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Scottish & Southern Electricity Networks

TRANSMISSION

Regulatory Framework - Outputs, Incentives, CVP & Innovation

December 2019

Scottish Hydro Electric Transmission plc

What this paper contains

In our main Business Plan[1], we set out our Certain View[2] of the investment needed to deliver our stakeholders' needs alongside maintaining a safe a secure network during RIIO-T2. We also established five clear goals, evidence of the additional benefits we propose to deliver for our stakeholders by 2026. These are:

As we deliver this ambitious £2.4bn programme, our stakeholders will expect to see evidence of progress in delivering the benefits promised by this investment, where we are exceeding original expectations and how we are efficiently responding to industry uncertainty. In RIIO, this is achieved by setting and reporting on clearly defined **Output** measures and driving delivery through **Incentives**, including the **Consumer Value Proposition (CVP)**. This paper therefore provides stakeholders, including the regulator Ofgem, clarity on each.

- **Chapter 1**: the **Outputs** and **Incentives,** which will drive performance and delivery under each of our strategic objectives and mapped to Ofgem's Output categories;
- **Chapter 2**: the additional value our plan delivers – our **Consumer Value Proposition**; and
- **Chapter 3:** how **Innovation** should be incorporated into the RIIO-T2 settlement, including cross-party proposals on how we could measure and report on associated benefits.

These chapters are supported by appendices providing additional detail and meeting all Ofgem's Business Plan minimum requirements.

[1] https://www.ssen-transmission.co.uk/riio-t2-plan/
[2] Our Certain View is every activity and investment that we propose to undertake during the RIIO-T2 period where there is compelling evidence of need, along with robust cost forecasts. It forms our baseline ex ante allowance.

We have a separate paper on **uncertainty mechanisms**[3]. This outlines how we propose to manage the risk to consumers by protecting against the equally undesirable outcomes of over or under resourced networks.

Outputs: We are committed to setting clear outputs and establishing enhanced performance reporting during RIIO-T2 that allows our stakeholders to hold us accountable. The main outputs against which our progress can be assessed are set out in our main Business Plan and collated and, where appropriate, expanded on in this paper. This also includes our commitment to an **Enhanced Reporting Framework (ERF)** for RIIO-T2, providing transparency for and accountability to our customers for the funding provided.

Chapter 1 defines the outputs for each of our four RIIO-T2 strategic objectives and proposes how these can be measured. For ease of reference we map these clearly to the relevant sections in the main Business Plan. Ofgem has confirmed it will set the targets for incentives and will not progress with target setting for some until 2020. Where possible, we have proposed options to setting targets and will continue to develop these with the regulator and our stakeholders.

Figure A shows how the outputs in each area of our plan map to Ofgem's three output categories. Appendix 1 sets out our outputs in tabular format as requested in Ofgem's Business Plan Guidance[4].

Figure A - Integrated Output and Incentive framework

Strategic Themes	Sector Leading Efficiency	Safe and Secure Network Operation	Stakeholder-Led Strategy	Leadership in Sustainability
Ofgem Output Categories	Maintain a safe and resilient network		Meet the needs of consumers and network users	Deliver an environmentally sustainable network
Goals	Transport the renewable energy that powers 10 million homes	100% network reliability for homes and businesses	Every connection delivered on time	One third reduction in our greenhouse gas emissions
	£100 million in efficiency savings through innovation			
Outputs	Outputs that will ensure the efficient delivery of our Certain View capital delivery projects. (Table 1.2)	Outputs that will ensure the resilience of our network as we meet the energy transition challenges. (Table 1.3)	Outputs that support service quality for our directly connected customers and all stakeholders. (Table 1.4)	Outputs that support our environmental and wider sustainability ambitions. (Table 1.5)
Financial Output Incentives		Energy Not Suppled (ENS) (Table 1.1) (Table 1.3)	Quality of Connections Survey (Table 1.1) (Table 1.4)	SF6 and other IIGs (Table 1.1) (Table 1.4)

Our output commitments: Stakeholders tell us that they want to see how we are delivering on our output commitments and to understand the consequence on our RIIO-T2 package if delivery is above or below baseline. This document sets out the measures in place to provide stakeholders with that assurance (see Figure 1.3 and Appendix 2).

[3] SUPPORTING DOCUMENT 12: Regulatory Framework Uncertainty Mechanisms found here: https://www.ssen-transmission.co.uk/riio-t2-plan/regulatory-framework-uncertainty-mechanisms/

[4] https://www.ofgem.gov.uk/publications-and-updates/riio-2-business-plans-guidance-document

Incentives: RIIO encourages networks to continually innovate and explore lower cost solutions to deliver improved outcomes for our stakeholders. For many of the outputs listed above, and in this paper, we continue to recognise we should only choose to deliver more when it is of value to stakeholders. We aim to do so largely through our **Consumer Value Proposition** (CVP). We believe our plan goes over and above the minimum standards in several areas, delivering real and quantifiable benefits during the price control and beyond.

Our CVP has been developed alongside our Business Plan in response to stakeholder feedback. By setting clear stakeholder informed priorities in advance of the price control period we can make choices in preparation for and during RIIO-T2 as to where and when to invest, ensuring we do so in areas that consumers and stakeholders value the most, while at the same time meeting our statutory obligations. Our stakeholders can have confidence that we will only deliver increased outputs where the benefit exceeds the cost of doing so. Our CVP does not summarise every area of our Business Plan which delivers consumer value. Instead, our CVP focuses on the areas over and above the core/minimum standard value and on areas our consumers and stakeholders view as a priority.

As noted above, Ofgem has confirmed it will not progress with target setting for the financial in-period output incentives until 2020, but early indications suggest a significantly smaller upside package in financial terms compared to RIIO-T1. Therefore, the role of the CVP becomes critical in the Regulatory Framework in rewarding the high quality, value for money plans that will truly deliver for consumers. In fact, it becomes the main financial incentive in RIIO-T2.

Innovation: Continued innovation is central to achieving the outcomes set out in our plan. We support Ofgem's decision to retain a strong innovation stimulus for both large and smaller scale innovations. Our goal is to ensure that we build on the £100m of efficiency savings delivered due to RIIO-T1 intervention and expect innovation to play a central role in this. Innovation delivery will support our overarching objective to enable the transition to a low carbon economy.

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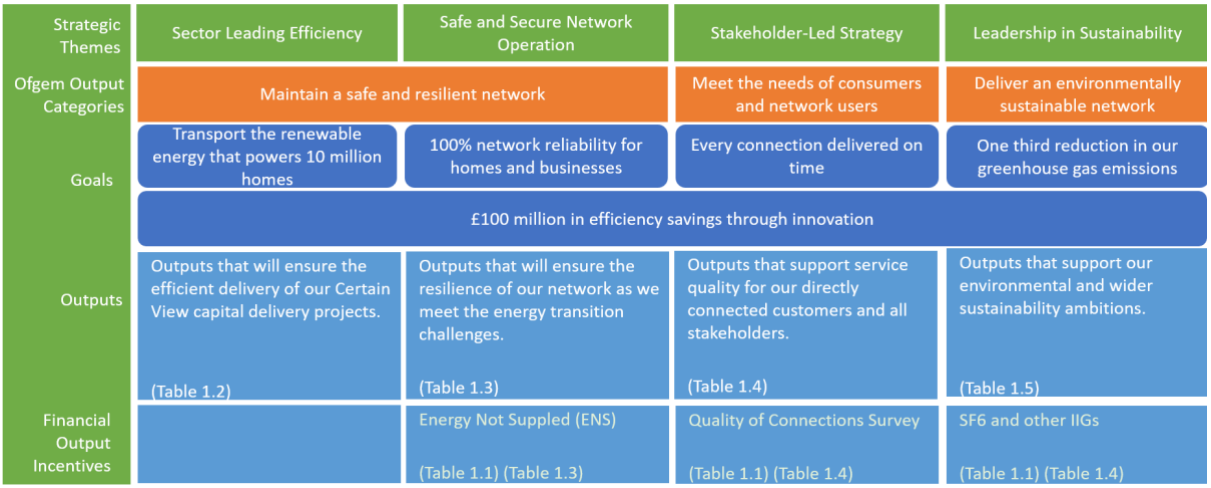
1 The right Outputs and Incentives

1.1 Introduction

1.1.1 We are committed to setting clear outputs and establishing enhanced performance reporting during RIIO-T2 that allows our stakeholders to hold us to account. The outputs against which our progress can be assessed are set out in our main Business Plan and expanded in this paper.

1.1.2 Figure 1.1 summarises the outputs we commit to delivering in RIIO-T2 and how these map to Ofgem's three output categories.

Figure 1.1 Integrated Output and Incentive Framework



1.1.3 The sections which follow expand on the output targets introduced in our main Business Plan in each of the four strategic objectives, highlighting the outputs which we believe should be incentivised along with an estimated maximum value under RIIO-T2. We also outline how all stakeholders are protected by our delivery commitment.

1.1.4 Chapter 1 structure:

- What are RIIO-T2 outputs?
- Incentivising ambition – summary of our incentive package
- Our delivery commitment for all stakeholders
- Outputs and Incentives – under the four strategic objectives.

1.2 What are RIIO-T2 Outputs?

1.2.1 We adopt Ofgem's definitions of RIIO-T2 outputs, which are grouped into four categories; Licence Obligations (LOs), Price Control Deliverables (PCDs), Output Delivery Incentives (ODIs) and Consumer Value Proposition (CVP). These may be common to all TOs, and determined by Ofgem, or they may be bespoke, proposed by individual TOs and approved by Ofgem. When we reference financial ODIs in this document these are abbreviated as follows: ODI (P/R) where there is a financial penalty or reward; ODI (P) for penalty (downside) only incentives; ODI (R) for reward (upside) only incentives; and ODI (Rp) for reputational incentives where no financial mechanism applies. Similarly, a CVP with a financial reward is abbreviated to CVP (R), and if its qualitative/reputational only, its CVP (Rp).

Figure 1.2 Ofgem Output Categories

Licence Obligations (LOs)	Price Control Deliverables (PCDs)	Output Delivery Incentives (ODIs)	Consumer Value Proposition (CVP)
• Minimum standards of performance set by Ofgem or network companies. Failure to meet these minimum standards could lead to enforcement action and/or penalties.	• Outputs directly funded through our base expenditure allowance. We are committed to protecting our customers should the need for set outputs not emerge during RIIO-T2.	• These encourage improvement in network service and are not funded through the base expenditure allowances. We can be exposed to both rewards and penalties and take the risk when investing to deliver these improvements. Some ODIs are not financially but reputationally incentivised. Some ODIs are sector-wide set by Ofgem and we can propose bespoke incentives.	• Areas of a business plan that go beyond the minimum requirements and will lead to benefits for consumers. This can be subject to a reward.

1.2.2 In addition to the PCDs, there are many more deliverables that are funded through our base allowance. These are highlighted where appropriate, for example through our Sustainability[5] and Stakeholder[6] Action Plans. Our PCDs are the main deliverables and we only report these as PCDs to ensure we meet stakeholder requests to reduce the complexity of reporting.

[5] SUPPORTING DOCUMENT 16A: Sustainability Action Plan, found here: https://www.ssen-transmission.co.uk/riio-t2-plan/sustainability-action-plan/

[6] SUPPORTING DOCUMENT 13A: Stakeholder Action Plan, Found here: https://www.ssen-transmission.co.uk/information-centre/our-stakeholder-engagement/implementing-the-strategy/

1.3 Incentivising ambition

1.3.1 Our Certain View plan is ambitious, laying the foundation for net zero while stretching for improvements in outputs at minimal cost to consumers. To facilitate full output delivery and consumer value, we believe this plan needs strongly calibrated incentives.

1.3.2 Reflecting on Ofgem's Sector Specific Methodology Decision (SSMD)[7] and revised Business Plan Guidance[8], but continuing to recognise what is of most value to consumers, our final Business Plan:

- proposes **one further incentive as bespoke** ODI - Whole System Mechanism - to deliver a bottom-line cost benefit for consumers, as per our October draft Business Plan; and
- no longer proposes an Environmental Discretionary Reward (EDR+)[9] that expands on the RIIO-T1 mechanism and no longer proposes the strengthening of the SF_6 calibration as per our October draft plan. Rather, our final plan seeks recognition of our ambitions in sustainability to be recognised through the CVP. Consumers and wider stakeholders have consistently, repeatedly and passionately told us that sustainability issues are of the upmost importance to them and the value they place on them is considerable. Therefore, we believe it is important to embed these in our Business Plan.

1.3.3 This approach produces a moderately incentivised plan, but that moderate incentivisation now hinges on the CVP and not in-period ODIs. The reality being, if Ofgem pursues its SSMD proposals for the ODIs and a lower TIM sharing factor, the financial upside and downside of the ODIs will be very weak (see Table 1.1 and Figure 1.3), much of which reflects the very strong performance of the TOs in RIIO-T1. We fully expect our ambitious, high quality plan that continues to deliver additional value for consumers to be recognised through the CVP.

1.3.4 Ofgem has yet to determine the calibration for the following incentives: Timely Connections, Quality of Connections, Energy Not Supplied (ENS), and SF_6 and other Insulation Interruption Gases (IIGs). We have assumed parity with RIIO-T1 for the first and made assumptions based on the SSMD for the other three (i.e. for 0.5% of annual base revenue cap and collar for Quality of Connections and details provided in paragraphs 1.6.13 and 1.8.8, for ENS and SF_6, respectively).

1.3.5 In the table below we are using a Sharing Factor for our RIIO-T2 best estimates of 25% based on Ofgem's SSMD to set a lower sharing factor. We still stand by our position that to drive ongoing efficiencies a strong totex incentive strength (i.e. 50/50) is optimal for consumers.

1.3.6 Any real growth in the incentive opportunities stems from the fact that our network is growing further from RIIO-T1 to RIIO-T2.

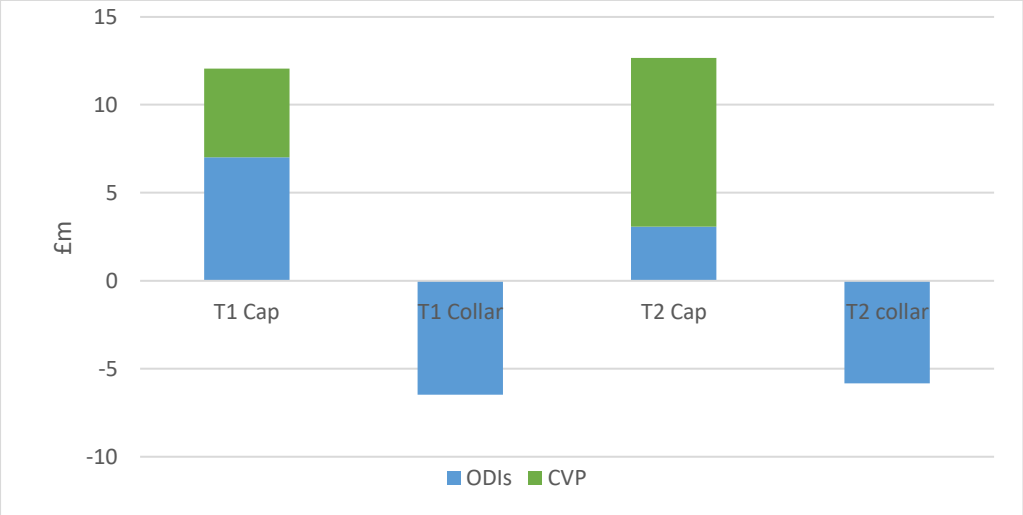
[7] https://www.ofgem.gov.uk/publications-and-updates/riio-2-sector-specific-methodology-decision
[8] https://www.ofgem.gov.uk/publications-and-updates/riio-2-business-plans-guidance-document
[9] This was proposed as an option in our draft Business Plans.

Table 1.1 Incentive Comparison RIIO-T1 v RIIO-T2

£m 2018/19 prices	RIIO-T1		RIIO-T2 best estimate	
	Cap	Collar	Cap	Collar
Stakeholder Engagement Incentive	15	0	n/a	n/a
Stakeholder Survey: Quality of Connections	29	-29	12	-12
Timely Connections	0	-15	0	-12
Energy Not Supplied*	12	-7	3	-4
Bespoke Whole System Mechanism	n/a	n/a	n/a	n/a
SF_6 and other IIGs*	0.79	-1	0.9	-1.4
Total ODIs	**56**	**-52**	**15**	**-29**
Consumer Value Proposition/IQI	40	0	48	0
Total opportunity	**97**	**-52**	**63**	**-29**
Average annual – opportunity	**12**	**-6**	**13**	**-6**

The following assumptions are made: the ENS and IIG incentive figures assumes a TIM sharing factor of 25%, therefore, a post -tax incentive strength of 30.1% based on corporation tax of 17%; RIIO-T1 average annual base revenue of £365m, RIIO-T2 average annual base revenue of £470m.

Figure 1.3 Average annual incentive potential RIIO-T1 v RIIO-T2 (18/19 prices)



Delivering for consumers and network users: showing ambition

1.3.7 Our Business Plan is clearly ambitious. It shows significant ambition to continue to reduce SF_6 emissions, the most harmful of greenhouse gases, despite our network growth, and to meet wider sustainability ambitions. Full details on SF_6 and our wider sustainability outputs options are found below in sections 1.8 and paragraph 1.8.8, respectively, and in our Sustainability Action Plan[10].

1.3.8 Stakeholders want to share in the benefits from networks unlocking Whole System solutions. Our Whole System Mechanism provides that much needed catalyst to make integrated solutions a reality in RIIO-T2. Only with such a catalyst can we move to whole system being business as usual in future price controls.

[10] SUPPORTING DOCUMENT 16A: Sustainability Action Plan, found here: https://www.ssen-transmission.co.uk/riio-t2-plan/sustainability-action-plan/

Delivering for consumers and network users: influencing the sector

1.3.9 We have been at the forefront during this price control development process in informing Ofgem's position and shaping its common incentives. Notably, its Quality of Connections survey and Whole System Co-ordinated Adjustment Mechanism (CAM); a reopener designed to allow for realignment of revenues and responsibilities within the price control.

Informing Ofgem's Quality of Connections Survey

1.3.10 In April 2019 we presented a bespoke Quality of Connections ODI to Ofgem. This was a proposal for a real time survey of all our connections customers across the full customer experience; going beyond the application and connecting stage, to include scoping, energisation and review. We would be subject to a financial penalty or reward depending on our survey score relative to a set baseline. This proposal was the product of extensive engagement with our connection stakeholders and our User Group and was designed to meet the more complex and diverse needs of our customers. Ofgem subsequently decided to introduce a very similar mechanism through a common Quality of Connections survey. Further engagement with Ofgem confirmed there is complete alignment between the two incentives, with the Quality of Connections survey now incorporating the full customer experience and all connections customers (i.e. including embedded generation customers).

Informing the Whole System CAM

1.3.11 Our bespoke financial ODI – the Whole System Mechanism (see below) – was presented as part of our Sector Specific Methodology response to Ofgem in April and June 2019; and through our stakeholder roadshows following the first draft of our Business Plan. The Whole System CAM mechanism adopted by Ofgem in its SSMD has replicated much of our framework. However, it omitted some key aspects which are essential to the success of RIIO-2 whole system solutions. In particular, a strengthened whole system incentive, reflecting the material risk licensees will face in developing multi-party network solutions with no guarantee that they will reach maturity.

1.3.12 We propose the application of a minimum 50% Totex Incentive Mechanism (TIM) sharing factor to successful whole system solutions which reach maturity. This is a 'win-win' outcome for consumers – the strengthened incentive is only applied to Whole System solutions which have proven to deliver consumer benefit. Benefits arise through both lower Totex and increased information on the potential future network solutions.

1.3.13 A summary of our Whole System Mechanism is below with more detail in Appendix 3.

Whole System Mechanism – a bespoke ODI

1.3.14 Consumers expect whole system solutions to deliver benefits through reduced network expenditure. We identified that the complexity of designing a RIIO-2 framework that could accommodate the range and scale of whole system solutions was itself a barrier to realising these opportunities. We have experience exploring and advocating Whole System solutions (see examples in Appendix 3). This demonstrates the

significant cost of developing a workable multi-party solution as well as the risk that the solution does not reach maturity and deliver the required outputs.

1.3.15 Recognising the need for a solution which removes this challenge, we approached Ofgem with a **Whole System incentive** proposal in April 2019. As noted, we are encouraged that Ofgem adopted much of the content of this proposal in its SSMD[11]. Our core proposal is:

1. **initial small-scale ex ante funding**: to act as a catalyst to give networks the confidence to progress and develop solutions;
2. **regulatory "sandbox approach"**: where we bring our whole system proposals to Ofgem for approval setting out the need, counterfactual of continuing with traditional/ex ante funded approach, parties involved etc, code modification; and
3. **the incentive**: the financial reward we receive for realising the material benefit to consumers for the solution. We propose approved solutions attract a high-end sharing factor (50% or more).

1.3.16 However, we believe that these core elements of an effective Whole System framework are still missing from the RIIO-2 proposals.

1.3.17 We recognise that the CAM proposed by Ofgem achieves elements of our 'sandbox' approach. However, it omits key characteristics such as a means to propose, and have considered, modifications or derogations to codes.

1.3.18 Importantly, in its SSMD Ofgem acknowledges that an incentive on the successful application of whole system solutions would be considered. We have advocated for the inclusion of a strong incentive-based mechanism as a fundamental catalyst to the emergence of successful whole system solution. An enhanced TIM sharing factor counterbalances the considerable risk networks take in exploring new and novel network solutions; the potential impact on its output obligations as it seeks to deliver outcomes through new multi-party arrangements; and, as an encouragement to networks to identify and then pursue alternative solutions which, ultimately, will establish lower future price control allowances.

1.3.19 We do not anticipate significant volumes of projects coming forward during RIIO-T2 but those that do may represent significant value to consumers compared to the counterfactual (i.e. continuing with the transmission only solution). It is important to reflect that incentive returns only ever arise where we have managed to identify, develop and deploy a Whole System solution which, in turn, has secured up to £20m benefit for consumers too. **Our proposal ensures network, consumer and GB society benefits all go hand in hand.**

[11] RIIO-2 Sector Specific Methodology – Core document: Appendix 2

Delivering for consumers and network users: driving further efficiencies

1.3.20 Finally, at the heart of our strategic objective of "Sector Leading Efficiency" is the **Totex Incentive Mechanism (TIM)**. This is the mechanism whereby any efficient underspend or overspend against our controllable allowance will be shared with consumers through an efficiency sharing factor.

1.3.21 For our core controllable costs, we believe an appropriate sharing factor is 50%, where 50% of any underspend or overspend is shared between us and consumers. However, as set out in Ofgem's SSMD, the final sharing factor will depend on Ofgem's view on how confident it is on the certainty of our cost forecasts. The final sharing factor may be in the range of 15% to 50%. In the case of the lowest sharing factor of 15%, if we underspend on allowances, 85% will be returned to consumers and we will retain 15% efficiency savings. Conversely, if we overspend, consumers will pay for 85% of the overspend and we will pay for 15% of the overspend.

1.3.22 We believe our cost justification will provide Ofgem with confidence to set a high sharing factor. A strongly calibrated efficiency incentive places the onus on us to manage the total expenditure risk.

1.4 Our delivery commitment for all stakeholders

1.4.1 Citizens Advice set out five principles that it thinks need to be met for the next price control to really deliver for consumers.[12] We support these principles and our Business Plan was developed in recognition of them.

1.4.2 The second principle to **guarantee delivery of outcomes equivalent to the funding received** or a return of allowances to consumers is a fundamental component of our Certain View business plan.

"The value of any unspent funding for infrastructure projects is returned to consumers promptly and in full. Through their bills, consumers are paying for significant infrastructure investment. However, if energy network companies defer these projects or decide not to undertake them, they are sometimes able to keep a portion of that funding. This can drive up costs for consumers."

1.4.3 Our plan goes well beyond the minimum requirements expected of a good Business Plan and delivers additional value and confidence for consumers. An overwhelming majority of stakeholders (89%) felt that our draft Business Plan was ambitious.[13] We set out how our plan offers consumers additional value in our CVP in Chapter 2.

1.4.4 We will hold ourselves to account through financial and reputational consequences if we fail to deliver on our outputs. These consequences are detailed in Figure 1.4 and Appendix 2. Our stakeholders will be able to see the result of our performance through the **Enhanced Reporting Framework (ERF)** and are

[12] https://www.citizensadvice.org.uk/about-us/policy/policy-research-topics/energy-policy-research-and-consultation-responses/energy-consultation-responses/citizens-advice-riio-2-framework-consultation-response/

[13] Consultation on our July draft plan, 2019 summer road shows

given the **assurance of output delivery** through the measures summarised in Figure 1.4. This provides them with the necessary confidence to support our proposed allowances for RIIO-T2.

Figure 1.4 Our Commitment to Output Delivery

Ofgem Output Category	Our Strategic Theme	Outputs	Assurance of output delivery			
			Financial - penalty/no reward	Financial - return of allowance	Financial - enforcement	Reputational
Maintain a safe & resilient network	Sector Leading Efficiency	Shared use infrastructure capacity increase: 1327 MVA		✓		
		Boundary transfer capability: 1090 MW		✓		
		Reactive power: +325/-75 MVA		✓		
		Early engagement on FES and network development CVP		✓		✓
		Reducing the Risk of Consumers Overpaying: certain view and return commitment CVP		✓		
		Reducing the Risk of Consumers Overpaying: volume driver and UCA CVP		✓		
	Safe & secure network operations	Energy Not Supplied (ENS): 0 MWh pa	✓			✓
		Faults: <72 interruptions by 2026				✓
		Smart monitoring: 61 critical plant items with smart monitoring				✓
		NARMS: risk profile, delta -533,233,186	✓			
		Benchmarking: ITOMs and ITAMs upper quartile by 2026				✓
		Network Access Policy (NAP): LO			✓	
		Network Access Policy (NAP): above business as usual CVP		✓		
		Reliability: 61 Smart monitoring installed on critical assets				✓
		Redundancy: 2 Specialist warehousing facilities				✓
		Resistance: 62 protection and control systems upgraded				✓
		Resistance: 83 security upgrades at critical sites				✓
		Response & Recovery: all substations currently incapable 72 hours standalone upgraded to 120 hours				✓
Meet the needs of Consumers and Network Users	Stakeholder-led Strategy	Timely Connections		✓	✓	✓
		Satisfaction Survey - Quality of Connections	✓			✓
		Satisfaction Survey - New Infrastructure Survey				✓
		Stakeholder Engagement Commitment (KPIs, Assurance and Surveys)				✓
		Enhanced Reporting Framework				✓
		Bespoke Commercial and Connections Service CVP		✓		
		Local and Community Energy support CVP		✓		
Deliver an environmentally sustainable network	Leadership in Sustainability	Projects assessed through our new Cost Benefit Analysis framework: 100%				✓
		BCF scope 1 and 2: 33% reduction by 2026 CVP		✓		✓
		SF_6 and other IIGs: 0.15% leakage	✓			✓
		Losses strategy		✓	✓	✓
		Biodiversity net gain CVP £107.1m		✓		✓
		Waste to landfill: 0% by 2026		✓		✓
		Recycling, recovery and reuse: >70% by 2026		✓		✓

		Employees trained to recognise & support vulnerable customers & communities: 100% by 2026		✓		✓
		Approved suppliers located in licence area: >25% by 2026		✓		
		Local supplier CVP		✓		
		Employees trained to promote inclusion & diversity: 100% by 2026		✓		✓
		Apprentice, graduate and technical staff trainee intake representative of local demographic: 100% by 2026		✓		✓
		Annual Sustainability Report (in ERF)		✓	✓	✓
		Visual amenity: efficient delivery of projects & outputs and CVP		✓		✓
Innovation		Network Innovation Allowance (NIA)		✓		✓
		Strategic Challenge Fund		✓		✓

1.5 Strategic Objective: Sector Leading Efficiency

Relevant sections of the main Business Plan - Section 2: Building a network for net zero and Section 5 protecting customers from an uncertain future

1.5.1 Our strategic objective is for Sector Leading Efficiency, which for us means an integrated approach to whole life development and operation, using risk-based engineering to deliver value.

1.5.2 Our Certain View baseline allowance will enable us to deliver one of our Five Goals - **to transport the renewable electricity that powers 10 million homes**. Another goal - **£100m in efficiency savings through innovation and going further in RIIO-T2** – encourages us to do so efficiently. Our Sector Leading Efficiency strategic objective broadly aligns with Ofgem's output category to **"maintain a safe and resilient network"**.

1.5.3 Our Certain View includes all schemes where there is a clear and well justified need along with robust cost forecasts. This includes load related schemes covering:

- strategic upgrades with a strong Network Output Assessment (NOA) proceed signal, and in some cases responding efficiently to additional non-load related drivers by concurrent investment;
- offshore connections for schemes with a high level of certainty in RIIO-T2; and
- connection schemes (sole and shared use transmission connection assets (TCA)) for schemes already in flight from RIIO-T1 (i.e. T1/T2 cross over schemes).

1.5.4 These schemes will help deliver the outputs set out below and ultimately the overarching goals. The targets below directly measure our progress towards achieving our goals under the Certain View, and ultimately our strategic objective.

Table 1.2 Sector Leading Efficiency outputs

Transport the renewable electricity that powers 10 million homes £100 million in efficiency savings from innovation				
Target	RIIO-T2 output type	Metric	RIIO-T1 Forecast	RIIO-T2 Target
Shared Use Infrastructure Increase in shared use infrastructure capacity	PCD	MVA	4,166	2,047 by 31 March 2026
Reactive Power Increase in reactive power capacity	PCD	MVAr	N/A	+325/-225 by 31 March 2026
Strategic Network Capability Increase in boundary transfer capability	PCD	MW	2,717 on B0, B1, B3	1,090 on B4 by 31 October 2026
Early Engagement Regional and community engagement events on north of Scotland future energy scenarios and strategic network development	CVP (R)	Number per annum	N/A	5
Reducing Risk of Consumer Overpaying: certain view and return commitment Our investment approach helps ensure that any outperformance of the RIIO-T2 price control is due to efficiency only	CVP (R)	Investment approach	N/A	Application of approach
Reducing Risk of Consumer Overpaying: volume driver and unit cost allowance Our unit cost allowance (UCA) approach helps ensure that any outperformance of the RIIO-T2 price control is due to efficiency only	CVP	UCA approach	N/A	Application of approach

1.5.5 Each of our outputs and associated incentives are expanded in the following sections, and are also in the form directed by Ofgem (Appendix 1).

