] NERA Cost of Debt Indexation for RIIO-2 for TOs and GDNs (Aug 2020) and NERA Additional Costs of Borrowing for TOs and GDNs (Aug 2020)
[105] The Cost of Debt Indexation report provided by NERA includes analysis of indexation across the sector similar to that undertaken by Ofgem. It includes certain disclaimers in relation to the nature of the report and the conclusions expressed in relation to the Cost of Debt indexation approach is solely that of SHE Transmission.
[106] ibid.
[107] ibid.
[108] ibid.

Plan, we reviewed RAV growth trajectories, interest rate scenarios, additional costs of borrowing and the calibration of the index to match the costs of borrowing.

5.2.1 Bespoke Mechanism

Ofgem has concluded in DDs[109] that SHE Transmission should have a bespoke mechanism consistent with the RIIO-T1 period. Ofgem state that this is because SHE Transmission exhibits the same *unusual company-specific circumstances* to justify using a RAV weighted mechanism for RIIO-2. Ofgem do not provide any further analysis of this assertion and we review this proposal below.

In RIIO-T1, Ofgem evaluated options for different Cost of Debt (CoD) mechanisms as part of the price control process. This included evaluating different calibration approaches to setting the CoD mechanism using the iBoxx index as well as any bespoke adjustments. This same approach continued for RIIO-ED1 where the CoD mechanism differed between Fast Track and Slow Track DNOs. For SHE Transmission at RIIO-T1, the CoD mechanism was included in Final Proposals where the design of the mechanism relied upon the change in nominal RAV to weight the CoD allowance on an annual basis for the 10 year trailing average. **It is worth noting that Ofgem stated at RIIO-T1 that a bespoke index would be for a period of time and "*an eventual transition to the 10-year simple index*[110]" (emphasis added) would be required unless similar conditions were met for a bespoke mechanism.**

For RIIO-T1, the introduction of the bespoke weighting mechanism was based upon analysis of the range of investment outcomes for RIIO-T1 and considering potential interest rate scenarios[111]. Ofgem set out in RIIO-T1 that they would evaluate each company and the wider sector based on a set criteria whereby they reviewed three notional company scenarios:

- Company 1 with a large RAV at the start of RIIO-1 that undertakes an investment roughly the same size as its opening RAV during the price control.
- Company 2 that has a small RAV at the start of RIIO-1 and undertakes an investment programme that is roughly five times larger than its opening RAV.
- Company 3 with a medium sized RAV at the start of RIIO-1 that undertakes an investment programme that is roughly the size of its opening RAV.

Ofgem concluded that for two of the companies (1 and 3) its proposed indexation approach of 10 year simple average best matched the CoD while still allowing room for outperformance. For Company 2, they concluded that given the expected market rates may increase above historical lows that it may not be enough to capture the CoD for Company 2. Ofgem concludes that for a company proposal to deviate from the approach and be merited only applied in *'exceptional circumstances'* [112]. Ofgem's analysis and conclusion at RIIO-T1 therefore focused on **what was the right calibration of the index that would allow the sector (GD and Transmission) to recover efficient costs of borrowing.** In the event there is

[109] Ofgem RIIO-T2 Finance Annex, para 2.25 to 2.28
[110] Ofgem RIIO-T1 Framework Decision, para 3.48.
[111] RIIO-T1 Strategy Decision – Financial Issues, para 3.43 through to 3.48
[112] ibid.

justified *exceptional circumstances* similar those outlined above in RIIO-1 where it is likely a company **would not** be able to recover its efficient costs of borrowing then a bespoke mechanism may be warranted.

Therefore, the criteria and policy was clear for RIIO-1 and was set out definitively from the Strategy Decision[113], Initial Proposals[114] and Final Proposals[115]. RIIO-T1 Final Proposals[116] indicated a significant investment programme at several multiples of the existing RAV at that time would be consistent with Company 2 above. This has turned out to be the case except that interest rates have not increased and have stayed historically low. During RIIO-T1, the RAV for SHET has grown over four times in size. In comparison, NGET TO's RAV grew by over 40% and SPT grew by almost 110% over the same period[117].

Ofgem has not set out similar criteria other than referencing the analysis done at RIIO-1 and inviting companies to propose alternative bespoke cost of debt mechanisms including a Small Company Premium[118]. The scale of the growth for RIIO-T2 was not expected to be similar to the RAV growth that occurred over RIIO-T1 based on Business Plan submissions for any of the TOs[119]. Ofgem has not presented analysis to justify its conclusion in the DDs as to why a bespoke mechanism for SHET is justified. Ofgem has simply stated in DDs[120] that the *"combined RIIO-1 and RIIO-2 period RAV growth for SHET….is over four times the simple average of the other GD&T networks and approximately 85% greater than the next highest growing network"*. Firstly, the absolute growth for SHET should be compared to other Transmission Operators over T2 rather than to Gas Distribution due to the drivers of growth within Electricity Transmission which make it an inappropriate comparator to Gas Distribution in this context. Secondly, Ofgem has also relied upon data incorrectly by combining both RIIO-1 and RIIO-2 in justifying a bespoke CoD mechanism. The RIIO-T1 period has materially passed and the decision for T2 should relate to that period only.

Applying a similar criteria to RIIO-1 for a company proposal for a bespoke cost of debt mechanism – and, for the avoidance of doubt, SHE Transmission did not propose a bespoke mechanism based on this criteria – for RIIO-T2, Ofgem's analysis on ex-ante allowances indicates that SHET plc's RAV will grow by **20%** including Real Price Effects (RPEs) as per its Price Control Financial Model, and less than 20% excluding RPEs. SPT is noted as growing by **15%** over the RIIO-T2 period, with NGET TO RAV remaining flat in nominal terms over the period[121]. While the significant growth in SHE Transmission's RAV in RIIO-T1 necessitated a RAV weighted index, the RAV growth is significantly lower in RIIO-2. Moreover, SHE Transmission's RAV growth in RIIO-T2 is less than 1/5th of SPT's in RIIO-T1.

[113] ibid.
[114] RIIO-T1 Initial Proposals for SHETL and SPT
[115] RIIO-T1 Final Proposals for SHETL and SPT
[116] ibid.
[117] Regulatory Financial Performance Reporting (RFPR) packs for the regulatory year 2018/19 forecasting to the end of RIIO-T1. This is based on nominal prices.
[118] Ofgem at SSMD – Finance Annex (May 2019)
[119] This is reflective of the RFPR packs for the regulatory year 2018/19 as published on the respective TOs websites.
[120] RIIO-2 Draft Determinations – Finance Annex, page 18, para 2.26
[121] This is based on Closing RAV from Ofgem Price Control Financial Model for RIIO-T2 published as part of Draft Determinations adjusted for nominal prices assuming CPIH of 2% per annum. This is compared to the closing RAV for RIIO-T1 based on the RFPR for each company.

As SHE Transmission's RAV growth in RIIO-2 is **not materially different** to other networks in RIIO-T2 and significantly lower than all other TOs in RIIO-T1**, SHE Transmission have not requested and it does not warrant a bespoke mechanism on RAV growth in isolation.**

Totex to RAV ratios

In RIIO-T1 Final Proposals, Ofgem also considered capex to RAV ratios[122] and we have therefore broadened our analysis to consider these elements which to date have not been explicitly considered for RIIO-T2. At RIIO-T1, Ofgem noted that based on the best view SPT's capex expenditure, its capex to RAV ratio was expected to amount to 15%. SHET's capex to RAV ratio was estimated at 29%. Ofgem also considered the value of totex expected from uncertainty mechanisms during the T1 period in which they estimated SHET's share to be at 76% of totex expenditure whereas SPT's totex expenditure was comprised of 23% from uncertainty mechanisms[123]. Ofgem concluded that the proposal for a bespoke cost of debt mechanism would *'further reduces cash flow risk'* and therefore accepted SHET's proposal for a weighted mechanism at that time[124].

Similar to RIIO-T1 we considered totex to RAV ratios to ascertain if there resided any cash flow risk[125] for the RIIO-T2 period only. Table 5.3 below illustrates the analysis we considered supplemented by analysis of other TOs including totex to RAV ratios for DDs and Uncertainty Mechanisms for each TO.

Table 5.3 – Totex to RAV ratios from RIIO-T1 to RIIO-T2 (% weighted average)

	RIIO-T1 FPs Ex-ante	RIIO-T1 FPs with UMs[126]	RIIO-T1 Outturn[127]	RIIO-T2[128] BP Ex-ante basis	RIIO-T2 DD Ex-ante basis	RIIO-T2 DD with UMs[129]
SHET	13	19	18	11	9	13
SPT	12	16	13	8	7	8
NGET	12	12	10	4	5	6

As noted above, the ratios for the T2 Business Plan and DDs indicate there is not a material difference between other TOs when considering RIIO-T1 vs RIIO-T2 whereby the level in T2 is materially lower than T1 for all TOs. SHE Transmission is also lower than either SPT from RIIO-T1 and very similar in T2. When

[122] Ofgem referred to Capex to RAV ratios instead of totex to RAV, but totex is more appropriate given the inclusion of increasing operating costs experienced by all TOs over the period.
[123] RIIO-T1 Fast Track Decision for SPT and SHET
[124] ibid.
[125] Oxera (2019), 'RIIO-T2 cost of debt and financeability assessment', 6 December, p. 10.
[126] This is based on the PCFM as published in November 2019 following the Annual Iteration Process (AIP). These ratios also include shadow RAV reflective of expenditure and RAV from Transmission Investment in Renewable Generation or TIRG.
[127] This is based on published Regulatory Financial Performance Reporting (RFPR) documents for each TO as of 31 July 2019. The PCFM for each TO was compared to this analysis using allowances and is not materially different to the analysis presented in Table 1.
[128] The company business plans have been used alongside Ofgem Draft Determinations document to analyse totex to RAV calculations. The PCFM for RIIO-T2 does not reconcile to the Company proposals or Ofgem DDs. RPEs have also been excluded as this is an uncertainty mechanism and did not form part of Ofgem's core document.
[129] This is based on the average totex to RAV using Ofgem's illustrative totex scenarios including in the RIIO-T2 PCFM.

we consider the totex from uncertainty mechanisms using Ofgem's own analysis, SHE Transmission is estimated as 75% compared to SPT which is 68% with NGET being 40%. Although SHE Transmission is higher than its peers in RIIO-T2, it is not significantly different and is materially lower than all TOs on almost all measures from the comparable RIIO-T1 period. **Therefore, as we have set out above and in our Business Plan, there appears no reason to maintain a bespoke mechanism for SHET in T2 other than to set a lower cost of debt allowance leading to a higher risk of underfunding compared to other TOs.**

We also note that no bespoke CoD mechanism has been applied in RIIO-GD2 despite the differing debt structures and GDN sizes further demonstrating that Ofgem is taking an inconsistent approach by applying a bespoke mechanism to SHE Transmission. A weighted mechanism for SHET is inconsistent with the approach proposed for the other network operators, including the TOs, as well as with the position adopted in RIIO-T1 as set out in Ofgem's Final Proposals[130].

5.2.2 Evaluating the Cost of Debt funding

Ofgem set out its analysis in Table 8 of the Finance Annex with some sensitivities and sets out that an 11-14 year trombone index +17bps for transaction costs or an 11-15 year trombone index are the most appropriate calibrations. We have reviewed this considering the bespoke mechanism below and the 11-14 year trombone index +17bps.

In our Business Plan, we proposed that the iBoxx index trombone of 11-15 years could lead to underfunding the cost of borrowing in the event of higher interest rates and that a 15 year trailing average would be more appropriate[131]. This proposal should not be interpreted as proposing a bespoke mechanism but instead an adjustment to the Ofgem proposal as set out in the SSMD. As we set out in our Business Plan, we do not believe we would be underfunded over that period of time on a normal or low interest rate environment given the additional costs of borrowing or for more pronounced RAV growth scenarios. This is similar to the RIIO-T1 evaluation noted above on RAV growth.

Ofgem's policy and analysis in RIIO-T1[132] was predicated on evaluating a mechanism calibration against the sector's actual and expected cost of debt whereby bespoke mechanisms would only be considered if there is a material break or risk of underfunding in the RIIO-T1 period. When undertaking similar analysis to this as noted in Table 5.4 below for all TOs and GDNs shows that the sector is more likely going to be underfunded using a weighted index compared to an unweighted index despite RAV growth. This is based on Ofgem's assumed 17bps of transaction costs (which we disagree with) and a middle case for interest rate forward curves.

