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for energy consumers

Consultation

RIIO-2 Draft Determinations - Electricity Transmission Annex

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Our aim for the RIIO-2 price controls is to ensure energy consumers across Great Britain get better value, better quality of service and environmentally sustainable outcomes from their networks.

In May 2019, we set out the framework for the price controls in our Sector Specific Methodology Decisions. In December 2019, Transmission and Gas Distribution network companies and the Electricity System Operator submitted their Business Plans to Ofgem setting out proposed expenditure for RIIO-2.We have now assessed these plans. This document, and others published alongside it, set out our Draft Determinations for network company allowances under the RIIO-2 price controls, for consultation. We are seeking responses to the questions posed in these documents by 4 September 2020. Following consideration of responses we will make our Final Determinations at the end of the year.

This document outlines the scope, purpose and questions of the consultation and how you can get involved. Once the consultation is closed, we will consider all responses. We want to be transparent in our consultations. We will publish the non-confidential responses we receive alongside a decision on next steps on our website at Ofgem.gov.uk/consultations. If you want your response – in whole or in part – to be considered confidential, please tell us in your response and explain why. Please clearly mark the parts of your response that you consider to be confidential, and if possible, put the confidential material in separate appendices to your response.

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1. Introduction

Purpose of this document

1.1 This document sets out our Draft Determinations and consultation positions for the electricity transmission (ET) price control (RIIO-ET2) for the three Transmission Owners (TOs) in Great Britain. This price control will cover the five-year period from 1 April 2021 to 31 March 2026. All figures in this document are in 2018/19 prices except where otherwise stated.

1.2 The structure of this document, and how it fits in with the wider RIIO-2 Draft Determinations publications, is set out in Figure 1 below.

What do we expect RIIO-ET2 to deliver for consumers?

1.3 NGET (England and Wales), SPT (southern Scotland) and SHET (northern Scotland) own, manage and operate the electricity transmission system in Great Britain. The electricity transmission system is essential in providing electricity to end consumers via the distribution network and directly to some large industrial consumers.

1.4 Our proposed RIIO-ET2 package reflects the key role that TOs are likely to play over the next price control period including facilitating the energy system transition, encouraging flexibility, and enabling decarbonisation, while ensuring this is done at the lowest cost to consumers.

1.5 The transition to a Net Zero future will require the TOs to connect more low carbon generation and ensure the network can operate to the standard of reliability that consumers expect. As we move to electrifying heat and transport, there will be big changes in demand and the way electricity is used, which could result in new system requirements. Where there is a clear needs case to invest now, our proposed Draft Determinations package for RIIO-ET2 includes baseline funding and Price Control Deliverables (PCDs). This includes in areas such as low carbon connections, enhancing system operability (ie installing harmonic filters and synchronous compensation), as well as reducing the business carbon footprint of the transmission networks.

1.6 Where the timing and/or cost of work is too uncertain, we do not propose to fund some of the Net Zero investment put forward by companies via baseline allowances. We also note that in their Business Plans, network companies indicated considerable further potential investment may be needed to support Net Zero during the RIIO-2 period.

1.7 We will use a range of uncertainty mechanisms to consider both the baseline proposals we do not propose to fund at this stage, and additional in-period investment signalled by the TOs. For example, in addition to the cross-sector Net Zero re-opener, we are also proposing a coherent package of ET-specific Uncertainty Mechanisms (UMs) to ensure there is sufficient flexibility for the TOs to bring forward strategic network investments for Net Zero and respond to changing network requirements. This includes volume drivers for generation and demand connections. It also includes re-openers to consider specific transmission investments with atypical characteristics, when their value to consumers is more certain. The latter would cover, among other areas, system operability requirements, connection projects with non-representative costs, and wider network reinforcements.

1.8 By the end of RIIO-ET2 price control, we want to see an ET sector that is:

- **Meeting the needs of consumers and network users,** using outputs and a range of incentives to improve service quality and to encourage the efficient operation of the transmission network. This includes incentives aimed at encouraging TOs to provide fast access to high quality connections and high network reliability.
- **Maintaining a safe and resilient network**, by funding the TOs to replace ageing assets while ensuring costs to consumers are kept as low as possible. We propose to allow funding for cyber resilience projects, as well as IT investments where the scope of work is well understood. We propose to use uncertainty mechanisms to fund further upgrades during RIIO-2 when there is more certainty around the scope of work required.
- **Supporting the delivery of an environmentally sustainable network**, by providing funding or uncertainty mechanisms which will facilitate the connection of low carbon generation and by setting outputs and incentives to further reduce the harmful impact on the environment that the transmission network and related business activities can have.