Our bespoke PCDs

1.5.6 We commit to delivering the essential network outcomes defined by the three PCDs set out above. If we do not deliver on the these or materially equivalent outputs, we will return a proportionally equivalent allowance associated with the outputs for the projects not delivered at the close out of the RIIO-T2 price control. This commitment ensures consumers only pay for outputs delivered (see section 1.4).

1.5.7 The proposed outputs are the minimum additional capacity, boundary uplift and reactive power that will be delivered during RIIO-T2. They relate only to the outputs associated with our Certain View allowance; i.e. where are very confident in the need for this investment. We are confident that this minimum forecast will be exceeded and that we will need to deliver more projects, and therefore more outputs, during the price control period. However, the scope and scale of those are not yet certain and as such we will not seek allowances until they become certain. We propose that such projects are subject to the uncertainty mechanisms as discussed in our Uncertainty Mechanisms paper[14].

[14] SUPPORTING DOCUMENT 12: Regulatory Framework Uncertainty Mechanisms found here: https://www.ssen-transmission.co.uk/riio-t2-plan/regulatory-framework-uncertainty-mechanisms/

Early Engagement – a CVP

1.5.8 The key findings from a previous consultation on potential improvements to our strategic optioneering methodology in late 2018[15] were the need for us to be more transparent, to engage earlier in the project development lifecycle and to engage on the long-term strategic development of the network (in addition to individual investments). In light of this, we have set a target for the RIIO-T2 period of holding at least five regional and community engagement events on strategic network development each year, hence our Early Engagement ODI.

Our CVPs

1.5.9 We propose three CVPs in this area. Two relate to reducing the risk of consumers overpaying, as far as possible, that any outperformance of the RIIO-T2 price control is due to genuine efficiencies and not due to other factors such as external factors, circumstantial factors and potential errors. The third is that we commit to five regional events per annum to build on our North of Scotland FES and inform strategic network development – to help us make better decisions. These are set out in detail in Chapter 2.

1.6 Strategic Objective: Safe and Secure Network Operation

Relevant sections of the main Business Plan - Section 3: Maintaining and investing in the existing network and Section 4 Security of supply

1.6.1 Our strategic objective is for Safe and Secure Network operation, which for us means using data efficiently to understand, predict and get the best network performance.

1.6.2 Under this strategic objective, our principal goal is to **aim for 100% network reliability for homes and businesses**. It aligns with Ofgem's output category to **"maintain a safe and resilient network"**. We believe this ambitious goal will be met if we deliver on the "Rs" of resilience – reliability, redundancy, response & recovery, and resistance. Through extensive stakeholder engagement we see these "Rs" as business as usual and the costs of delivering these are set out in our baseline ex ante allowances and delivered under our Certain View. Our fifth clear goal spans all four of our strategic objectives; **we will look to go further in RIIO-T2 to build on the £100m RIIO-T1 efficiency savings through innovation**.

1.6.3 Eleven outputs support delivery of this strategic objective.

Table 1.3 Safe and Secure Network Operation outputs

100% network reliability for homes and businesses **£100 million in efficiency savings from innovation**

[15] The consultation and its findings are available at: https://www.ssen-transmission.co.uk/riio-t2-plan/riio-t2-our-stakeholder-engagement-journey/

Target	RIIO-T2 output type	Metric	RIIO-T1	RIIO-T2 Target
Energy Not Supplied The volume of electricity that is not supplied to homes and businesses due to interruptions of longer than three minutes on the transmission network. Excludes specified events	ODI (P/R)	MWh per annum	39*	90**
Faults Total number of unplanned interruptions, of all durations and with no exclusions, on the transmission network	PCD	Number per annum	131*	72
Network Monetised Risk Value of asset-driven interventions as assessed by the Network Asset Risk Methodology (delta target)	PCD	Monetised Risk £m***	-210	-533
International Benchmarking Outturn position in the composite service-cost metric in (i) International Transmission Operations and Maintenance Study (ITOMS), and (ii) International Transmission Asset Management Study (ITAMS)	ODI (Rp)	Relative position	(i) Quartile 3: lower right (ii) Quartile 1: lower left	(i) Quartile 4: upper right (ii) Quartile 4: upper right
Network Access Policy Production and compliance with NAP	LO	Compliant/non compliant	Compliance	Compliance
Going above and beyond the requirements of the NAP	CVP (R)	Energised Engagement Service	N/A	Apply EES from 2021
Reliability: Digitising the network Installation of smart monitoring and establishing real time asset analytics at a dedicated control room facility	PCD	Smart monitoring installed on critical assets	N/A	62
Redundancy: Back up assets Inventory management systems to be of industry best practice commensurate with larger network size and range of technologies	PCD	Specialist warehousing facilities	0	2
Resistance: Protection and control Maintain modern protection systems	PCD	Number of protection and control systems upgraded	N/A	64 protection schemes refurbished or enhanced 33 RTUs replaced
Resistance: Physical security Security upgrades at critical sites	PCD	Number of substation security improvements	N/A	27 deterrence 56 defence
Response and Recovery: Substation resilience All substations to meet minimum duration of operation without a mains supply of electricity	PCD	Number of substation investments to increase capability to 120 hours standalone operation and provide dual diverse LV supplies	90	116

*Actual annual average of full six years complete, **Estimate subject to regulatory determination and is a regulatory target. Our target is 0; *** Value is monetised risk £, not real £.

Effective Network Management

1.6.4 Our first six outputs relate to effective network management. Our ambition is to continue to improve the performance of our transmission network to achieve our goal of no interruptions for homes and

businesses. We believe that through effective asset management and targeted investment, including in new technology, this goal can be achieved cost effectively.

1.6.5 The key targets above on **network monetised risk (PCD with penalty), faults (PCD)** and **ENS (ODI (P/R))** will directly measure our progress towards achieving this goal under the Certain View. We consider the first two PCDs here.

NARMS

1.6.6 The most significant network reliability output is the **Network Asset Risk Metric (NARM)**, a PCD to deliver the risk profile target by the end of RIIO-T2. This measures our approach to intervening efficiently on the right assets at the right time to reduce the risk of network failures and the resulting impact. Failure to deliver the NARMs risk target (a PCD) may result in penalty at the end of the price control. It is not currently possible to estimate the potential downside penalty for NARMs as the methodology is still in development with Ofgem. However, the provision of this protection ensures consumers can rely on receiving the network benefits for which they are also paying.

1.6.7 For lead assets that can be assessed using the common network risk methodology, we have assessed the lifetime risk benefit arising from our 28 investments to be £54 billion. Over the RIIO-T2 period only, the monetised risk benefit is forecast to be £533 million reflecting that the risk reduction takes time to filter through from our interventions and that the short-term risk rise is only a snap shot in time. The long-term risk benefit outweighs this. These values are in comparison to a counterfactual of undertaking no investment.

1.6.8 Following these 28 investments, the overall monetised risk of lead assets will be £785 million higher than at 1 April 2021.

1.6.9 We have carefully considered whether further investment on lead assets is required during the RIIO-T2 period given this forecast increase in monetised risk. However, our detailed consideration of the network investment options has concluded that there is no economic case for further investment. Hence, this increase in monetised risk is justified.

1.6.10 We keep this assessment under constant review, given the inputs to the monetised risk calculation are dynamic. Should the case for any investment be revised materially during the RIIO-T2 period then we would deploy the regulatory substitution mechanism to ensure only justified investments are undertaken.

1.6.11 The monetised risk methodology currently only covers lead assets. We have plans to develop new risk-based models during the RIIO-T2 period to expand the range of assets covered by the metric. Our objective is to have modelling developed and tested by 2026 that cover all electrical assets.

1.6.12 In addition to our NARMs targets, we further commit to reducing faults to less than 72 per annum.

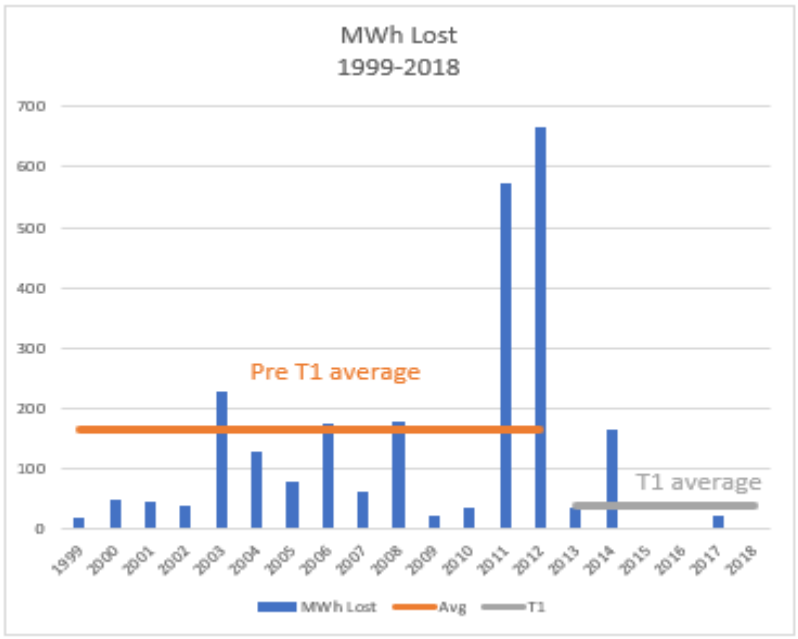
Effective Network Management: Energy Not Supplied (ENS) – a common ODI

1.6.13 The **Energy Not Supplied (ENS)** incentive encourages us to maintain strong performance in reliability. We support the continuation of this RIIO-T1 mechanism in RIIO-T2 as reliability remains a principal concern for our consumers. There is continued strong stakeholder support for availability (generators) and resilience (government) and both household and business electricity users report that they would pay significant sums to avoid power cuts. A recent Willingness to Pay[16] study revealed that the average GB domestic electricity consumer is willing to pay £7.70 to get back on supply quicker even when the probability of going off supply due to an issue on the transmission network is very low.

1.6.14 ENS is the volume of energy to customers that is lost (not supplied) as a result of faults or failures on our network. We receive a financial reward if the actual volume of unsupplied energy is below the annual target volume; conversely, a financial penalty if the volume is above target.

1.6.15 Our 20-year performance is shown below.

Figure 1.5 Our long-term ENS performance



1.6.16 The shift in performance since the introduction of the ENS incentive is stark; on average a 77% reduction of MWh (Megawatt Hours) lost in the first six years of RIIO-T1 compared to the pre RIIO-T1 average. During the first six years of the RIIO-T1 price control period, our ENS performance has averaged at 39 MWh per year. This equates to an overall system reliability in excess of 99.999%. The ENS incentive has clearly driven strong performance.

[16] https://www.ssen-transmission.co.uk/riio-t2-plan/riio-t2-our-stakeholder-engagement-journey/

1.6.17 We understand that Ofgem will set the ENS target, but we give suggestions for Ofgem's consideration.[17] Appendix 4 provides more detail including stakeholder feedback on reliability, options for considering embedded generation and rationale for continuing with our compensation scheme.

1.6.18 In summary our main proposals for ENS are:

- **To set SHE Transmission a stretch target of 90 MWh lost per annum**, compared to the 120 MWh in RIIO-T1. This reflects Ofgem's requirements to stretch from RIIO-T1 and to account for long-term performance. We will continue to invest through discretionary spending (i.e. no ex ante allowances are provided for this) in minimising short-term interruptions as we did in RIIO-T1 when it is cost effective to do so. This is in line with our goal of **100% reliability by 2026**. To evaluate risk and assist in decision making, we currently use the customer numbers interrupted and the estimated return to service times. This method gives an appropriate weighting to network risk and actively guides decision making to minimise exposure for consumers under ENS.

  In order to calculate our proposed stretch target, we have used a weighted average of network reliability performance. This is designed to take a long-term view of average past performance weighted towards RIIO-T1 performance to reflect current and future capability of the network:

  i. 50% of our average RIIO-T1 ENS performance;

  ii. 30% of our average ENS over the previous ten years; and

  iii. 20% of our average ENS over the previous twenty years.

- **To have a dead band between 120 MWh and 90 MWh** and a reward only when we are below 90 MWh and conversely penalise when we are above 120 MWh. This reflects that the target is still tighter, but that our short-term risk profile is higher than in RIIO-T1 and we must continue to invest at our discretion to achieve similar levels of performance, when it is cost effective to do so. Importantly, it also considers the impact of a potential lower TIM sharing factor in dampening the reward potential (see Figure 1.6), a factor that is becoming more transparent now than following Ofgem's SSMD[18].

- **To continue using Value of Lost (VoLL)** as the core of the measure that captures the value of reliability to consumers. This should to be adjusted up as the measured targets reduce and for changes in price base. This induces the network to 'work harder' to generate the necessary revenue stream to fund its day to day network interventions. However, we do only propose

[17] Ofgem's SSMD noted that ENS will not be a company driven target, i.e. one where it would expect to see extensive company-led engagement to justify a stretching performance target. Rather Ofgem will set the target. See page 10 of https://www.ofgem.gov.uk/system/files/docs/2019/05/riio-2_sector_specific_methodology_decision_-_et_30.5.19.pdf.

[18] We did not propose a deadband in response to the Sector Specific Methodology as we were still advocating for a 50/50 sharing factor. Following the SSMD, it was clearer this was less likely, and Ofgem should consider how its position on one incentive affects others before making an in the round decision.

adjustments for the later – i.e. the RIIO-T1 £16,000 VoLL is adjusted to 2018/19 prices. Again, this another area which tightens the target from RIIO-T1 to RIIO-T2.

- **To continue with our RIIO-T1 compensation scheme,** a mechanism that makes an inconvenience payment to consumers off supply for more than six hours as a result of an incident on our transmission network, in a manner that is like the existing arrangements for distribution networks.
- **To exclude embedded generation from the incentive,** but if it is to be included ensure that the Ofgem set incentive target is appropriately calibrated to account for this inclusion.

1.6.19 It is our aspiration to reach 0 MWh, where cost efficient to do so, by the end of the price control. To achieve this, it is vital that the ENS incentive continues to be calibrated appropriately to drive the behaviour to meet our stakeholder-led ambition.

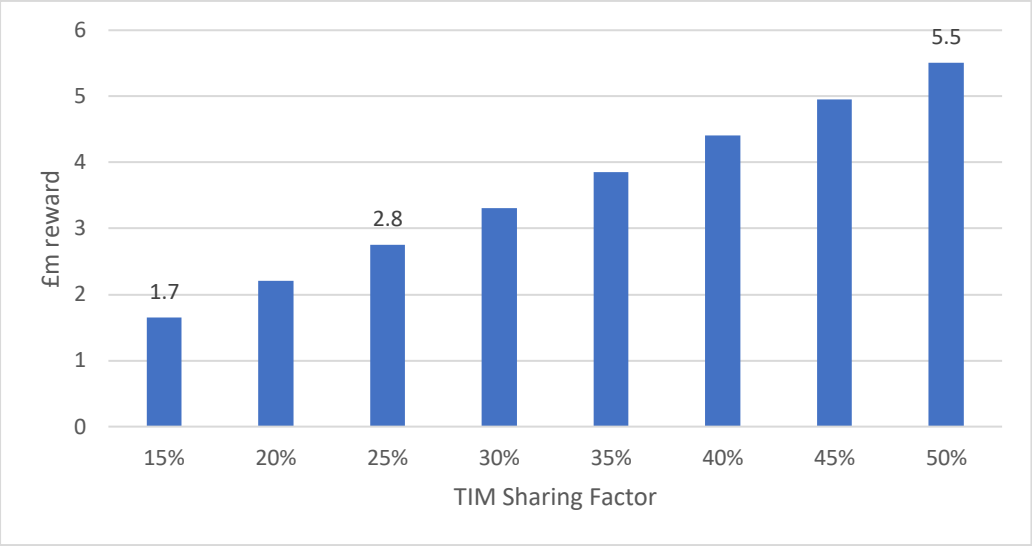
1.6.20 Our current estimates for ENS is an upside of **£2.8m** and a downside of **£4.2m.** These figures are gross of any investment we will have to make to avoid losses and are based on the following assumptions:

- a cap on reward is based on our target of 90MWh;
- a collar of 3% of annual base revenue[19] collar as per RIIO-T1;
- a VoLL of £20,320 (using the RIIO-T1 £16,000 VoLL uprating to 18/19 prices); and
- a TIM sharing factor of 25%[20] applied to both reward and penalty.

1.6.21 Figure 1.6 below shows the impact the TIM sharing factor has on the reward potential over the RIIO-T2 period. We believe this should be considered in Ofgem's calibration of any affected ODI.

[19] Our average annual base revenue is c£470m.
[20] If we assume a TIM Sharing factor of 25% and corporation tax of 17% as per last year of RIIO-T1, the post-tax incentive strength is 30%. This is applied.

Figure 1.6 Maximum ENS Reward v TIM sharing factor (£m, RIIO-T2 Total)



Security of supply – five PCDs

1.6.22 In addition to effective asset management to achieve our goal of no interruptions for homes and businesses, continual vigilance as to the threats to security of supply and taking timely, cost effective steps to address those threats is critical. The targets above on the "Rs" of resilience – **Reliability**, **Redundancy**, **Resistance** and **Response & Recovery** - directly measure our progress towards achieving this goal under the Certain View. Our commitments are as follows:

- **Reliability** is measured using the lagging indicator of the number of loss of supply events and the impact of these on the end consumer. Since 2010, we have had 127 loss of supply events that have resulted in power cuts for end consumers. The longest duration event in 2013 lasted 1,450 minutes (around 24 hours). This was due to a tower collapse in blizzard conditions. Our goal is 100% reliability by 2026.[21] Our PCD here is the installation of 62 smart monitoring devices. This aligns with the Energy Data Task Force report[22] recommendations around the digitalisation of the energy system to support the energy transition.
- **Redundancy** is concerned with the availability of back-up installations or spare capacity. These back-ups would enable operations to be switched or diverted to alternative parts of the network in the event of disruptions to ensure security of supply. The availability of spare equipment is essential for timely restoration and therefore we commit to building two specialist warehousing facilities with best practice inventory management systems in RIIO-T2.

[21] For some connected customers, we have agreed that they will not have 100% network reliability. For example, when we are undertaking essential maintenance and there is no network back-up. For these customers, our planning for future network availability and engagement in this planning process is critical.

[22] https://es.catapult.org.uk/news/energy-data-taskforce-report/

- **Resistance** is concerned with providing protection from natural hazards or malicious events. We commit to refurbishing or enhancing 64 protection and control systems to maintain modern protection system standards, replacing 33 RTUs and making 83 substation security improvements.
- **Response and Recovery** aims to enable a fast and effective response to and recovery from disruptive events. The effectiveness of this element is determined by the thoroughness of efforts to plan, prepare and exercise in advance of events. It can be referred to as Business Continuity Planning. In RIIO-T2 we will ensure all our substations that are not capable of the current standard of 72 hours of standalone operation will be capable of 120 hours standalone operation.

International Benchmarking - a reputational ODI

1.6.23 We also commit to stronger network performance while providing value for money. This is reflected in a reputational ODI, where we aim to achieve upper quartile in the benchmarking in International Transmission Operations and Maintenance Study (ITOMS) and International Transmission Asset Management Study (ITAMS). While we currently benchmark well on costs in ITOMS, we want to improve on network service while retaining low cost. For ITAMS while we only participated in 2018 for the first time, we commit to ongoing participation and want to improve, reaching the upper quartile on asset management performance and on operational performance. This is an ambitious commitment; we are currently in the lower quartile for ITAMs.

Network Asset Policy – an LO and a CVP

1.6.24 In addition to our seven PCDs, we have a LO to comply with a common TO **Network Access Policy (NAP)**. We support this common obligation and have developed a first draft of this common NAP. This is provided in Appendix 5 and we will consult on this in early 2020 with the other TOs.

1.6.25 The NAP will only work optimally if it is reviewed periodically and if the benefits are measured and monitored. We are committed to demonstrating continuous improvement of NAP implementation throughout RIIO-T2, as we have done in RIIO-T1, and propose to hold ourselves to account publicly through our **ERF**, as well as being accountable to connections customers impacted by outages through the Quality of Connections survey (see paragraph 1.7.8).

1.6.26 We will go above this minimum requirement for the NAP by setting a high-level ambition and striving for continuous improvements, as set out in our CVP in Chapter 2. We believe our Business Plan offers additional benefit for consumers in reduced costs and carbon savings over and above the minimum requirements of the NAP.

1.7 Stakeholder-Led Strategy

Relevant sections of the main Business Plan - Section 6: A sustainable network for current and future energy consumers

1.7.1 Our strategic objective is for a Stakeholder-Led Strategy, which for us means taking a whole system approach to network operation and development to meet current and future customers' needs.

1.7.2 Our Stakeholder-Led Strategy encompasses our proposals for stakeholder engagement, connections and innovation, all created in conjunction with stakeholders and our RIIO-2 User Group. It aligns with Ofgem's output category to **"meet the needs of consumers and network users"**.

1.7.3 Putting stakeholder engagement at the centre of our strategy development, planning and decision making is essential in making real progress through the energy transition challenge; this is affirmed in our Business Plan and in our Stakeholder Engagement Strategy[23]. We have set **a clear goal that every connection is delivered on time**. This means that we commit to providing a tailored service to meet every connection customers' needs and that we deliver on time and on budget to agreed requirements. Our fifth clear goal spans all four of our strategic objectives; **we will look to go further in RIIO-T2 to build on the £100m RIIO-T1 efficiency savings through innovation**.

1.7.4 Our goals under this theme are supported by seven output mechanisms.

Table 1.4 Stakeholder-Led outputs

Every connection delivered on time **£100 million in efficiency savings from innovation**				
Target	RIIO-T2 output type	Metric	RIIO-T1 Actual to-date	RIIO-T2 Target
Stakeholder Engagement Commitment ▪ Stakeholder engagement survey ▪ KPI performance on KPIs ▪ AccountAbility AA1000 Health Check	PCD	Score out of 10 Weighted percentage Maturity score	8.2 87% N/A	>9.0 >90% >75%
Stakeholder Satisfaction Survey Quality of Connections survey New infrastructure survey	ODI (P/R) ODI (Rp)	Weighted percentage Score out of 10	N/A N/A	Tbc* Tbc*
Timely Connections Offers for connections to the transmission network made to customers within the time periods set out in the industry code, currently 60 days	LO / ODI (P)	Percentage made on time	100%	100%
Enhanced Reporting Framework Annual reporting of service performance, financial performance and performance for society	PCD	Percentage of reports published to schedule	N/A	100%

[23] SUPPORTING DOCUMENT 13: Stakeholder Engagement Strategy, found here: https://www.ssen-transmission.co.uk/media/3560/shet-stakeholder-engagement-strategy-final-document.pdf

Commercial and Connections service Initiatives that deliver service quality and societal vale over and above the value proposed in the existing framework of outputs.	CVP (R)	Delivery of initiatives in our Commercial and Connections Policy	N/A	100% or equivalent
Local and Community Energy Facilitating local and community energy by being an expert and trusted partner for local authorities and other local stakeholders as they develop Local Area Energy Plans (LAEP) and Local Heat and Energy Efficiency Strategies (LHEES) and addressing barriers local communities face.	CVP (R)	Delivery of our Local and Community Energy Policy	N/A	100% or equivalent

*ODI to be confirmed following trials during 2020.

Timely Connections – a common LO

1.7.5 The **Timely Connections** licence obligation, with an associated financial penalty, requires us to provide quotations to the Electricity System Operator (ESO) within 60 days for a prospective connection customer, and 74 days for a final offer. We support the continuation of this from RIIO-T1 to RIIO-T2.

1.7.6 While providing timely quotations is important, it is only one part of ensuring a high-quality service for connection customers. As we detail in our Commercial and Connections Policy[24], we learnt in RIIO-T1 that customers' expectations go beyond the timely provision of offers and even beyond the connections delivery.

Figure 1.7 The Connection Customer Experience

1.7.7 To meet the complex and diverse needs of our customers we need to be innovative and adapt our services and products throughout the whole customer experience, providing a service that goes beyond the application and connecting stage, to include scoping, energisation and review.

Quality of Connections survey – a common ODI

1.7.8 The **Quality of Connections survey** incentive, common to all TOs and set by Ofgem, will ensure we meet expected service levels across the full customer experience. Connection customers will be surveyed annually to understand the level of satisfaction with the service received from us. Depending on the score, we will receive a financial reward or penalty.

[24] SUPPORTING DOCUMENT 14: Commercial and Connections Policy, found here: https://www.ssen-transmission.co.uk/riio-t2-plan/commercial-and-connections-policy/

1.7.9 As noted in paragraph 1.3.8, prior to Ofgem's SSMD we proposed a **bespoke Quality of Connections** incentive to Ofgem, which is now fully aligned with Ofgem's common **Quality of Connections survey**. This incentive will help ensure a quality service is provided for our connection customers in RIIO-T2.

1.7.10 We will always seek to make service improvements and commit to ambitious targets. However, it is not yet possible to set the detail of those targets. As this exact type of survey has not been undertaken in RIIO-T1, there is no suitable data to produce a baseline for RIIO-T2 targets. Hence, we will work with the other TOs and Ofgem to conduct a survey in 2020 from which to set a baseline.

1.7.11 We also intend to undertake another two targeted surveys as part of our ambition to co-create solutions with stakeholders. This will be with those **impacted by our capital investment programme** as well as a **general stakeholder survey** building on the annual RIIO-T1 survey. The target will be set following trials in 2020.

1.7.12 Of the three, only the **Quality of Connections survey** will be financially incentivised. Ofgem are yet to determine the cap and collar of the financial reward but conversations to date are that the maximum upside will be 0.5% of Annual Base Revenue, which for us will be £12m for the full five years. This is reflected in Table 1.1 and Figure 1.3 above. We will continue to work with Ofgem over the coming months, presenting evidence for an appropriate calibration.

1.7.13 As we note in Chapter 2, we believe the value our bespoke commercial and connections service delivers is considerably above this currently mooted value for the Quality of Connections. We believe that the importance of the connection process to delivering net zero goals warrants an incentive reward reflected via a **CVP**.

1.7.14 Our CVP proposes an enhanced connections service that will help customers find their optimal solution resulting in carbon benefits for all of society – see section 2.6.

1.7.15 We also propose a CVP to facilitate local and community energy to help break down the barriers these stakeholders face in realising their renewable potential – see section 2.8.

Stakeholder Engagement Commitment (SEC) – a PCD

1.7.16 Our stakeholders extend much wider than our connections customers and those affected by new transmission infrastructure. We have strategic level stakeholders through to end consumers[25] who may not be affected by a particular connection project or transmission investment project. It is vital that they or their representatives have opportunities to continually influence the decisions we make. As we move towards a whole system approach it is crucial that we continue to capture and enhance our engagement with stakeholders. With this in mind, and the decision from Ofgem to remove the RIIO-T1 Stakeholder Engagement Incentive, we propose a bespoke PCD – our **Stakeholder Engagement Commitment (SEC)**.

[25] Page 4 of SUPPORTING DOCUMENT 13: Stakeholder Engagement Strategy, found here: https://www.ssen-transmission.co.uk/media/3560/shet-stakeholder-engagement-strategy-final-document.pdf

1.7.17 Through engaging on our new stakeholder strategy[26], our stakeholders said they would like to see our commitment to and our progress on improving our stakeholder engagement. As a result, we will continue to have open and transparent means of reporting clear information. KPIs, external assurance and a means of measuring performance scored solely by stakeholders allows us to do that. This has led us to conclude that continuing with a) wider and specific stakeholder performance KPIs, b) external assurance, and c) wider assessment of engagement, is critical.

1.7.18 Through our SEC we will:

- undertake key stakeholder initiatives in RIIO-T2 and commit to measuring our performance through **KPIs**. These will be reviewed annually and will evolve as we implement our new Stakeholder Engagement Strategy[27] to ensure that they are fit-for-purpose and deliver equivalent outcomes.
- undertake **external assurance** through the AccountAbility's Health Check (AA1000SES, 2015) to periodically assess our engagement with all our stakeholders, maintain best practice and continuously improve. This assessment is used across multiple industries and is an effective tool to achieve best practice in stakeholder engagement.
- as noted above, undertake a **stakeholder survey**, the detail of which is will be refined through discussion with external specialists. We are considering all options at this stage including a high-volume survey, bespoke one-to-one interviews or both. We recognise that one-size does not fit all. Only by having the right methodology for each stakeholder group will we gather meaningful and useful information. Through the development of our KPIs we will identify how this intelligence will be used to inform and improve our ongoing stakeholder engagement. The determination of the measurement of the survey score will depend on the method.

Enhanced Reporting Framework (ERF) – a bespoke ODI

1.7.19 The above output mechanisms will keep us on track to provide the best service for all. In addition, we propose a final output mechanism, our **Enhanced Reporting Framework (ERF).** This bespoke reputational ODI will mean that stakeholders can hold us to account across a complete performance package - **service performance** (including against stakeholder outputs), **financial performance** and **performance for society**. This follows our consultation[28] on one of the five of Citizen's Advice principles that it thinks should be met for RIIO-2 to really deliver for consumers[29]; that companies are required to publish complete information on their performance, financial structures, gearing and ownership.