[130] RIIO-T1 Final Proposals for SPT and SHETL, page 33-34
[131] RIIO-T2 SHE Transmission Business Plan, 'A network for netzero' – Finance Annex
[132] RIIO-T1 Strategy Decision https://www.ofgem.gov.uk/ofgem-publications/53833/t1decision.pdf

Table 5.4 – TOs and GDNs Cost of Debt performance over RIIO-T2 (mid-case)

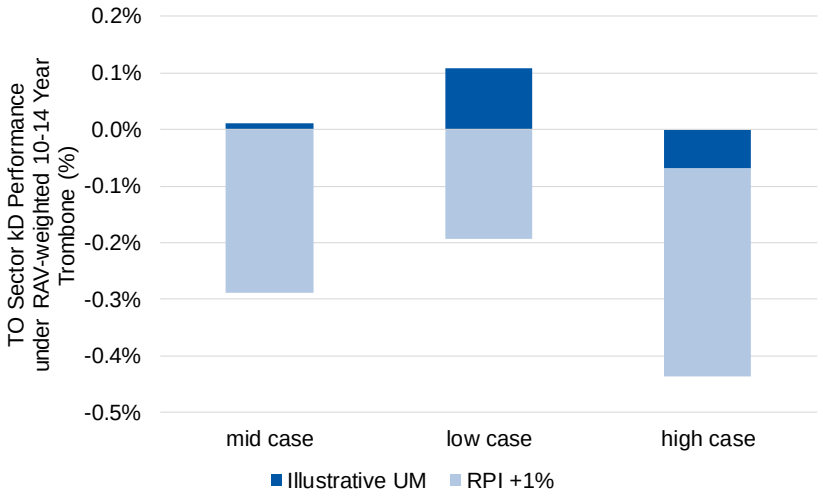
Debt-weighted average performance with SHET	Out/(under) performance %
TOs under RAV weighted 10-14Y trombone	0.01%
TOs under unweighted 10-14Y trombone	0.19%
GDNS+TOs under weighted 10-14Y trombone	0.12%
GDNs+TOs under unweighted 10-14Y trombone	0.22%

Source: Analysis based on NERA Report for ENA, Ofgem Draft Determination – RIIO-ET2 Licence Model, Ofgem Draft Determination – RIIO-GT2 Licence Model and cost of debt Indexation Model for SHET.

When considering TOs only, the weighted index is 0.10 for the low case compared to 0.01 for the mid case and (-0.06) for the high case for interest rates. **The weighted mechanism is therefore not a good fit for the sector overall including GD and TOs, but worse furthermore when just considering TOs.**

When considering a range of scenarios, we also find that it is likely TOs will be underfunded by a RAV weighted mechanism as shown in Figure 5.5 below. In the event of high inflation i.e. RPI increases by 1%, the underfunding increases by 30bps under a RAV weighted mechanism.

Figure 5.5 - RAV weighted approach would not allow TOs to recover debt costs under a range of scenarios



Source: Analysis based on NERA Report for ENA, Ofgem Draft Determination – RIIO-ET2 Licence Model, Ofgem Draft Determination – RIIO-GT2 Licence Model and NERA kD Indexation Model for SHET.

In comparison, with reference to NERA's cost of debt indexation analysis[133], the unweighted 10-14 year trailing index is a more appropriate match than the weighted mechanism to a sector wide (GDNs and TOs) cost of debt index mechanism. However, it shows that the TO sector is likely to underperform this index and that moving towards 14-18 year trombone appears more appropriate. This is consistent with our analysis when including SHE Transmission in the analysis which Ofgem has not shown in the DD. If

[133] NERA Cost of Debt Indexation for GDNs and TOs for RIIO-2 (Sept 2020)

we include the additional costs of debt at the level in line with our Business Plan of 40-60bps, the mechanism needs further adjustment for the sector overall to have an appropriate mechanism to fund efficient CoD. Our view is that our Business Plan proposals struck the appropriate balance between incentivisation, funding risk, and efficient financing over the RIIO-T2 period. As a result we believe Ofgem should revert to at least a 15 year trailing average using the iBoxx A/BBB non-financial corporate bonds index to avoid underfunding during RIIO-T2.

5.2.3 Utilities Index

Ofgem argue that the Utilities index is a more appropriate fit for the sector given the composition of the index and its incorrect analysis on the halo effect. We have reviewed the basis of the Utilities index with analysis undertaken by NERA[134]. They identify the following elements which we believe need to be reflected upon by Ofgem prior to confirming the Utilities index as the most appropriate index for setting the CoD.

The Utilities index does not have a defined credit rating meaning the mix of the index may change over time to a materially different credit rating to those of energy networks. The risk of mismatch on investment grade credit rating between Ofgem's target rating and the CoD index seems to have been ignored by Ofgem thereby creating a funding risk for networks over RIIO-T2. This is illustrated in Table 5.5 below which is a smaller set of only utilities with any investment grade.

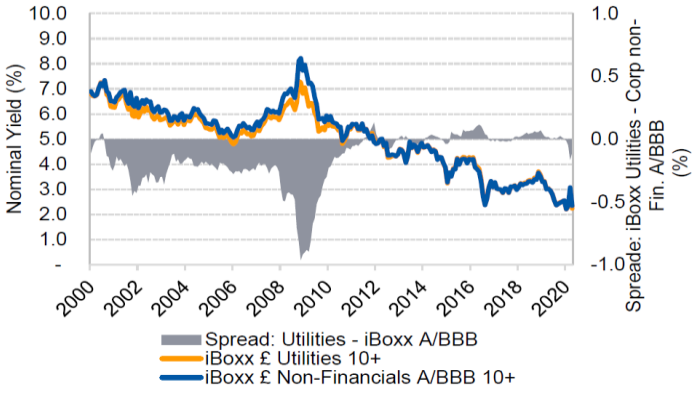
Table 5.5 – Utilities index compared to iBoxx non-financial corporate index[135]

	iBoxx £ Corp Non-Financial A (10+Year)	iBoxx £ Corp Non-Financial BBB (10+Year)	iBoxx £ Corp Utilities (10+Year)
Sector	All Corporates, ex. Financials	All Corporates, ex. Financials	Utilities
Maturity	22 years	17 years	21 years
Credit rating	A	BBB	Investment Grade
# bonds	≈ 50	≈ 100	≈ 80
% GB Regulated	≈ 20%	≈ 30%	≈ 50%

The Utilities index has tended to track the iBoxx index over time which we interpret as showing the indices have been similar and that the Utilities index may not differ when credit rating is similar which his shown by Figure 5.6 below. This shows that Utilities index was predominantly A rated up to 2011 in transitioned into A/BBB since 2011 hence the narrowing of the spread[136]. The switch to the Utilities index is therefore not necessary except for introducing funding risk through differences in credit rating where the index can deviate from the target rating for energy networks over the RIIO-2 period.

[134] ibid.
[135] NERA Cost of Debt Indexation for GDNs and TOs for RIIO-2 (Sept 2020)
[136] NERA note that the spread was 28bps up until 2011 and has since reduced to 1bp with the change in credit rating.

Figure 5.6 – Comparing the spread of the Utilities index to the A/BBB iBoxx index[137]



	Spread: Utilities – Corp. non-Fin A/BBB
2000-2010	- 28 bps
2011-2020	+1 bps
2000-2020	**- 15 bps**

The other items we would highlight is that an index has the tendency to become a pass-through depending on the size and quantum of issuance over the RIIO-T2 period. When considering the incentive properties that Ofgem's principles have been grounded around, there is a risk this index does not provide an appropriate incentive to fund over the long term compared to the wider market. There is a significant proportion of regulated utilities in the Utilities Index and it appears inappropriate not to benchmark against organisations with similar credit ratings and tenors that is within the iBoxx corporate non-financial A/BBB indices. We therefore believe the more appropriate index, considering all elements above, and the Ofgem policy set out in the SSMD[138], is to use the A/BBB non-financial corporate bond iBoxx index as the appropriate mechanism for CoD over RIIO-T2.

5.2.4 Additional costs of borrowing and Halo Effect

Ofgem has concluded in DDs that they find evidence of a halo effect of 4bps when analysing the Utilities index. They also assert that this is evidence of there being no New Issue Premium while also ignoring any costs associated with the switch to CPIH in RIIO-2.

On additional costs of borrowing, we have not had any specific comment or evidence presented to us based on historical debt issuance or from market participants. We also believe, based on our risk assessment of the price control (including the timing and volatility of cash flows), that we would be required to hold significantly higher amounts of liquid resources. We have set this out separately within our DD response within the Financeability; section 5.4. NERA[139] have reviewed Ofgem's analysis and decision regarding additional costs of borrowing for the ENA and its conclusions are summarised in Table 5.6 below.

[137] NERA Cost of Debt Indexation for GDNs and TOs for RIIO-2 (Sept 2020)
[138] Ofgem SSMD – Finance Annex (May 2019)
[139] NERA Cost of Debt Indexation for RIIO-2 for TOs and GDNs (Aug 2020) and NERA Additional Costs of Borrowing for TOs and GDNs (Aug 2020)

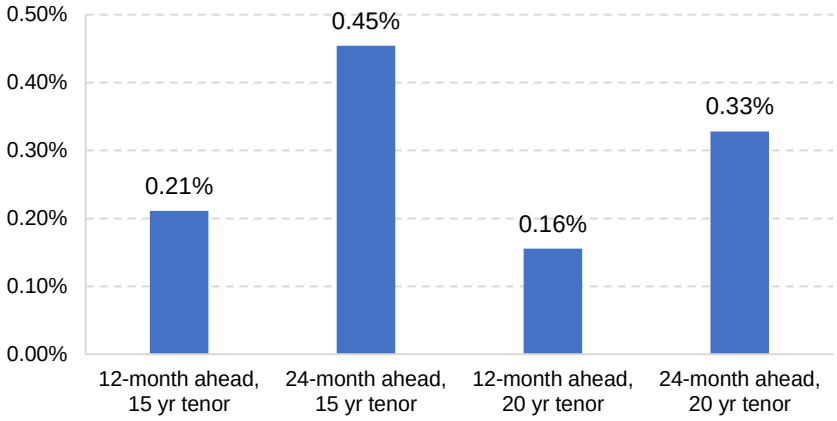
Table 5.6 – NERA summary of Ofgem analysis compared its own

	Ofgem	NERA (September 2019)	NERA (August 2020)	Comment
Transaction Costs	6 bps	7 bps	7 bps	Ofgem draws on company data but excludes apparent outlier NERAs analysis includes all companies within sample
Liquidity/RCF cost	3 - 5.5 bps	4.5 bps	4.5 bps	Both Ofgem and NERA draw on companies' assumptions on RCF size and cost
Cost of carry	1.5 – 11 bps	16 – 45 bps	11 – 23 bps	Ofgem assumptions on cash at OpCo and Group unreliable. NERA approach assumes 12-24 month pre-financing, half met by RCF
New Issue Premium (NIP)	0	13 bps	9 bps	Ofgem's analysis does not draw on precise measures of spread and therefore estimate of halo/NIP is unreliable NERAs spreads calculation duration matched and support range 4 -14bps
CPI indexation costs		12 bps	15 bps	Ofgem assumes that companies do not require compensation for basis risk NERA's analysis based on recent cost of CPI issuance and CPI swaps
Total	**17 bps**	**53-82 bps (68bps)**	**47 – 59 (53bps)**	**Ofgem: mid-point of its range**

Sources:
Ofgem (July 2020) Consultation – RIIO-2 Draft Determination – Finance Annex, p. 14
NERA (September 2019) Halo effect and additional costs of borrowing at RIIO-2, A report for ENA, p. 18

Firstly, we agree with Ofgem's allowances for Transaction Costs and Liquidity RCF cost which is consistent with NERA's analysis. However, NERA have identified that Ofgem has not considered costs of carry costs above the bottom of its range. When considering the market evidence, the range of uncertainty, indexation and the revenue volatility being introduced into RIIO-T2, we have found that Ofgem has been overly prudent. We consider that Ofgem need to uplift the additional costs of borrowing as a result of this element. NERA do not find any evidence that the cost of carry is below 11bps as illustrated by Figure 5.7 below. NERA also consider what the impact is of utilising an RCF to support liquidity requirements where they find that the minimum cost of carry is 11bps.