1.9 To deliver these objectives as cost efficiently as possible, we have set baseline totex allowances for all TOs only where we are satisfied of the need for and certainty of the proposed work, and where there is sufficient certainty of the efficient cost of the work. As such, we propose to set the total baseline allowances at £5.9bn instead of £10.9bn sought by the TOs. Breaking that down by network company, we propose to set baseline allowances as follows:

- NGET - £3331.7m instead of the requested £7090m;
- SHET - £1608.7m instead of the requested £2388.4m; and
- SPT - £969.6m instead of the requested £1388.5m.

1.10 We have put in place measures to assess further costs when: the need for projects becomes more clear during RIIO-ET2; engineering solutions are developed; and/or there is greater clarity regarding likely costs than there is currently. This will ensure that consumers fund projects only when there is a strong evidence of need and benefit to existing and future consumers and we have clarity on likely costs.

1.11 For future assessments of expenditure during the RIIO-ET2 price control period we expect the TOs to provide high quality submissions, particularly to support the investment options proposed and the associated costs.

1.12 The TOs should only be funded for what they actually deliver for consumers. We have set out proposals which seek to achieve this, including linking approximately 50% of baseline totex to outputs with mechanisms to reduce allowances for non-delivery.

1.13 The Totex Incentive Mechanism (TIM) provides TOs with a powerful incentive to deliver more efficiently. We consider that it is important to ensure TOs are rewarded only for underspending that is genuinely due to their efficiency effort rather than uncertainty in the ex-ante allowance. We propose to reduce the TIM sharing factor from an average 44.7% in RIIO-ET1 to an average of 36.4% across the three electricity TOs in RIIO-ET2. This means that consumers will share more of the benefits if a TO outperforms against its allowances, as all TOs have done in RIIO-1. Consumers will contribute a larger share of any underperformance against allowances, but we have sought to use UMs and PCDs, where appropriate, to protect consumers against the risk of significant over or under spend in RIIO-2.

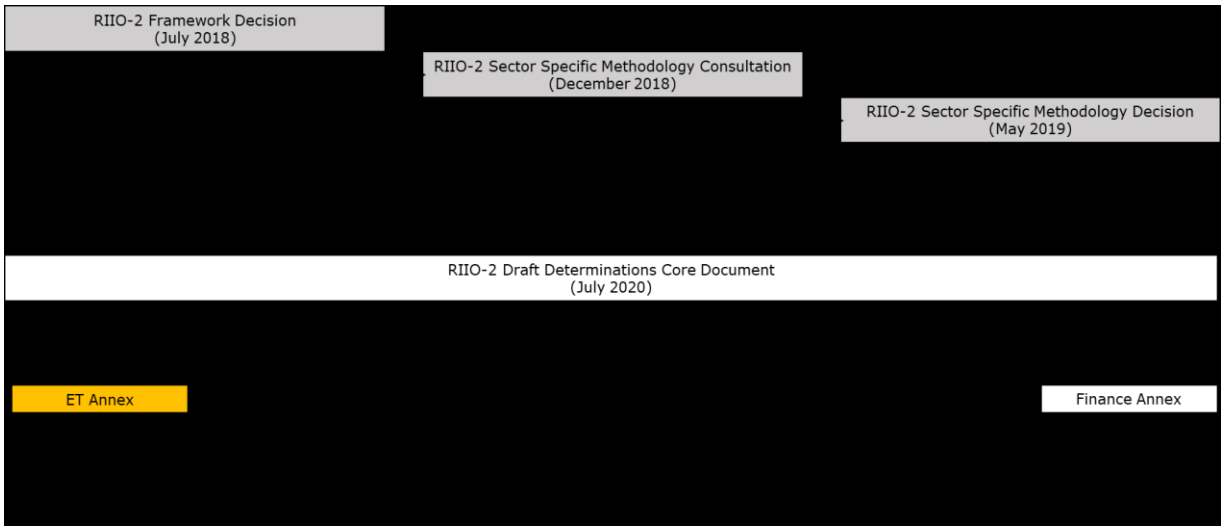
1.14 As a result of our proposed actions for RIIO-ET2, we expect to see reductions of around 4.7% electricity transmission network charges relative to RIIO-ET1.[1] This could reduce the average annual household bill by around £1.30 per year.