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[26] Stakeholder Engagement Strategy Consultation Report (SSEN Transmission) available at https://www.ssen-transmission.co.uk/riio-t2-plan/riio-t2-our-stakeholder-engagement-journey/

[27] SUPPORTING DOCUMENT 13: Stakeholder Engagement Strategy, found here: https://www.ssen-transmission.co.uk/media/3560/shet-stakeholder-engagement-strategy-final-document.pdf

[28] https://www.ssen-transmission.co.uk/media/3224/reform-in-riio_transparency.pdf

[29] https://www.citizensadvice.org.uk/about-us/policy/policy-research-topics/energy-policy-research-and-consultation-responses/energy-consultation-responses/citizens-advice-riio-2-framework-consultation-response/

1.7.20 Further detail of our ERF is provided in page 103 of the Business Plan.

Commitment to delivery

1.7.21 Failure to deliver on our stakeholder outputs could have both reputational and financial consequences as set out in Figure 1.4 above and Appendix 2. We may face a penalty and Ofgem could take enforcement action if we breach our licence obligation on Timely Connections; we can receive financial penalties for poor performance on the Quality of Connections survey; and failure to deliver on our SEC will see our reputation damaged, particularly as we have committed to the ERF.

1.7.22 In line with our funding commitment (see section 1.4), we commit to returning the baseline costs of any initiative set out in our Stakeholder Action Plan[30] which is not delivered or replaced with a materially equivalent initiative.

1.7.23 Stakeholders have told us that it is important to have flexibility whilst we develop and test new initiatives to improve. We need to easily adapt and respond to stakeholder needs which may change, therefore it is important we can substitute funded initiatives for more appropriate solutions during the price control. We believe that it is acceptable to do something different, but it is not acceptable to do nothing and retain the allowance. Also, returning unspent allowances is not only about the large cost items. Some activities may be low cost and make up a tiny proportion of our Totex baseline allowances but are of most importance to certain stakeholders. We commit to delivering on everything in our plan – large and small.

1.8 Leadership in Sustainability

Relevant section of the main Business Plan - Section 6: A sustainable network for current and future energy consumers

1.8.1 Our fourth and final strategic objective of Leadership in Sustainability encompasses our stakeholder-led ambitions to lead in all areas of sustainability. For us this means being trusted partners of customer and communities, realising long-term benefit for society, economy and the environment.

1.8.2 Our core goal under this strategic objective is to **deliver a one third reduction in our greenhouse gas emissions**. The goal of **transporting renewable energy that powers 10 million homes** also crosses into this strategic objective, as does our fifth goal of going further in RIIO-T2 to build on the **£100m in efficiency savings through innovation** in RIIO-T1. It aligns with Ofgem's output category to **"deliver an environmentally sustainable network"**.

1.8.3 Our Business Plan is clear; our approach to sustainability is much wider than carbon reduction. It incorporates a range of environmental, social and economic considerations, encompassing the natural

[30] SUPPORTING DOCUMENT 13A: Stakeholder Action Plan, Found here: https://www.ssen-transmission.co.uk/information-centre/our-stakeholder-engagement/implementing-the-strategy/

environment, waste management, supporting local communities, delivering societal benefits and growing careers (see Figure 1.8, our Sustainability Strategy[31] and our Sustainability Action Plan[32]).

Figure 1.8 Our sustainability ambitions

Connecting for Society	Transport the renewable electricity that powers 10 million homes
Tackling Climate Change	One third reduction in our greenhouse gas emissions
Promoting Natural Environment	Deliver Biodiversity No Net Loss outcomes leading to Net Gain in 2025
Optimising Resources	Achieving Zero Waste to Landfill across our waste streams
Supporting Communities	Meeting the needs of Vulnerable Consumers
Growing Careers	Expanding our inclusion and diversity programme

[31] SUPPORTING DOCUMENT 16: Sustainability Strategy https://www.ssen-transmission.co.uk/sustainability-and-environment/sustainability-strategy/

[32] SUPPORTING DOCUMENT 16A: Sustainability Action Plan https://www.ssen-transmission.co.uk/riio-t2-plan/sustainability-action-plan/

Table 1.5 Leadership in Sustainability outputs

Deliver a one third reduction in our greenhouse gas emissions **Transporting renewable energy that powers 10 million homes** **£100 million in efficiency savings from innovation**				
Target	RIIO-T2 type†	Metric	RIIO-T1 equivalent output	RIIO-T2 Target
Connecting for Society Investments that are subject to our new CBA framework	PCD	Percentage of investments	0%	100% of applicable investment proceeding to construction after 1 April 2021
Tackling Climate Change Reduction in scope 1 and 2 GHG emissions	PCD/CVP (Rp)	Percentage GHG volume	N/A (Baseline) 0.21%	-33% by March 2026
SF_6 leakage	ODI (P/R)	Percentage installed SF6	0.39%	ODI target 0.39% pa.*
To have in place and review annually a losses strategy	LO	Compliance/Non compliance	Compliance	Compliance
Promoting the Natural Environment Projects gaining consent after 1 April 2020 with biodiversity 'no net loss' outcomes and biodiversity net gain	CVP (R)	Percentage of investments	N/A	100% of new projects
Investments to improve visual amenity	CVP (R)	Number of projects submitted for regulatory approval	Projects approved to date: 3	5 by 31 March 2026
Optimising Resources Waste sent to landfill across all waste streams	PCD	Percentage of non-compliance waste	~23%	0% by 31 March 2026
Recycling, recovery and reuse across all our waste streams	PCD	Percentage	~76%	>70% by 31 March 2026
Supporting Communities Employees trained in community vulnerability	PCD	Percentage	N/A	>95% by 31 March 2026
Approved supplier located in the north of Scotland	CVP (Rp)	Percentage	Actual 2018/19: 27%	>25% pa
Growing Careers Employees trained in inclusion and diversity	PCD	Percentage	0%	>95% by 31 March 2026
Pipeline intake is local diversity representative	PCD	Tbc**	N/A	Tbc**
Annual Environment/Sustainability Report Production and publication of report in line with licence requirements	LO	Compliance/Non compliance	N/A	Compliance

*subject to regulatory determination

**TBC after methodology development in 2020

Our sustainability outputs

1.8.4 In collaboration with our stakeholders, we developed our well justified and detailed Sustainability Action Plan[33] which also meets Ofgem's Environment Action Plan (EAP) requirements and our broader ambitions on social-economic sustainability requested by our stakeholders. It is a plan that delivers the best value for GB consumers and society and contributes towards our strategic objective of enabling the transition to a low carbon economy and our goal to reduce greenhouse gas emissions by a third.

1.8.5 To monitor the delivery of the goals and targets set out within our Sustainability Action Plan we set out the outputs above. As noted, there are many more deliverables that are funded through our base allowance in our Sustainability Action Plan and we will hold ourselves to account through reporting on these in our ERF and through the output commitment. Our PCDs are the main deliverables of our Business Plan and we keep our reporting on the main Business Plan PCDs refined to meet stakeholder requests to reduce the complexity of reporting.

1.8.6 Our PCDs and LOs include:

- Applying our **new social, environmental and economic CBA framework** to all capital investment decisions made during the RIIO-T2 period and reporting on the outcomes. We recognise that as a provider of an essential public service in the North of Scotland, standard appraisal methods based on projected profits and investment expenditures are not applicable due to the intangible nature of public benefits associated with our investments. The application of our CBA helps us identify the most cost-effective allocation of consumer money that will enable us to continue to provide a reliable, effective transmission network and facilitate the transition towards a clean energy economy.
- **Committing to tackling climate change** by:
    - reducing our Business Carbon Footprint – that is a **reduction in scope 1 and 2 GHG emissions by a third –** by seeking alternatives to SF_6, energy efficiency measures at our substations and introducing alternative fuel use vehicles for our operations. This is also noted as a qualitative CVP in Chapter 2, as we believe we have been frontier in this area; and
    - adhering to a common licence obligation to have in place and review annually a losses strategy
- **Optimising resources** by sending no waste to landfill and achieving a recycling, recovery and re-use rate of at least 70% across all our waste streams by the end of RIIO-T2.
- **Growing careers** by training over 95% of our employees by the end of the price control period in **inclusion and diversity** and ensuring that there is a pipeline of new employees that is **representative of local diversity**. Both these reflect our ambitions to have a more inclusive and

[33] SUPPORTING DOCUMENT 16A: Sustainability Action Plan https://www.ssen-transmission.co.uk/riio-t2-plan/sustainability-action-plan/

diverse workforce recognising that such a workforce is more productive, creative and results in better outcomes for all stakeholders. This aligns with Ofgem's and the Government's requirements for the energy industry to tackle inclusion and diversity and make real improvements.

1.8.7 It is notable that many of our outputs in our Leadership in Sustainability is classified as a CVP. This reflects that we as a business have set six stretching ambitions (see Figure 1.8) to achieve a clear vision to be a sustainable business and place ourselves at the forefront of best practice. We have been leading and can truly be classed as frontier in many areas (see the benchmarking evidence in our Sustainability Action Plan[34]). Our CVPs are detailed in Chapter 2.

SF_6 and other IIGs – a common ODI and CVP

1.8.8 We welcome Ofgem's commitment to continue an ODI for SF_6 and other insulation interruption gases (IIGs) to incentivise leakage reduction and to support the transition to low GHG alternative IIGs. However, as we also note below, the incentive properties are weak.

1.8.9 Nevertheless, our SF_6 Strategy sets out our ambitious plans to both seek alternatives to SF_6 and manage leakage from our SF_6-filled assets.

1.8.10 We were the first in the UK to install SF_6 gas-free circuit breaker – a test-bed for the sector – and we have worked hard during RIIO-T1 to reduce our leakage and have made significant progress through improved day to day operational practices. In RIIO-T2, we will have the first transmission site in the country to have a fully g3-insultated substation and we set ambitious leakage targets in order to meet our science based GHG emission targets.

1.8.11 Our SF_6 asset base will continue to grow during RIIO-T2 due to the growth of our network and the readiness of technologies available to us. Despite this growth, we are committed to managing the levels of leakage from these assets and commit to a highly ambitious 0.15% leakage from our total holdings over the course of RIIO-T2. This is our internal target and not the regulatory target.

1.8.12 Like ENS, Ofgem has been clear that it will set the SF_6 and other IIG leakage target[35], but we give suggestions for Ofgem's consideration in our IIG Strategy[36].

1.8.13 Ofgem has stated that it is considering the following options for setting the initial amount of base emissions:

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[34] SUPPORTING DOCUMENT 16A: Sustainability Action Plan https://www.ssen-transmission.co.uk/riio-t2-plan/sustainability-action-plan/

[35] Ofgem's SSMD noted that SF_6 will not be a company driven target, i.e. one where they would expect to see extensive company-led engagement to justify a stretching performance target. Rather Ofgem will set the target. See page 47 of https://www.ofgem.gov.uk/system/files/docs/2019/05/riio-2_sector_specific_methodology_decision_-_et_30.5.19.pdf.

[36] SUPPORTING DOCUMENT 22: Our Strategy for the Management of Insulation & Interruption Gases, found here: https://www.ssen-transmission.co.uk/riio-t2-plan/our-strategy-for-the-management-of-insulation-interruption-gases/

- multiplying each TO's IIG inventory at the end of RIIO-T1 by the lowest leakage rate observed on each TO's network over RIIO-T1;
- the average of leaked IIG emissions from the final three years of RIIO-T1; or
- leaked IIG emissions in the final year of RIIO-T1.

1.8.14 We do not believe that any of these options is optimal for setting this target. In RIIO-T1 we are incentivised for the whole eight-year period to reduce our emissions. In order to provide a valid mechanism for RIIO-T2, we propose that the baseline be set using the average of leaked IIG emissions from the whole eight-year period. This would help to avoid punishing network operators with leading performance and help to avoid rewarding operators who have had poorer performance.

1.8.15 While we are still to complete delivery of the final years of RIIO-T1, we have examined the reward/penalty potential using our performance average over RIIO-T1 to date and comparing it to our internal targets as shown Table 1.6[37]. We have used the highly unlikely scenario of no leakage to calculate our maximum reward, and the equally unlikely scenario of 1.01% leakage to calculate our maximum penalty, our highest leakage in the RIIO-T1 period.

Table 1.6 Potential Incentive Values

Target	2021/2022	2022/2023	2023/2024	2024/2025	2025/2026	TOTAL
Maximum Reward	138,763	155,907	186,639	205,899	207,149	**894,358**
Expected Reward	85,234	84,115	89,218	111,717	128,852	**499,137**
Maximum Penalty	-220,598	-247,853	-296,709	-327,327	-329,313	**-1,421,800**

1.8.16 The overall expected return is very small relative to the investment being made in non-SF_6 assets.

1.8.17 We will continue to drive for alternatives in this area because we believe this is the right thing to do

1.8.18 Fundamentally, the best way to reduce the impact of IIG leakage is to reduce the mass of SF_6 held on the network and install new assets with significantly lower global warming potential. Whilst alternatives are not widely available at the moment, our supply chain believes that SF_6 alternatives will be ready for deployment across all asset types voltages by 2025.

1.8.19 Our long-term goal is to remove all SF_6 from our network by 2050. In order to achieve this, there will be some element of investing ahead of need, i.e. replacing assets that are in good condition. However, this approach is supported by our stakeholders and we believe this could offer the best value to future consumers in the longer term. We will develop a CBA during RIIO-T2 for this anticipatory investment to ensure that it is of value for future consumers and society.

[37] Based on a Totex Post-Tax Incentive Strength (PTIS) of 25%.

Annual Environmental Report – a common LO

1.8.20 We welcome Ofgem's LO to produce an **Annual Environment Report**. We will adhere to this condition, including collaborating with the other TOs on its format and content, and expand on it by reporting on our own wider sustainability performance – our Annual Sustainability Report. Recognising the importance of streamlined reporting to stakeholder this will be contained in the "society" section of our **Enhanced Reporting Framework** (see paragraph 1.7.19).

1.8.21 We will hold ourselves accountable to our PCDs, CVPs, LOs and all our deliverables in our Sustainability Action Plan in three ways:

1. **Reputationally:** through the Environment/Sustainability Annual Report, which will be contained in the "society" section of the ERF.
2. **Delivery commitment**: through the return of costs allowed for initiatives not delivered under our Stakeholder Action Plan (see section 1.4).
3. **Close out:** through an assessment at the end of RIIO-T2 on the delivery of our CVP. We recognise that any BPI reward should be contingent on delivery of our CVP sustainability commitment – we should take the actions we said we would. Therefore, if we don't undertake the activities associated with any Ofgem rewarded CVP value, we will return that value to consumers.

2 Consumer Value Proposition (CVP)

2.1 Introduction

2.1.1 Our Business Plan is ambitious. In fact, an overwhelming majority of stakeholders (89%) agree upon reviewing our draft[38]. We retain this level of ambition in our final Business Plan. Our Certain View lays the foundation for net zero while stretching for improvements in outputs at minimal cost to consumers.

"Non-CVP Value"

2.1.2 Much of that ambition is embedded in the new minimum requirements set for RIIO-T2 and is not subject to the CVP. These standards set a new high bar and will deliver considerable additional value for consumers compared to previous price controls.

2.1.3 A large proportion of the value we will deliver comes from putting **net zero** at the heart of our business activity. We will ensure our network can continue to accommodate renewable generation in the North of Scotland that will deliver a pathway to net zero for all of GB. We will do this through careful, collaborative and forward-looking system planning, alongside national and regional scenario planning (e.g. building on our North of Scotland FES).

2.1.4 Crucially, we will achieve this without compromising on what consumers, customers and society continue to value most – security of supply and value for money.

2.1.5 We will safeguard **security of supply** by improving the resilience of our network through our targeted investment in physical site security as well as cyber security, ensuring our network is resistant to natural hazards and malicious events, and can respond and recover quickly. This is what our consumers and customers have come to expect as the "norm". Despite being ever more challenging as we further decarbonise our economy, we want retain this as the norm.

2.1.6 We will continue to **keep the costs down**. Building on our track record from RIIO-T1 of £100m efficiency savings, we have ambitions to go further in RIIO-T2. We will do so through embedding efficiencies in our cost forecasts, benchmarking ourselves to relevant third-parties to identify areas for improvement, and expanding the use of competition in our procurement practices.

2.1.7 We go further again than the above energy trilemma issues through:

- Our **industry-leading sustainability ambitions** – these are not just about doing the right thing for the environment, but doing the right thing for society, from the wages and taxes we pay, to ensuring our decisions meet the needs of our customers and stakeholders. We're committing to:
    - reducing our own greenhouse emissions by one third;

[38] Consultation on our July draft plan, 2019 summer road shows. https://www.ssen-transmission.co.uk/riio-t2-plan/riio-t2-our-stakeholder-engagement-journey/

- building on our award-winning biodiversity interventions to drive further improvements in promoting the natural environment, and managing resources through achieving zero waste to landfill and increasing resource efficiency; and
- democratising our business and our decision-making through the introduction of our new stakeholder engagement strategy, placing our stakeholders at the heart of our business.

- Driving **excellent customer service** – it's not enough for us to increase the volume of renewable connections to our network; we want to do so while providing our customers with a tailored service that meets their needs.
- Supporting the most **vulnerable in our society,** by not only be keeping costs down but by implementing best practice in accessible communications, developing partnerships with third parties to support community vulnerability and training staff to recognise and support vulnerable consumers as we move to a more decentralised energy system.
- **Giving back to the communities we serve** through supporting local supply chain initiatives and facilitating local and community energy.
- **Investing in our workforce** to ensure they not only have the right skills to meet our future business requirements, but also that it is a workforce that is truly diverse and inclusive and reflective of the local communities we serve.

2.1.8 Finally, by investing a minimum of £2.4bn during RIIO-T2, we will continue to make a significant economic contribution to the Scottish and UK economies, both in terms of contribution to GDP and employment supported.

2.1.9 This substantial value, delivered by meeting the minimum requirements, is not, on the whole, recognised through the CVP[39], through any Business Plan "quality incentive" or through any other output delivery incentive (ODI).

"CVP Value"

2.1.10 Despite this step up in minimum requirements, we believe our plan goes further in some stakeholder priority areas; areas where we have responded to regulatory challenges, stakeholders' needs, and consumer and customer pertinent issues. In doing so, our RIIO-T2 Business Plan – A Network for Net Zero - will deliver tangible additional value for current, future and vulnerable consumers. This additional **monetised** value is in the following select areas:

1. Reducing the Risk of Consumers Overpaying:

[39] Our interpretation, confirmed by Ofgem senior management, is that the CVP rewards value over and above minimum requirements.

a. **Certain View[40] and output return commitment:** by taking a Certain View approach to investment and committing to return unspent infrastructure and non-infrastructure allowances, it is much more likely than in the past that any outperformance of the RIIO-T2 price control will only be due to actions we take to make efficiency savings and not due to other factors. ***Consumer value:*** *lower costs from counterfactual (i.e. continued as per RIIO-T1).*

b. **Volume driver unit cost allowance:** by using actual historical costs in setting our unit cost allowances (UCAs) rather than forecasts for the volume driver, we considerably reduce the risk of outperforming the UCA due to any factors other than efficiencies. Instead it is on the actions we take to make efficiency savings. ***Consumer value:*** *lower costs from counterfactual (i.e. continued as per RIIO-T1).*

2. **Connecting for society:**

a. **Commercial and Connections service:** well justified initiatives in our Connections and Commercial Policy[41] that deliver service quality and societal value over and above the value proposed in the existing framework of outputs. ***Consumer value:*** *carbon savings.*

b. **Above business as usual in whole system network planning through the Network Access Policy:** going above and beyond the requirements of the NAP, building on our track record in RIIO-T1. ***Consumer value:*** *cost savings and increased carbon displacement.*

c. **Local and Community Energy:** facilitating local and community energy by being an expert and trusted partner for local authorities and other local stakeholders. As Local Area Energy Plans (LAEP) and Local Heat and Energy Efficiency Strategies (LHEES) are developed, we will identify polices across our Business Plan that will address barriers that local communities face when taking a project from concept to delivery. ***Consumer value:*** *combined consumer value based on cost savings from avoided investment, increased carbon displacement and socio-economic benefits.*

3. **Promoting the natural environment:**

a. **Biodiversity net gain:** building on our leadership position by developing well justified initiatives in our Sustainability Action Plan to improve the natural environment. ***Consumer value:*** *amenity value.*

[40] Our Certain View is every activity and investment that we propose to undertake during the RIIO-T2 period where there is compelling evidence of need, along with robust cost forecasts. It forms our baseline ex ante allowance.

[41] SUPPORTING DOCUMENT 14: Commercial and Connections Policy https://www.ssen-transmission.co.uk/riio-t2-plan/commercial-and-connections-policy/

b. **Visual amenity:** developing well justified initiatives in our Sustainability Action Plan to improve the natural environment and visual amenity impacts. ***Consumer value:*** *amenity value.*

4. Supporting local communities:

- **Local supply chains:** developing well justified initiatives to support local supply chains in our Sustainability Action Plan to optimise the benefits to the local communities in which we operate. ***Consumer value:*** *local community spend.*

2.1.11 Our CVP areas stem from our Strategic Objectives, our Five Goals and are threaded throughout our Business Plan and associated policies, strategies and action plans, which have been subject to considerable stakeholder engagement. We are not introducing anything new – we are simply packaging it together in this Chapter.

2.1.12 A summary of our CVP and the monetised value is detailed in Table 2.1 and a summary of the qualitative value is in Table 2.2.

Table 2.1: Quantitative CVP summary (2018/19 prices)

Strategic Objective	CVP area	Measure	Value (£m)
Sector Leading Efficiency	CVP 1a: Reducing the Risk of Consumers Overpaying: our Certain View and output commitment	Cost savings from counterfactual using T1 data as proxy	75.0
	CVP 1b: Reducing the Risk of Consumers Overpaying: volume driver unit cost allowance	Cost savings from counterfactual using T1 data as proxy	8.5
Safe and Secure Network Operations and Stakeholder-Led Strategy	CVP 2a: Connecting for Society: bespoke commercial and connections services	Carbon savings	59.5
	CVP 2b: Connecting for Society Network Access Policy	Constraint cost savings	5.0
	CVP 2c: Connecting for Society: Local Energy Area Partnerships	Cost savings	6.6
Leadership in Sustainability	CVP 3a: Promoting the natural environment: biodiversity net gain	Consumer amenity value from willingness to pay study	158.6
	CVP 3b: Promoting the natural environment: VISTA	Consumer amenity value from willingness to pay study	30.7
	CVP 4: Supporting local communities: local supply chains	Total spend in local supply chain	6.4
Total			**£350.3**

2.1.13 Our final CVP value is net of any costs in our forecasts associated with the delivery of our CVP proposals.

2.1.14 We also note Ofgem's point that where the individual CVP proposal relates to delivering something within the RIIO-T2 period, the size of the net reward should be multiplied by the TIM sharing factor. This helps to ensure that we do not spend more than the value of that benefit to consumers. Although we agree

with this, it should also only apply when incremental costs are incurred to deliver the CVP. Where we deliver an enhanced service a no extra costs, the sharing factor should not apply. This aligns with the approach Ofgem has taken in its calibration of satisfaction survey ODIs in the past – both in transmission and the distribution sectors.

2.1.15 Furthermore, we do not believe it should apply where the incremental costs are negligible in relation to the benefits. To do so would be disproportionate and would not reflect a balanced incentive. For instance, we estimate the combined benefit of the Connecting for Society CVPs (CVPs 2a, b and c) is £71.1m. To deliver the enhanced elements our Commercial and Connections service (above the business as usual service) that deliver these benefits, the additional costs (i.e. largely staff costs) over the period are negligible. It is a small proportion of the full staff costs which themselves, at £1.5m, are only 2% of the benefit. It would be disproportionate to account for the sharing factor.

2.1.16 Therefore, our figures have applied a TIM sharing factor – to the areas where we incur notable costs of delivery – biodiversity net gain and VISTA. It does not apply to other areas. We have assumed a 25% sharing factor in our calculations[42].

2.1.17 Our plan also goes further in a number of other areas which, although difficult to monetise, absolutely deliver value. We feel it is important to highlight these as they do deliver above minimum requirements and do deliver additional value to current, future and vulnerable consumers. They are also areas supported by stakeholders.

Table 2.2: Qualitative CVP summary

Strategic Objective	CVP area	Value
Sector Leading Efficiency	CVP 5: Early engagement on north of Scotland future energy scenarios and strategic network development	Cost efficiency savings through making more informed decisions.
Safe and Secure Network Operations	CVP 6: ENS compensation scheme	Inconvenience payment due to a loss of supply made to the directly affected consumer.
Leadership in Sustainability	CVP 6: Tackling climate change: Science Based Target to reduce GHG Scope 1 and 2 by 33%	Carbon savings.
	CVP 7: Supporting local communities: supporting vulnerable customers	Additional support to vulnerable consumers in the North of Scotland complementing and supplementing the role of the DNO.

2.2 Our Commitment to delivering our CVP

2.2.1 We guarantee the delivery of outputs in our Business Plan equivalent to the funding received or a return of allowances to consumers (see our Output Commitment above in Section 1.4). We give a similar commitment with respect to the CVP; if we don't undertake the activities that deliver any Ofgem

[42] If we assume a TIM Sharing factor of 25% and corporation tax of 17% as per last year of RIIO-T1, the post-tax incentive strength is 30%. This is applied.

rewarded CVP value, we will return an equivalent and proportionate CVP value to consumers. This can be recorded in the Business Plan data tables[43] as the "CVP delivered", and as part of our ERF.

2.2.2 We have consistently and repeatedly said that a strong incentive package will continue to drive the right behaviours. A high value CVP will act as a "pot" that we will not want reduced during the price control for non-delivery - it will drive our behaviours in the areas of most value to consumers. Should we be awarded a CVP incentive reward, this means we will not only be held to account reputationally but financially to deliver the following:

- reducing the risk of consumers overpaying which will endure for RIIO-T3 and beyond;
- a highly bespoke service for our future and current directly connected customers (notably not only to result in an improved Quality of Connections survey score, but to result in end consumer benefits);
- continuous improvement in outage management;
- working in partnership with 14 of our Scotland's Local Authorities to facilitate local energy solutions; and
- working in partnership with suppliers to secure local economic benefit.

2.2.3 Sections 2.3 to 2.10 detail the CVPs where monetising the benefits is possible.

Monetised CVPs

2.3 CVP 1a: Reducing the Risk of Consumers Overpaying: Our Certain View and Return Commitment

Related goal

£100 million in efficiency savings from innovation - Our RIIO-T2 Certain View includes £100 million of cost savings from targeted new technology and ways of working, and we aim to go further.

Introduction

2.3.1 We define efficiency as the optimal use of resources (time, materials, people and money) to achieve a necessary outcome. We set out how we have strived for efficiency in submitting our Business Plan and how we will continue to strive for efficiency during RIIO-T2 on page 38 of our Business Plan. In aiming to go further in RIIO-T2 a key principle of our price control is to ensure that:

[43] Table 5.18 "bespoke_uncertain" Note: not all our CVP is incremental to the baseline allowances but should be recorded in this tab under the CVP column.

Any of our outperformance of the RIIO-T2 price control is truly a consequence of the actions we take to make efficiency savings.

The benefit for consumers will be lower costs from the counterfactual.

2.3.2 We will significantly reduce the risk that outperformance in RIIO-T2, unlike in RIIO-T1, will be due to external factors, circumstantial factors and potential errors (as identified in Ofgem's annual reports)[44] in the provision in the price control by:

- adopting an investment approach where we request ex ante funding for our projects in our Certain View only. Any schemes, projects or investments where there is uncertainty around need or cost will be subject to an uncertainty mechanism and funding will only be provided when the need materialises, and the costs become more certain;
- committing to return allowances where, for whatever reason, the work, or materially equivalent work, is not undertaken in the RIIO-T2 period and this goes beyond infrastructure projects; and
- advocating for the output associated with network companies' non-load related output targets to be set on a relative (or "delta") target.

2.3.3 The combined effect of the above will significantly reduce the risk of consumers paying for (and us benefitting from) project deferrals, unnecessary or sub-optimal work being undertaken or over-costed work. Rather, consumers will only pay for, and share in the benefits of, outperformance due to efficiencies.

Beyond minimum standards

2.3.4 There is no explicit minimum standard set out in Ofgem's Business Plan Guidance on this, although we recognise that Ofgem throughout the SSMD makes it clear that costs should be linked to outputs, and PCDs are at the heart of the RIIO-2 framework. However, it is left for the company to decide how far to take this. We go further in several ways:

- In contrast to top down future energy scenarios, like those presented in our Net Zero Paper[45], our Certain View is a bottom-up approach that details our work programme for the RIIO-T2 period. Each of the network investments proposed has been identified through a rigorous review of the need for investment, the optimal investment option and the forecast cost of the works. This bottom up approach gives certainty through an evidence-based justification for each investment; hence the term Certain View. Scenarios are just that, a likely view of the future based on assumptions.

[44] https://www.ofgem.gov.uk/publications-and-updates/riio-electricity-transmission-annual-report-2017-18

[45] SUPPORTING DOCUMENT 3: Planning for Net Zero: Scenarios, Certain View and Likely Outturn, found here: https://www.ssen-transmission.co.uk/riio-t2-plan/planning-for-net-zero-scenarios-certain-view-and-likely-outturn/

As noted above, our Certain View excludes projects where uncertainty exists regarding the need and/or costs. We believe that funding for infrastructure investments should not be released until the need has been demonstrated. This protects consumers from uncertain costs and avoids the complicated clawback of funding that has not been used.

While we can propose a PCD to return the funding if the project does not go ahead (which we do) a significant risk remains. If there's uncertainty at the time of submitting the project in the Business Plan and the project does go ahead then the forecast costs are unlikely to be reflective of the costs incurred and a company can gain by keeping a share of any underspend. Importantly this is not likely due to efficiency, but cost uncertainty. We have significantly reduced that risk in our approach. It can be argued that companies also carry the risk of overspend when costs are uncertain and while that is true, information asymmetry means that balance of power on the cost detail sits with the company and therefore the ability to mitigate that risk also sits with the company. This is a clear example of going above and beyond to reduce the information asymmetry.