Figure 5.7 – NERA analysis on cost-of-carry based on 12 to 24 months pre-financing and 15-20 year debt tenor (excluding RCF)



For **New Issue Premium** (NIP), the analysis undertaken by NERA identifies that there is a NIP of around 10bps. The evidence for a NIP is based on the analysis of the Halo Effect. Ofgem find a small halo effect when considering the Utilities Index of 4bps and conclude NIP is therefore zero. However, NERA identify a negative halo effect of 13bps due to the NIP on either the Utilities Index or the A/BBB iBoxx non-financial corporate indices.

NERA's analysis is consistent with its previous report where they found that Ofgem had not controlled for tenor precisely. Ofgem retains its methodology from the SSMD for the DDs whereby they claim the BoE nominal spot curve is a zero coupon curve whereas the bonds issued by companies are not zero coupon and that NERA have miscalculated the relative spread due to a duration mismatch. Ofgem assert that the market convention is to price a corporate bond over the nearest benchmark gilt and not the exact tenor of an interpolated curve. However, NERA find that - when considering duration matching - its results are consistent with the previous report. They demonstrate that Ofgem's approach does not control for tenor correctly and is therefore not a reliable measure of network bond performance. NERA set out why duration matching is appropriate and consistent with academic evidence and therefore we consider that Ofgem should be adhering to best practice.

Ofgem also ignore the **switch to CPIH** from RPI and the associated additional cost of borrowing by switching to CPIH Index Linked Debt (ILD). This is relevant because Ofgem has relied upon the notional company assumption of 30% CPIH ILD to mask a credit rating problem yet only model future debt costs based on nominal debt. If Ofgem's assumption on CPIH ILD for its financeability analysis was accurate (which it is not as we set out in our Financeability; section 5.4), then they should be consistent and allow for switching costs in the CoD allowance. Therefore, when NERA evaluate Ofgem's approach they find that Ofgem has ignored basis risk in its assessment as part of this inconsistency in applying CPIH ILDs. NERA assert that a change in the RPI-CPI wedge would materially deteriorate key credit ratios without the suitable funding in place. As a result we consider that Ofgem should include costs associated with ILD. When considering market evidence for issuing CPI-linked bond yields, NERA find that there is evidence which supports a premium of 50bps which translates to a 15bps additional costs of borrowing if Ofgem's 30% ILD assumption is retained. For the CoD allowance, Ofgem need to include an allowance

for the CPIH related costs to be ensure efficient financing costs are recovered by the notional company. There is still an error in Ofgem's assumption on ILDs as we set out in our Financeability, section 5.4, and this change does not resolve that error.

5.2.5 Converting nominal to real debt

NERA also review Ofgem's approach to deflating the nominal 'all-in' yields to CPIH real allowances for the CoD. Ofgem's approach is to use the 5-year OBR forecast for CPI. Ofgem's approach was based on two separate methods to derive a real CoD allowance in CPI terms from a nominal iBoxx index:

i. Retain RIIO-1 breakeven approach but include an expected RPI-CPIH wedge when deflating the nominal iBoxx yields.
ii. Use an expected value for CPIH directly, such as the OBR's longest term CPI forecast as a proxy or the Bank of England inflation target of 2%.

Ofgem prefer to use OBR's CPIH forecasts as the basis of deflating the nominal debt. NERA analyse the basis of each forecast and method concluding that they agree that Breakeven Inflation is not a reasonable approach to derive the real cost of debt allowance. They prefer to use the HMT Consensus as a wider market view rather than just the OBR forecast. They do however note that an alternative methodology is to adjust for the outturn inflation meaning there is no under or over-recovery on inflation. We believe this may be the best approach and, although it introduces some volatility, this may be merited to avoid there being gains or losses due to outturn inflation differing from forecast inflation.

5.2.6 Conclusion

We have set out our view above, supported by robust and detailed evidence, on the most appropriate methodology for the CoD Allowance for RIIO-T2. In summary, SHE Transmission considers that Ofgem's errors on the CoD assessment include the following:

1. **Ofgem has misapplied its CoD policy in error** by considering the lowest common denominator in calibrating a bespoke mechanism instead of applying a clear criteria and the high bar set at RIIO-T1. Ofgem's test is to consider if a sector wide (GDNs and TOs) cost of debt mechanism allows the recovery of efficient cost of borrowing under different interest rate scenarios. To correct for this Ofgem should have evaluated an index calibration and compared to the overall sector and only at that stage sought to identify where a company is likely to be underfunded by that index due to exceptional circumstances should an alternative index be used.
2. **We do not agree with Ofgem's proposal for SHE Transmission to use a bespoke cost of debt mechanism**, namely RAV weighting, for RIIO-T2 similar to that used for RIIO-T1. The relative impact on RAV growth of SHE Transmission for RIIO-T2 outturn is materially lower than RIIO-T1 including being lower than the other TOs during the RIIO-T1 period. In addition, SHE Transmission's RAV growth or totex to RAV ratios are substantially similar to the other TOs over the RIIO-T2. SHE Transmission considers that all TOs should have the same indexation mechanism across the sector.
3. **When evaluating the appropriate index, the analysis evidences that a RAV weighted CoD mechanism is likely to lead to underfunding of finance costs over RIIO-2.** Based on Ofgem's switch to the Utilities index and incorrect assumption on additional costs of borrowing, the RAV weighted index is a poorer fit for energy networks expected debt costs over the RIIO-T2 period.

An 11-14 year +17bps or 11-15 year trombone index is more appropriate to fund the costs of borrowing albeit Ofgem has also made an error in switching to the Utilities Index.

4. **Ofgem has switched to the Utilities Index in error** where this change introduces risk of credit rating mismatches as well as being more akin to a pass-through mechanism which weakens the incentive properties.
5. **Ofgem has understated the additional costs of borrowing for RIIO-T2 based on evidence** provided as part of the Business Plan submissions. Ofgem has gone below the bottom of the range for the cost of carry and have ignored both New Issue Premiums (NIP) and costs for transitioning to CPIH indexation of debt for the notional company.
6. **Ofgem has incorrectly concluded there is a small halo effect of 4bps on the Utilities index by not duration matching the tenor of bonds.** When corrected for, NERA identify a negative halo effect of 13bps consistent with evidence presented with Business Plan submissions. This is evidence of a NIP which should be included when calibrating the cost of debt mechanism.
7. **Ofgem has incorrectly excluded the cost of switching to CPIH indexation from RPI for indexed linked bonds** where there is market evidence of an 15bps of additional costs of borrowing.
8. **SHE Transmission considers that it is more appropriate to provide an allowance of the real cost of debt based on outturn inflation** instead of using forecasts to avoid unmerited gains and losses due to inflation forecasts being different to outturn inflation.

5.3. The Outperformance Wedge and Aiming up

This section sets out our evaluation of Ofgem's allowed vs expected adjustment or outperformance wedge with supporting evidence from Frontier Economics[140] and Oxera[141]. This section also evaluates the issue of Aiming up in the cost of equity with particular reference to academic evidence, regulatory precedent, and in particular the potential harm to society by setting the cost of capital too low.

5.3.1 The Outperformance Wedge

As set out in our Business Plan[142] Ofgem's proposal to make an adjustment to the cost of equity which is subjective and inconsistent with both economic principles and regulatory precedent is not sound regulatory practice.

On the principle of the outperformance wedge, this has significant negative incentive properties and when considering more than one price control this mechanism is more likely to cause harm to consumers. For example, if companies perform in line with the 22-25bps outperformance assumption during RIIO-2, the likelihood is that an outperformance wedge of at least this size will be applied in RIIO-3. If companies do not perform in line with the 22-25bps outperformance this will be supposedly recovered by companies by way of an ex-post adjustment and this outperformance adjustment would not be applied in RIIO-3. In that sense, why would a company aim to achieve 22-25bps or more in RIIO-2 if the equivalent amount is removed from them in RIIO-3? The counterfactual is that companies actively do not deliver the 22-25bps outperformance as they will receive it as an ex-post adjustment while also potentially avoiding a RIIO-3 penalty. The cost to consumers is therefore still 22-25 bps within RIIO-2 regardless of company behaviour.

But if companies behave by not pursuing the 22-25bps outperformance wedge then consumers are harmed in RIIO-3 by the value at least 22-25bps of lost enduring efficiency (this is on the basis that efficiency in one price control runs into perpetuity in future price controls as is expected by incentive-based regulation). Therefore, we see that in principle Ofgem is causing at least the same harm in RIIO-3 that it believes it is providing for in RIIO-2. Ofgem has not considered this long-term impact on consumers or efficiency and instead relies upon it to get headline lower cost of equity and to 'mask' a financeability problem. Ofwat for PR19 has already set out its argument as to why an ex-post or adjustment to allowed returns is not required in its price control[143]. They have noted they do not believe there has been systematic outperformance in Water and that they have struck the price control elements robustly enough that they can rely upon each mechanism accordingly. Ofgem however, have removed a significant proportion (and potentially all) sources of outperformance and there appears to be little or no justification as to why the price control cannot be set robustly as Ofwat believes for PR19.

[140] Frontier Economics, 'Further Analysis of Ofgem's Proposal to Adjust Baseline Allowed Returns', A report prepared for the ENA (Sept 2020)
[141] Oxera, Is aiming up on the WACC beneficial to consumers? Prepared for Heathrow Airport Limited (17 April 2020)
[142] SHE Transmission: A Network for Net Zero, RIIO-T2 Business Plan – Finance Annex
[143] https://assets.publishing.service.gov.uk/media/5eff32803a6f4023cdba3438/Citizens_Advice_submission__2_.pdf p.10

5.3.2 Regulatory Best Practice

There is of course analysis and evidence presented by Frontier and Oxera as noted above but there is also the persuasive arguments as to what is regulatory best practice. Frontier make a number of compelling arguments considering regulatory precedent and academic evidence but we also note a very recent study undertaken by John Earwaker and Nick Fincham that reviews *Information Asymmetry and the Calibration of Price Controls.* The authors survey 32 ex-regulators across the UK's regulated sectors where its methodology and questions are set out in the study alongside commentary on its findings. We believe this is a helpful study by brining and external perspective to a number of the Ofgem proposed mechanisms. We believe it frames both the outperformance wedge adjustment, aiming up, and the general calibration of a price control which goes to the risk and return relationship.

One particular area of consensus emerging from the study is that modern regulators "*with a toolkit that is brimming with modern day regulatory weaponry"* ought to be able to design a balanced price control without a need for a lump-sum adjustment which assumes failure to achieve this outcome from the start.[144] Notably, the report concludes that "*[p]rovided that a regulator grounds its judgment in evidence […] we do not think that the scales will always tilt in the direction of shareholders or that there is a reason to conclude that it is necessary to make a final, lump-sum cut to mop up regulatory error*" – and further that anyone omitting to use the discretions available as a regulator and instead opting for a lump-sum cut will "*leave themselves vulnerable to appeal".*[145]

In particular, we identify several interesting points that can be reasonably drawn from the study as follows:

1. The majority of previous regulators believe companies should have a fair opportunity to outperform in the price control.[146]
2. Incentive based regulation is more likely to lead to better outcomes for consumers where outperformance does not mean a regulator got the price control wrong. It is most likely companies have responded positively to the incentives which is shared between investors and consumers.[147]
3. One respondent also went on to say that when regulators push things too far, it can force radical and not always positive change. By way of an example, it was commented that the tough PR99 Ofwat Price review prompted many water companies to securitise their businesses (which was viewed as not necessarily in customers' long term interests).[148]
4. Over 75% of respondents disagreed with the concept of deducting revenue or making an adjustment to a company after setting a price control as there are regulatory toolkits designed to set a price control fairly.[149] This was also likely to increase the regulatory error and was referred to as regulators 'abdicating' their responsibility. The study includes the statement that

[144] Earwaker and Fincham, Information asymmetry and the calibration of price controls, Aug 2020, p.27.
[145] ibid, p.27.
[146] ibid, p.13-14.
[147] ibid, p.21.
[148] ibid, p.16.
[149] ibid, p.17.