- Based on the above, it is unlikely that we will have any capital projects that will not go ahead. However, in the unlikely event that they don't, we will return the amount in full to consumers and we commit to do so through our Output Return Commitment (Appendix 2). If they do go ahead, the cost maturity is such that consumers can be confident that any outperformance will be almost exclusively due to efficiencies.

- We include both infrastructure and non-infrastructure projects in our Output Return Commitment. As such, our plan goes above and beyond Citizen's Advice second principle for a better RIIO-2 next price control to really deliver for consumers in that the *"value of any unspent funding for **infrastructure projects** is returned to consumers promptly and in full"* [46].For example allowances for activities set out, but not delivered, in our Sustainability and Stakeholder Action Plans will be returned to consumers.

- By strongly advocating for the output associated with network companies' non-load related output targets to be set on a relative (or "delta") target, this ensures that network companies are funded to deliver a fixed level of network risk reduction which is directly linked to the associated allowed revenue. This prevents network companies potentially being exposed to windfall gains and losses. We therefore welcome Ofgem's decision to propose a relative target for non-load works. We are not specifically claiming this as part of our monetised CVP, but it is an important piece of the jigsaw in assuring consumers of the certainty that they pay for the outputs that require intervention, and only those outputs.

[46] https://www.citizensadvice.org.uk/about-us/policy/policy-research-topics/energy-policy-research-and-consultation-responses/energy-consultation-responses/citizens-advice-riio-2-framework-consultation-response/

Stakeholder support

2.3.5 We draw on significant stakeholder support in two key areas: keeping costs down for consumers and consumers paying for outputs delivered.

2.3.6 As we set out in our Business Plan, our customers and stakeholders have been consistently clear that the cost of energy is of significant concern to consumers and wider stakeholders. This was clear from the Public Attitudes Tracker survey[47], the workshop feedback we have heard[48], responses to our February 2019 Emerging Thinking consultation[49], and our summer roadshows on our draft Business Plan. 80% of stakeholders that attended our Summer Roadshows supported our proposals that funding is only released as and when it is required, protecting bill payers from unnecessary spend.

2.3.7 As noted above, Citizen's Advice's response to Ofgem RIIO-2 Sector Specific Methodology clearly aligns with our approach. Its response sets out five principles that should be met for RIIO-2 to deliver for consumers, which includes that the value of any unspent funding for infrastructure projects is returned to consumers promptly and in full. It notes that through their bills, consumers are paying for significant infrastructure investment. However, if network companies defer these projects or decide not to undertake them, in RIIO-1 we have been able (in some cases) to keep a portion of that funding, which can drive up costs for consumers.

2.3.8 In our view, being cost efficient is a minimum requirement. Our approach takes further steps from RIIO-T1 to RIIO-T2 to reduce information asymmetry. This in turn will aid in the reduction of undeserved rewards through the TIM sharing factor and hence is beyond the minimum requirement and goes much further in meeting our stakeholder needs. The consumer value is only realised when we make the effort to reduce that information asymmetry by revealing more information to the regulator.

2.3.9 This also fits well with our stakeholder supported work where we continue to build trust and transparency with our customers, consumers and the communities we serve. This is through initiatives such as Living Wage+, Fair Tax and Enhanced Reporting, but this CVP relates more to the intricacies of the regulatory mechanisms.

Measurement and monetisation

2.3.10 Our method is to calculate the potential costs saved due to taking steps to ensure any outperformance of the RIIO-T2 price control is due to efficiencies only. We base our calculation on outperformance realised in RIIO-T1 that we can't attribute to genuine efficiency. If we were to continue with the approach

[47] BEIS Public Attitudes Tracker, (BEIS, March 2019) available at: www.gov.uk/government/statistics/beis-public-attitudes-tracker-wave-29

[48] In March 2018 we asked workshop attendees to rank the most significant factors affecting electricity transmission in the future, cost to customers was ranked second behind security of supply. SEN Transmission Stakeholder Workshop, (EQ, March 2018) available at: "Stakeholder Workshop presentation - March 2018" https://www.ssen-transmission.co.uk/riio-t2-plan/riio-t2-our-stakeholder-engagement-journey/

[49] Responses to Emerging Thinking, Your Plan, Our Future: RIIO-T2, (SSEN, February 2019) available at: https://www.ssen-transmission.co.uk/riio-t2-plan/riio-t2-our-stakeholder-engagement-journey/ highlighted that the cost of energy to customers was ranked only second to security of supply.

in RIIO-T1 – we calculate the potential "non-efficiency" performance in RIIO-T2 – the counterfactual – and assume these as savings. Step by step we:

- reviewed our Annual Regulatory Reporting to Ofgem which sets out our totex outperformance to date in RIIO-T1 which applied this outperformance to four areas: efficiency, external factors, circumstantial factors and provision in the price control. This extract is shown below:

Category	Level of over/under performance (incl. customer contribution) *	Driver for over/under performance				Comments
		1	2	3	4	
Connection Assets (LR1/LR2)[1]	-£193.9m		X			LR2 true up included.
Volume Driver (LR5/LR6/LR7/LR8)[1]	-£144.0m	X			X	
	£46.6m		X			Schemes with expenditure in T1 and output in T2 are subject to T1 close out (Sole Use, £25.8m & Shared Use, £20.8m).
Strategic Wider Work (LR20)	-£183.6m	X				
	£6.4m			X		Construction in RIIO-T1 for ECU2
LRE – Others (LR3/LR13/LR15/ LR19/LR21/Others)[1]	£44.0m	X	X	X		Mix categories. Further details in Table 4.2 narrative.
NLRE	£90.2m			X		
Non-Op Capex	£14.7m		X			
OPEX	£2.7m		X			
TOTAL	-£316.9m					

1 – Efficiency
2 – External factors
3 – Circumstantial factors
4 – Provision in price control settlement

- highlighted the areas we outperform/underspend and areas we don't;
- where we do outperform (three areas noted above totalling £521.5), only some of this is driven by efficiency savings and innovation. Some materialised due to external factors which includes works being deferred or stopped altogether which is more common with load related works and the customer's need and ability to connect. This is in relation £193.9m for connection assets and £144m for volume driver. The full £193.9m of connections assets outperformance is attributed to external factors. The £144m outperformance for the volume driver is attributed to efficiency and to provision in the price control settlement. We assume a 50% split between the two, and attribute £72m of outperformance to non-efficiency. Therefore, in total, we have £265.9m of outperformance due to non-efficiency. As only 50% is retained by us via the RIIO-T1 TIM sharing factor and 50% is returned to consumers, we benefit by **£132.9m** or £16.6m per annum; and
- assumed that we save the equivalent per annum in RIIO-T2 **if we did not apply our Certain View and Return Commitment Approach**. All other things being equal this equates to £83m over the period.

  The NPV equivalent value is **£75m.**

2.3.11 No additional costs have been incurred to deliver this CVP.

2.3.12 We do not believe the TIM sharing factor should be applied to the CVP value as we are not incurring costs in the delivery of something – it is a change in regulatory process that has no tangible cost associated with it.

2.3.13 We have only accounted for the value for the five years of RIIO-T2 as we believe this will set the minimum standard for the next price control and to count benefits beyond then will be disingenuous. However, that is not to say that it does not have future benefits.

2.3.14 This CVP benefits current consumers due to lower costs, and by setting a new standard will continue to benefit future consumers too. By default, it will also benefit vulnerable consumers – who arguably benefit more by even the smallest of cost savings on energy bills.

2.4 CVP 1b: Reducing the Risk of Consumers Overpaying: Volume Driver Uncertainty Mechanism

Related goal

£100 million in efficiency savings from innovation - Our RIIO-T2 Certain View includes £100 million of cost savings from targeted new technology and ways of working, and we aim to go further.

Introduction

2.4.1 Our second CVP proposal is also about reducing the risk of consumers overpaying and relates not to our Certain View but instead to uncertain investment and one of the most significant uncertainty mechanisms - the Volume Driver (see our Uncertainty Mechanisms Paper[50]).

2.4.2 Its principal use is to ensure that efficient funding is available during RIIO-T2 to appropriately remunerate us to provide connection infrastructure as/when generation seeks to connect. Its role is critical in ensuring we meet our ambitious stakeholder-led net zero targets.

2.4.3 Ex ante unit cost allowances (UCAs) will be set, which will flex when the volume of connections become certain. The risk for both company and consumer is that the UCAs are set too high or too low.

2.4.4 Like CVP 1a, we want to ensure, as best we can, that:

> *Any of our outperformance of the RIIO-T2 price control is truly a consequence of the actions we take to make efficiency savings.*
>
> The benefit for consumers will be lower costs from the counterfactual.

2.4.5 This means that we want to ensure that the UCA(s) set reduces the risk for consumers that any outperformance of the UCA is not due to efficiencies. We will do so by setting our UCA on historical actual costs and not forecast costs. We have moved the risk in favour of the consumer.

[50] SUPPORTING DOCUMENT 12: Regulatory Framework - Uncertainty Mechanisms, found here: https://www.ssen-transmission.co.uk/riio-t2-plan/regulatory-framework-uncertainty-mechanisms/

2.4.6 This will give Ofgem similar levels of cost confidence that it seeks for ex ante costs. Ofgem states that it will gain cost confidence where it can point to historical costs for ex ante allowances. We see no reason why Ofgem should not also seek such confidence when setting UCAs for uncertainty mechanisms. Using less certain forecast costs to set a UCA for an uncertainty mechanism does not provide similar levels of cost certainty. We have learned lessons from RIIO-T1 when the use of forecast costs has benefited the company and not the consumer. It is only right that we seek to change that.

Beyond minimum requirements

2.4.7 No minimum requirements have been explicitly set on uncertainty mechanisms UCAs, other than providing suitable justification.

2.4.8 We believe we can set the minimum requirement as being the status quo – use of forecast costs as per the volume driver approach in RIIO-T1. As shown in the monetisation section below, we have gained in RIIO-T1 from setting ex ante allowances based on forecast costs. Some is due to efficiencies, but not all. Using actual costs to set the UCA and demonstrating RIIO-T1 projects and RIIO-T2 projects are similar in nature, then using actual costs reduces the risk of windfall gains for us and windfall loses for the consumer.

Stakeholder support

2.4.9 The stakeholder support is as per CVP 1a and centres around keeping costs down and legitimacy in being rewarded (via the TIM sharing factor) for genuine efficiency savings. It is about legitimacy in the price control.

Measurement and monetisation

2.4.10 Our method is to calculate the potential costs saved due to taking steps to ensure any outperformance of the RIIO-T2 price control is due to efficiencies only by setting our volume driver UCAs on actual historical costs rather than forecast costs. If we were to continue with the approach in RIIO-T1 of using forecasts – we calculate the potential "non-efficiency" performance in RIIO-T2 – the counterfactual – and assume these as savings. Step by step we:

- calculated the difference in our forecast UCAs and actual outturn UCAs, which is 17%;
- accounted for the fact that some of that difference will be due to genuine efficiencies – 4% [51];
- leaves 13% due to forecasting issues in this area;
- applied that 13% counterfactual uplift to our likely outturn projects that will be subject to the volume driver[52] which would have increased the costs by £37.6m; and

[51] Data overall shows that to date we are outperforming the price control overall by c8% (2018/19 RRP). Of the areas where there is outperformance, c50% is due to efficiencies so we assume 4% is due to efficiencies.
[52] We estimate this to be £407m but potentially one large project will go through the High Value Transmission project (HVTP) mechanism with a value c£118m so we assume c£289m will go through the volume driver based on out likely outturn view.

- in RIIO-T2, assuming a TIM sharing factor of 25%, we would retain 25% of this - £9.4m.

The NPV equivalent CVP is **£8.5m.**

2.4.11 No additional costs have been incurred to deliver this CVP.

2.4.12 We do not believe the TIM sharing factor should be applied as we are not incurring costs in the delivery of something – it is a change in regulatory process that has no tangible cost associated with it.

2.4.13 As with CVP 1a, we have only accounted for the value for the five years of RIIO-T2 as we believe this will set the minimum standard for the next price control and like CVP 1a the cost savings will benefit all consumers including, future and vulnerable consumers.

2.5 Connecting for Society CVPs

Related goals

Every connection delivered on time - By 2026 we will provide every network connection, tailored to meet our customers' needs, on time, on budget and to our customers' satisfaction.

Transport the renewable electricity that powers 10 million homes - Our RIIO-T2 Certain View will provide the electricity network infrastructure and flexibility that can accommodate 10 GW renewable generation in the north of Scotland by 2026.

Aim for 100% transmission system reliability for homes and businesses - By investing in new technology and ways of working, when cost effective to do so, we will strive for 100% network reliability for homes and businesses by 2030.

2.5.1 The next three CVPs all centre on providing a quality connections service and are linked to our sustainability ambition, Connecting for Society. To arrive at the most optimal connection solution for the customer, the connection service, solution and products must be accessible and tailored to suit each individual customer's needs (see Figure 1.7).

2.5.2 Where possible, we will go that extra mile to help customers connect earlier (CVP 2a) and keep planned outages to a minimum (CVP 2b). We fully appreciate that meeting connections offers ahead of schedule and minimising outages not only benefits our customers directly but also wider society through reduced carbon emissions resulting from more renewable generation capacity on the network and electricity consumers through costs savings from reduced constraint payments. Affordability is crucial to the success of low carbon energy development, as is access to the right information at the right time, particularly but not exclusively for local and community owned projects (CVP 2c).

2.5.3 Through our connection service we also have a crucial role to play in the increasing decentralisation of the UK power system, engaging with stakeholders and Local Area Energy Plans (LAEPs) to facilitate the growth of local and community owned renewable energy schemes (CVP 2c).

2.5.4 Our Commercial and Connections Policy[53] has been heavily influenced by our User Group. Our initial idea had been to continue the RIIO-T1 approach with an ongoing focus on timely connections. Our User Group felt there was an opportunity to expand on customer experience and encouraged us to explore what changes could be made to the connections process in RIIO-T2 to enhance engagement and measure customer satisfaction. Following this, we engaged with connections customers and potential future connections customers to explore the challenges to delivering connections and how customers felt our service could be improved.

2.5.5 This resulted in our goal to deliver every connection on time and a new ambition for 2026 – to provide tailored solutions and services for all our connection customers, that are also optimal for the wider GB energy consumer. This ambition is supported by detailed proposals on: tailored customer services and products for our existing and future customers; optimal connection solutions; and accessible connections process.

2.5.6 We also proposed a new Quality of Connections incentive which would allow performance in this area to be tracked throughout the customer experience. This incentive was later adopted by Ofgem as a sector wide incentive for all TOs (see Section 1.3.8).

2.5.7 Below we provide more detail on each of the individual Connecting for Society CVPs.

2.6 CVP 2a: A bespoke Commercial and Connections Service

Introduction

2.6.1 The GB path to net-zero requires Scotland to achieve net zero by 2045, five years ahead of England and 10 years ahead of Wales. Our network needs to be ready to deliver flexibility and enable an accelerated net zero pathway[54]. We recognise that facilitating the connection of new and greater quantities of renewable electricity to our network and reducing the outages of those connections is also critical to meeting the demands of the energy trilemma. We must ensure that affordable energy, which is reliable and secure, is delivered through sustainable development, and transported safely to our homes and businesses. By increasing the capacity for, and connection of, increasing quantities of renewable electricity generation, we are playing a fundamental role in achieving the Scottish and UK Government net-zero targets and providing the motorways for more affordable electricity.

2.6.2 We must do this in the most optimal way, and we believe our Commercial and Connections Policy[55] and associated initiatives set out therein do so.

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[53] SUPPORTING DOCUMENT 14: Commercial and Connections Policy https://www.ssen-transmission.co.uk/riio-t2-plan/commercial-and-connections-policy/

[54] SUPPORTING DOCUMENT 3: Planning for Net Zero: Scenarios. Certain View and Likely Outturn, found here: https://www.ssen-transmission.co.uk/riio-t2-plan/planning-for-net-zero-scenarios-certain-view-and-likely-outturn/

[55] SUPPORTING DOCUMENT 14: Commercial and Connections Policy, found here: https://www.ssen-transmission.co.uk/riio-t2-plan/commercial-and-connections-policy/

Our quality connections services facilitate an accelerated pathway to net zero delivering societal value over and above the value proposed in the existing framework of outputs.

The benefit for consumers will be savings associated with reduced carbon.

2.6.3 We do this by delivering an enhanced service from RIIO-T1 to RIIO-T2 at minimal extra cost:

- **Supporting prospective customers to find the optimal solution** by providing greater levels of information in accessible forms, enabling connecting customers to make more informed choices about the location or solution options for their project. For example, our **capacity availability map** provides connecting customers with detail of current and future connection opportunities, the type of connections that can be offered (firm or non-firm), the expected curtailment, spatial requirements and connection cost estimates. This will facilitate market opportunities. It will encourage earlier connection of renewable generation in areas which are not yet constrained, or with flexible options in areas that are, resulting in more renewable energy flowing into the system earlier than under the existing arrangements.
- **Supporting customers through the connections process** by providing simpler and more readily accessible on-line products and interfaces, allowing flexible and collaborative approaches to connection and greater insight. For example, through our **queue management** initiative a customer would be required to submit a delivery plan which will contain progression milestones for their project in order to maintain their queue position. This will help ensure that customers are able to get connected quicker and the capacity queue will be actively managed, rather than having queue 'blockers'. Queue management would also provide increased transparency of customer's timelines and requirements. This has a tangible benefit to GB consumers as capacity will be filled up quicker by the generators who are ready to connect facilitating grid optimisation where possible, connecting renewable generation to the grid earlier with potentially significant cost savings for consumers, as well as contributing to net zero targets.

Beyond minimum standards

2.6.4 There is currently no regulatory minimum standard relating to quality of service for transmission connections and the potential for recognising the associated consumer benefit. We are providing an enhanced service at negligible additional cost.

2.6.5 TOs are currently assessed on the timely connection of projects (Timely Connections LO). We also recognise that the Quality of Connections survey assesses the satisfaction with the levels of service directly connected customers receive from their TO. Whilst both are important incentives to ensure customer projects progress in a reasonable and efficient manner and deliver quality service, neither recognise the importance of optimising grid capacity and the connection of greater quantities of renewable electricity required to achieve net zero targets. This is what we seek to do through our connection services. In setting its target recommendation for Scotland, the Committee on Climate Change

acknowledged Scotland's *greater relative capacity to remove emissions than the UK as a whole*[56] through the connection of renewables.

2.6.6 In the past decade our network has grown almost four-fold through the connection of predominantly renewable generation. From our experience in RIIO-T1 we know that accelerated connections (getting projects generating and connected to the grid earlier than they would have in the absence of better service and compared to their initial contracted connection date) has resulted in savings for GB consumers through displaced carbon. We want to build on this success and facilitate the accelerated pathway to net zero through our Commercial and Connections policy and initiatives.

Stakeholder support

2.6.7 In the development of our Commercial and Connections Policy we conducted a significant programme of stakeholder engagement to ascertain the matters which were of critical importance to our customer as well as wider GB stakeholders.[57] Through this engagement our stakeholders have led and shaped our policy development which supports the proposals we have made in our Business Plan, including our goals to transport the renewable electricity to power 10 million homes; and deliver every connection on time.

2.6.8 This stakeholder engagement was supplemented by direct end consumer (bill payer) engagement through a joint the TO-wide Willingness to Pay study. In early 2019 we undertook this study with other TOs to help understand what is important to end consumers (both domestic and non-domestic) and importantly the value that they place on particular services; put simply how much they are willing to pay for improvements in some of the services we provide. The final report was received late June in 2019[58].

2.6.9 Just over 1,000 domestic consumers and just over 600 non-domestic consumers responded to the electricity component of the survey[59]. The results demonstrated, unequivocally, that investment in infrastructure to connect renewable generation was a top priority for end consumers, with significant support for investment ahead of need.

2.6.10 Our draft plan overall has been lauded for its ambition, welcomed by the Citizens Advice Bureau and Citizens Advice Scotland (CAS) for its balanced approach and consideration of vulnerable consumers (not traditionally a role of a TO in GB). CAS in particular, noted the importance of projects outside the Certain View and the contribution they will make to net zero, whilst challenging us to remain focused on mitigating, as far as possible, the cost of the network reinforcements required.

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[56] www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/

[57] All our stakeholder feedback can be found here: https://www.ssen-transmission.co.uk/riio-t2-plan/riio-t2-our-stakeholder-engagement-journey/ with relevant feedback in the links related to our RIIO-T2 Connections, Innovation and Whole Systems: Stakeholder Engagement Events in February 2019 and May 2019.

[58] Willingness to Pay report found here: https://www.ssen-transmission.co.uk/riio-t2-plan/riio-t2-our-stakeholder-engagement-journey/

[59] It also includes a survey of consumers' willingness to pay for services from National Grid Gas, the Transmission Operator for Gas across GB.

2.6.11 Through the development of our new products and tools, facilitating better informed decisions by both us and our customers, we can optimise grid capacity ensuring the impact of the cost of connecting new renewable generation is mitigated for consumers.

Measurement and monetisation

2.6.12 Our method is based on the potential carbon that can be saved in RIIO-T2 based on what we have saved in RIIO-T1 through our interventions which have led to accelerated connections. While, as noted above, our policy initiatives extend beyond accelerating connections for generation customers, it is an area that is quantifiable.

2.6.13 For accelerated connections, a wider benefit to consumers can be estimated based on the additional renewable electricity generated and the carbon emissions displaced as a result. For example, a renewable generator which can connect to the network and export electricity earlier will generate more renewable electricity than if it was connected on its original date. This additional renewable generation can be quantified in terms of the amount of carbon emissions it would displace and valued using the BEIS non-traded carbon price.

2.6.14 For the RIIO-T1 baseline, step by step we:

- reviewed our connections data in RIIO-T1 and identified those that we connected earlier than their agreed connection date (number of weeks);
- on a project by project basis we then:
- identified the additional renewable generation capacity of each customer (MW);
- applied a load factor appropriate to the renewable technology using the Scottish Renewable Output Calculator – converting the capacity (MW) to (MWh);
- calculated the carbon based on BEIS/Grid mix for UK electricity; and
- applied a carbon price for relevant year to calculate the carbon cost.

2.6.15 Totalling the projects together the carbon cost savings of the acceleration was **£88.5m,** with an average accelerated time of 131 weeks.

2.6.16 While we accept that it is not possible to predict which schemes at present will benefit from accelerated connections, we can use the data from RIIO-T1 as a proxy to provide an indicative consumer value for RIIO-T2.

2.6.17 To estimate the potential future impact in RIIO-T2 we used two figures as the basis for alternative calculations:

1. an annual average saving of £14.8m saved in RIIO-T1 to date (first six years), applying this to the five years of RIIO-T2. This results in an NPV of **£59.5m**; and

2. an average accelerated time of 131 weeks and applying it to our RIIO-T2 Certain View connection projects only. We discount this by 50% as not all projects will accelerate. By applying only to our Certain View projects, this is a conservative approach as we know generation connections will significantly exceed our Certain View[60]. This results in an NPV for the five years of RIIO-T2 of **£139.2m** in 2018/19 prices.

2.6.18 Both calculations account for the costs of delivery (in this case the cost of staff in our Connections and Commercial Team)[61].

2.6.19 At this point we will be conservative and apply the **first method**, adopting the low-end benefit - **£59.5m**.

2.6.20 **Importantly, the benefits are net of the maximum potential reward of the Quality of Connections survey.[62] This avoids any double counting of incentives.**

2.6.21 As noted in the introduction, we do not believe the TIM sharing factor should be applied.

2.6.22 These carbon benefits affect all consumers, current and future.

2.7 CVP 2b: Above Business as Usual Network Access Policy

Introduction

2.7.1 The significant growth of new low carbon generation connecting to our network in recent years presents challenges of ensuring our network continues to be safe and secure as new sections are added and upgraded. When completing these necessary infrastructure works parts of our network will be 'out' meaning low carbon technologies are unable to transmit energy, or network constraints are caused. The Network Access Policy (NAP) is a key tool in ensuring these planned outages are efficiently coordinated. There is a licence obligation for us to have a NAP in place to ensure outage planning is efficiently coordinated between network owners to benefit customers and consumers by minimising whole system costs while meeting climate change obligations. Further detail is set out in our Network Access Policy[63] and our proposed common Single GB NAP in Appendix 5.

[60] SUPPORTING DOCUMENT 3: Planning for Net Zero: Scenarios. Certain View and Likely Outturn, found here: https://www.ssen-transmission.co.uk/riio-t2-plan/planning-for-net-zero-scenarios-certain-view-and-likely-outturn/

[61] £1.15m over RIIO-T2. However, this overestimates the costs as the incremental services that deliver the CVP result in negligible additional costs but to remain conservative we have taken off the full costs of the team.

[62] Based on Ofgem's SSMD we estimate this to be £12m over RIIO-T2 – 0.5% of our Annual Base Revenue of c£470m.

[63] SUPPORTING DOCUMENT 10: Network Access Policy, found here: https://www.ssen-transmission.co.uk/riio-t2-plan/network-access-policy/

2.7.2 We will go above this minimum requirement by:

> *Implementing new tools and continuously refreshing our approach to developing and implementing innovative whole system solutions.*
>
> The benefit for consumers will be reduced costs and carbon savings (above business as usual NAP).

2.7.3 This ambitious approach to whole system planning is aligned with our Connections and Commercial Policy[64] referenced above and will deliver direct customer value (in lowering costs), consumer value (in lowering costs) and societal value (in carbon displacement) over above what would be achieved in following the already high standards required of the NAP.

Beyond minimum standards

2.7.4 As detailed in our **Network Access Policy** we set this high-level ambition and strive for further improvement. As always, we **will embed lessons learned from RIIO-T1**. By the end of RIIO-T1 we will have 8GW of renewable generation connected to our networks; connecting this has come with challenges and we have certainly learned lessons. But we will always seek go further. In setting a high level of ambition we:

- **Will introduce a new policy initiative - our Energised Engagement Service.** Under our current licence obligations (the minimum requirements), we provide final notification of a planned outage to the ESO one year ahead. We also provide outage plans to customers upon request. During RIIO-T2 we are proposing to develop and introduce a new energised engagement service which will include providing customers with indicative outage plans for local outages ('local' means electrically local to the connection which would not cause a wider system constraint), relating to their connection, **up to 5 years in advance**, irrespective of where they are in the in the customer experience. Customers with non-firm arrangements would also be able to request network constraint data specific to their connection, which it is envisaged will be provided through the online portal. Our connected customers will have a dedicated contract manager and, following full implementation of our new proposed digital tools, will be able to access all the information and services relating to their connection through the online portal. We know, as we have been told, that this is important to our generator customers in the North of Scotland who tend to connect via non-firm connections.

- **Are not seeking an additional financial ODI** during the period for reducing constraints or improving outage management, but we do seek recognition of our ambition and the value it creates through the CVP element of the Business Plan incentive.

[64] SUPPORTING DOCUMENT 14: Commercial and Connections Policy, found here: https://www.ssen-transmission.co.uk/riio-t2-plan/commercial-and-connections-policy/

A new ODI could potentially incentivise TOs to become more cautious with their baseline outage proposals to reduce any potential financial risk associated with a new incentive. If we are to achieve our whole system net zero carbon goals, TOs cannot afford to be working from a cautious baseline; it needs to be adaptable, stakeholder-led and, crucially, ambitious. We are of the view that an ambitious baseline NAP alongside optimal use of current processes including System Operator Transmission Owner Code Procedure (STCP) 18.1, 11.3 and 11.4, that can be built on and adapted, will ensure optimal outage planning that will deliver additional benefits for our direct customers and for consumers.

- **Will deliver more value for no additional costs** by focusing our staff training on areas that facilitate more innovative and whole system ways of working by training more employees and contractors in innovative options and making directly connected customers, consumers and stakeholders aware of the benefits. Put simply, this is a clear commitment to take the lessons from RIIO-T1 and doing a lot more of it to realise greater consumer value.

2.7.5 We will hold ourselves to account on all of this through our **Enhanced Reporting Framework** (see paragraph 1.7.19).

Stakeholder support

2.7.6 We held stakeholder workshops to obtain feedback on our proposals for RIIO-T2 on our Connections, Innovation and Whole System Proposals. Slides and output reports from these events can be found in the stakeholder feedback on our website[65]. This engagement was supplemented with engagement through the industry forums including the Electricity Transmission Operational Forum (OC2 Forums). Key feedback that supports our ambitious NAP approach and our improvement processes is:

- Customers are keen to "optimise that advanced notice"[66] and "need to be much clearer on what outages are likely post-connection during the connection offer process"[67]: this supports going further than our year ahead plans and embedding lessons learned in RIIO-T1 in setting an ambitious RIIO-T2 NAP.

- There has been consistent feedback from customers at the OC2 Forums that they want to see KPIs introduced which clearly demonstrate we consider the impact of outages in line with the NAP: we have developed core KPIs as per our own NAP Policy, and we will hold ourselves to account through our Enhanced Engagement Report.

[65] All our stakeholder feedback can be found here: https://www.ssen-transmission.co.uk/riio-t2-plan/riio-t2-our-stakeholder-engagement-journey/ with relevant feedback in our RIIO-T2 Connections, Innovation and Whole Systems: Stakeholder Engagement Events in February 2019 and May 2019.
[66] RIIO-T2 Connections, Innovation and Whole Systems - Stakeholder Engagement Events, May 2019 - Output Report. https://www.ssen-transmission.co.uk/riio-t2-plan/riio-t2-our-stakeholder-engagement-journey/
[67] RIIO-T2 Connections, Innovation and Whole Systems - Stakeholder Engagement Events, February 2019 - Output Report. https://www.ssen-transmission.co.uk/riio-t2-plan/riio-t2-our-stakeholder-engagement-journey/

- Customers reported at the OC2 Forums that they were willing to pay to reduce the impact of future outages if a process could be found to facilitate this. The existing STCP 18.1 Connection and Modified Application is an enabler for existing network customers to modify their connection to reduce future outage impact: this supports our position making optimal use of current processes in creating an ambitious and constantly improving NAP.

Measurement and monetisation

2.7.7 Our formalised enhanced services and the actions we take, including publishing notification of outages through our Outage Portal in longer timescales than only the year-ahead requirement of the NAP, will allow our customers to take any necessary mitigating actions and plan well ahead. This will provide opportunities for directly connected customers (generators) to take remedial actions to reduce the impact of being off the grid, potential customers to choose an alternative connection solution, both of which has the potential to reduce constraint costs (for firm connections) and increased carbon displacement, which benefit consumers and society.

2.7.8 To avoid any double counting with the benefits from CVP 2a, we monetise only the constraint savings and replacement energy costs, not carbon displaced. We base this on savings that we can point to of going "above and beyond" in RIIO-T1. We refer to two case studies that are in our NAP Policy - Sloy Gas Insulated Switchgear (GIS) 132kV substation and Dounreay to Spittal overhead line. These are examples where we had to think of new ways of working beyond the conventional outage planning methods and we use these as proxies for the impact we can achieve in RIIO-T2 by continuing to go over and above minimum requirements.

2.7.9 To monetise the CVP, step by step we:

- received from the ESO an estimate of the constraint savings and replacement energy costs of between £0 and £1.5m for Sloy and between £0 and £11.9 for Dounreay to Spittal, both based on a constraint price of £150MW/hr to cover both constraint and replacement energy costs;
- took a midpoint average, £6.7m, and assumed an annual average for the six years to date of £1.1m; and
- assumed a similar annual level of activity in RIIO-T2 (we believe this is conservative as we are increasing our activities and taking more formalised action to go over and above the minimum NAP requirements).

This results in an NPV for the five years of RIIO-T2 of **£5.0m** in 2018/19 prices.

2.7.10 The costs of delivering the business as usual NAP is £76,000 per annum. The additional cost of delivering above minimum standards NAP-related services is negligible, if they exist at all, but we have removed the full NAP staff costs to be conservative. We believe the additional work is about us being smarter and more efficient in our work as opposed to adding additional costs. As noted in the introduction in section

2.1, as the costs are negligible or zero, we strongly believe it would be disproportionate to apply the TIM sharing factor to these benefits.

2.7.11 Like CVP 1a and CVP 1b, this CVP benefits current consumers due to lowering costs and by setting a new standard will continue to benefit future consumers too. By default, it will also benefit vulnerable consumers – who arguably benefit more by even the smallest of cost savings on the bill as noted above.

2.8 CVP 2c: Local and Community Energy Policy

Introduction

2.8.1 Decarbonisation of heat and transport will be a key enabler for the transition to a net zero economy. Both the Scottish and UK governments recognise the need to bring stakeholders together to address these challenges and intend to use Local Area Energy Plans (LAEP) and Local Heat and Energy Efficiency Strategies (LHEES) to create a "*a shared purpose around decarbonisation to drive forward the necessary step change to galvanise a whole range of stakeholders to deliver transformation to the local energy system over a longer time frame*[68]".

2.8.2 At the same time, the Scottish Government Energy Strategy has set a target of delivering 1 GW of locally owned energy by 2020 and 2 GW by 2030. Meeting the 2 GW target is challenging. In addition, the business model for local energy has changed from local renewable projects focusing on subsidies towards a whole system approach to address local energy needs. It is essential that these changing needs are considered in our Business Plan and subsequent investment decisions if we are to act as an enabler of, and not a barrier to, local energy and ultimately decarbonisation.

2.8.3 We have worked with local stakeholders during RIIO-T1 in our network development activities and have supported local community connections; we intend to build on this in RIIO-T2, facilitating local and community energy by:

- *Being an expert and trusted partner for local authorities and other local stakeholders as they develop LAEPs and LHEES, and*
- *Identifying the polices across our Business Plan that will address barriers that local communities face when taking a project from concept to delivery.*

The benefit for consumers will be reduced costs savings from avoided investment, carbon displacement and socio-economic benefits.

68 https://www.gov.scot/binaries/content/documents/govscot/publications/consultation-paper/2019/10/scottish-governments-local-energy-policy-statement-consultation/documents/local-energy-policy-statement-consultation/local-energy-policy-statement-consultation/govscot%3Adocument/local-energy-policy-statement-consultation.pdf

2.8.4 Through our engagement and work with local communities to date (e.g. when we developed the Orkney Alternative Approach), we understand the barriers they face when taking forward projects to realise their own decarbonisation ambitions. These barriers extend from difficulty in identifying relevant contacts and navigating complex language and terminology, to accessing funding support for early stages of projects and visibility of alternative options. We can help break down these barriers, as we have done in the past. We will build on our experience to address these barriers and will work with all 14 of the 32 Scottish Local Authorities in our area. We will be that "right person in the community" to help drive a project forward which many communities find themselves without.

2.8.5 We will act as a **trusted partner and realise the benefits of collaboration through the development of LAEP and LHEES** by building on our existing relationships with local authorities as they develop LAEPs and LHEES. Specifically, we will:

- build on and expand the relationships that we have with our local authorities, understanding their needs and how we can best assist;
- recognise the diversity of local energy ambition across the north of Scotland and apply this in our stakeholder-led whole system strategy;
- ensure that LAEPs are developed in way that is complementary to the development of the national transmission network; and
- work with SHEPD to maximise the value of our engagements and quality of information exchanged with LAEP partners.

2.8.6 **Support local and community energy development** by identifying the polices across our Business Plan that will address barriers[69] that local communities have told us they face when taking a project from concept to delivery. Specifically, we will:

- enable our stakeholders to more easily identify opportunities across our network;
- provide access to expertise and information necessary when seeking a connection to the transmission network; and
- ensure that our communications are accessible and inclusive.

2.8.7 Importantly we will also use the information we gather through the relationships we develop to inform our ongoing investment planning. This is embedded into what we do already, and we will look to build on it further. The most notable example of this is evident in our work on the North of Scotland Future Energy Scenario (NoS FES). This allowed us to make better decisions. For example, our NoS FES work clearly indicated that in our Eastern Region (see pages 42-43 of our Business Plan) changes in net energy demand will not drive the need to intervene on the transmission system during the RIIO-T2 period, but

[69] Local and Community Energy, Roundtable discussion outputs, 17 May 2019

beyond 2026 there are credible scenario for increases in electrical load for transport and heat. Given this, following a whole system approach, the right approach is not to invest in infrastructure now (see CVP 5 below) but rather to continue to work with local stakeholders on future energy city strategies for Dundee and Aberdeen over the coming years. We expect implementation of these strategies to be a key element of our RIIO-T3 Business Plan.

2.8.8 More detail is set out in our Local and Community Energy Policy Statement[70].

Beyond minimum standards

2.8.9 There are no minimum requirements for us to be involved in LAEPs or LHEES, but we have undertaken similar work in RIIO-T1 and commit to doing so in RIIO-T2.

2.8.10 For example, we have played an active role in helping stakeholders on Orkney to address several longstanding barriers that had prevented renewable energy connection on the island in order to realise the benefit of the vast low carbon energy potential located in this part of our network.

Case Study: Orkney Alternative Approach

To help Orkney realise its vast renewables potential, we engaged with stakeholders to understand the obstacles to connection. This engagement included the local council, community energy schemes and community energy forums. Based on this engagement we identified and then consulted upon three main barriers to connecting in March 2018[71].

- **Fixed capacity queue**: the "first to contract, first in the queue" principle has limited options to move a customer's position in the queue depending on their readiness to connect;
- **Divided timelines for transmission investment and developers' projects**: in order to make an investment case we need commitment from generators; however, generators need commitment from us before they can progress.
- **Securities associated with transmission works**: as a result of industry rules on the liabilities, developers are required to place substantial securities against early termination of their contracts.

Solution: the resulting technical solution proposed was a staged approach to reinforcement, in the first instance making 220MW of capacity available for connection which our Cost Benefit Analysis demonstrated a consumer benefit once 70MW had connected. This was identified as the most economic and efficient solution and was the focus of SSEN's Needs Case submission to Ofgem. We also developed the following commercial solutions:

- Implementing a 'ready to connect' process allowing allocation of capacity to those who are ready to connect by managing those who fail to meet delivery plans and milestones.
- Proposing an adjustment to securities for a period to allow projects to progress, reducing the initial barrier of connection while limiting our risk.

Consumer Value: we undertook an assessment to determine whether there was a net cost or benefit to consumers of the Orkney investment. While this was a new modelling approach it was comprehensive taking into account the impact on the reduction in the wholesale price, avoided carbon emissions, potential subsidy costs, and the incurred and avoided cost of network investment. This assessment shows that the costs to consumers are more than outweighed by the benefits once 70 MW of onshore wind connected. Using the most conservative modelling assumptions a net benefit of **£30 million** was determined.

This is one basis of our CVP monetisation.

[70] SUPPORTING DOCUMENT 15: Local Energy Area Plans & Community Energy, found here: https://www.ssen-transmission.co.uk/riio-t2-plan/local-energy-area-plans-community-energy/

[71] Spring 2018 consultation document: https://www.ssen-transmission.co.uk/media/2570/unlocking-orkneys-renewable-potential.pdf and
feedback report https://www.ssen-transmission.co.uk/media/2697/ssen-consultation-feedback-updated-sw-270418.pdf

This £30m was derived from the following:

£m, NPV		
Reduced wholesale price	+238	Output from National Grid BID3 modelling
Avoided carbon emissions	+72	Assumes Orkney wind displaces gas-fired thermal, reducing from 100% to 10% displacement over time
Cost of CfD subsidy	-58	All Orkney wind has CfD; high strike price (above previous auction round); reference wholesale price
Network costs – transmission	-293	Capex and opex costs
Network costs – distribution	+25	Increased security of supply so no running of back-up power station
Local socio-economic impact	+46	Gross Value Added impact of the energy infrastructure investments on the Orkney islands
	+30 NET BENEFIT	

Reduction in wholesale price: The provision of transmission capacity to the Orkney islands would be solely used by renewable generation. For most renewable projects, as the short run marginal cost for these technologies is so low, they serve to reduce the wholesale price during high renewable periods. Consumer welfare (or increase in consumer surplus) measures the money saved by consumers through such wholesale price reductions and is determined by the ESO in its market modelling. For example, for the 2023 calendar year under Scenario 1 of our needs case (174.2 MW connected) the wholesale price would be reduced by an average £0.028/MWh. For the generation scenarios range of 70-300 MW of onshore wind, the benefit to consumers is £238-701 million.

Avoided carbon emissions: The second material consumer benefit arising from the connection of renewable generation is the impact on GB carbon emissions. Again because of the low short run marginal cost, it was anticipated that renewable generation would displace thermal generation. The ESO's modelling showed that for 300 MW of onshore wind, 1.65 mt CO_2 would be avoided. For the assumption that Orkney wind initially wholly displaces gas fired generation and this falls to 10% displacement over the life of the link as the UK economy decarbonises, the estimated value of carbon savings for the generation scenarios range is £72-297 million.

Cost of CfD subsidy: However, the value of the consumer welfare and avoided carbon benefits would be eroded by any subsidies given to the generators that are funded by the GB consumer. We accounted for the potential cost of CfD subsidies to Orkney generators for a range of assumptions. For highly conservative assumptions that all large generators have a CfD subsidy at a strike price of £73.5/MWh (2018 prices – equated to £66/MWh in 2012 prices) and BEIS reference wholesale electricity prices, the modelled subsidy cost for the generation scenarios range was £58-217 million.

Cost of network investment: If no generation located on the Orkney islands is liable for local circuit TNUoS charges, the cost of the transmission investment would be recovered through the residual wider TNUoS tariff by all generators (27%) and demand customers (73%). For the most conservative version of this assessment, we assumed that the full cost of the investment would be incurred by the GB energy consumer along with the avoided wider TNUoS charge. However, this cost would be offset by the additional security of supply benefit to the Orkney islands which resulted in an avoided network cost for the running of standby thermal generation plant.

Local socio-economic benefits: A further consideration is the local benefits to residents of the Orkney Islands of the investment in energy infrastructure. The March 2018 Needs Case included a quantitative analysis of the potential benefits for the range of generation scenarios. For the range of generation scenarios, this annual economic benefit was in the region of £53 and £490 per person. This benefit was highly significant, not least given the prevalence of fuel poverty on the islands – in 2016, 63% of Orkney households were estimated to be in 'fuel poverty' with the figure rising to 85% for pensioner households – and maximising renewable energy is central to the Orkney Islands Council strategy to tackle fuel poverty.

Although we worked together with Orkney stakeholders including the local council, community energy schemes and community energy forums we believe earlier engagement would have provided further benefit in our network development. The enhanced stakeholder engagement in Orkney took place from mid-2017; prior to the Scottish Government's ask of Local Authorities to have Local Area Energy Plans in place, a key lesson learned from our experience is that early engagement with Local Authorities in the development of their Local Energy Area plans is key for our future network development.

Stakeholder Support

2.8.11 In developing our Local and Community Energy Policy Statement we engaged with experts on exactly how we can support low carbon communities. This has included:

- attending and presenting at events such as the Westminster Energy, Environment and Transport Forum on Local and community energy in the UK[72], CARES conference[73], All Energy[74], Scottish Renewables Annual conference[75], and Ofgem's local energy conference;
- conducting bi-laterals with the BEIS, Scottish Government, Local Energy Scotland, Community Energy Scotland, Scottish Hydro Electric Power Distribution and Scottish Renewables; and,
- holding a roundtable event with Community energy Scotland, Awesome Energy, Local energy Scotland, Delta-EE and SSEN Distribution (SEPD Future Networks).

2.8.12 With this input we have developed our specific Local and Community Energy Policy Statement[76] to address their specific asks which are to:

- work on Local Energy Plans in collaboration with other parties including local authorities, electricity distribution companies, gas distribution companies, transport companies and other utilities;
- help break down barriers due to lack of expertise in early stages of projects; being unable to identify the right contacts, getting access to the right information, complexity and length on industry and regulatory documents and guidance; and
- recognise that some processes aren't agile enough to support decentralised generation and identify alternative approaches. This is something we have direct experience in through the Orkney Alternative Approach.

2.8.13 Our Local and Community Energy Policy has also been heavily influenced by our User Group challenging us on our Stakeholder Engagement Strategy. We presented a draft in May 2019 and the User Group advised us to consider expanding on relationship and advocacy opportunities.

Measurement and monetisation

2.8.14 We are confident that our LAEP framework and whole system planning approach will play a critical role in reducing the barriers to connections for local and community energy schemes, while facilitating the achievement of the Scottish Government's 2030 targets noted above. Our confidence stems from the fact that we have done this before, and this has generated benefit.

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[72] https://www.westminsterforumprojects.co.uk/publication/developing-the-local-energy-sector-19
[73] https://www.localenergy.scot/news-and-events/2019/march/join-us-at-the-cares-conference-2019/
[74] https://www.all-energy.co.uk/Conference/Conference-Overview/
[75] https://www.scottishrenewables.com/events/srac19/
[76] SUPPORTING DOCUMENT 15: Local Energy Area Plans & Community Energy, found here: https://www.ssen-transmission.co.uk/riio-t2-plan/local-energy-area-plans-community-energy/

2.8.15 In monetising the benefit of facilitating local and community energy, we can take two equally valid approaches.

2.8.16 The first is to estimate our contribution to meeting the Scottish Government ambitions. The second is to use the already quantified benefits of the Orkney Alternative Approach and assume similar benefits will accrue in RIIO-T2.

2.8.17 On the first, while this will be attributable to multiple stakeholders, it can be valued based on the carbon emissions displaced by the additional renewable generation in our network area. If the current percentage of local and community owned energy in the north of Scotland stays consistent relative to Scotland as a whole, our network area would need to support approximately 950 MW by the end of RIIO-T2 and 1304 MW by 2030 to meet the Scottish Government target. Over the RIIO-T2 period, this equates to the displacement of approximately 3.4m tonnes of carbon dioxide equivalent, providing a benefit of £249m. Getting from the 950 MW to the £240m follows the same method for calculating the value of accelerated connections set out in paragraph 2.6.14. If we assume by facilitating it, the value we deliver for consumers is 5% of that £249m, this would be equivalent to **£12.7m** NPV for the five years of RIIO-T2.

2.8.18 On the second, we were instrumental in the Orkney Alternative approach and it is possible to use this a proxy for the type of activities that will happen with our influence in RIIO-T2. Taking the impact of this project alone, we took the following steps:

- calculate an annuity equivalent costs and all the benefits set out in the case study above; and
- apply those values to the RIIO-T2 period.

This results in an NPV of **£6.6m** for the five years of RIIO-T2.

2.8.19 We believe both approaches are valid but in line with our conservative estimates we have applied the lower of the two as our CVP value – the £6.6bn. As noted above, we do not believe the TIM sharing factor should apply.

2.8.20 This CVP, by facilitating more local renewables will benefit both current and future consumers.

2.9 CVP 3a: Promoting the Natural Environment - Biodiversity Net Gain

Related goal

One third reduction in our greenhouse gas emissions - Reduce the scope 1 and 2 greenhouse gas emissions from our operations by 33% by 2026, consistent with 1.5°C warming scenario and a net zero pathway.

2.9.1 The next three CVPs are well justified initiatives in our Sustainability Action Plan[77] to reduce environmental impacts and increase social benefits of the network that will result in measurable outcomes that are valued by consumers and go above the Ofgem minimum requirements.

Introduction

2.9.2 Biodiversity – the biological diversity of life forms, species, genetic variation and ecosystems – is extremely valuable in its own right; it is also crucial to the maintenance of the natural systems on which we all depend such as the crop pollination, flood management and air quality.

2.9.3 To positively contribute to the UN and Scottish Government Biodiversity strategies[78]:

> *We aim to achieve an overall 'No Net Loss' on new infrastructure projects gaining consent in 2020 onwards and achieve 'Net Gain' on projects gaining consent in 2025 onwards.*
>
> The benefit for consumers will be the increased ecosystem services and natural systems that more diverse habitats create, as well as the increased amenity and wellbeing value for those who interact with such habitats at or near our sites.

2.9.4 In committing to this, we further develop our industry-leading position on what is now deemed to be a global emergency due to unprecedented rates in species decline. In July 2019, we became the first UK network licensee to consult on our approach to Biodiversity Net Gain (BNG) and are at the forefront of applying BNG in Scotland. We have been commended for leading the way in promoting, protecting and enhancing biodiversity. In recognition of our work, we have been awarded with multiple industry awards including:

- Two Scottish Green Apple Awards in 2019 (for Environmental Best Practice at Thurso South Substation for our work to promote the Great Yellow Bumblebee, and Alyth for our Osprey mitigation works) near Alyth in Perthshire;
- Three Big Biodiversity Challenge Awards in 2018, including 'Overall Winner' (for Environmental Best Practice at Thurso South Substation for our work to promote the Great Yellow Bumblebee);

[77] SUPPORTING DOCUMENT 13A: Stakeholder Action Plan, Found here: https://www.ssen-transmission.co.uk/information-centre/our-stakeholder-engagement/implementing-the-strategy/

[78] 2020 Challenge for Scotland's Biodiversity (Scottish Government, 2013) available here: https://www.gov.scot/publications/2020-challenge-scotlands-biodiversity-strategy-conservation-enhancement-biodiversity-scotland/ 37SSEN

- ‘Client’ Big Biodiversity Challenge Award in 2019 (For our client led approach to integrating biodiversity enhancement across our Caithness to Moray HVDC project); and
- Shortlisted in Scottish Green Energy Awards 2019 for developing our business level approach to Biodiversity Net Gain and Optioneering toolkit and for Best Practice and Sustainable development awards (award winners to be announced in December 2019).

Beyond minimum requirements

2.9.5 The above demonstrates that we go above any self-imposed industry minimum requirements on BNG. In addition, Ofgem set no regulatory minimum requirements other than asking us to adopt a tool appropriate assessment tools for natural capital and ecosystem services, which we address.

Stakeholder Support

2.9.6 Our stakeholders told us we can, and should, go further on biodiversity. We held an environmental roundtable in March 2019 to consult on our environmental policies for RIIO-T2[79] and stakeholders strongly recommended that biodiversity be a core ambition of our future plan.

2.9.7 Over the summer of 2019, we ran a consultation on the proposed approach to BNG, held meetings with key stakeholders and ran two workshops, one in Glasgow and one in London. The consultation on BNG was welcomed by all stakeholders. It was recognised that we are at the forefront of applying BNG in Scotland and developing the approach[80]. There was strong recognition and support for the leadership and proactive engagement on BNG that we are providing, as demonstrated by the quote from SEPA below:

“There is a clear commitment by Scottish and Southern Electricity Networks to go beyond compliance … Your commitment to enhancing biodiversity across the whole of your portfolio, with staff working to this objective from board room to contractors, demonstrates leadership to the wider strategic infrastructure sector.”- SEPA

Measurement and monetisation

2.9.8 We base the value to consumers of our BNG interventions in RIIO-T2 on an amenity value. As noted earlier, we undertook a joint Willingness to Pay study with the other GB TOs in early 2019 to help understand the value that they place on particular services. We asked directly how much they would be willing to pay to improve the environment around transmission sites, citing biodiversity examples. We use this value as a proxy measure to determine the value for this CVP. Step by step we:

- took the value the average GB consumer said they would be willing to pay to improve the environment around 25 transmission sites (£8.92);
- applied this to our RIIO-T2 ambitions to improve the biodiversity at around 24 sites (our target for RIIO-T2);

[79] SHE Transmission (2019) Environment Workshop – February 2019.
[80] SHE Transmission (2019) Biodiversity Net Gain Consultation.

- assumed a 50% discount to account for the limitations of stated preference willingness to pay studies, particularly in the transmission sector[81];
- estimated the costs of delivering our RIIO-T2 ambitions are in the region of £3.38m and netted these off; and
- applied an assumed TIM sharing factor of 25%[82].

This results in an CPV NPV of **£158.6m.**

2.9.9 The impacts of biodiversity improvements are long lasting, not only benefiting current consumers but future consumers too.

2.9.10 Other areas set out in our Sustainability Action Plan that, alongside our actions to achieve biodiversity net gain, include our commitments around woodland and forestry. We commit to incorporating woodland no net loss principles into business as usual – this is seen as leading in the sector. While we have not incorporated this into our CVP (as we did not directly ask the question to consumers through the Willingness to Pay survey), it would be reasonable to assume that this would also elicit high amenity values.

2.10 CVP 3b: Promoting the Natural Environment - VISTA

Related goal

One third reduction in our greenhouse gas emissions - Reduce the scope 1 and 2 greenhouse gas emissions from our operations by 33% by 2026, consistent with 1.5°C warming scenario and a net zero pathway.

Introduction

2.10.1 As noted in our VISTA policy[83] we continue to recognise the landscape and visual impacts our existing infrastructure can have on people and the environment. Stakeholders have strongly and consistently told us that they value mitigating the visual impact of our assets, so much so that our VISTA policy commits to exploring assessment options during RIIO-T2 to extend the scheme out with National Parks and Designated sites during RIIO-T2. This could lead to potential projects being incorporated into RIIO-T3. In the meantime:

[81] We recognise certain limitations of WTP studies for Transmission, where our bill impact is relatively low and therefore willingness to pay values can be over-inflated. In particular, it is accepted that stated preference studies (SP) studies typically give higher value than revealed preference (RP) studies. A short literature review indicated that a reasonable assumption would be 50% higher.

[82] If we assume a TIM Sharing factor of 25% and corporation tax of 17% as per last year of RIIO-T1, the post-tax incentive strength is 30%. This is applied.

[83] SUPPORTING DOCUMENT 24: Visual Impact of Scottish Transmission Assets (VISTA) – Our Approach for RIIO-T2, found here: https://www.ssen-transmission.co.uk/riio-t2-plan/vista-our-approach-for-riio-t2/

We will build on the success of RIIO-T1 VISTA projects and deliver cost efficient VISTA projects in collaboration with our stakeholders to optimise the value to all.

The benefit for consumers will be increased amenity benefits when visiting National Parks and National Scenic Areas.

2.10.2 Despite the considerable commitments contained in our Certain View Business Plan, we also commit to doing more through VISTA, which is not a legal or regulatory minimal requirement. This is due to the simple facts that it remains a key priority for our stakeholders and it delivers value for the GB consumers.

2.10.3 As such, we fully support the continuation of the Visual Amenity funding pot in RIIO-T2 to efficiently reduce the impacts of pre-existing infrastructure on the visual amenity of National Parks and National Scenic Areas and we will put forward well justified projects during the period.

2.10.4 Schemes currently approved by Ofgem include two technical schemes in the Cairngorms National Park to underground 12.3km of overhead lines, and one non-technical scheme at Loch Tummel incorporating tower painting and woodland planting. We are also in the process of submitting two further technical undergrounding schemes to Ofgem, again following extensive stakeholder engagement. We envisage these starting in the RIIO-T1 period and finishing in RIIO-T2. If approved, the associated 7.3km of overhead line being undergrounded will be RIIO-T2 outputs.

2.10.5 During RIIO-T2 we will engage continuously with stakeholders to identify and then develop further technical schemes. An initial review has identified several potential undergrounding projects.[84] Collectively if these go ahead, we could underground a minimum of 12.5km. The final length is subject to further stakeholder engagement, the outcome of our optioneering, and Ofgem approval. It is provided as an illustration of our ambition to build on the successes of RIIO-T1. This initial current list of visual amenity projects in no way limits or prohibits further projects being considered during the period.

Beyond minimum requirements

2.10.6 There are currently strict criteria that proposed VISTA projects must satisfy in order to qualify for consideration as part of Ofgem's incentive. We will continue to take full account of these through consultation, assessment and project selection, allowing for identification of projects that deliver the best enhancement of visual amenity. Regard must also be given to our licence obligations under the Electricity Act, the most relevant of these being a duty to maintain our network in an economical and efficient way; having regard to the preservation of amenity; to the conservation and enhancement of the natural beauty, wildlife and cultural heritage of the National Parks and National Scenic Area.

[84] Glen Strathfarrar (Undergrounding 3.5km of single circuit 132kV on the Beauly-Deanie circuit – 33kV strung on other side); Killin (undergrounding 9km of a double circuit 132kV OHL, and a single circuit 132kV OHL - 33kV strung on other side).

2.10.7 However, undertaking VISTA projects is not part of Ofgem's Business Plan minimum requirements; we do not have to undertake VISTA projects in RIIO-T2 to meet the minimum requirements. Yet the strength of stakeholder support for VISTA and the benefits the projects bring are such that we want to realise that value for consumers. Our current proposals are set out in the aforementioned VISTA policy[85].

2.10.8 To maximise consumer benefits, we will build on our RIIO-T1 experience by:

- Giving our wider stakeholders a stronger voice in contributing to the assessment and selection of projects that may be taken forward by using a variety of tools including our VISTA website, social media, and written consultation, but most importantly making greater use of regional stakeholder forums from RIIO-T1. The stakeholder forums have proven incredibly valuable in RIIO-T2 as they involve relevant stakeholders with knowledge of the specific designated landscapes.
- Collaborating with Scottish Power Energy Networks on any projects in the Loch Lomond and Trossachs National Park to ensure a joined-up approach in this area, e.g. we will ensure co-ordinated stakeholder events to avoid stakeholder fatigue, consider joint commissioning of work to ensure best value for money for the GB consumer.
- Sharing best practice with the other TOs, from engagement with stakeholders through to the delivery of projects.
- Building on our staged approach to project development used in RIIO-T1 to identify the transmission infrastructure with the greatest impacts, but also with greatest potential for mitigation. This takes projects through four systematic stages: identifying priorities, defining the projects, developing the project and consent and implementation of projects. This is detailed in our VISTA Policy[86].

2.10.9 As noted above, we also propose to deliver additional consumer value by committing to work with stakeholders to co-create an evidence-based approach to assessing visual amenity improvement proposals out with the designated landscape with the aim of implementing this methodology for the RIIO-T3 period.

Stakeholder support

2.10.10 Stakeholders strongly support the continuation of visual amenity projects. At a workshop in March 2019 the majority of stakeholders felt that we could go further than previously proposed in our plans for RIIO-T2, in terms of minimising visual impact of our infrastructure.[87] At an earlier workshop in November 2018,

[85] SUPPORTING DOCUMENT 24: Visual Impact of Scottish Transmission Assets (VISTA) – Our Approach for RIIO-T2, found here: https://www.ssen-transmission.co.uk/riio-t2-plan/vista-our-approach-for-riio-t2/

[86] SUPPORTING DOCUMENT 24: Visual Impact of Scottish Transmission Assets (VISTA) – Our Approach for RIIO-T2, found here: https://www.ssen-transmission.co.uk/riio-t2-plan/vista-our-approach-for-riio-t2/

[87] At a stakeholder event in March 2019, when asked if our future position on landscape and visual amenity goes far enough on a scale of 1 to 10 with 1 being that it should remain as it is now and 10 should go even further, the average rating was 6.2.

when asked to vote on whether Ofgem's VISTA Fund should be extended into RIIO-T2, the majority agreed. Almost half of those who participated voted 10/10 in agreement.

2.10.11 This engagement was supplemented by the aforementioned Willingness to Pay study, which clearly demonstrated that investment in visual amenity derives significant value for consumers. The average GB consumer is willing to pay £6.87 per annum to underground 20 miles of overhead transmission lines in National Parks and £4.14 to improve visual impact in National Parks.

2.10.12 Stakeholders also really supported our staged approach to project development stating at the March 2019 even that "it's been a great success", that it helps with us "being more transparent and educating people; they might not understand the costs or environmental impact of undergrounding" and that we must be clear through this process "what the environmental disbenefits are".