"the idea that a regulator should, with one hand, strive hard to set fair expenditure allowances and output targets yet, with the other, concede that it is doomed to fall short – crucially, without any contemporaneous evidence to support this conclusion – left the vast majority of our regulatory experts feeling very uncomfortable."[150]

5. Respondents commented that it is seen that regulatory errors are generally distributed evenly across sectors both in favour and against investors i.e. this is not a *one-way* bet.[151]

One of the conclusions to the study that we believe is highly relevant today – particularly in the context of the material shift in Ofgem's approach for RIIO-2 exhibited over the period – is the idea that regulators have failed in the past and should correct or over-correct for this error in the current price control. This perception has been around the balance of a price control in RIIO-1 and (unfounded) belief that there was a material regulatory error in favour of the companies. We do not consider that this is the case and in particular, the statement that reflects this quite succinctly is that "*earned rewards are part and parcel of a healthy regulatory regime and must not be subsequently rebadged - by regulators or by others - as a symptom of regulatory failure.*"[152]

We believe that this statement and the study overall makes important points of principle which shine a light over where Ofgem has gone wrong in its Draft Determination proposals – indeed, Ofgem is called out specifically for its proposal to make an explicit deduction from the estimated cost of capital (in contrast to the position taken by other UK regulators and the CMA).[153] The report also highlights the need for regulators to make decisions on allowed return grounded in evidence and in full consideration of their statutory objectives. In our response, we have set out how we consider that Ofgem has failed to do this in its Draft Determination proposals – including in relation to its controversial outperformance adjustment and its decisions on cost of capital more widely – and also how we propose that Ofgem revise its Draft Determination proposals for its Final Determination in order to correct for these errors.

5.3.3 Aiming up

There has been substantial literature on the concept and regulatory practice of *'Aiming up'* in a range when setting the Cost of Equity for a price control or regulatory determination. Past regulatory best practice has been to aim up in the range due to the uncertainty in setting the cost of equity and to, in principle, avoid the risk of underinvestment. For the reasons explained in detail below, this risk of underinvestment is seen as more detrimental to consumers and wider society compared to an outcome which results in over investment.

Over the RIIO-2 period, we have worked with the ENA as part of commissioning studies with Frontier Economics[154] who have provided written reports and presented to the CMA in relation to RP3 and PR19

[150] Earwaker and Fincham, Information asymmetry and the calibration of price controls, Aug 2020, p.25.
[151] ibid, p.16.
[152] ibid, p.26.
[153] ibid, p.7.
[154] Frontier Economics, 'Further Analysis of Ofgem's Proposal to Adjust Baseline Allowed Returns', A report prepared for the ENA (Sept 2020) see annex Frontier - Further analysis of Ofgem's proposal to adjust baseline allowance (ENA report)

on this issue. Additionally, Oxera[155] have reviewed this issue in regulatory settlements in particular providing evidence on behalf of Heathrow Airport Limited (HAL) at PR19.

As we have seen the CMA concluded in its Provisional Findings (PF) for the NERL appeal on RP3 that they should neither aim up or aim down in setting the cost of capital. As a result, they selected a point estimate in the middle of its revised range for NERL while it accepted that there might be an argument that, in the long run, customers' interests were served by a small premium to the cost of capital. In particular the CMA stated[156]: *"If there were positive externalities and longer-term benefits to consumers from identifying and investing in new capital projects, then we agreed that there could be a case for a long-term premium on the cost of capital."*

Therefore, we believe that given the significant investment requirement in energy in the UK, we see the risk of underinvestment is materially heightened when compared to a steady state investment period and this issue therefore requires careful thought.

Ofgem has aimed down in its cost of equity range and ignored the principle of aiming up or even the middle of its range. This is based on its view that companies are likely to be able to earn above the cost of capital through outperformance and also argue for the implementation of an outperformance wedge of 22-25bps. We have set out separately why we disagree with this adjustment and the incorrect analysis Ofgem has undertaken to justify the 22-25bps.

We therefore believe Ofgem should be aiming towards the top of a range where the empirical and academic evidence is significantly in favour of that methodology. **Regulatory precedent also supports aiming towards the upper end of the cost of equity range to mitigate the risk of underinvestment and adverse impact on consumers**[157]**.** The CMA decided to aim towards the upper end of the range as set out in its report on London airport companies:

"However, we [the CMA] consider it a necessary cost to airport users of ensuring that there are sufficient incentives to invest, because if the WACC is set too low, there may be underinvestment from BAA or potentially costly financial distress….Given the significance to customers of timely investment at Heathrow and Gatwick, we have given particular weight to the cost of setting the allowed WACC too low. Most importantly, we note that it is difficult for a regulator to reduce the risks of underinvestment within a given regulatory period."[158]

Oxera[159] were commissioned in a study in 2014 by the New Zealand Commerce Commission to give evidence in setting the WACC for Electricity Transmission and Distribution. Oxera evaluate setting the cost of capital in the 75th percentile compared to the 50th percentile including analysing the various loss

[155] Oxera, Is aiming up on the WACC beneficial to consumers? Prepared for Heathrow Airport Limited (17 April 2020)
[156] CMA, 2020, NATS (En Route) Plc /CAA Regulatory Appeal Final report, Page 246
[157] Frontier Economics, Adjusting baseline returns for anticipated outperformance – An assessment of Ofgem's proposals, Prepared for the ENA (March 2019)
[158] This is a direct reference from the Frontier Economics study referenced in footnote 142.
[159] Oxera report, Input methodologies – Review of the '75th percentile' approach, Prepared for New Zealand Commerce Commission (23 June 2014)

to consumers and see that aiming up in the range is justified. Research undertaken by Dobbs (2011)[160] identified a similar adverse impact on consumers from setting the cost of capital too low. Ofgem[161] do not engage with this material and instead dismiss it as being handled by way of its *cross checks* of which we have identified as being inaccurate and inferior to other data considered by Ofgem. Further to this, Oxera[162] prepared analysis of aiming up for HAL to review this issue based on the UKRN study[163] where they concluded that *'the optimal choice of the RAR [regulatory allowed return […] is high, in terms of the percentile within the range of distribution of the true WACC'.*

Oxera's analysis focuses on potential future investment whereas the UKRN's analysis suggested that in the case of investment that has already been carried out, it is optimal *'to ensure the lowest possible regulated price and therefore highest possible customer surplus'*.[164] This conclusion, however, this study assumes that no future investment is required which is not the case for energy networks.

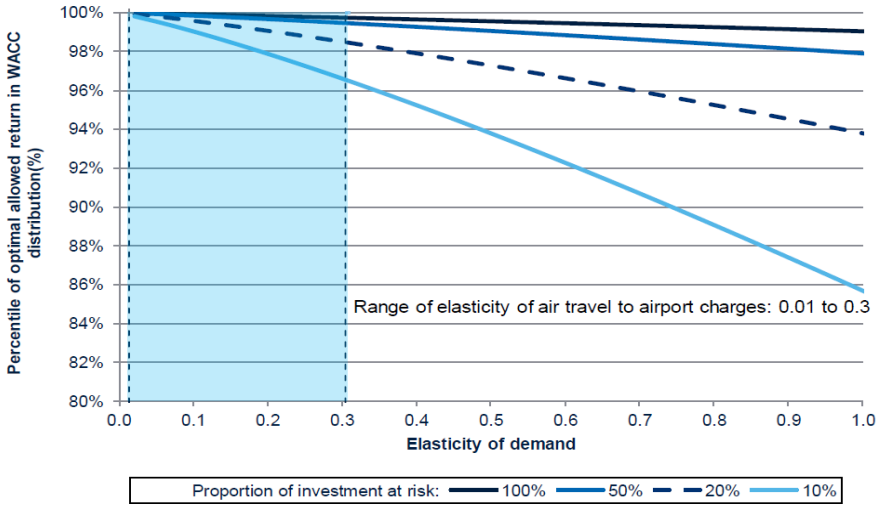
Oxera review this practice against a framework to estimate the relative proportion of aiming up vs the risk of lost investment and harm to society. They note that the higher the potential loss in quality of service or investment then the higher the regulator should aim up. Oxera note that the following:

- even with a low proportion of investment at risk, aiming up on the WACC is likely to be in the customers interests;
- the lower the price elasticity of demand, the higher the safety cushion between the allowed return and the central estimate of the WACC should be;
- for realistic values of the price elasticity, customer welfare is maximised by setting the allowed return at or above the 96th percentile of the WACC distribution.

This is set out in Figure 5.8 below which provides analysis justifying this conclusion by way of evaluating the modelling set out in the Oxera paper. This illustrates that the optimal level of allowed return levels and concludes that to cap the underinvestment percentage to 10% then the allowed return should be set at the 96th percentile based on a 0.3 price elasticity of airport charges. In our view it is likely that this analysis and framework is of significant relevance to the principle of *aiming up* in RIIO-2.

[160] Dobbs, (2011), Modelling Welfare loss Asymmetries Arising from Uncertainty in the Regulatory Cost of Finance
[161] Ofgem SSMD (May 2019) Page 138, https://www.ofgem.gov.uk/system/files/docs/2019/05/riio-2_sector_specific_methodology_decision_-_finance.pdf#page=138
[162] Oxera, Is aiming up on the WACC beneficial to consumers? Prepared for Heathrow Airport Limited (17 April 2020)
[163] UKRN (2018), 'Estimating the cost of capital for implementation of price controls by UK regulators', (6 March), p163
[164] Op. cit., p. 164.

Figure 5.8 – Optimal Allowed Return



Source: Oxera analysis, based on UKRN (2018) and PWC (2019)'Estimating the cost of capital for H7 – response to stakeholder views (pg 14)

We consider that Ofgem should be aiming up within its cost of equity range after correcting for its errors as highlighted in our response to Draft Determinations. It is incumbent upon Ofgem to set the Cost of Equity in a way which is in line with its statutory duties, including its principal objective to act in the interests of both current and future consumers. Ofgem has not engaged sufficiently in this area of setting the cost of capital and there is a material and real risk of underinvestment causing significant detriment to consumers. We have applied Oxera's framework to illustrate the significant cost of underinvestment in electricity transmission alone. When considering the value of large scale transmission investment on a subset of investment during RIIO-T1 on avoided constraint costs, there only needs to be a small underinvestment and the benefit lost to consumers is dwarfed by any saving in setting the cost of capital too low.

Ofgem argues in DD[165] that aiming up would not necessarily lead to more investment. They illustrate this by using a stylistic and simple example proposing there is a trade-off between the incentive to invest to earn a return above its cost of capital and the incentive to outperform through the totex sharing mechanism. Ofgem is therefore assuming that a chunk of the return is earned by way of baked in generous allowances in totex. If that were the case, which we have illustrated is not in section 5.4 financeability, then companies would only invest IF outperformance was a realistic prospect. In the event that outperformance is not a realistic prospect, then companies would be investing below their cost of capital therefore would not be incentivised to make the investment. This means certain investments would not occur because the opportunity to outperform does not exist. One should also remember that even IF outperformance was a realistic prospect, i.e. it is a *one-way bet*, then Ofgem has already taken 22-25bps off of that supposed guaranteed outperformance. If investments are all delivered with outperformance Ofgem will remove that outperformance through totex allowances in the next price control, which is counterintuitive to the logic within its simple stylised example.

[165] Ofgem Draft Determinations Finance Annex, para 3.146

The concept of aiming up is actually because the cost of capital cannot be precisely measured but the range can be, and to reduce the probability of setting the cost of capital too low regulators should aim up. This is what the CMA concluded in its Provisional Findings[166] for RP3 for the NERL appeal where they elected to aim at the mid-point but noted they considered factors whether aiming up may be warranted depending on the price control.

For example, as the cost of capital is significantly lower than the 96% percentile for RIIO-2, we believe the interpretation would be that the likelihood is there would be underinvestment if not at least deferred investment in the RIIO-2 period. The lost benefit to consumers of deferral or cancellation of projects would be more damaging to consumers than the increase in costs resulting from a higher cost of capital. The issue with regulator decisions which overlook this consequence is that they will not recognise the cost of the lost investment to consumers until it is in this regard too late. Therefore, an analysis should be done to understand the extent of the risk and whether it is worth taking.

[166] CMA Provisional Findings on the NERL Appeal Para 12.283 to https://assets.publishing.service.gov.uk/media/5e7a2644d3bf7f52f7c871f3/Provisional_Findings_Report_-_NATS_-_CAA.pdf

5.4. Financeability Analysis

As a core requirement of our Business Plan, we evaluated our financeability under a range of scenarios including a mixture of totex expenditure above our Certain View or ex-ante totex proposal. We presented the sensitivities that Ofgem set out in its Financeability Guidance[167] as well as some additional scenarios to test for financial resilience. Central to that assessment was a reliance upon using rating agency methodology and in particular assuming zero out or under performance against the regulatory settlement. The scenarios around this central view then informed the extent of buffer that we could absorb over the course of the price control. This calibration is often integrated into the view of potential Return on Regulated Equity or RoRE ranges[168]. Ofgem followed a similar approach with a number of additional assumptions included unique to Ofgem's DD and its proposals for RIIO-2[169].

We set out in this section that Ofgem has sought to mask financeability issues within RIIO-T2 by using number of levers to solve credit rating ratio issues instead of correcting for its errors on the cost of equity. Working with Oxera[170], we have evaluated Ofgem's methodology and analysis and identified a number of errors which once corrected reveal the financeability issue with RIIO-T2. Ofgem set out in its DDs[171], that the target credit rating they have aimed for is BBB+ or Baa1 consistent with our Business Plan. Using that as the target credit rating, we have considered several core credit ratios as set out in the Oxera analysis but first we set out Ofgem's approach to financeability prior to explaining how Ofgem has reached the DD conclusion in error.

5.4.1 Approach to Financeability

In conducting its duties, Ofgem is required to have regard to *'the need to secure that licence holders are able to finance the activities which are the subject of obligations imposed'*. In doing so Oxera set out this is really to allow an efficient, well-run company to earn a rate of return that is commensurate with its cost of capital; and provide sufficient revenues to enable said company to raise finance from capital markets on reasonable terms. Ofgem's approach has been to rely on a notionally efficient company in undertaking its assessment and therefore determine the credit rating based on its analysis through the financial parameters they have set out for the price control.

The principle items Ofgem rely upon are set out in para 5.22 of its Finance Annex, which we have repeated below in Table 5.7. In this table we have included our assessment of whether these assumptions are appropriate before then explaining our assessment thereafter.

[167] Ofgem Financeability Guidance (April 2019)
[168] Ofgem Draft Determinations Finance Annex (Jul 2020), Figure 22
[169] ibid, para 5.22 and 5.23 as well as other parts of chapter 5.
[170] Oxera (Sept 2020), 'Oxera – Financeability of the RIIO T2 DD's (SSE report), prepared for Scottish Hydro Electric Transmission
[171] Ofgem Draft Determinations Finance Annex (Jul 2020), para 5.17

Table 5.7 Ofgem's Assumptions for a notional company for its Financeability Assessment

Ofgem Assumption	Our Assessment
Ofgem allowed return on equity	As we have set out in section 5.1, the allowed return on equity has been set too low.
Outperformance wedge of 22bps included in assessment as a revenue item	This is not a neutral position for testing financeability in line with regulatory precedent and best practice. This is in addition to our criticisms set out in section 5.3.
Gearing has been changed to 55% from 60% for TOs.	Ofgem has adjusted this for what appears like an arbitrary reason. We explain below why this is an inappropriate assumption used to mask a financeability issue.
Debt costs are equal to allowances	As we have set out in section 5.2, the cost of debt allowance is insufficient to cover the costs of borrowing.
30% of debt is indexed linked but assuming CPIH instead of RPI linked debt	We explain below that Ofgem's assumption and calculation is incorrect. This has been worsened by Ofgem moving from 25% from the SSMD which was not an appropriate assumption either.
Immediate switch to CPIH from RPI	Ofgem has not undertaken any analysis to justify this immediate switch including considering a transition period. This mechanism has a material impact on Ofgem's financeability assessment. We also note Ofgem do not provide for any allowance to cover CPIH switching costs as set out in section 5.2 on the CoD.
Dividend yield of 3% of regulatory equity	We explain below why this is an inappropriate assumption and conflicts with its gearing policy as well as market evidence on gearing levels.
No Totex out or under performance	Ofgem's own RoRE analysis shows a greater downside risk. Our analysis shows this is more plausible as part of our downside scenarios in this section. We have also noted that the efficiency challenges are substantially higher than previous price controls.
No BPI awards or penalties	Exclusion of IQI or similar awards or penalties have been excluded in previous baseline assessments. However, we note the inconsistency of including an outperformance incentive which is not known at the outset of the price control but exclude the penalty that is known at the outset of the price control.
Net debt is reset through an equity injection if required	Ofgem take no account of whether this is realistic or not in its assessment.
Tax allowances are equal to tax costs	As we have set out in our question responses, we believe tax should be a pass-through, however Ofgem's policy does not appear to allow a full recovery of costs due to materiality thresholds.

The other items Ofgem note are exclusion of lagged revenue items, application of its depreciation policy, and use of the capitalisation rate they have calculated on DDs. We see no issue with these assumptions albeit we note Ofgem has incorrectly calculated the capitalisation rate[172] materially which we set out in our response to Ofgem's DD questions separately.

5.4.2 Critique of Ofgem Financeability Assessment

We have already set out in section 5.1 the errors which Ofgem has made in setting the cost of equity which we will not reiterate in this section. With regards to each element noted above, Oxera has

[172] In our analysis of Ofgem's DD, we note that they have incorrectly calculated the capitalisation rate due to an error in its estimation of the operating costs from Closely Associated Indirects. Ofgem state this is 81% but is more closely reflective of 88%.

reviewed these in turn considering that the Competition and Markets Authority (CMA) in previous price control inquiries has recognised that *'Credit ratio analysis forms part of the assessment of financeability, but needs to be considered alongside the rest of the determination. In that context, we have had regard to our analysis on wholesale totex and cost of capital.'* We also note that in the case of the NERL redetermination, the CMA concluded that the return on equity had been set too low despite the company exceeding credit ratio thresholds in the CAA's analysis[173]. We have therefore considered a range of aspects as set out in Table 5.7 above including the plausible downside scenarios set out in Oxera's report; section 6, which includes incentives, indexation and totex scenarios explicitly.

5.4.2.1 Outperformance wedge

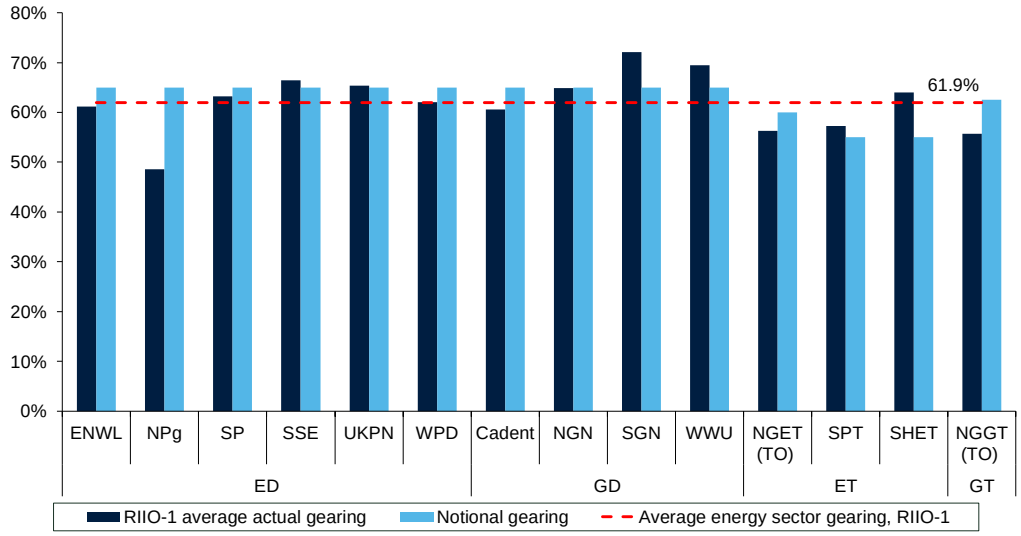
In relation to the outperformance wedge, we believe this should be excluded from the financeability assessment. As Oxera highlight, if Ofgem believes that the level of outperformance should be reduced they should be reviewing cost allowances and not through a lower allowance on the equity return. We have set out in section 5.3 of our response why this is not an appropriate mechanism due to the adverse impact on consumers, but also to deliver 22bps we would need to deliver 6% outperformance which is over double the level SHE Transmission has achieved in RIIO-T1 over an 8-year period. This is ignoring the efficiency cuts which are in fact greater than any seen in previous price controls which is illustrated by Oxera[174]. **We therefore remove this adjustment from Ofgem's financeability assessment.**

5.4.2.2 Notional Gearing

Ofgem has lowered the notional gearing from 60% to 55% in such a way as to give the appearance of enhanced credit metrics. Ofgem's approach is endogenous to the analysis in that this has been adjusted to 'solve' the financeability issues. In RIIO-T1, Ofgem[175] noted in Final Proposals that the '*high levels of investment would also suggest applying a relatively low notional gearing level (by regulatory standards).*' This is in addition to setting the CoE at the top of the range. Ofgem for RIIO-2 however, has undertaken no analysis of actual gearing levels of companies and has set the gearing at a lower level despite investment levels relative to RAV (as we note in section 5.2) being significantly lower than in RIIO-T1.

[173] Competition and Markets Authority (2020), 'NATS (En Route) Plc / CAA Regulatory Appeal: Final report', 23 July.
[174] Oxera (Sept 2020), 'Financeability of the RIIO-2 Draft Determinations', prepared for Scottish Hydro Electric Transmission
[175] Ofgem RIIO-T1 Final Proposals for SPTL and SHETL Supporting Document (Feb 2012), para 5.22
https://www.ofgem.gov.uk/ofgem-publications/53750/sptshetlsupportippdf

Figure 5.9 – Actual gearing levels of regulated energy networks over RIIO-1[176]



The actual gearing is more in line with 60% than 55% as stated by Ofgem as noted in Figure 5.9. When the CMA looked at the issue of gearing in the context of the NATS appeal, it set the notional gearing based on the actual gearing. Oxera analyse similar parameters to what was undertaken at RIIO-T1 to see if there is a *special case* for changing the notional gearing to 55% for RIIO-T2 and conclude there appears to be no compelling reason to adopt a lower gearing other than to '*solve'* a financeability issue. **When reverting to 60% notional gearing the AICR falls by 0.18 and in isolation bring the ratio below the target rating threshold requirement of 1.40.**

Oxera also note that the actual gearing in Ofgem's analysis is at 58% and not 55% which is required to sustain a dividend payment of 3% per annum. Ofgem do not allow any new equity issuance allowance unless the gearing goes over 5%.

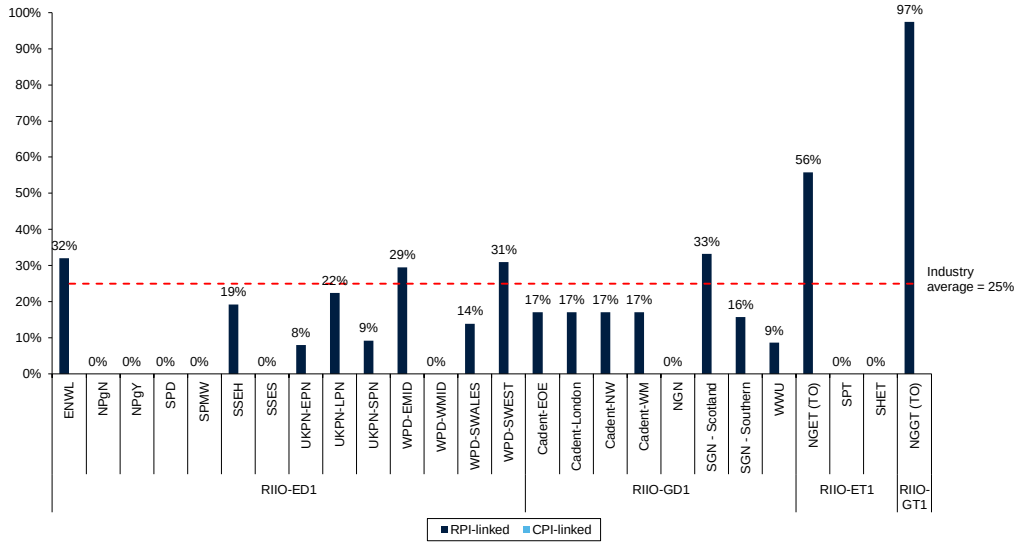
5.4.2.3 Indexed Linked Debt

Ofgem use an assumption of 30% for ILD which is an increase from 25% used at the SSMD. Ofgem state this assumption is based on the 37% of externally raised debt across GD and T (pre-derivatives) and adjusted down to 30% which Ofgem state is closer to what Ofwat assumed of 33%. Oxera note that Ofgem do not disclose this analysis in the DD and they find when reviewing company data[177], that the weighted average ILD is around 25% as shown in Figure 5.10 below. When considering just National Grid Gas Transmission (NGGT) who has 97% ILD, this inflates the analysis overall. When removing NGGT the average falls to 18.8% and falls even further when you remove NGET which has 56% of its debt in index linked bonds. The next closest company is SGN which is 23% below NGET and what is also worth highlighting is that in the ET sector, both SPT and SHET do not have any ILD, yet are subject to the same Ofgem assumption.