Measurement and monetisation

2.10.13 We base the value to consumers of our VISTA interventions in RIIO-T2 on an amenity value, like BNG above. We asked directly how much they would be willing to pay to underground cables in National Parks and National Scenic Areas. We use this value as a proxy measure to determine the value for this CVP. Step by step we:

- took the value the average GB consumer said they would be willing to pay to underground 20 miles of overhead line in a national park (£6.87);
- converted miles into km, and multiplied by the total number of GB households (bill payers);
- applied this to our RIIO-T2 ambitions to underground 12.5km of overhead line in RIIO-T2;
- assumed a 50% discount to account for the limitations of stated preference willingness to pay studies, particularly in the transmission sector [88];
- estimated the costs of delivering our RIIO-T2 ambitions are in the region of £70m and netted these off; and
- applied an assumed TIM sharing factor of 25%[89].

This results in an CPV NPV of **£30.7m.**

2.10.14 The impacts of visual amenity improvements are long lasting, not only benefiting current consumers but future consumers too.

[88] We recognise certain limitations of WTP studies for Transmission, where our bill impact is relatively low and therefore willingness to pay values can be over-inflated. In particular, it is accepted that stated preference studies (SP) studies typically give higher value than revealed preference (RP) studies. A short literature review indicated that a reasonable assumption would be 50% higher.

[89] If we assume a TIM Sharing factor of 25% and corporation tax of 17% as per last year of RIIO-T1, the post-tax incentive strength is 30%. This is applied.

2.11 CVP 4: Supporting Local Communities - Local Supply Chains

Related strategic theme: Leadership in sustainability

Introduction

2.11.1 One of the most significant impacts we have on the areas we operate, other than environmental as noted in CVP 3a and 3b, in is the local economic benefits created through some of our major development projects. We absolutely believe, and our stakeholders have told us, that we have a responsibility to ensure all our customers and communities around our operations and society at large all thrive as a result of our operations and we should go further. Without the continued support of the communities, we would not be the business we are today or become the business we want to be in the future.

2.11.2 Therefore, during RIIO-T2 plan will build on the success of RIIO-T1 and:

> *Actively encourage our suppliers to support local supply chains when developing and constructing our assets through two focussed initiatives to give back to communities.*
>
> The benefit is measured in the local community spend - a positive economic impact for consumers of the local communities directly affected by our transmission works.

2.11.3 Approximately 27% of our approved supplier are registered in our local area and we currently have two main initiatives to support this: the online platform, Open4Business (O4B) and our local 'Meet the Buyer' events, which aim to attract local businesses to tender for work on our large projects, enhancing benefits to local communities.

2.11.4 The O4B Highlands and Islands portal to link small and medium sized businesses in the Highlands and Islands to the business opportunities from our construction projects was established in 2012. Alongside the financial success of the portal, there have been several key achievements including over 750 opportunities posted, over 465 contracts awarded and over 1600 organisations registered. By the end of the last financial year 2018/19, our transmission projects had awarded around £14.6m of contracts through this portal. This portal is set to begin its next chapter of success under the stewardship of Highlands and Islands Enterprise (HIE). The move enables other large companies and SMEs, including those in the energy sector, to use the platform to advertise contract opportunities across the north of Scotland. In total there are around 1,000 suppliers registered on the portal. SSE has committed to continue supporting O4B and using it to post and award contracts for our projects.

2.11.5 Last year we held 'Meet the buyer' events for two of our projects to share with the local supply chain our future network investment plans and potential future local employment opportunities on these projects. We have also engaged independent consultants to quantify the contribution that our major projects make to the UK and Scottish economies. For example, this analysis has included the measurement of the local socio-economic benefits of our Beauly-Denny and Caithness-Moray projects. The Caithness-Moray

project added approximately £643m of value to UK GDP, of which at least £265m will be contributed to the Scottish economy[90].

Beyond minimum requirements

2.11.6 There is no minimum regulatory requirement to support local supply chains. Through our activities local supply chains will benefit as a by-product of what we do – this value is significant. We estimate this to be up to £406m over RIIO-T2 but we don't see that as going above and beyond.

2.11.7 However, both initiatives in this area where we actively support local supply chains when developing and constructing our assets ensure that we go above the by-product impact. It is this that we are claiming as the CVP.

2.11.8 Our benchmarking exercise (see our Sustainability Action Plan[91]) shows that we are currently industry leading with our plans for supporting local supply chains, adding weight that we go above minimum requirements.

Stakeholder Support

2.11.9 Stakeholders and society expect companies to introduce measures to support and contribute to the communities in which they operate. During the development of our sustainability strategy in early 2018 we received broad support for our approach to support local supply chains and the commitments to measuring our contribution to communities[92].

2.11.10 Stakeholders consistently prioritise the need to ensure local businesses benefit from our construction on individual projects. Building on the SSE Responsible Procurement Charter[93] that encourages the use of local supply chains and ensures that we continue to maximise the local benefit of our investments.

2.11.11 We will continue to measure and understand the impact we have on communities, through the local socio-economic impact of each pound spent during our investments and the local content ratio of our major project investments.

2.11.12 Finally, the UK Government and local authorities are increasingly promoting that a proportion of infrastructure investment be spent locally, where it can deliver the greatest benefit to local communities. For example, the current target for Government spend with SMEs is 33% by March 2022[94].

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[90] Caithness Moray Delivering economic and social benefits (SSE, 2018) available at: www.sse.com/media/421062/Caithness-Moray-Deliveringeconomic-and-social-benefits.pdf

[91] SUPPORTING DOCUMENT 16A: Sustainability Action Plan, found here: https://www.ssen-transmission.co.uk/riio-t2-plan/sustainability-action-plan/

[92] SHE Transmission (2018) Sustainability Strategy Consultation

[93] Responsible Procumbent charter (SSE, 2018) available at: www.sse.com/media/530653/Responsible-Procurement-Charter_0818.pdf

[94] Home Office (2019) Small and Medium Enterprise (SME) Action Plan 2015-2022. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/824132/Home_Office_2019_SME_Action_Pla n.pdf

Measurement and monetisation

2.11.13 We will continue to measure and understand the impact we have on communities, through the local socio-economic impact of each pound spent during our investments and the local content ratio of our major project investments.

2.11.14 It is difficult to measure the impact of the Meet the Buyer events, but the O4B portal is measurable:

- we noted the value of contracts rewarded through the portal in T1 to date and took a ratio of that to our capital expenditure in T1 to date (0.56%); and
- applied this ratio to our Certain View capital expenditure.

This results in an NPV benefit of **£6.4m.**

2.11.15 We also estimated the high level spend locally based on supplier feedback questionnaires which revealed 0-20% of capex was spend on local suppliers. Applying this to our RIIO-T2 Certain View capital expenditure provides a local community benefit of up to £406m. However, as noted above, while significant, our base plan will deliver this value as part of minimum requirements. Although our Meet the Buyer events will help facilitate this.

2.11.16 The impacts of using local supply chain can arguably be seen to disproportionally benefit more vulnerable consumers who are more likely to live and work locally.

Qualitative CVPs

As noted in the introduction, our CVP 'package' goes beyond areas that we can monetise. Below we present five qualitative CVPs.

2.12 CVP 5: Early and regional specific engagement

Related goal

£100 million in efficiency savings from innovation - Our RIIO-T2 Certain View includes £100 million of cost savings from targeted new technology and ways of working, and we aim to go further.

Introduction

2.12.1 As noted in CVP 1a, we define efficiency as the optimal use of resources to achieve a necessary outcome. There are two critical parts to our approach to ensuring that we are cost efficient: 1. strategic optioneering and 2. cost effective delivery.

2.12.2 The purpose of the first, strategic optioneering, asks whether an action is needed and, if so, what is the best action to take. It requires gathering all the necessary information to be able to make an informed and justified selection of the preferred option to meet a network need. Doing this thoroughly and effectively can help ensure an investment can be delivered cost-effectively and on time.

2.12.3 We undertook a consultation on potential improvements to our strategic optioneering methodology in late 2018[95]. The key findings from that consultation were the need for us to be more transparent, to engage earlier in the project development lifecycle and to engage on the long-term strategic development of the network (in addition to individual investments).

2.12.4 Considering this stakeholder feedback, we have:

> *Set a target for the RIIO-T2 period of holding at least five regional and community engagement events on strategic network development each year.*
>
> Although difficult to quantify, the ultimate benefit to consumers is lower costs as we make more cost-efficient investment decisions aligned to regional and national requirements.

2.12.5 This will allow our options development and option selection process, as detailed on pages 38-39 of our Main Business plan, to be informed by specific regional factors.

2.12.6 We will undertake strategic optioneering by region, with a lead manager responsible for all network developments in that area. Each region has specific characteristics, both electrically and geographically. The multi-disciplinary regional team, using their knowledge and experience of that region, will be tasked with developing an economic and co-ordinated whole system solution.

2.12.7 The regional team includes stakeholder and community liaison specialists. The active engagement of local stakeholders (communities, businesses and statutory authorities) occurs throughout the optioneering process and will strongly influence the outcomes.

Beyond minimum requirements

2.12.8 There are no regulatory requirements to undertake regional and community engagement events and indeed, there was no requirements to undertake regional future energy scenarios (like our North of Scotland FES). But we know this intelligence allowed us to make better decisions as noted in paragraph 2.7.18 above).

Stakeholder Support

2.12.9 As noted above, it was direct feedback from a consultation on potential improvements to our strategic optioneering methodology that directly led to this CVP.

[95] The consultation and its findings are available at: https://www.ssen-transmission.co.uk/riio-t2-plan/riio-t2-our-stakeholder-engagement-journey/

2.13 CVP 6: ENS Compensation Scheme

Related goal

Aim for 100% transmission system reliability for homes and businesses - By investing in new technology and ways of working, when cost effective to do so, we will strive for 100% network reliability for homes and businesses by 2030

Introduction

2.13.1 Energy security is undoubtedly a key issue and we believe RIIO-T2 should prioritise maintaining the security and reliability of supply in the short, but also the medium and long term. Providing energy to meet society's needs involves delivering secure supplies that are affordable and that have a minimal impact on the environment.

2.13.2 Our Energy Not Supplied (ENS) incentive will therefore play a key role in continuing to drive overall performance in the reliability of our network to the ultimate benefit of consumers. We intend go above the minimum requirement by:

> *Maintaining our ENS Compensation Scheme throughout RIIO-T2 such that those consumers most affected by a loss of power are appropriately compensated for the inconvenience.*
>
> The benefit for consumers will be a monetary payment in the event of a transmission fault for any customer who is off supply for more than six hours.

2.13.3 In 2017[96], 25% of households in Scotland were estimated to be in fuel poverty, with 7% living in extreme fuel poverty. The highest rates of fuel poverty are in the north: Highland (52%) and the Islands (50-59%). The scheme is of benefit to those most affected by a loss of supply and potentially more valued by those consumers struggling financially.

Beyond minimum standards

2.13.4 In 2013 we became the first and only TO in GB to offer compensation to customers affected by a power cut caused by a fault on the transmission network lasting more than six hours. Currently, we remain the only TO propose a compensation scheme as part of our RIIO-T2 framework.

2.13.5 The scheme provides direct payment to any customer off supply for six hours or more. At the outset of RIIO-T1, payments were set at £54 for domestic and £108 for commercial customers (£71 and £142 in 18/19 prices). We also provide an additional payment for any customer without power for twelve hours

96 Scottish house condition survey: 2017 key findings, (Scottish Government, Dec 2018) available at: https://www.gov.scot/publications/scottish-house-condition-survey-2017-key-findings/

or more. The additional payment under RIIO-T1, is £27 for domestic and £54 for commercial customers (£36 and £71 in 18/19 prices).

2.13.6 Distribution Network Operators (DNOs) are not required to provide a compensation payment in the event of a transmission level fault and it has no impact on the associated incentives for DNOs. We believe that all customers should be appropriately protected regardless of the party at fault and are seeking to retain this additional level of consumer protection throughout RIIO-T2.

Stakeholder Support

2.13.7 Prior to RIIO-T1, we undertook a public consultation on introducing a compensatory payment component to the ENS reliability incentive. The feedback from the consultation was overwhelmingly positive and, based on this, Ofgem accepted our proposal to include a mechanism to allow us to make compensatory payments to customers that are off supply for a period of six hours or longer as a result of a fault on the transmission.

2.13.8 Stakeholders have told us they don't take their reliable access to electricity for granted and want to ensure their safe and secure access continues. It is therefore important to balance the priorities and preference of our customers and stakeholders. We could, in theory, invest in the network to such an extent that customers experience zero interruptions however it is clear that this is neither a priority for our customers nor is it likely to be cost effective.

2.13.9 In 2014, the Compensation Scheme was initiated following a fault on our network. During which, 4,985 customers were off supply for more than 6 hours but less than 12 hours. We wrote to each householder asking them to contact us in order to claim compensation.

2.13.10 Upon receiving our communication, 3,545 customers responded and claimed their right to compensation. This equates to 71% of those contacted (resulting in c.£400k of compensation). This is generally, a very high response rate to any customer communication.

2.13.11 Following the compensation event in 2014, we undertook research to better understand customer views on the process. Almost all (99%) of respondents said they were satisfied with the overall compensation process, with 31% very satisfied and 68% satisfied.

2.14 CVP 7: Science Based Targets

Related goal

One third reduction in our greenhouse gas emissions - Reduce the scope 1 and 2 greenhouse gas emissions from our operations by 33% by 2026, consistent with 1.5°C warming scenario and a net zero pathway.

Introduction

2.14.1 Managing resources over the whole asset lifecycle to reduce our greenhouse gas emissions in line with climate science is a key priority for us a business because it is a key priority for our stakeholders, and it is the right thing to do for wider society.

2.14.2 The combination of strengthened public sentiment and increased scientific evidence provides a powerful impetus for accelerated policy action through the early 2020s. The UK leads international action to tackle climate change and has become the first major economy to pass a net zero emissions law[97]. The UK Government has adopted the Committee on Climate Change recommendation to cut greenhouse gases to Net Zero by 2050 and the Scottish Government has also accepted the Committee's recommendation that Scotland adopts the target five years earlier, in 2045. The net zero target meets the UK's obligations under the Paris Agreement and responds to the urgent need for action highlighted by the IPCC in last year's landmark Special Report on 1.5°C of global warming.

2.14.3 As the owner of the transmission network in a region rich in renewable energy, our most material contribution to action against climate change is in enabling the transition to a low carbon electricity system. While acting on this, we are also determined to reduce our business carbon footprint (BCF):

> *Reduce the controllable greenhouse gas emissions from our operations by 33% by 2026, compared to 2018/19 levels, consistent with net zero emissions pathway.*
>
> The benefit to consumers and society will be carbon and energy efficiency savings.

Beyond minimum requirements

2.14.4 Ofgem sets a minimum requirement for a Science Based Target (SBT) to reduce scope 1 and scope 2 carbon emissions, without relying on international GHG offsetting, but it does not set a date for this. It also sets a minimum sets a requirement to commit to reporting on scope 3 emissions. We go beyond these as:

- our action to meet our SBT starts now. At the time of writing, we have proposed our SBT target as a 45% absolute reduction in scope 1 and scope 2 carbon emissions by 2030 to meet the 1.5 degree climate science pathway from a 2018/19 baseline. As such, we will deliver benefits during RIIO-T2;
- we have been the frontier company in promoting this approach, bring industry with us. We were the first TO in GB to commit to setting an SBT (in May 2018) which has encouraged wider industry to follow and Ofgem has now included setting an SBT in its minimum criteria, as noted above;
- our benchmarking exercise (see our Sustainability Action Plan) shows that we are industry leading for this commitment; and

[97] www.gov.uk/government/news/uk-becomes-first-major-economy-to-pass-net-zero-emissions-law

- we are also setting a scope 3 target requiring that two-thirds of our suppliers by spend set a science-based target by 2025. This is a bold and industry leading target and again, an area which we anticipate others may follow, leading to wider benefits across our value chain and industry.

Stakeholder Support

2.14.5 Our stakeholders, including our shareholders, want us to take ambitious action on climate change and reduce our emissions following best practice in climate science through the SBT initiative. At the outset of developing our Sustainability Strategy, stakeholders highlighted the importance of reducing our own carbon emissions in-line with climate science and adopting an absolute reduction approach to setting our target.[98]

2.14.6 During our RIIO-T2 stakeholder engagement events, stakeholders continued to encourage us to reduce our carbon emissions. At our November 2018 stakeholder workshop, it was recommended that we should also place emphasis on reducing our scope 3 (supply chain) greenhouse gas emissions alongside our scope 1 and 2 emissions. In addition, we have received feedback that we should consider the use of electric vehicles in our fleet to reduce emissions[99].

2.14.7 Most recently our supply chain responded positively to our sustainability questionnaire in support of reducing our scope 3 emissions and the majority were supportive of setting their own science-based target to complement our goal.

2.14.8 We have since been commended by our stakeholders on our draft Business Plan and for the inclusion of our ambitious carbon target that is in line with an independent science-based target and which does not include offsetting of emissions. Our ambition is therefore to reduce our greenhouse gas emissions to facilitate the necessary level of decarbonisation critical to limit rising global temperatures by 1.5 degrees Celsius and pursue the pathway to net zero.

Measurement and monetisation

2.14.9 Our main material emission areas for scope 1 and 2 emissions are: substation building electricity use emissions; operational transport emissions, and SF_6 emissions. Reducing emissions in these areas is of value to consumers and wider society.

2.14.10 Achieving a third reductions in our carbon emission from a 2018/19 will require a reduction of >2,816tCO_2e in our scope 1 and 2 emissions by the end of RIIO-T2.

2.14.11 Based on our proposed plans, reducing our own business carbon footprint has a wider benefit to society through the value of avoided carbon emissions. For each tonne of carbon we reduce, there is an avoided

[98] SHE Transmission (2018) Sustainability Strategy Consultation Summary, https://www.ssen-transmission.co.uk/riio-t2-plan/riio-t2-our-stakeholder-engagement-journey/

[99] SHE Transmission (2018) Stakeholder Workshop Recommendations, https://www.ssen-transmission.co.uk/riio-t2-plan/riio-t2-our-stakeholder-engagement-journey/

impact and an associated avoided cost which society doesn't have to pay (both carbon and energy efficiency savings).

2.14.12 For each of the carbon reduction initiatives contributing towards our SBT, we have quantified the value of the avoided carbon emissions across appropriate time periods using the BEIS non-traded carbon price. This shows a total benefit to society of approximately £33 million. Table 2.3 summarises the benefits for each carbon reduction initiative.

2.14.13 Our total costs of SF_6 avoidance, IIG reduction, energy efficiency measures at substations and solar PV installations at substations is £22m but as the benefits are realised over a long time, combined with an assumed TIM sharing factor of 25%, the NPV value is small and therefore, we haven't added to our monetised CVP.

2.14.14 However, this does not mean there is not a value in these activities. There will be also be additional future value of us taking this action now rather than delaying our actions and having to do more in 5, 10, 15 years' time, but it is difficult to quantify that value.

Table 2.3: SBT benefits

Measure		
Energy efficiency measures on substations	Cost savings from reduced carbon emissions and electricity costs, as a result of energy efficiency measures applied to new and existing substations.	£13,100,476
Solar PV installations on substations	Cost savings from reduced carbon emissions and electricity costs, as a result of the installation of solar PV panels at new and existing substations.	£3,399,983
Operational fleet electrification	Cost savings from reduced carbon emissions, as a result of the gradual replacement of diesel vans in the operational fleet with electric alternatives.	£6,320,733
IIG reduction	Cost savings from reduced carbon emissions, as a result of achieving our leakage target for IIGs	£1,307,656
SF_6 avoidance through alternative IIGs	Cost savings from reduced carbon emissions, as a result of avoided SF_6 leakage through its replacement with alternatives.	£1,656,100

2.15 CVP 8: Supporting Vulnerable Customers

Related strategic theme: Leadership in sustainability

Introduction

2.15.1 There is no simple definition that captures every aspect of consumer vulnerability in the energy sector. Based on stakeholder feedback, we believe it is vitally important to address high-risk categories of consumers in the north of Scotland and islands. This includes customers living in rural communities, suffering from fuel poverty or reliant on electric heating. In our network area, around 150,000 consumers are currently on Priority Services Register (PSR)[100] in the North of Scotland.

[100] As at the end of March 2019.

2.15.2 A recent report commissioned by Citizens Advice Scotland (CAS)[101] on consumers in vulnerable situations highlights good practice in the energy sector in providing support but concludes there is not yet an integrated approach between essential service providers. As a result, not all vulnerable consumers eligible and wishing to receive additional support are aware of the services available. We are supportive of all policy measures that will help to support energy efficiency and reduce fuel poverty especially for our most vulnerable customers. There is an opportunity for us to take a supporting role and co-ordinate activities with the DNO, local authorities and other agencies to raise awareness, support and meet the needs of vulnerable consumers. It is important to ensure that the customers and stakeholders we interact with, who are both eligible and wishing to receive support are aware of the services available.

We have included in our plan actions to support vulnerable consumers.

The benefit is providing additional support to vulnerable consumers in the North of Scotland.

2.15.3 Alongside our goal for 100% network reliability for homes and businesses, we have identified several additional actions to support vulnerable consumers:

- **Impact assessment**: undertake stakeholder impact assessments for project delivery. For example, we will utilise a risk mapping tool to assess how consumers may be impacted by a planned outages and coordinate plans with the DNO. This will allow proactive contact with customers on the PSR.
- **Employee training:** we will deliver mandatory training to ensure staff are proficient in recognising signs of consumer vulnerability and fuel poverty and have knowledge of the support services available.
- **Partnerships:** create partnerships with third parties to help deliver and promote activities in addressing consumer vulnerability and fuel poverty during our stakeholder engagement activities.
- **Accessible communication, events and media:** introduce accessible communications and encourage accessible consultations events. We will adopt an accessibility software solution for our website that allows customers to view content in different languages and alter text sizes. This will promote accessible information that is particularly important for consultation documentation on projects.

Beyond minimum requirements

2.15.4 Ofgem, in its SSMD, decided that transmission companies do not have to consider actions to support vulnerable consumers and communities as business as usual, leaving this to the distribution sectors.

[101] Making it Easy: Simpler Registrations for Customers in Vulnerable Situations (Citizens Advice Scotland, 2018) available at: www.cas.org.uk/system/files/publications/2019_03_29_cas_making_it_easy_simpler_registration_for_consumers_in_vulnerable_situations.pdf

However, it is our stakeholder-led and informed view, that we should complement and supplement the interventions of the distribution sectors, and that we should play a role in supporting vulnerable consumers. This is exactly what we do in our proposed CVP 6 – our ENS compensation scheme – and is in line the view from CAS that there needs to be an integrated approach.

Stakeholder Support

2.15.5 Towards the end of 2018, the Scottish Government consulted on a draft Fuel Poverty Strategy for Scotland and we received feedback to on our Sustainability Plan (2019/20)[102] that we could strengthen our community engagement plans. Based on this stakeholder feedback we expanded our ambition to also focus on meeting the needs of vulnerable consumers and proposed to adopt a supporting role and co-ordinate activities with the DNO, local authorities and other agencies to meet the needs of vulnerable consumers.

2.15.6 Stakeholders welcomed our plans to support vulnerable consumers in our draft RIIO-T2 Business Plan consultation. We have been actively engaging with our stakeholders through a targeted stakeholder roundtable event[103] and a bilateral meeting with the Scottish Government to strengthen our plans for meeting the needs of vulnerable consumers. Our stakeholders felt that TOs do have a pro-active role in supporting vulnerable consumers, with a joined-up approach with DNOs and other relevant stakeholders. We received overarching support for plan to coordinate activities with essential services. Stakeholders have encouraged us to integrate these plans within our wider community stakeholder engagement plans and form partnerships with relevant organisations.

[102] SHE Transmission (2019) Our Sustainability Plan Consultation, https://www.ssen-transmission.co.uk/riio-t2-plan/riio-t2-our-stakeholder-engagement-journey/

[103] SHE Transmission (2019) RIIO-T2 Sustainability, Whole System and Competition Stakeholder Workshop – September 2019, https://www.ssen-transmission.co.uk/riio-t2-plan/riio-t2-our-stakeholder-engagement-journey/

3 Innovation: supporting efficient output delivery

3.1 We support Ofgem's decision to retain a strong innovation stimulus for both large transformational R&D projects (through the Strategic Challenge Fund - SCF), as well as smaller scale process or technological innovations (by retaining the Network Innovation Allowance – NIA). The quality of our innovation proposals will form part of our overall Business Plan Incentive (BPI) assessment, through our Consumer Value Proposition. One of our five clear goals is to **go further and save more during RIIO-T2 than the £100m efficiency savings embedded in our Certain View**. Delivery of this will support our overarching objective to support the transition to a low carbon economy.

3.2 As part of this commitment we have already identified four focus areas that are aligned with our strategic objectives:

- Stakeholder-led Strategy: which captures our desire to support our customers, enable wider energy system changes (whole system and EST) and explore enhanced connection approaches.
- Safe and secure network operation: developing our asset and network management, how we monitor and operate our network and our planning and development.
- Sector-leading efficiency: looking at supply chain for efficiencies, modernising network opportunities and how we monitor and operate our network.
- Leadership in sustainability: we are committed to reducing our impact on the environment, mitigating climate change and supporting vulnerable customers.

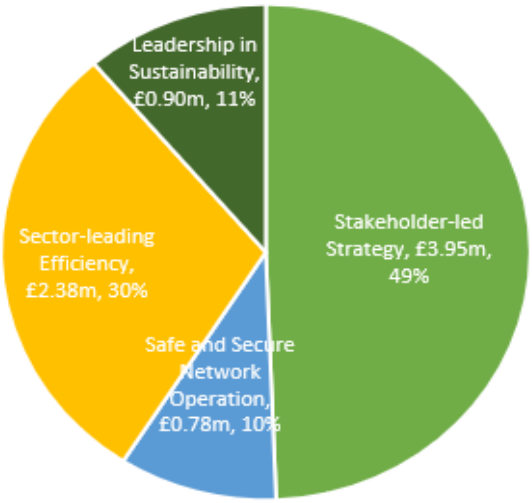
3.3 Under each focus area we have identified several topical issues which, if trials prove successful, will deliver benefits to our stakeholders, including efficiency savings passed to consumers, carbon savings and avoided constraint costs. Examples include: supporting development of whole system thinking across technical standards/codes and processes; big data; safety; and supporting vulnerable customers. We will also continue to explore additional opportunities as they present themselves during the period, as we want to find new and more efficient ways to operate our network. We are confident that our approach to innovation and our past successes will secure these benefits, as we build on the successes from RIIO-T1. These themes are developed further in our Innovation Policy[104].

3.4 The NIA can deliver significant benefits by progressing innovation concepts towards market ready concepts, at which point business as usual allowances can take over and deliver monetised benefits. Our strategy is to maximise benefits to enable the transition to a low carbon economy. To support this our plan looks to secure NIA funding of £8m over the five-year regulatory period in a 90:10 shared commitment with consumer cost, where we will supplement the £8m requested with business as usual

[104] SUPPORTING DOCUMENT 19: SHE Transmission Innovation Strategy, found here: https://www.ssen-transmission.co.uk/riio-t2-plan/innovation-strategy/

funding and other third-party funding as appropriate. We propose that this funding is specifically allocated to our strategy areas as totalled in Figure 3.1 below.

Figure 3.1 RIIO-T2 NIA Theme Allocation



3.5 We will apply this funding to projects where associated benefits will either accrue after the RIIO-T2 price control period (thus avoid duplication with the TIM), or accrue to parties other than ourselves, or are simply high risk or very uncertain. We recognise that our innovation focus areas are our current view and that things change. Should these focus areas either increase or decrease in relevance then we propose that we can reallocate the phasing or totals between themes but remain within the overall £8m.

3.6 In line with both our Innovation Policy[105] and Stakeholder Engagement Strategy[106] we have finalised our funding proposals for the NIA in conjunction with our stakeholders. We will decide upon our formal approach to the SCF, which will replace the RIIO-1 Network Innovation Competition (NIC), after further stakeholder engagement is completed. The rational for its revision revolve around refreshed focus on the energy system transition, increased third party involvement and better alignment with wider public sector innovation funding. These are principles we support and are in line with our practices. Our commitment to involving third parties is already demonstrated; we were the first company to have a third party manage one of our Low Carbon Network Fund (LCNF) Tier 2 projects - My Electric Avenue.

3.7 We believe our approach to innovation is optimal for two reasons: the continued adoption of a Cost Benefit Analysis (CBA) approach alongside our bespoke Funding Model approach to innovation.