[176] Oxera undertook this analysis based on the Regulatory Financial Reporting Packs (RFPRs) as of 2018/19. They note the average gearing is 61.9%

[177] This is based on ILD as noted in the RFPR as of 2017/18 which was the complete set compared to what was redacted by companies in 2018/19 set of RFPR.

Figure 5.10 Companies ILD debt for RIIO-1 (2017/18)



Ofgem has incorrectly applied this assumption to improve its financeability assessment without removing outliers. This has a material impact on credit ratios whereby reducing Ofgem's assumption from almost 0.10 from the AICR headroom if 20% is used for the ILD assumption. **This worsens further still if NGET is excluded as another outlier reducing the ILD average to 10% and would reduce the AICR significantly further by almost 0.20 and therefore again below the target rating threshold requirement.**

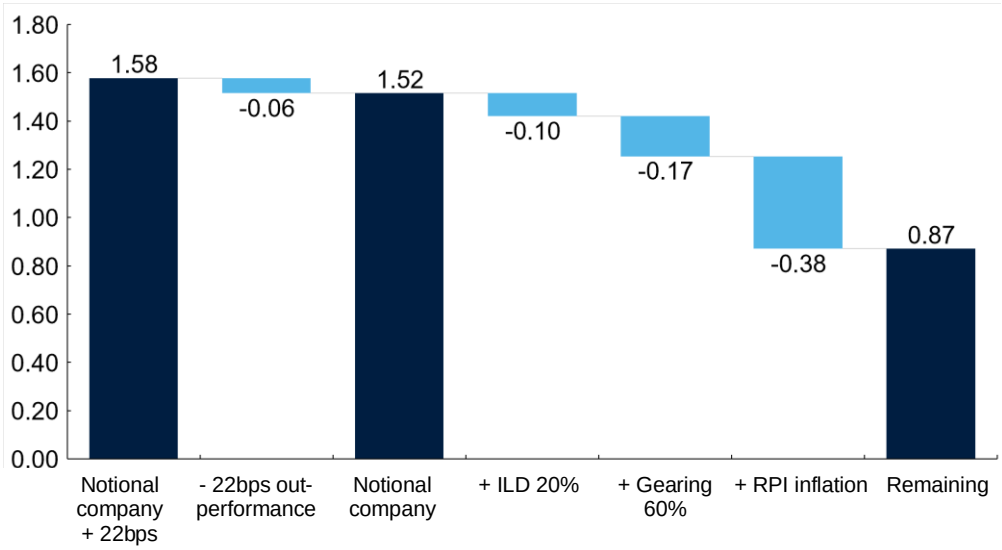
5.4.2.4 Transition to CPIH from RPI

Oxera also review the impact of switching from RPI to CPIH as the measure of inflation for RIIO-2. They note that this change has a significant cash flow impact compared to retaining RPI. They note that had RPI been retained, the company would be under significant financial pressure with an AICR in isolation falling from 1.52 under CPIH to 1.12 under RPI. This is *'masking'* a financeability issue in RIIO-2 whereby Ofgem has not considered the similar transition as Ofwat to CPIH given the RPI-ILD. These accelerated cash flows are temporary and Ofgem has not considered this issue thoroughly enough.

5.4.3 Summary of Impact on Credit Ratios

When we cumulate up the impacts that have been identified above, the impact on the financeability metrics worsens significantly. Reducing the ILD assumption to 20% when it could be set lower, and increasing the gearing to 60% causes a significant drop in the AICR over the long term below the target credit rating threshold for BBB+/Baa1. This is illustrated in Figure 5.11 below as set out by Oxera in its report on Financeability. This does not include increasing the dividend yield, underfunding on the cost of borrowing, or setting the ILD assumption lower all of which worsen this key ratio significantly further. In addition to this analysis, we have considered what would happen in the event of plausible downside scenarios in particular given the large efficiency challenges set on totex and the asymmetric penalties. This is set out below and in more detail in Oxera's report and is consistent with our overall response to Ofgem's DD on totex, incentives, and the balance of the price control.

Figure 5.11 – AICR with cumulative changes in the notional company[178]



We also note that the FFO/Net Debt which is also a key ratio drops significantly 10.9% estimated incorrectly by Ofgem down to 7.9%[179] and significantly below the required credit rating threshold.

5.4.4 Dividend Yield

Ofgem has assumed a dividend yield of 3% in its financeability assessment as well as being a reasonable policy for a regulated network. **Upon reviewing this assumption, Oxera found that the financeability analysis Ofgem has undertaken does not support a 3% dividend yield prior to correcting for assumptions. In order to pay a dividend of 3% the company must increase its gearing above the notional level.** Ofgem argue that a low dividend yield may be justified at a time of cash flow weakness, they have assumed outperformance of 22bps plus a higher than reasonable ILD assumption that improves financeability. Ofgem's switch to CPIH has accelerated cash flows and eases cash flow pressure but this weakness in RIIO-2 is not temporary issue and in fact is further evidence of Ofgem setting the cost of equity too low.

Oxera also note that the dividend yield in water was actually above 6% and therefore why would investors expect a lower dividend from energy networks given the risk profile is higher than UK Water. Changing the dividend yield to 5% causes a reduction in the AICR by 0.05 and an increase in the gearing by a further 2%.

5.4.5 Risk Analysis

Oxera set out a plausible downside scenario in its report in section 6 where they consider the impact of underperformance on incentives and totex given the efficiency challenge and asymmetric incentives in Ofgem's DD. This is part of the overall assessment on financeability as we have set out in this section whereby the overall price control required to evaluate financeability and the balance of risk. When

[178] Oxera (Sept 2020), 'Financeability of the RIIO-2 Draft Determinations', prepared for Scottish Hydro Electric Transmission
[179] Ibid, Figure 4.7

considering totex and incentives, Oxera undertake a plausible downside scenario whereby they identify that key credit metrics would deteriorate to sub-investment grade as shown in Table 5.8 below.

Table 5.8 – Key credit ratios from downside shocks on SHE T notional company in RIIO-2

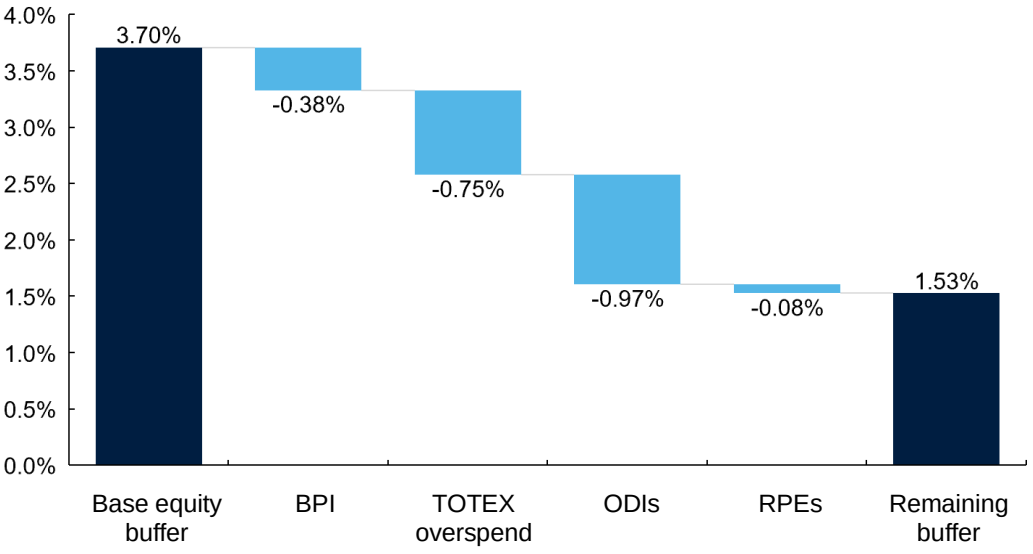
Key credit metrics	Notional company	Notional company, incl. downside shocks
Gearing (net debt/RAV) (%)	58%	58%
AICR (x)	1.52	0.96
FFO (interest expense)/net debt (%)	10.7%	9.0%
RCF/net debt (%)	8.3%	6.7%

Note: The downside shocks have been modelled using a reduction of 2.12% in Ofgem's allowed equity return. The above scenarios assume CPIH inflation. All metrics are simple averages over RIIO-2.

Source: Oxera analysis.

As a result, the remaining equity buffer would deteriorate significantly similar to the analysis often shown in the RoRE range analysis similar to Ofgem's Figure 22 in its Finance Annex for DDs. This is displayed in Figure 5.12 below which shows the headroom as being too low alongside the credit ratios which does not reflect the likely increase in the cost of borrowing as a result of several downgrades.

Figure 5.12 average annual equity buffer over RIIO-2 with downside shocks (% of RoRE)



Note: The equity buffer has been calculated as (1 – notional gearing) x cost of equity (real). The BPI penalty is spread evenly over the five-year price control period.

Source: Oxera analysis.

5.4.6 Conclusion

As we have set out in this section, Ofgem's financeability analysis is not an accurate reflection of the underling financeability issues caused by its DDs for RIIO-2. We demonstrate with Oxera analysis and evidence the following:

- **The DD does not support a BBB+/Baa1 credit rating in line with the target rating set by Ofgem.**

- **Ofgem has incorrectly forced the notional gearing to 55% despite market evidence showing that the observed gearing is 60%.** Ofgem has set this endogenously to solve a financeability issue and has incorrectly interpreted the RIIO-T1 price control settlement on gearing.
- **Ofgem has erroneously calculated the proportion of indexed linked debt (ILD) in regulated networks which when used as part of a financeablity assumption of 30% CPIH ILD improves credit ratios.** Oxera show that the average ILD across the sector is 25% when including Electricity Distribution. They also show that when removing outliers such as NGGT who has 97% of its debt index linked, the average is in fact 18.8%. Furthermore, when excluding NGET who has 56% of its debt indexed linked, with the nearest comparator 23% lower, the average falls to below 15% of ILD in the sector. When we consider that SHET and SPT has no ILD, it is inappropriate to use the assumption that 30% of the sector has CPIH ILD.
- **There is insufficient financial buffer to retain investment grade credit rating in the presence of plausible downside risks** due to how the overall price control has been set based on DD.
- **The financeability outcome is inconsistent with the use of an A/BBB based cost of debt index** albeit noting the Utilities index does not have a rating its constituents are of that average rating at this point in time. Ofgem has not considered the underfunding on the cost of debt index in its analysis despite evidence set out in section 5.2.
- **Ofgem's analysis shows that to retain a 55% gearing, SHE Transmission would need to pay no dividends instead of the 3% dividend yield assumed.** Ofgem's analysis shows that SHE Transmission would need to gear up to pay a dividend of that level during RIIO-T2.
- **Ofgem's dividend yield assumption of 3% is too low compared to market comparators** where listed water companies (who Ofgem argue are similar risk) are paying yields closer to 6%.
- **In the event of plausible downside shocks, we would be below investment grade and the equity buffer would likely be lower due to an increase in the cost of borrowing from credit rating downgrades.** This analysis has not been fully considered by Ofgem in its financeability analysis where its own conclusions show that if we were to materially overspend then our credit ratios would improve.