Innovation Cost Benefit Analysis (CBA)

3.8 We continue to focus on a CBA approach to measure, assess and evaluate our innovation projects across the project lifecycle, adapting each project CBA to account for the maturity of the innovation, its technology readiness level (TRL), the types of benefits it might deliver, the types of beneficiaries, projected and actual performance at trials etc. The large number of variables being input to the CBA highlights the importance of working collaboratively with third parties in conducting our CBAs, particularly where there are levels of risk and uncertainty. It also allows us to identify if projects are not

[105] SUPPORTING DOCUMENT 19: SHE Transmission Innovation Strategy, found here: https://www.ssen-transmission.co.uk/riio-t2-plan/innovation-strategy/

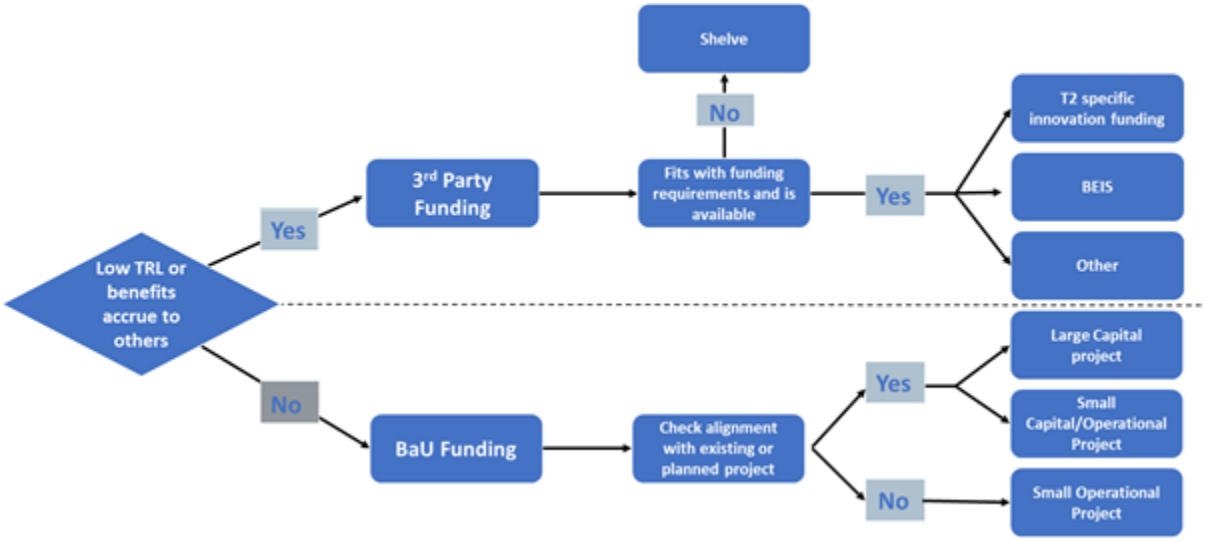
[106] SUPPORTING DOCUMENT 13: Stakeholder Engagement Strategy, found here: https://www.ssen-transmission.co.uk/media/3560/shet-stakeholder-engagement-strategy-final-document.pdf

going to deliver on expectation and be able to pause to re-evaluate and decide whether to proceed or stop.

Innovation Funding model

3.9 Building on our CBA approach, our innovation funding model describes how we make decisions and, crucially, identify the most appropriate funding source. We are clear in our approach that if there are benefits derived for ourselves within the RIIO-T2 period, or where the TRLs are higher, then this activity will be a business as usual funded activity; we will not access external funding mechanisms. Conversely, where there are accrued benefits to others, or if the TRL is low, or if there is high risk or great uncertainty, then it is more appropriate to look at third party funding.

Figure 3.2 SHE Transmission Innovation Funding Model



Reporting on innovation stimuli

3.10 Where we do access customer funded Ofgem innovation mechanisms, the NIA or SCF, we commit to transparent reporting. We will report on the benefits of innovation consistent with industry. This will ensure best practice and success is shared, highlighting what innovations have worked and how they might roll out across other companies and other networks. It will also report on what has not worked and how we, as an industry can learn collective lessons.

3.11 We have worked collaboratively with the ENA member companies including the gas, distribution and transmission licensees, to develop a reporting methodology to report on Ofgem's innovation mechanisms and inform the wider industry of the adoption of a benefit tracking methodology that delivers a wide range of benefits to our customers and wider stakeholders. The proposal will further develop as we and the ENA member companies define and agree a greater level of detail in advance of the start of RIIO-T2. Full details of this are provided in Appendix 6.

Appendix 1: Snapshot tables for Outputs and CVP proposals

In support of our overall Business Plan submission, and as required by the Business Plan guidance, we have completed the following snapshot tables in two excel workbooks: "Snapshot Tables Outputs" and "Snapshot Table CVP". These can be found in Appendix 4 of the main Business Plan - https://www.ssen-transmission.co.uk/riio-t2-plan/ .

Appendix 2: Our Commitment to Output Delivery

Ofgem Output Category	Strategic objective	Outputs	Assurance of output delivery
Maintain a safe & resilient network	Sector Leading Efficiency	Shared use infrastructure capacity increase: 1327 MVA	Financial: project by project return of allowance where output or materially equivalent, output not delivered
		Boundary transfer capability: 1090 MW	Financial: project by project return of allowance where output or materially equivalent, output not delivered
		Reactive power: +325/-75 MVA	Financial: project by project return of allowance where output or materially equivalent, output not delivered
		Early engagement on FES and network development CVP	Financial: project by project return of allowance where output or materially equivalent, output not delivered
		Reducing the Risk of Consumers Overpaying: certain view and return commitment CVP	Financial: return of reward if commitment not delivered
		Reducing the Risk of Consumers Overpaying: volume driver and UCA CVP	Financial: return of reward if commitment not delivered
	Safe & secure network operations	Energy Not Supplied (ENS): 0 MWh pa	Financial: annual penalty or no reward
		Faults: <72 interruptions by 2026	Reputational: through our ERF and Ofgem reporting
		Smart monitoring: 61 critical plant items with smart monitoring	Reputational: through our ERF and Ofgem reporting
		NARMS: risk profile, delta -533,233,186	Financial: penalty for risk not delivered Reputational: through our ERF and Ofgem reporting
		Benchmarking: ITOMs and ITAMs upper quartile by 2026	Reputational: through our ERF and ITOMS/ITAMS study reports
		Network Access Policy (NAP): LO	Financial: enforcement action fine Reputational: due to enforcement action
		Network Access Policy (NAP): above business as usual CVP	Financial: return of reward if activities not carried out Reputational: through our ERF
		Reliability: 61 Smart monitoring installed on critical assets	Reputational: through our ERF and Ofgem reporting
		Redundancy: 2 Specialist warehousing facilities	Reputational: through our ERF and Ofgem reporting
		Resistance: 62 protection and control systems upgraded	Reputational: through our ERF and Ofgem reporting
		Resistance: 83 security upgrades at critical sites	Reputational: through our ERF and Ofgem reporting
		Response & Recovery: all substations currently incapable 72 hours standalone upgraded to 120 hours	Reputational: through our ERF and Ofgem reporting
Meet the needs of Consumers and Network Users	Stakeholder-led Strategy	Timely Connections	Financial: incentive fine and enforcement action fine Reputational: due to enforcement action Impact on survey score under Quality of Connections survey (and resulting knock on consequence)
		Satisfaction Survey - Quality of Connections	Financial: annual penalty or no reward for survey of connection customers within Quality of Connections survey Reputational: through our ERF and Ofgem reporting

		Satisfaction Survey - New Infrastructure Survey	Financial: return of base costs for Stakeholder Survey, or materially equivalent initiative, not undertaken Reputational: through our ERF
		Stakeholder Engagement Commitment (KPIs, Assurance and Surveys)	Financial: return of base costs for Stakeholder Engagement Initiatives identified in Stakeholder Action Plan, or materially equivalent initiatives, not undertaken Reputational: through our ERF
		Enhanced Reporting Framework	Reputational
		Bespoke Commercial and Connections Service CVP	Financial: return of reward if activities not carried out Reputational: through our ERF
		Local and Community Energy support CVP	Financial: return of reward if activities not carried out Reputational: through our ERF
Deliver an environmentally sustainable network	Leadership in Sustainability	Projects assessed through our new Cost Benefit Analysis framework: 100%	Reputational: through ERF and Annual Sustainability Report
		BCF scope 1 and 2: 33% reduction by 2026 CVP	Financial: return of base costs for initiatives identified in Sustainability Action Plan, or materially equivalent initiatives, not undertaken Reputational: through ERF and Ofgem reporting
		SF_6 and other IIGs: 0.15% leakage	Financial: annual penalty or no reward Reputational: through ERF and Ofgem reporting
		Losses strategy	Financial: return of base costs for Initiatives identified in Sustainability Action Plan, or materially equivalent initiatives, not undertaken Reputational: through ERF and Annual Sustainability Report
		Biodiversity net gain CVP £107.1m	
		Waste to landfill: 0% by 2026	
		Recycling, recovery and reuse: >70% by 2026	
		Employees trained to recognise & support vulnerable customers & communities: 100% by 2026	
		Approved suppliers located in licence area: >25% by 2026	
		Local supplier CVP	
		Employees trained to promote inclusion & diversity: 100% by 2026	
		Apprentice, graduate and technical staff trainee intake representative of local demographic: 100% by 2026	
		Annual Sustainability Report (in ERF)	
		Visual amenity: efficient delivery of projects & outputs and CVP	Reputational: through ERF and Annual Sustainability Report
Innovation		Network Innovation Allowance (NIA)	Financial: NIA allowance can only be drawn down following Ofgem approved audit/governance process Reputational: through ERF and Ofgem NIA governance reporting
		Strategic Challenge Fund	Financial: SCF funding likely only drawn down following Ofgem approved audit/governance process, but tbc Reputational: through ERF and Ofgem SRF governance reporting

Appendix 3: Whole System Development Proposal

Creating the right environment for successful Whole System solutions

Consumers have a reasonable expectation that whole system solutions will deliver benefits through reduced network expenditure. We identified that the complexity of designing a RIIO-2 framework that could accommodate the range and scale of whole system solutions was in itself a barrier to realising these opportunities. We have experience exploring and advocating whole system solutions (see examples which follow). These demonstrates the significant cost of developing a workable multi-party solution as well as the risk that the solution does not reach maturity and deliver the required outputs.

Recognising the need for a solution which removes this challenge, we approached Ofgem with a whole system incentive proposal in April 2019; this built upon our Sector Specific Methodology consultation response. The three core components of our Whole System Mechanism proposal are:

- **Development Funding Pot:** initial small-scale ex ante funding: to act as a catalyst to give networks the confidence to progress and develop solutions;
- **Regulatory "sandbox approach":** where we bring our whole system proposals to Ofgem for approval setting out the need, counterfactual of continuing with traditional/ex ante funded approach, parties involved etc, code modification; and
- **Whole System Incentive:** the financial reward we receive for realising the material benefit to consumers for the solution. We propose approved solutions attract a high-end sharing factor (50% or more).

In addition, a key characteristic of our mechanism was **flexibility.** While we do not anticipate significant volumes of projects coming forward during RIIO-T2, those that do come forward may represent significant value to consumers but are also likely to represent a wide range of network solutions. The RIIO-2 whole system framework must therefore be able to flex with this.

Our stakeholders view whole system outcomes as a 'must have' RIIO ambition and our consumers would expect the continued focus on securing potential benefits. This is confirmed by stakeholder engagement prior to and as part of our RIIO-T2 Business Plan development.[107]

This proposal builds upon our response to Ofgem's consultation and decision document[108] and proposes an incentive framework to enable whole system thinking across networks.

[107] In the workshop we held to focus specifically on SHE Transmission's approach to whole system arrangements, the majority (62%) of stakeholders strongly agreed or agreed that there is a funding gap in relation to progressing such projects. Source: SHE Transmission RIIO-T2 sustainability, whole systems and competition stakeholder workshop, September 2019

[108] https://www.ofgem.gov.uk/publications-and-updates/riio-2-sector-specific-methodology-consultation; SSEN Response - Enabling Whole System Solutions Questions – CSQs 8 to 18

Our aim is to deliver a realistic RIIO-T2 Whole System Mechanism which acts as the catalyst for the acceleration of real network solutions; while the goal is simple and obvious, the solutions to reach it can be considerably more complex.

Summarising Ofgem's proposal

Ofgem recognises the risk that the prospective benefits offered by whole system solutions '*may not be fully realised, at the long-run expense of consumers'*[109]. We are encouraged that Ofgem adopted much of the content of our proposals in its SSMD[110]. Ofgem's proposals included:

- Whole system aspect in the Business Plan Incentive (BPI);
- Whole system aspect in the innovation package; and
- Coordinated Adjustment Mechanism (CAM) - a whole system revenue and responsibility realignment mechanism.

Gaps in mechanism: We believe that core elements of an effective whole system framework are still missing from Ofgem's RIIO-2 proposals. The CAM proposed by Ofgem achieves elements of our 'sandbox' approach. However, it omits key characteristics such as a means to propose, and have considered, modifications or derogations to codes.

Missing incentive properties: Our response to Ofgem's RIIO-2 SSMD noted that a strong incentive package is the most compelling driver of behaviour, particularly where change is required. Importantly, in its SSMD Ofgem acknowledges that an incentive on the successful application of whole system solutions would be considered. We have advocated for the inclusion of a strong incentive-based mechanism as a fundamental catalyst to the emergence of successful whole system solutions. An enhanced Totex incentive counterbalances the considerable risk networks take in exploring new and novel network solutions; the potential impact on its output obligations as it seeks to deliver outcomes through new multi-party arrangements; and, as an encouragement to networks to identify and then reveal alternative solutions which, ultimately, will establish lower future price control allowances.

Our experience of Whole System solutions – Case Studies

The following case studies demonstrate our real-life RIIO-T1 experience in developing whole system solutions and, importantly, where this has informed the development of our RIIO-T2 proposals. These are examples of the resource commitments required to fill industry gaps or develop alternatives, more effective physical or process solutions. In each, there is a leading entity, but all require an investment from each party.

[109] RIIO-2 Sector Specific Methodology – core decision document, May 2019, clause 8.2
[110] RIIO-2 Sector Specific Methodology – Core document: Appendix 2

Case study 1: Shetland Whole System proposal

The Shetland electricity distribution network is owned and operated by Scottish Hydro Electric Power Distribution (SHEPD). The Shetland archipelago has no connection to the GB mainland transmission or distribution networks but is supplied from Lerwick Power Station (LPS) supported by Sullom Voe Terminal and renewable wind. LPS was constructed in the 1950's and as a result of new environmental legislation and its advanced age, will have to close in the 2020's. Over the past ten years SHEPD has been actively exploring a range of options to secure and enduring energy supply solution for its customers in Shetland.
This provides an illustration of the range and depth of additional work we may have to undertake to develop viable Whole System solutions.

Development: Since early 2018, SHEPD has been working on creating a whole system solution that integrates the distribution customer needs with our activity in developing a transmission link solution to meet the export requirements of large remote island wind developers. This has involved and is likely to continue to involve:

- charging solutions: our teams working together and with NG-ESO to identify solutions for integration, alternative Connection and Use of System Code (CUSC) charging arrangements, impacts on Transmission Network Use of System (TNUoS) for developers, licence modification etc.
- economic analysis: a substantial range of economic analysis to derive a new value sharing methodology for this whole system solution.
- legislative analysis: has required analysis of the impact of its proposals on relevant legislation, cross checked impacts on the CUSC and other codes.
- other: the requirement for revised licence conditions and extensive stakeholder engagement and feedback.

Stakeholders: This process has involved a wide range of parties. In this instance we are invited to participate in the solution with SHEPD and integrate the ESO, developers and local stakeholders. The work, led by SHEPD, has taken over 18 months to progress through concept, development, assessment and review, recommendation, consultation, associated modifications and is now approaching decision. In parallel, we have coordinated engagement with our stakeholders to confirm that the solution is complementary and consistent.

Timescales and costs: In all, we believe that this will take 24 months from inception to the start of the code modification process. SHEPD has been clear that the cost of this stage is considerable. Allowances of £3.3m were provided by Ofgem in its Extended Interim Energy Solution[111] to continue the progression of the enduring solution. SHEPD's submission confirms that this represents project management, legal support, economic modelling, industry engagement, and accounts for a substantive proportion of the £3.3m allowance.

Benefits: The solution, developing a fair valuation of distribution services from a transmission link, will enable SHEPD distribution consumers, and GB wide consumers, to benefit from **over £140m of benefits** compared to the next best alternative.

Case study 2: Orkney Alternative Approach

In 2018 Scottish and Southern Electricity Networks (SSEN) proposed an Alternative Approach (AA) for Orkney to address barriers to connection faced by customers on the islands.

Development: The AA comprised a technical and commercial policy solution. The commercial solution included two parts: the 'Ready to connect process (Part 1)' trial and a 'Temporary adjustments to securities and liabilities (Part 2)' trial.

- The Ready to Connect process (Part 1) set out to trial alternative arrangements for allocating capacity and managing the connection queue. In comparison to current arrangements the AA will ensure capacity is allocated more efficiently and utilised fully, from the earliest date.
- The Temporary adjustment to securities and liabilities (Part 2) was a response to Island customers that have repeatedly raised concerns regarding the significant barrier to entry created by current security and liability arrangements.

This development of the whole system solution, unblocking barriers to investment, has involved extensive stakeholder workshops, legal advice, modification of code and licence derogations and economic analysis of the GB consumer impact.

Stakeholders: These proposals were developed in direct response to concerns raised by customers on Orkney over several years and are the result of extensive stakeholder engagement and consultation. It was a solution intended to unblock what has been described as a 'catch-22' problem of demonstrating need for material investments.

Timescales and costs: In all, from inception through the code modification development, consultation and decision, this process has taken approximately 12-18 months. Costs have been driven by the need to engage external professional advisors in the legal, code and economic fields, in addition to devoting internal resource time and the logistical costs for events.

Benefits: The AA sought to remove current barriers, create a level playing field and unlock Orkney's renewable potential. Learning would also inform wider industry developments in this area e.g. modifications to arrangements set out under CMP192 under Ofgem's Significant Charging Review (SCR). Unblocking the 'catch-22' issue would enable construction of commercially viable renewable generation projects, playing a part in GB meeting its Net Zero ambitions.

[111] https://www.ofgem.gov.uk/system/files/docs/2018/06/decision_on_shetland_interim_solution_-_final_1.pdf

Our Whole System proposal

We expand on each component of our proposal in turn, beginning with the need for initial development funding.

Development Funding Pot: Initial small-scale ex ante funding

To stimulate whole system outcomes, we first need to identify and scope potential solutions and then develop the engineering, commercial and economic justification necessary to progress to deployment. This is an intensive and costly process, both in terms of time and external support. Both case studies unquestionably demonstrate this. Reference to Ofgem's initial list of requirements in its SSMD, Appendix 2, supports this conclusion. We need to be able to access RIIO-T2 allowances to cover the cost of seeking out and fully assessing potential whole system opportunities.

We proposed a simple use it or lose it funding mechanism to bridge the gap from concept up to the stage where they are ready for implementation. **We propose that this is allowance is set in advance and access to it is governed by clear criteria and subject to effective reporting of how and where it has been deployed.**

To demonstrate the proposed approach is justified we have considered a range of alternative sources of revenue, each within Ofgem's RIIO-2 SSMD. None overcome the barriers to funding whole system development. We expand on each in the following sections and summarise in the accompanying table.

Alternative funding options considered

Business Plan Incentive (BPI)

In its assessment of Business Plans, Ofgem will consider whole system planning when making determinations on rewards through the BPI. This rewards the accurate forecasting of Totex requirements, and the quality of justification provided to Ofgem to enable it to set effective RIIO-2 price controls.

The incentive is not 'in place of' the base allowance for activities which we need to undertake. This mechanism does not cover the costs incurred by us in the development of whole system opportunities. Ofgem itself identifies in its provisional CAM design that these will be whole system events which we could not reasonably have forecast at the price control stage.

Co-ordinated Adjustment Mechanism

Ofgem's proposed CAM is designed to allow for cost-effective realignment of revenues and responsibilities within the price control period. This takes account of some of the points we raised during the RIIO-2 Sector Specific Methodology consultation, highlighted above, and proposed in its 'sandbox' approach. It does ensure that the solution proposed is justified, can be funded through the realignment of allowances and balances the enduring responsibility for network outputs. However, it does not have any provision for the material cost of developing whole system solutions and therefore is not an appropriate substitute for our proposed initial small-scale ex-ante funding mechanism.

Innovation Funding

Ofgem will incorporate a whole system aspect in the innovation stimulus package through development of whole system criteria to qualify for additional stimulus funding. However, this is designed to fund whole system projects which networks would not undertake without innovation funding support. To be eligible for innovation funding, a project is likely to be required to relate to new technology. The current criteria for the Network Innovation Allowance (NIA) would preclude use for wider network whole system solution development. Furthermore, the NIA objectives and whole system outcomes are not currently well aligned; it is unlikely that NIA could be deployed in the whole system environment. Relying on this as a source of whole system development funding will stagnate potential progress.

If the NIA mechanism was to be used to fund whole system development, we would propose modification of the criteria and expansion of the revenue allowances to cover both the original core NIA objectives along with the potential for RIIO-T2 whole system solution development opportunities.

Summary of whole system development funding gap

The following table summarises this position and highlights the need for small-scale, use it or lose it, allowances.

RIIO2 Stages of a successful Whole System approach	**Potential Whole System costs – identifying development funding gap**				
	TOTEX	BPI	Innovation	CAM	SHE-T Proposal
Whole system ambition and strategy	N/A	X	N/A	N/A	N/A
Development - design/ analysis/ commercial/ legal stage. May lead to project progressing – or not.	N/A Network exposed to Totex overspend	N/A incentive does not replace Totex	X potential – but only where WS is novel / new	N/A	YES Use it or lose it
Construction capital (incl procurement)	X Only ex-ante need	N/A	X only novel/new	X only if realigned from other Networks	N/A
Operation & Maintenance	X Only ex-ante need	N/A	N/A	N/A	N/A
Decommissioning	X Only ex-ante need	N/A	N/A	N/A	N/A
Stakeholder engagement & sustainability	X Only ex-ante need	N/A	N/A	uncertain	N/A

We are proposing a **Development Funding Pot** as part of our Whole System Mechanism to appropriately remunerate us when seeking to progress whole system outputs where those are not eligible under the innovation stimulus or forecast within our Business Plan. This proposal is designed to provide us and stakeholders with confidence that the relevant costs associated with the development of whole system approaches can be efficiently recovered under RIIO-T2.

Many emerging whole system options are not yet well defined and no formal framework for carrying out whole system assessments has yet been agreed. We have therefore identified an alternative incentive mechanism to stimulate investment.

Design of funding mechanism

The industry recognised that to create a culture of innovation it was necessary to introduce a framework that acted as a catalyst to the development of innovative behaviours. Under RIIO-1 this became the NIA. Ofgem noted during a RIIO-1 consultation on innovation stimuli[112]:

*"…we recognise that for innovation related to the wider sustainable energy sector where the commercial benefit of the innovation may not be clear, network companies may not have a **strong motivation to pursue** innovation in a timely way. Therefore, the RIIO model also includes a time-limited innovation stimulus package to **supplement the incentives** in the price control framework."*

Successful whole system outcomes require a similar cultural change within RIIO-2. The NIA guidance provides a useful illustration of how our development funding under our Whole System Mechanism proposal might be structured. We have only reflected on the characteristics/structure of the mechanism as the specific criteria would not be applicable to whole system activity.

The framework for each development scheme should:

- **target solutions** that are relevant to the challenges faced by network licensees;
- generate **whole system outcomes** that may lead to knowledge sharing amongst licensees and with Ofgem;
- adopt a design which is **informed by that of the NIA** stimulus (e.g. a % of network Totex or a fixed allowance per project); and
- have the potential to deliver consumer value and GB societal benefits.

We believe it is appropriate for the Whole System Mechanism to be available to all parties whose development work meets the criteria. Unlike for the previous innovation stimulus (e.g. the Network Innovation Competition) it is not appropriate to establish competition where the overarching aim is to promote coordination and joint working.

We are proposing that the mechanism be applied on a 'self-certification' basis within clearly defined and reportable criteria for whole system development costs. In its sector decision, Ofgem rejected the idea of it managing whole system discretionary funding due to the additional administrative burden against the potential consumer benefit. However, a 'self-certification' approach removes this issue and, through the NIA experience, has been demonstrated to be workable.

[112] https://www.ofgem.gov.uk/sites/default/files/docs/2010/10/innovation-stimuli--12102010-open-letterpdf.pdf

We propose that the specific criteria will be developed through industry / Ofgem / stakeholder working groups ahead of the Draft Determinations. We would expect these to contain criteria such as a maximum spend per whole system project, permissible expenditure areas (e.g. legal, commercial, code development – but not capital procurement), RIIO-2 reporting requirements, assurance guidance and cost sharing amongst licenced participants. These can and should be developed to demonstrate the legitimacy of network activity as it develops whole system solutions.

Regulatory 'sandbox' approach

Our proposal is similar to that adopted by Ofgem in its CAM. However, we propose that to provide the flexibility needed by individual projects the principles of a 'sandbox' environment should be adopted. This will enable bespoke arrangements to be proposed, reviewed and the put into effect project by project, without delaying progress while maintaining governance and transparency. The characteristics of this mechanism would include:

- submission to, review by and decision from Ofgem on **modifications or derogations** to existing licence conditions or relevant industry codes;
- submission to, review by and decision from Ofgem on the structure of **intra-industry payments** (e.g. service payments, RAV split, alternative TNUoS /DUoS[113] charging routes);
- submission to, review by and decision from Ofgem on **calibration of incentive rate** (see below), where the minimum whole system outcome will attract a 50% TIM sharing factor;
- licence direction to realign **output / outcome** responsibilities (already part of CAM);
- licence direction to realign **existing ex-ante allowances** between parties (subject to decision on intra-industry payments);
- reporting to ensure **learning** is shared and **lessons** learned from whole system project to whole system project; and
- the **rolling out across sectors** of the Mechanism as they proceed through price control windows.

Whole System Incentive

Under RIIO-2, each network will predict a certain level of output and efficient costs within its Business Plan. Ofgem is proposing a 'confidence-dependent incentive rate' which in effect calibrates the incentive rate to how robustly future costs can be forecast. By its very nature this is contradictory to encouraging investment in activities where the potential return is a driver for the network adopting higher risk during development and delivery.

We consider that willingness to invest in innovative or unknown solutions is incentivised / driven by a strong TIM sharing factor, which ensures we can share the benefits of efficiencies as a result.

[113] Distribution Use of System.

Many of the whole system costs will not be known at the Business Plan stage potentially leading to a lessened incentive rate (due to a low confidence in forecasts). To encourage innovation activity the TIM sharing factor strength must be maintained. We propose that successful whole system solutions that deliver consumer benefit, which have been submitted through the sandbox route, are subject to a minimum incentive sharing factor of 50%.

Flexibility

The pace and scale of change in the energy industry is considerable and increasing. We emphasise that a whole system mechanism for RIIO-2 must be able to flex with this change and facilitate solutions rather than inhibit. Our proposals can achieve this result as summarised below.

- There is continuing uncertainty regarding wider governmental policy decisions which will affect the speed and extent of cross-sector coordination. These will include policies on the decarbonisation of heat, achieving climate change targets, and the electrification of heat and transport. The initial Development Funding Pot component of our Whole System Mechanism **dampens the risk** a network perceives as it considers developing a solution is such uncertain environments. In doing so, it is supporting the Government's ambition of Net Zero.
- The Development Funding Pot and stronger TIM sharing factor components of the Mechanism will provide networks and their shareholders with confidence that efficiently incurred whole system development costs can be **reasonably recovered and shared with other licenced parties** where pre-defined outputs are met.
- **Strong and clear incentives** prevent a perverse scenario whereby a network company is reluctant to invest in a whole system approach due to the potential impact on its regulated asset value (RAV). For example, the lowest cost-approach via whole system could lead to a reduction in the required investment on the transmission (and/or) distribution network. The Whole System Incentive would seek to mitigate this behavioural risk.
- The initial funding component of our Whole System Incentive will **protect the enduring innovation stimulus**, allowing it to focus on truly innovative projects. Failing to introduce the initial funding component could lead to networks trying to divert innovation funding to mitigate cost exposure.
- When a project under the Mechanism exceeds the minimum threshold, for example CAM proposes £20m, then it will be subject to the review and scrutiny of the regulator. This would provide Ofgem with **full oversight** to test and measure the proposed consumer benefit being delivered.

Appendix 4: ENS proposals

This appendix provides additional detail on stakeholder feedback, embedded generation and continuation of our compensation scheme.

Stakeholder Feedback

Stakeholders have told us they don't take their reliable access to electricity for granted and want to ensure their safe and secure access continues. It is therefore important to balance the priorities and preference of our customers and stakeholders. We could, in theory, invest in the network to such an extent that customers experience zero interruptions, however it is clear that this is neither a priority for our customers not is it likely to be cost effective.

Reliability continues to remain important, it is appreciated that our past performance has delivered a highly reliable network. It is clear from our engagement that our directly connected customers now want us to improve on our outage planning performance.

What is also clear, from our Willingness to Pay study, is that the level of willingness to pay identified across each area typically exceeds the costs of the provision by a considerable margin and on the face of it provides good justification for us providing the services. However, we will use and interpret the results with caution. The results support the stakeholder engagement that we have conducted to date – consumers want us to invest in reliability, being environmentally leading, supporting local communities and meeting the needs of the future – and are willing to pay for it. However, it does not provide, in insolation, enough evidence for us to carry out a particular project.

Energy security is undoubtedly a key issue and therefore, we believe RIIO-T2 should prioritise maintaining the security and reliability of supply in the short but also the medium and long term. Providing energy to meet society's needs involves delivering secure supplies that are affordable and that have a minimal impact on the environment.

We therefore see a key role for the ENS incentive to continue driving overall performance in the reliability of our network to the ultimate benefit of consumers.

Considering embedded generation in the ENS metric

Embedded generation is increasingly playing a larger role in supplying energy for consumers on the distribution network. In the event of a power cut, embedded generation on the affected network will switch off as protection and control processes begin to operate. The existing ENS incentive does not consider embedded generation and the loss of supply experienced by end consumers will potential be greater than that reported at a GSP supplied by the transmission system.

The ever-increasing levels of embedded generation make it difficult to accurately for us to calculate ENS in real time and there is currently no straightforward option to address this issue.

Our proposals for embedded generation and ENS

This section provides our view on proposals on how to account for embedded generation at each Grid Supply Point (GSP). We are supportive of an ENS incentive continuing throughout RIIO-T2 and believe improvements can be made to ensure it continues as a cost-effective measure to the benefit of consumers.

There is no straightforward measure against which to monitor ENS at each individual GSP. In order to set a baseline target against which to measure performance, the underlying data and methodology must be agreed across the transmission (TOs) and distribution network operators (DNOs) and National Grid ESO (ESO).