5.5. Relative risk of Energy to Water

Ofgem has made number of statements over the RIIO-2 period around the risk of UK Water compared to UK Energy Networks. This has been centred around the discussion on the most appropriate methodology for setting the cost of equity compared to each sector as part of this cycle of price control reviews. In particular it is worth highlighting that four water companies have referred their price control to the CMA and it is by no means a precedent for the right level of cost of equity or potential RoRE ranges.

As we have set out in our response to Ofgem's Draft Determination on the cost of equity and financeability we need to consider the balance of a price control based on the level of risk and potential return opportunity. In this section, we have summarised our own assessment of the relative risk and return opportunity compared to UK Water and in particular focused on the Ofgem quantification of risk in its Draft Determination[180]. This section is therefore set out as follows:

1. Observable Measures of Risk
2. Qualitative Assessment of Risk
3. Financeability Risk and Quantifying the Risk Differential

We have also reflected our evaluation of the absolute efficiency challenges set by each regulator compared to the scale of investment required over the forthcoming period and technological challenges faced by regulated companies in each sector.

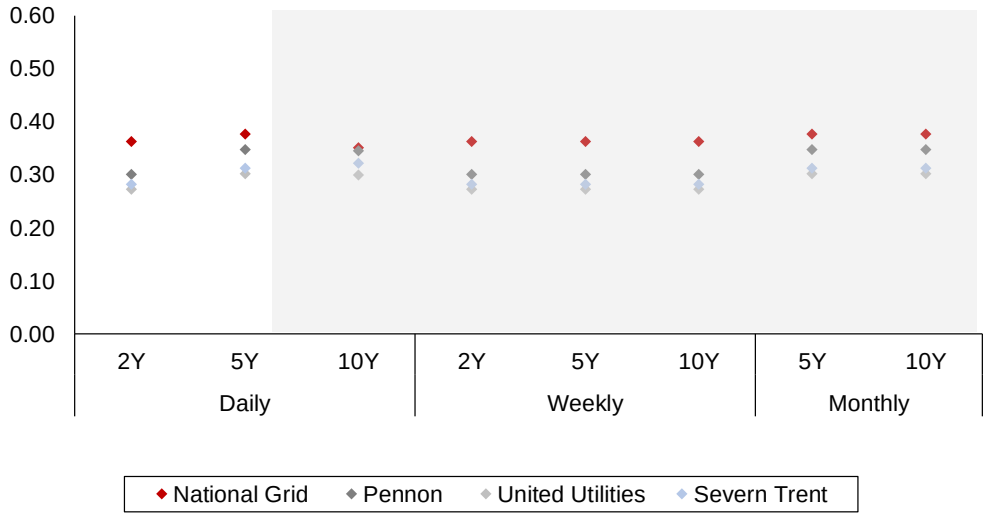
5.5.1 Observable Measures of Risk

It can be challenging to collate and evaluate information to evaluate the level of risk for each company in different sectors. In doing so we have to rely upon a robust analysis of different drivers, company and industry specific factors overlaid by a comprehensive risk framework. In the absence of that analysis, the most appropriate approach is to evaluate what measures are available, observable and considered robust for determining risk of companies in different sectors. In doing so we can use the observed betas of listed UK water companies (United Utilities, Pennon and Severn Trent), and two listed UK energy companies (National Grid and SSE). The two energy companies have proportions of their organisations that are not UK regulated networks. In the case of National Grid, they have a large US business, and SSE is now comprised mainly of a renewables business in terms of relative scale of the Group.

When we consider these risk measures we review the market analysis on betas over a period of time to determine the relative risk of water to energy networks. If we exclude SSE given its changing business composition over a period of time including the disposal of its retail business and instead focus more on National Grid[181] as a direct comparison. We observe that National Grid's asset beta remains above the water companies as shown in Figure 13 which shows the asset beta estimates for the entire UK comparator sample for the full range of frequencies and estimation windows.

[180] Ofgem RIIO-2 Draft Determinations – Finance Annex (Jul 2020)
[181] Oxera (2020) excluded SSE's beta in its analysis as it has trended materially upwards departing from National Grid and European regulated networks. In our opinion this is a prudent approach.

Figure 5.13 – Asset betas for listed UK comparator companies under different frequencies and estimation windows



Note: The cut-off date is 31 July 2020. The area to the right of the five-year daily asset betas has been shaded to reflect the notion that our range is derived from the two-year and five-year daily estimates, while the rest of the data points are only used as cross-checks[182].

This comparator set provides a range of 0.27–0.38 when using on two- and five-year daily beta estimates. More importantly the results show that National Grid has been above the pure-play water companies over the period showing that the relative ***observable*** risk is higher in electricity networks than water. It is therefore not appropriate to rely solely on this range as it would underestimate the true beta for UK energy networks as it is biased downwards by two critical factors:

1. Water company betas being materially lower than National Grid. This is also the case for pure-play water companies whereby when excluding Pennon the asset beta for water companies is still below National Grid's beta.
2. National Grid's beta being understated by the fact its US business exhibits a lower beta than its UK business either by comparison of data between the UK and US or by disaggregating National Grid's beta[183].

We believe this illustrates that electricity networks are observably higher risk than water companies without undertaking any further analysis. However, in addition to this, we note that a preliminary analysis of this issue was presented in the Indepen Report, which Ofgem relies on for arriving at its asset beta range. The preliminary analysis in that report found that National Grid's US betas are 0.15 to 0.19 lower than National Grid's UK betas.[184] Oxera also note that other studies have found that the betas of US electricity networks has been 0.30 lower than the UK electricity networks. This further illustrates that National Grid's beta should be the bottom of the asset beta range at between 0.36 and 0.38 and is likely understated due to its lower risk US business.

[182] Oxera analysis based on Bloomberg data.
[183] This was undertaken by Frontier Economics for SSE and National Grid (Dec 2020)
[184] Indepen. (2018), 'Ofgem Beta Study – RIIO-2 Main report', pp. 38–9, https://www.ukrn.org.uk/wp-content/uploads/2019/01/final_beta_project_riio_2_report_december_17_2018_0.pdf.

The European energy networks have on average higher betas than National Grid and therefore higher than UK water. This is observable evidence that markets see electricity networks as higher risk than UK Water. The European evidence for two- and five-year daily data suggests a wider and higher asset beta range of 0.34–0.52 compared to the UK evidence (0.27–0.36). Strangely, Ofgem also mentions on page 46 that energy networks may be riskier than water firms, and its own beta analysis consistently suggests that National Grid is riskier than the two pure-play water companies.

When we reviewed Ofgem's analysis and reference to the CEPA[185] report, we note that Ofgem has summarised its conclusions more strongly than was the case in this report. CEPA writes that *'[it recognises] that GB energy networks may be judged riskier than water networks – or at least that the sources of systematic risk are sufficiently different that water networks are an imperfect investment substitute for a pure play energy network in RIIO-2'* and differ due to exposure to the **'Net Zero'** initiative.

The CEPA report also mentions that placing heavier weights on water companies as comparators will mechanically lower the estimated asset beta for energy companies, implying that water companies are relatively less risky than energy companies.[186] CEPA notes in Table 2.3 of its report on page 25 that energy companies are likely riskier than water companies in terms of demand, competition, and investment cyclicality. They do not find a difference in political/regulatory risk. CEPA's Table 2.3 therefore identifies multiple dimensions on which energy companies may be riskier than water companies and no cases where the opposite is true.

We believe Ofgem has failed to recognise that the risk of Energy Networks is higher than UK Water when considering *observable* market evidence.

5.5.2 Qualitative Assessment of Risk

When we review Ofgem's assessment in Table 18 of the qualitative characteristics of risk, we note that they summarise similarities between energy and water more strongly than the claims made by CEPA. When ultimately concluding that water and energy companies are similar in terms of regulatory exposures, Ofgem ignores that rapid technological change, such as HVDC technology, and an increased focus on decarbonisation suggest that the fundamental risk of energy networks is greater than that faced by water networks.

For example, in July 2018, National Grid introduced a new scenario for meeting carbon targets—'Community Renewables'.[187] This scenario differs in that it assumes that the carbon targets are met under a system with a high degree of decentralisation.[188] The large roll-out of decentralised intermittent generation may require significant adaptation from the grid. In March 2019, the UK government banned gas heating for new houses, with the aim of decarbonising domestic heating.[189] This raises the question

[185] CEPA, 'RIIO-2: Beta estimation issues', p. 5.
[186] CEPA, 'RIIO-2: Beta estimation issues', p. 5. quotes 'A slightly lower range might be considered appropriate the more emphasis is placed on the similarities in the water sector regulatory frameworks and the price control building blocks in the two sectors'.
[187] National Grid (2018), 'Future Energy scenarios', July, p. 15, Figure 2.1 Scenario matrix, http://fes.nationalgrid.com/media/1363/fes-interactive-version-final.pdf. For comparison, see the previous year's version: National Grid (2017), 'Future Energy scenarios', July, pp. 14–17, 'Scenario descriptions', http://fes.nationalgrid.com/media/1253/final-fes-2017-updated-interactive-pdf-44-amended.pdf.
[188] See 2017 FES Workbook, tab 'ES3', and 2018 FES Workbook, tab 'ES2'.
[189] Harrabin, R. (2019), 'Gas heating ban for new homes from 2025', BBC News, 13 March, https://www.bbc.co.uk/news/science-environment-47559920, accessed 3 October 2019.

of what utilisation gas networks will be able to achieve throughout the RIIO-2 period and beyond, and it is another example of heightened risk for energy networks compared to water networks.

If we replicate Ofgem's table reflecting the reality of the risk analysis between electricity and water, we do not conclude the same as Ofgem. We also consider more explicitly other direct risks which Ofgem has not clearly considered in our table marked as [new] in the table.

Table 5.9 – Comparison of qualitative risk of regulated energy and water networks in GB

Driver of risk	Energy networks may bear lower systematic risk than water networks because…	Energy networks may bear similar system risk as water networks because….	Energy networks may bear higher systematic risk than water networks because….
RoRE Range	We identify no items where risk would be lower for water than energy.	Both sectors are subject to regulatory reviews on a cyclical basis and are based in the UK.	Market observations for risk are significantly higher for energy than water but returns are lower. The RoRE range is significantly lower and with a materially lower equity buffer[190].
Return Adjustment Mechanisms and outperformance wedge	Ofwat have no restrictions on potential outperformance and no outperformance wedge which is credit negative.	Both sectors are regulated within the UK as above.	Energy has the risk of ex-post adjustments, risks associated with other network company's performance.
RIIO-2 indexation	We see little evidence of risks being greater for water than energy.	Not applicable.	Significant shift in indexation for RPEs, cost of equity which introduces more cash flow volatility than water.
Totex Expenditure requirements	Totex requirements are substantially lower over the period and long term in absolute terms in Water.	Both energy and water are subject to efficiency incentive mechanisms.	Significantly greater totex requirements in energy to delivery NetZero as also noted by CEPA.
Reputational and business risks	Not applicable.	Reputational risks similar on security of supply.	Disruption in electricity transmission significantly greater than water disruption as seen by the National Grid blackout in 2019 which was a significant cost to the economy.
Efficiency challenge [new]	Lower efficiency challenge applied by Ofwat in PR19.	Not applicable.	Significantly greater efficiency challenge applied in energy networks compared to water leading to more downside risk and overspend.
Regulatory uncertainty [new]	Little requirement for reopener mechanisms.	Not applicable.	Significant number of regulatory uncertainty

[190] Remembering that four water companies have appealed PR19 to the CMA.

			mechanisms and reopeners. The scale of regulatory intervention has increased substantially with a more micro-management of regulatory decisions in particular for expenditure.
Technological Change [new]	Significantly less technological risks in Water compared to energy.	Not applicable.	The pace and requirement of investment and new technology in electricity is significantly higher than in Water.

Therefore, when we consider the qualitative analysis, we see no reason as to why energy networks are lower or similar risk to UK Water. Observable and qualitative measures clearly indicate a significant risk premium is required for energy networks yet we see lower returns than Water, greater downside and less opportunity to outperform in RIIO-T2.

5.5.3 Financeability Risk and Quantifying the Risk Differential

Ofgem state that they do not agree with companies' objection to injecting equity to boost financeability over RIIO-2[191] on the basis that some Water companies are following this practice to improve financial resilience. This is an incorrect characterisation of the injection of equity in Water where companies actual gearing is/was substantially higher than the notional gearing. This is not the case in Energy Networks and as we have set out in our financeability analysis, Ofgem has used a change in notional gearing to mask a credit rating problem caused by setting the cost of equity too low for RIIO-T2.