The information flows between transmission and distribution companies are not currently standardised to allow comparison across networks. In addition, not all embedded generations are metered and therefore assumptions will be required across industry to adopt a consistent methodology for calculating the demand lost as a result.

As noted, above the increasing role of embedded generation across the distribution network has led to us exploring options to account for this within the ENS incentive. We are proposing two options (both of which will require further industry collaboration):

1. Demand Option
2. Customer Option

We have expanded on each option below, along with proposed exemptions. This covers situations where an outage is not directly attributed to a transmission operator.

Demand Option

Information and performance data relating to embedded generation rests with the DNOs. For this information to be passed across to TOs in a consistent format would require licence or industry code amendments (potentially considered as part of Ofgem's RIIO-ED2 development).

This approach would see all DNOs adopt a consistent approach to recording the generation running at the time of an outage. It would then be reported to the ESO. In turn, the information could then be used by the TOs to 'net off' the demand flow at the GSP.

This is difficult to achieve as each individual DNO will have different thresholds of generation which with real time metering and differing capabilities to retrieve the appropriate outputs from historic data.

We also considered the potential of using the embedded generation within the Electricity Ten Statement published by National Grid Electricity System Operator[114]. This data would not reflect the actual output at any point in time and would require an element of estimation. It is also difficult to align with the customer effect, particularly with demand reducing and the rise in unmetered domestic generation.

[114] https://www.nationalgrideso.com/insights/electricity-ten-year-statement-etys

Customer Option

To evaluate risk and assist in decision making, we currently use the customer numbers interrupted and the estimated return to service times. These are taken and multiplied by an average demand to give an estimated network risk (as outlined above).

If this method was adopted there would be no need to "net off" generation (as explained above) to expose true demand at each GSP. The only data DNOs would need to provide to the TOs via the ESO would be the start and end times of fault stages with the customers affected. This data is already captured consistently across all DNOs and subject to audit.

Where a risk could be mitigated at a transmission or distribution level, there is also potential for a whole system approach to customer security where the ENS scheme could be interlinked to a DNO scheme, so the most economic and efficient option is adopted to the benefit of consumers. Our RIIO-T2 Network Access Policy[115] explores the benefit of close coordination during outage planning to reduce the consumer impact.

Exemptions

Exemptions are required so that TOs are judged on the elements which are under their control.

The RIIO-T1 exemptions should continue to apply throughout RIIO-T2. For example, an event or circumstance that is beyond our reasonable control and results in or causes electricity not to be supplied to a customer. This could include circumstances such as terrorism, sabotage, act of vandalism, fire etc (known as 'Exceptional Events' as defined in Section 1A of the transmission licence).

This would also include severe weather events resulting in more than seven faults being recorded on our transmission network in any 24-hour period.

In addition, should it be determined that embedded generation is to be considered within the calculation of ENS targets, we would seek similar exemptions to those currently in place for DNOs relating to failures and overloads on customers' equipment or another connected system over which the TO would have no control.

Conclusion on embedded generation

It is clear from our analysis to date, that no option provides a clear and simple approach towards calculating the impact of embedded generation on the ENS incentive.

While the Demand Option seeks to identify energy lost, this calculation becomes difficult to apply consistently across all DNOs. Deriving the output of generators behind a GSP has become the focus of discussions going towards RIIO-T2 with no appropriate and fair calculation being identified.

[115] SUPPORTING DOCUMENT 10, Network Access Policy, found here: https://www.ssen-transmission.co.uk/riio-t2-plan/network-access-policy/

The Customer Option focuses on the end customers affected and aligns with our overall Business Plan objectives. It removes the need for complex generation calculations and the principle has been applied throughout RIIO-T1 to guide network access decisions for construction and maintenance.

We are therefore proposing that a working group is established leading up to and throughout RIIO-2 with a requirement to develop a baseline methodology for including embedded generation within targets for ENS.

This would consist of TOs, DNOs along with the ESO. The group would be tasked with developing a methodology for accounting for embedded generation in a proportionate way. It would periodically report to Ofgem and each of the respective User Groups in order to test any proposed approach.

Our ENS Compensation Scheme

Prior to RIIO-T1, we proposed a variation to Ofgem's ENS incentive. We introduced a hybrid mechanism that incentivises us to minimise the total amount of ENS on an annual basis, as well minimising the number of customers off supply for more than 6 hours as a result of an incident on our transmission network. If a customer is off supply for more than 6 hours as a result of an incident on our transmission network, we make a compensation payment to that customer in a manner that is like the existing arrangements for distribution networks.

In 2014, the Compensation Scheme was initiated following a fault on our network. During which, 4,985 customers were off supply for more than 6 hours but less than 12 hours. We wrote to each householder asking them to contact us in order to claim compensation.

Upon receiving our communication, 3,545 customers responded and claimed their right to compensation. This equates to 71% of those contacted (resulting in c.£400k of compensation). This is generally, a very high response rate to any customer communication.

This serves as evidence that consumers value the proposed scheme and we are proposing its continuation as part of RIIO-T2.

Appendix 5: Single GB NAP Proposal

Network Access Policy (NAP)

Transmission Owner details

Effective form 01/04/2021

Contents

1 EXECUTIVE SUMMARY

The Transmission Owner Network Access Policy (NAP) identifies process enhancements for the RIIO-T2 period proposed by the Transmission Owner to the working relationship between the Transmission Owner and National Grid Electricity System Operator (NGESO) above and beyond the baseline level of outage planning, customer service and operation of the GB electricity transmission system as specified in the System Operator Transmission Owner Codes & Procedures. These enhancements are designed to assist NGESO in managing system costs and to deliver added value for consumers. The requirements for the Transmission Owner to have in place a Network Access Policy for RIIO-T2 is detailed in special licence condition 2J of the transmission licence.

As the GB electricity transmission networks continues in RIIO-T2 to facilitates the transition to a zero-carbon network, the Transmission Owner in RIIO-T2 will need to reinforce key parts of our network, connect more renewable generation (onshore & offshore) and modernise & maintain ageing equipment, as well as carrying out other works required to protect the reliability and health of our electricity transmission system. To enable this, it is necessary to switch out parts of the electricity transmission system to carry out the works safely, this de energisation of equipment to carry out work is commonly described as a *planned outage*. Certain *planned outages* can impact the operation of the system and result in constraint costs. This is where generators of electricity are compensated by NGESO for increasing or decreasing their generation output as requested by NGESO. These constraint costs can be substantial and are ultimately passed on to end consumers.

This Network Access Policy sets out what level of service above and beyond the baseline level specified in the System Operator Transmission Owner Codes & Procedures the Transmission Owner will offer to our transmission stakeholders and NGESO. This Network Access Policy also describes how the Transmission Owner and NGESO will collaborate to ensure work on the electricity transmission system is carried out in a manner that takes into account and minimises the impact on consumers, system security and whole system costs whilst considering impact on stakeholders

Specifically, this policy sets out the way the Transmission Owner and NGESO will provide visibility of the RIIO-T2 project plan to our stakeholders, especially the *planned outages* associated with delivering the plan and the impact these *planned outages* will have on system users. This policy will also describe the transparent decision making process associated with any changes to the Transmission Owner baseline plans submitted as part of the planning process.

Key to planned outage delivery is a flexible and collaborative approach taken by the Transmission Owner and NGESO in network outage planning, it's important we also include our customers and stakeholders (e.g. generators, Distribution Network Operators) in this enhanced outage planning process. Frequent and robust communication between parties will enable innovative solutions to network issues to be identified while ensuring optimal and cost effective solutions are achieved for all parties.

This Network Access Policy will indicate the actions and possible enhancements available in both the short-term and long-term to plan and manage network access.

The long-term framework looks forward to a period of one to a minimum of 6 year ahead (beyond year 6 will be reviewed where required). The short-term framework considers work and outages in the current outage planning year (running from 1st April – 31st March of the following year)

The baseline outage planning framework is described in STCP11.1

The Network Access Policy is an ongoing process that will be regularly monitored and reviewed. This will be carried out by the Network Access Policy working group through regular meetings. The Network Access Policy working group is made up of representative from OFGEM, NGESO and Transmission Owners.

This Network Access Policy will be subject to a formal review every two years and this process will be managed by the Network Access Policy working group.

2 REQUIREMENT FOR A NETWORK ACCESS POLICY

Transmission licence special condition 2J places on the Transmission Owner a number of essential requirements for inclusion in this Network Access Policy, namely;

a) Details of the actions that the Transmission Owner will take to coordinate with NGESO and\or other Transmission Owners as appropriate to ensure that planned network outage arrangements are agreed with due consideration of the long-term outcomes for consumers and network users;

b) Details of the actions that the Transmission Owner will take for the purpose of responding to and managing unplanned network outages with a view to minimising their contribution to network constraints, subject to the need to ensure the safe, secure operation of the National Electricity Transmission System as a whole or any part of it;

c) Details of the type of circumstances that are likely to require an alternative approach to that set out in relation to the above two paragraphs; and

d) A description of the Transmission Owner communication and coordination strategy for interacting with NGESO and any other relevant third parties, including but not limited to Distribution Network Operators and Generators, in respect of matters relating to this Network Access Policy.

The Network Access Policy does not seek to replace the SO-TO Code (STC) or the suite of STC Procedures (STCP's) or other industry arrangements, it's purposes is to support them. It is concerned with whole system outage planning, stakeholder engagement and identifies how the Transmission Owner will assist NGESO in managing system costs while delivering the Transmission Owner RIIO-T2 business plans.

In meeting the requirements of this policy, the Transmission Owner will seek to ensure that the activities associated with outage planning, network operation and the future development of the Transmission System;

- Are complementary and working together with the System Operator delivers a safe, secure and economic system that benefits all customers and stakeholders,
- And take due consideration of the impact of our RIIO-T2 plans on all customers and stakeholders during the long-term project development framework period of our business plan,
- While utilising an approach during the short-term "within year" planning period that considers the trade-off between the Transmission Owner outage changes and new outage requirements verses NGESO system security and system cost implications, ensure this process is accountable and transparent.

In this Network Access Policy, the Transmission Owner will;

- Clarify what level of service stakeholders can expect from the Transmission Owner in terms of communication associated with the overall availability of the transmission network, the development and planning of outages in the long and short term planning timeframes and the within year outage change process

- Commit to work with NGESO to effectively manage the Transmission Owner network access requirements in RIIO-T2 and NGESO system operation costs.

- Define the enhanced level of service above the baseline (baseline is described in the STCP's) that is acceptable to NGESO and to our customers and stakeholders. The enhanced level of service proposed and described later will cover the following;

    - The long-term project & outage planning process to ensure stakeholder engagement in the process where applicable
    - Enhanced services offered by the Transmission Owner to NGESO during RIIO-T2
    - The management and communication of outage changes to the within year outage plan
    - The communication enhanced process between NGESO, the Transmission Owner and our stakeholders
    - Planning process transparency and KPI's

3 LONG-TERM OUTAGE PLANNING FRAMEWORK

3.1 Overview

As part of our commitment to the Network Access Policy, the Transmission Owner will provide NGESO with visibility of our project plans and system outage requirements up to 6 years ahead of time (for certain projects, system outage requirement beyond 6 years will be provided). This is to ensure NGESO can create a robust and efficient outage plan for each year of RIIO-T2, that also takes into account the impact of outage on the Transmission Owner stakeholders.
The baseline long-term outage planning framework is described in STCP11.1. This section of the Transmission Owner Network Access Policy specifies what enhancements (above the baseline) to the long-term outage planning framework the Transmission Owner will implement in RIIO-T2

The object of this process is to ensure that the Transmission Owner RIIO-T2 business plans are delivered while ensuring NGESO can operate the transmission system in a safe, secure and efficient manner for all system users. To achieve this objective the Transmission Owner commit to carry out the following during the long-term outage planning period;

- All large \ complex capital projects will be developed as far as possible and will have sufficient system outage information submitted to NGESO prior to the start of “Year 2” in the outage planning process as described in STCP11.1

- the Transmission Owner will aim to work with NGESO to identify and deliver “whole system” solutions to any project or outage combination in our RIIO-T2 business plan to help reduce within year system costs that are borne by the end consumer

- the Transmission Owner will, as part of our RIIO-T2 long-term outage planning process review all projects and outage combinations to identify any that will result in our stakeholders being de energised for a period greater than 4 weeks. the Transmission Owner will commit to;

    - Communicate to our stakeholders during the long-term planning process any project and outage combination that will have a detrimental impact on them for a period of greater than 4 weeks as agreed with NGESO
    - Work with NGESO and any stakeholder identified during the long-term planning process as being impacted by a project or outage combination of greater than 4 weeks to develop possible solutions to minimise the impact

3.2 Project \ Outage Prioritisation

The following project and outage categories described below in this Network Access Policy, have been developed to assist the Transmission Owner in creating our long-term outage planning proposals that are submitted to NGESO during the long-term outage planning process.

- Agreed Large \ Complex Projects

These are high priority and \ or complex projects which are mostly the Transmission Owner driven key projects to deliver and maintain an efficient, coordinated and economical transmission system as well as NOA type transmission network reinforcement works which are required by NGESO to meet the future operational needs of the system. These works are generally large capital projects and tend to be complex, both in design and in delivery and they can have a large impact on system security and system operational costs during the delivery phase. As a result, outages associated with these types of projects will take a priority in our long-term planning process.

- Outages Affecting Key Boundaries

Outages on key boundaries associated with the Transmission Owner transmission system can have a serious effect on system operation. Outages of this type can affect system security and generate serious constraint limitations that require to be managed by NGESO. These outages need to be carefully managed due to the potential clash between the delivery of system reinforcement & modernisation works and the system operational costs incurred by NGESO and borne by the consumer. As a result, outages affecting key boundaries on the Transmission Owner network will take a priority in our long-term planning process.

- Long Duration Outages Affecting Key Stakeholders (greater than 4 weeks)

the Transmission Owner understands the impact long duration outages will have on our key stakeholders (Generators, Distribution Network Operators, etc.). the Transmission Owner will work with NGESO and our stakeholders to identify, communicate and mitigate were possible outages of this type. As a result, long duration outages affecting key stakeholders on the Transmission Owner network will take a priority in our long-term planning process.

- Other Outages

All other outages are those that are not included in the above categories and do not heavily impact the main interconnected transmission system or our stakeholders. These outages are generally of shorter duration and are associated with discrete connection schemes, like for like asset replacement, maintenance, etc. Outages of this type will generally be placed in the long-term plan at the 2 year ahead stage of the process and will be aligned with existing outages of the same asset wherever possible.

3.3 Long-Term Outage Planning Process

- Three – Six Year Ahead Period
  The Transmission Owner will develop a high-level view of projects and outages required on our transmission network during this period. At this stage of the long-term planning process the focus will be on the following project and outage types;

    - Agreed large \ complex projects
    - Outages affecting key boundaries
    - Long duration outages affecting key stakeholders (greater than 4 weeks

  During this stage of the long-term planning process NGESO may wish to influence transmission investment by requesting a function design change to a project to provide operational flexibility or to request different delivery timescales or techniques. The Transmission Owner will offer to NGESO an *Enhanced Service Provision* in the long-term planning timeframe, this service is designed to minimise future constraint costs during the delivery phase of the project. The *Enhanced Service Provision* process is described in section 5

  We commit to enhanced stakeholder engagement therefore the Transmission Owner will continuously review our long-term outage plans to identify, in conjunction with the ESO, any outage that is greater than 4 weeks and communicate this during this planning timeframe to the relevant stakeholder. the Transmission Owner will commit to working with NGESO and the relevant stakeholder to identify solutions to minimise the impact of long duration outages

- Two Year Ahead
  At this stage of the long-term planning process, works associated with the project & outage categories mentioned above will have all known outage requirements submitted to NGESO. At this stage “Other Outages” as specified in section 3.2 are added to the long-term outage planning process. This stage of the process will continue to identify any potential delivery “pinch points” on the network and solutions to overcome them.

  The *Enhanced Service Provision* the Transmission Owner will offer to NGESO and our stakeholder engagement commitments stated in the Three – Six year ahead period will also be applicable during this stage of the long-term outage planning process

- Year Ahead
  At the year ahead stage, the Transmission Owner and NGESO develop the detailed outage plan. The plan is developed over several months and will be optimised against the critical requirement that the plan should be deliverable in respect to system security and operating cost.

The *Enhanced Service Provision* the Transmission Owner will offer to NGESO and our stakeholder engagement commitments stated in the Three – Six year ahead period will also be applicable during this stage of the long-term outage planning process where timescales allow.

4 WITHIN YEAR OUTAGE PLANNING FRAMEWORK

4.1 Overview

As part of our commitment to the Network Access Policy, the Transmission Owner will strive to minimise preventable change to the agree year ahead outage plan during the "within year" delivery period. We commit to only changing the plan due to any of the following;

- Network faults
- Safety related issues
- Defects that affect apparatus ratings or service capability
- Unforeseen project issues
- Unforeseen maintenance requirements
- Positive outage change proposals which benefit stakeholders

The Transmission Owner will also commit to providing as much notice as possible, notice of outages changes to NGESO and our stakeholders to minimise the impact of any change to them.
The baseline within year outage planning framework is described in STCP11.1. This section of the Transmission Owner Network Access Policy specifies what enhancements (above the baseline) to the within year outage planning framework the Transmission Owner will implement in RIIO-T2

4.2 Within Year Outage Prioritisation

The following within year outage categories described below in this Network Access Policy sets out the order and communication timescales to NGESO and our stakeholders for any new within year outage and\or any change required to a previously agreed year ahead outage

- Network Fault
  This is when an item of apparatus fails while in service due to a transient or permanent fault. Communication to secure the network will take place between NGESO and the Transmission Owner in real time and then follow existing planning timescales & processes thereafter. Affected stakeholders will be kept informed throughout.

- Safety related issues and\or serious asset defects which require prompt intervention
  Outages of this type can require outages on the day or as soon as reasonably practicable. Where possible to do so, communication between NGESO, the Transmission Owner and relevant stakeholders to agree the outage required will take place in real time and\or during planning timescales. Depending on the issue, immediate action may be required.

- Projects - outage changes or new within year outages
  For large & complex projects or outages affecting key boundaries, any outage change or requirement for a new outage will be communicated to NGESO and relevant stakeholders by the Transmission Owner as far ahead as possible.

- Other outages
  All other within year outages not included in the above categories and are such that they do not heavily impact the main interconnected transmission system and\or stakeholders shall be offered to NGESO and our stakeholders with a level of outage flexibility, such that the Transmission Owner will aim to as far as possible program the work with the agreement of NGESO and stakeholders for a date \ time suitable to them, as well as the Transmission Owner. These outage requests will be submitted as far ahead as possible.

4.3 Within Year Outage Planning Process

The overall aim of the within year outage planning process is to enable the Transmission Owner to deliver our RIIO-T2 commitments while assisting NGESO in maintaining a safe and secure system, whilst minimising the overall cost of delivering RIIO-T2 to the end consumer. The Transmission Owners commit in RIIO-T2 to enhancing the within year outage planning process where possible by;

- Minimising the number of outage changes and new outage requests submitted to NGESO within year
- Ensuring any within year outage change, or new outage request, is made to NGESO and our stakeholders as early as possible.
- Offering a level of outage flexibility to NGESO and our stakeholders, where practicable, for certain existing \ new outages that require to be taken within year to reduce system constraint costs and minimise the outage impact on our stakeholders
- Enhancing the outage communication process between NGESO, the Transmission Owner and our stakeholders.
- *Note – Any outage proposal discussion between the Transmission Owner and stakeholders is purely to improve stakeholder engagement and to improve the service provided by the Transmission Owner. NGESO should be aware of any outage proposal prior to discussion with stakeholders and must not be considered as final until formally notified by NGESO. All formal outage notifications **must** come from ESO as stipulated in the STCPs as it is only NGESO who know the full GB system requirements and are therefore the only party able to approve outage changes.*

4.4 Change control

Within year NGESO or the Transmission Owner may require to make changes to the agreed outage plan and the change may result in increased constraint costs, project delays, additional costs to the Transmission Owner or stakeholder impact. To promote transparency around the approval \ rejection of the changes to the agreed outage plan, when the impact of the change may have a detrimental impact on NGESO or the Transmission Owner, a within year Outage Change Control document shall be completed, containing as a minimum:

- A summary of the work
- Background from the perspective of the Transmission Owner
- Background from the perspective of NGESO
- Options and mitigating actions available
- Forecast costs and risks from the Transmission Owner
- Implications and forecasts on overall system expenditure from NGESO
- Conclusions and recommendations

The within year Outage Change Control document will specify the reason for the change, the impact the change will have on NGESO and the impact it will have on “Transmission Owner name”. The Outage Change Control document will then identify if the change to the agreed planned outage and\or new outage request can be effectively managed from a system security, system constraint or the Transmission Owner cost view point and if the request is to be approved or rejected by NGESO.

5 ENHANCED SERVICE PROVISION

As part of the Transmission Owner commitment to this Network Access Policy, the Transmission Owner will offer to NGESO services that allow NGESO flexibility, where time allows, in influencing the design, delivery of the project, while ensuring the Transmission Owner is not financially disadvantaged by any change to the original project design and\or delivery method. This process will allow the optimal engineering solutions to be developed by the Transmission Owner during the planning phase, with any extra costs incurred by the Transmission Owner funded by NGESO using STCP 11.4. This Enhanced Service Provision has been developed to ensure that "whole system costs" are controlled and managed during the RIIO-T2 period for the benefit all stakeholders and consumers. For example, adding assets to a substation design ahead of requirement could reduce system constraint costs by reducing future outage requirements. This would need to be fully justified and certain to make consumer savings.

In RIIO-T2 should NGESO or the Transmission Owner request a change to the design or delivery of a project, or the Transmission Owner offers an additional service to NGESO, an Enhanced Service Change Control Document will be created to assess the feasibility of the request. This document will specify the reasons for the change, the benefits the change will have on the wider networks and the costs involved. The costs shall include the Transmission Owner costs for implementing the changes to the scope of a project or for providing additional services, NGESO shall provide forecasted constraint savings. If NGESO and the Transmission Owner agree the change is beneficial and should be implemented, the appropriate STCP 11.4 process should then be followed. In this Network Access Policy, the Transmission Owner will commit to offering this Enhanced Service Provision to NGESO in both the long and short-term outage planning periods, where timescales allow.

The following scenarios are just some that may be considered for inclusion into the Enhanced Service Change Control process that could deliver consumer savings;

- Design changes such as an offline build of a key network node rather than an inline.
- The building of a temporary bypass
- Provision of enhanced ratings from various techniques
- Reduction of Emergency return to Service times
- Temporary intertrip schemes
- Automatic Network Management (ANM) schemes
- Bringing investment forward
- Enhanced supply chain / procurement / resourcing contracts

The Enhanced Service Provision process can be proposed at any time in the development or planning of an outage programme where existing funding is not available. However, it does not prevent the Transmission Owner from using these techniques as part of normal outage business plan development if the Transmission Owner is certain that doing so, will deliver consumer savings.

6 COMMUNICATION

6.1 Regular Meetings

To ensure there is an effective Network Access Policy the Transmission Owner will commit to a robust communication process between NGESO, the Transmission Owner and other Transmission Owners during the long and short-term planning periods.

The following meetings will take place;

- Long Term Planning

A minimum of 4 outage planning meetings will be arranged each planning year between NGESO, the Transmission Owner and other Transmission Owners. These meetings will develop the long term planning years' outages via the Joint Planning Committee Operational Assessment (JPCOA) meetings. Options for Enhanced Service Provision and any enhanced stakeholder engagement are a priority here to identify and make best use of STCP 11.4 funding.

- Two Year Ahead

A minimum of 4 outage planning meetings will be arranged each planning year between NGESO, the Transmission Owner and other Transmission Owners. These meetings will develop the future planning years' outage and identify all known outage requirements known at that time.

- Year Ahead

A minimum of 4 outage planning meetings will be arranged each planning year between NGESO, the Transmission Owner and other Transmission Owners. These meetings will develop the next planning year outages requirements. At this stage of the process monthly communication between NGESO and the Transmission Owner will occur as the year ahead provisional outage plan is constructed by NGESO that will provide the Transmission Owner network access to our transmission system for "plan year 0". STCP 11.1 deadlines will be adhered to by the Transmission Owner so that NGESO can comply with their Grid Code obligations and formally notify parties affected by outages.

- Within Year

Communication between NGESO, the Transmission Owner and other Transmission Owners will follow the guidelines specified in STCP11.1, section 4. Further to this, and on a case by case basis the Transmission Owner and NGESO will endeavour to communicate on a tripartite basis with relevant stakeholders on necessary plan changes or valuable developments which may support activities of the relevant stakeholder.

6.2 Stakeholder Engagement

As part of the Transmission Owner commitment to stakeholder engagement the Transmission Owner will;

- Engage with our key stakeholders during the long-term planning framework to ensure they are involved in the outage planning process where projects and\or outages have a direct impact on them as agreed with NGESO in JPCOA meetings
- Work with NGESO and key stakeholders to develop solutions, if possible, to minimise the impact of outages that are of a duration greater than 4 weeks
- Ensure that changes to network outages or new outage requests within the current planning year are communicated to stakeholders as early as possible. This requires close co-ordination between the Transmission Owner and NGESO.
- Offer tri-partite meetings with NGESO and our stakeholders where required, 1-1 meetings or information calls to discuss any planning or operational issues that occur at any point in the planning timeframe.

*Note – Any outage proposal discussion between the Transmission Owner and stakeholders is purely to improve stakeholder engagement and to improve the service provided by the Transmission Owner. NGESO should be aware of any outage proposal prior to discussion with stakeholders and must not be considered as final until formally notified by NGESO . All formal outage notifications **must** come from ESO as stipulated in the STCPs as it is only NGESO who know the full GB system requirements and are therefore the only party able to approve outage proposals.*

7 KEY PERFORMANCE INDICATORS (KPI's)

As part of our Network Access Policy commitments and to ensure the Transmission Owner has fully transparent outage planning process, the Transmission Owner propose to collate a series of KPI's to monitor outage planning performance and outage delivery. Examples of these KPI's are attached in appendix A

These KPI's have been developed following feedback from customers and stakeholders of "Transmission Owner name", and in collaboration with the other GB Transmission Owners and NGESO. In order to continually drive improvements in performance, these KPI's shall be regularly reviewed and feedback on performance provided to stakeholders to promote transparency.

It is also proposed that certain KPIs theme are presented with a Transmission Owner component and an NGESO component to demonstrate how each party is performing in these areas. This will help highlight areas for both Transmission Owner and NGESO to improve, share best practices and therefore maximise consumer savings.

APPENDIX A

Network Access Policy KPIs - Transmission Owner

1. Number of faults due to asset failure

This would not include weather related faults or those caused by external parties. It would only include faults which are attributable to TO behaviour, require emergency switching, or where failure causes protection operation.
This KPI is used to measure a TOs ability to ensure their assets are safe and reliable, which is a key NAP principle.
KPI for OFGEM & ESO

2. Number of unplanned outages

This would include faults identified through routine inspections and managed via unplanned outage requests, such as hot spots.
This KPI would also measure a TO's ability to ensure their assets are safe and reliable.
KPI for OFGEM, ESO & Stakeholders

3. How many assets are out of service more than once per annum?

This KPI helps identify good outage alignment practices which help reduce constraint costs and stakeholder impact
KPI for OFGEM & ESO

4. Percentage of TO outages started outside 60mins of agreed start time (delay attributable to TO)

Stakeholders at OC2 forums have requested a measure of TOs ensuring outages are started on time.
KPI for ESO & Stakeholders

5. MW/HRs of generation curtailed by BCA per annum - firm connections

This is a measure of lost network access due to transmission outages and connection agreements requiring a generator to be at 0MW.
Stakeholders at OC2 forums have requested a KPI which shows the volume of generation impacted by TO's outages.
KPI for Generation Stakeholders

6. MW/HRs of generation curtailed by BCA per annum - non firm connections

This is a measure of lost network access due to transmission outages and connection agreements requiring a generator to be at 0MW.
Stakeholders at OC2 forums have requested a KPI which shows the volume of generation impacted by TO's outages.
KPI for Generation Stakeholders

8. Percentage of outages plan started within +/-3 days (tbc) of date agreed at Week 49

This is a measure of the TOs capability to construct and deliver a robust outage plan. This KPI was used through RIIO-T1 and it is to be continued in RIIO-T2 to provide a consistent KPI through price control periods.

KPI for OFGEM & ESO

9. Number of outage changes within 4 weeks of start date (attributable to TO)

This measure only includes significant outage scope change such as a new outage, change to the start or end date but would not include a minor ERTS change or start time change made to manage workload and prevent outage congestion. All stakeholders agree these changes should be highlighted to identify root causes so they can be addressed and help reduce stakeholder impact of outages

KPI for OFGEM, ESO & Stakeholders

10. Average outage duration accuracy

This KPI would measure how accurate a TO plans their outage durations. A negative figure would indicate outages generally overrun, a positive figure would indicate outages generally finish early. It would help identify good and bad planning practices to further improve outage planning efficiency

KPI for OFGEM, ESO & Stakeholders

11. Number of uses of STCP 11.4 (attributable to TO proposal)

This would highlight how often the TO is able to proactively generate consumer savings as STCP 11.4 requires consideration in longer timescales.

KPI for OFGEM, ESO & Stakeholders

Some of the KPIs above would be dependent on the timely delivery of the TOGA replacement system, eNAMS, and a review of various STCPs to ensure sufficient monitoring functionality is available

Appendix 6: Proposal for Managing Innovation Benefits Throughout the Innovation Process

The link below is the ENA member company proposal as developed by all the gas, distribution and transmission licensees through the ENA.

http://www.energynetworks.org/electricity/futures/network-innovation/network-innovation.html

As an industry we plan to further develop and agree the detail in advance of RIIO-T2 with supporting stakeholder engagement to ensure that reporting of innovation benefits is done consistently.

Scottish & Southern Electricity Networks

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