Our approach (and that of Oxera) was criticised by Ofgem because a precise value was not quantified for the additional premium associated with these risk differentials between water and energy. Ofgem also considers that Oxera should have used water companies as comparators for energy networks yet acknowledges water companies are likely to be lower-risk. In relation to quantifying a differential we believe that observable market evidence justifies a higher cost of equity and a removal of a significant proportion of the efficiency challenge. Both of these create significant downside risk and given the errors made by Ofgem must be corrected to ensure energy can deliver the necessary transition to NetZero reflective of the risk the industry faces.

When we review the observable evidence on asset beta, the differential when translating through to the cost of equity being higher by at least 1% (and most likely significantly higher than 1%) based on adhering to a similar set of parameters and just changing the asset beta benchmark[192].

[191] Ofgem RIIO-T2 and GD2 Draft Determinations – Finance Annex (July 2020), page 116, para 6.7

[192] This ignores the errors made in the cost of equity set by Ofgem in Draft Determinations. We do not believe changing the CoE for energy by at least this amount would be sufficient as the package must be viewed overall. We note that the cost of equity proposed for PR19 by Ofwat which is currently under review by the CMA.

Annex 1: Impact assessment

This response does not address the RIIO-2 Network Price Controls Draft Determination Impact Assessment (the ***IA***), which was published by Ofgem on 31 July 2020.

SHE-T notes that Ofgem published the IA "*in support of the RIIO-2 Draft Determinations*[193]" with the intention of providing "*an assessment of key impacts associated with* [the] *proposals*[194]" set out in the Draft Determinations.

SHE-T also notes Ofgem's observation in the IA that: "*Since the publication of the draft IA, there have been a number of external developments as well as refinements and changes to approaches used in our assessment in a number of areas. This IA considers these areas and, where possible, provides a quantitative assessment of the impacts on consumers and networks companies arising from these changes, in line with the requirements of our IA Guidance.*[195]"

Ofgem has not expressly invited representations in relation to the IA. However, given: (i) the IA's relevance to the RIIO-2 Draft Determinations; (ii) that SHE-T's interests are significantly affected by the views set out in the IA; and (iii) the numerous developments that have taken place since the publication of the draft IA, SHE-T intends to respond to the IA, particularly in relation to those points that have not been consulted on previously.

Although no time period has been specified for this, in line with the Gunning principles (cited in Ofgem's Consultation Policy),[196] SHE-T must be given "*adequate time for consideration and response*".

Given that the IA was not published until 31 July 2020 (i.e. 22 days after the publication of the Draft Determinations), SHE-T will respond to the IA by no later than Friday, 25 September (i.e. 21 days after the deadline for responding to the Draft Determinations and eight weeks after the IA was first published). This will ensure that SHE-T's response is provided to Ofgem promptly following the publication of the IA while allowing adequate time for consideration and response. SHE-T notes that this timeframe is also in line with: (i) the indicative consultation period Ofgem lists for issues that are of specific interest to a narrow group of people; and (ii) Ofgem's practice in relation to RIIO-T1, where the Impact Assessment[197] was published at the same time as the Initial Proposals[198] and respondents were expressly given eight weeks to respond.

[193] IA, page 4.
[194] *Ibid*.
[195] *Ibid*.
[196] https://www.ofgem.gov.uk/consultations/our-consultation-policy
[197] https://www.ofgem.gov.uk/ofgem-publications/53722/riio-t1-nggt-and-nget-impact-assessment.pdf
[198] https://www.ofgem.gov.uk/ofgem-publications/53713/riio-t1-initial-proposals-nggt-and-nget-overview-2707212.pdf

Annex 2: SSEN Transmission Draft Determinations Response Submission: supporting annexes

Category	Annex name
Main Response	T2BP-DD-QRD-002 Main Response Document **THIS RESPONSE**
Individual Question response	T2BP-DD-QRD-001 Response to Ofgem's Draft Determination questions (Draft v1.0)
SHE Transmission Supporting Evidence	T2BP-DD-SHE-001 SSEN Transmission - Consumer Value Proposition (CVP)
	T2BP-DD-SHE-002 SSEN Transmission Stakeholder Feedback
	T2BP-DD-SHE-003 SSEN Transmission - Group Bios
	T2BP-DD-SHE-004 SSEN Transmission - Business Plan Incentive (BPI)
	T2BP-DD-SHE-005 SSEN Transmission - Totex Incentive Mechanism (TIM)
	T2BP-DD-SHE-006 SSEN Transmission - Uncertainty Mechanisms - Volume Driver
	T2BP-DD-SHE-007 ET Q6 Annex 1 SSEN Transmission IIG ODI Draft Determinations Impact Assessment
	T2BP-DD-SHE-008 SSEN Transmission - the role of Groups (Core Q1)
	T2BP-DD-SHE-010 True up, Logging Up and Re-openers - SSEN Transmission RIIO-T2 Proposals
	T2BP-DD-SHE-011 - SHET_TIM_Cost Confidence Workbook
	T2BP-DD-SHE-012 Annex 1: Q&A on Pre-Action Correspondence and Post Appeal Review
	T2BP-DD-SHE-013 SHET Q4 Annex 1
	T2BP-DD-SHE-014 SHET Q4 Annex 2
	T2BP-DD-SHE-015 SHET Q4 Annex 3A
	T2BP-DD-SHE-016 SHET Q4 Annex 3B
	T2BP-DD-SHE-018 - Business Plan Incentive Summary Workbook (BPI)
	T2BP-DD-SHE-019_ET4_LCP Ofgem Mechanisms-Workings
	T2BP-PAP-0016 PCF 10920 Update
	T2BP-PAP-017 PCF for T3 LRE Schemes
	T2BP-PAP-018 PCF for T3 NLRE Schemes
Confidential response – additional information requested from Ofgem	SSEN Transmission - Cyber Resilience IT & OT Plan Assessment
Independent Consultant Reports	Oxera: Ofgem's TOTEX assessment approach at the RIIO-ET2 draft determinations: a review, August 2020
	Oxera: Critique of RIIO-2 ongoing efficiency analysis, August 2020
	Oxera – Financeability of the RIIO T2 DD's (SSE report)
	Oxera – The Cost of Equity for RIIO-2 (ENA report)
	Oxera – Asset Risk Premium relative to Debt Risk Premium (ENA report)
	NERA – Review of Ofgem's DD additional costs of borrowing and deflating nominal IBOXX (ENA report)

	Frontier - Further analysis of Ofgem's proposal to adjust baseline allowance (ENA report)
	First Economics – Productivity Growth (ENA report)
	First Economics – Prior Year adjustments (ENA report)
Engineering Justification Papers – Non Load Related Expenditure	T2BP-EJP-0027 Sloy Substation Works Justification Paper
	T2BP-EJP-0027 Level 1 Condition Assessment - Sloy GT1 FINAL
	T2BP-EJP-0027 Level 1 Condition Assessment - Sloy GT2 FINAL
	T2BP-EJP-0027 Level 1 Condition Assessment - Sloy GT3 FINAL
	T2BP-EJP-0027 Level 1 Condition Assessment - Sloy GT4 FINAL
	Summary Sloy GT1
	Summary Sloy GT2
	Summary Sloy GT3
	Summary Sloy GT4
	T2BP-CBA-0001 Sloy Substation Works CBA Re-submission July 2020
	T2BP-EJP-0032 Kilmorack & Aigas Substation Justification Paper
	Aigas_Kilomorack_RIIO-ET2_CBA_Template_v1.6
	Level 1 Condition Assessment - Aigas GT1 FINAL
	Level 1 Condition Assessment - Kilmorack GT1 FINAL
	R_MRB_SHET_SHNLT206_v4_Aigas
	R_MRB_SHET_SHNLT207_v4_Kilmorack
	SSE Phase 1 Contaminated Land Assessment Final 24 June 2020
	SSE Phase 1 Contaminated Land Assessment Final Risk Review Table 24 June 2020
	Summary Aigas GT1
	Summary Kilmorack GT1
	T2BP-EJP-0035 Culligran Substation Justification Paper
	Culligrain_RIIO-ET2_CBA_Template_v1.6
	Level 1 Condition Assessment - Culligran GT1 FINAL
	R_MRB_SHET_SHNLT208_v4_Culligran
	Summary Culligran GT1
	T2BP-EJP-0036 Deanie Substation Justification Paper
	Deanie_RIIO-ET2_CBA_Template_v1.6
	Level 1 Condition Assessment - Deanie GT1 FINA
	R_MRB_SHET_SHNLT209_v4_Deanie
	Summary Deanie GT1
	T2BP-EJP-0027 Broadford Substation v1.1
	Broadford_RIIO-ET2_CBA_Template_v1.6
	R_MRB_SHET_SHNLT2012_v4_Broadford-SystemUpdate
	T2BP-EJP-0040 Quoich Tee Substation Works Justification Rev1.1
	R_MRB_SHET_SHNLT2013_v4_QuoichTee
	T2BP-EJP-0041 St Fillans Substation Works Justification Paper Rev1
	Level 1 Condition Assessment - St Fillans GT1 FINA
	St Fillans_Cost Benefit Analysis
	R_MRB_SHET_SHNLT2014_v4_StFillans
	Summary St Fillans GT1
	T2BP-EJP-0043 Keith Substation Works v1.1
	R_MRB_SHET_SHNLT2022_v4_Keith
	T2BP-CBA-0011 Keith Substation Works CBA

	T2BP-EJP-0044-St Fergus Mobil Rev1.1
	R_MRB_SHET_SHNLT2031_v4_St Fergus Mobil
	St Fergus Mobil_RIIO-ET2_CBA_Template_v1.6
	T2BP-EJP-0042 Tummel Bridge Substation Works Justification Rev1.1
	20200810_Tummel Bridge_Cost Benefit Analysis
	Level 1 Condition Assessment - Tummel Bridge GT1 FINAL
	Level 1 Condition Assessment - Tummel Bridge GT2 FINAL
	Summary Tummel Bridge GT1
	Summary Tummel Bridge GT2
	T2BP-EJP-0006 Transmission Communications Upgrade v7.6
	T2BP-EJP-0006 Transmission Communications Upgrade_Appendix A
	T2BP-EJP-0006 Transmission Communications Upgrade_Appendix B
	T2BP-EJP-0003 Resilience - Operations Centre Justification Paper
	T2BP-EJP-0003 - Operations Centre Rev 1.1
Engineering Justification Papers – Non Load Related Expenditure	Attachment 1 Operational Functions Needs and Risks Summary EPRI August 2020
	Attachment 2 EPRI-SSE Control Center Review Project_FINAL V1.0a
	Attachment 3 Control Centre Risk Benefit Analysis Tables
	TCC_RIIO-ET2_CBA_Template_v1.6
	T2BP-EJP-0050 Dynamic Line Rating
	DLR CBA - Reinforcement Deferral Benefits FINAL
	T2BP-EJP-0050 Dynamic Line Rating Engineering Justification Paper (Note: ICMP has had the Dynamic Line Rating component broken out into a new paper).
	T2BP-EJP-0012 Integrated Condition Performance Monitoring Justification Paper
	T2BP-EJP-0012 Integrated Condition Performance Monitoring Justification Paper and
	T2BP-EJP-0013 Materials Management and Warehousing Justification Paper Rev3
	Warehouse Condition Report
	Warehouse_RIIO-ET2_CBA Rev 3
	T2BP-EJP-0013 Materials Management and Warehousing Justification Paper
	T2BP-EJP-0029 Foyers Substation Engineering Justification Paper
	Foyers RIIO-T2-CBA
	R_MRB_SHET_Foyers
	T2BP-EJP-0050 Willowdale Substation Engineering Justification Paper
	Willowdale RIIO-T2-CBA
	R_MRB_SHET_Willowdale
	T2BP-EJP-0034 Beauly-Deanie-Aigas Substation Engineering Justification Paper
	Beauly-Deanie-Aigas RIIO-T2-CBA
	R_MRB_SHET_Beauly-Deanie-Aigas
	T2BP-EJP-0037 Peterhead Substation Engineering Justification Paper Rev1.1
	T2BP-EJP-0023 Kinardochy Reactive Compensation Consultation Response