Navigating the Draft Determinations

1.15 This document should be read alongside:

- the RIIO-2 Draft Determinations Core Document (the Core Document), which contains our approach to areas of RIIO-2 that are common to all sectors[1]
- the network company-specific annex documents (NGET Annex, SHET Annex and SPT Annex) which contain network company-specific values for each area of their price control settlements and our proposed approach to any areas that are specific to that network company
- any technical annexes or consultancy reports relevant to the ET sector (these will be cross-referenced where relevant).

Figure 1: RIIO-2 Draft Determinations documents map



[1] These bill impacts are based on total revenue for charges in Ofgem's financial model (PCFM).

2. Quality of service - setting outputs for RIIO-ET2

Introduction

2.1 This chapter sets out our position on the proposed package of RIIO-ET2 outputs, including Licence Obligations (LOs), Price Control Deliverables (PCDs) and Output Delivery Incentives (ODIs).[2] Our proposals in this chapter reflect a mixture of outputs that we set out in our Sector Specific Methodology Decision (SSMD), and new 'bespoke' outputs proposed by the companies in their Business Plans. Detail on any bespoke outputs that we are proposing to implement for only one of the companies is contained within the network company annexes. Our proposals are provided under the headings of the RIIO-2 outcomes:

- Meeting the needs of consumers and network users
- Maintaining a safe and resilient network
- Delivering an environmentally sustainable network

2.2 Table 1 below outlines the entire set of outputs, both common and bespoke, that we currently propose to implement in RIIO-ET2.

2.3 In our SSMD, we also invited companies to propose Consumer Value Proposition (CVP) proposals. Our approach to the assessment of CVPs is set out in the Core Document. Our rationale for the CVPs we propose to accept, and the CVPs we do not propose to include, can be found in the network company annexes. Any rewards to companies for their accepted CVPs will be subject to relevant delivery. We set out the CVPs we propose to implement in RIIO-ET2 in the table below.

Table 1: Outputs included in our Draft Determinations

Output name	Output type	Companies applied to	Draft Determinations Section
Common outputs			
Meeting the needs of consumers and network users			
Energy Not Supplied (ENS)	ODI-F	All	Chapter 2
Quality of connections survey	ODI-F	All	Chapter 2
Stakeholder Survey for New Transmission Infrastructure Projects	ODI-R	All	Chapter 2
Timely connections	ODI-F	All	Chapter 2
Maintaining a safe and resilient network			

[2] ODIs can be either financial (ODI-F) or reputational (ODI-R).

Output name	Output type	Companies applied to	Draft Determinations Section
Network Asset Risk Metric (NARM)	PCD, ODI-F	All	NARM Annex
Network Access Policy (NAP)	LO	All	Chapter 2
Large Project Delivery (LPD)	ODI-F	All	Chapter 2
Cyber resilience	PCD and use-it-or-lose-it (UIOLI)	All	Core Document Chapter 7
Delivering an environmentally sustainable network			
Environmental action plan and annual environmental report	ODI-F, ODI-R, PCD, UM, and LO	All	Chapter 2 Core Document Chapter 4 NGET Annex SHET Annex SPT Annex
Insulation and Interruption Gas (IIG) leakage incentive	ODI-F	All	Chapter 2
Visual amenity in designated areas provision	PCD	All	Chapter 2
Bespoke outputs			
Meeting the needs of consumers and network users			
Energy Not Supplied (ENS) Compensation Scheme	CVP	SHET	SHET Annex
Delivering an environmentally sustainable network			
Environmental Scorecard	ODI-F	NGET	NGET Annex Chapter 2
SF_6 Asset Intervention Plan	PCD	NGET	NGET Annex Chapter 3
Reducing carbon emissions from operational transport	PCD	NGET	NGET Annex Chapter 2
Biodiversity No Net Loss/Net Gain	CVP	SHET	SHET Annex
Maximising environmental benefit from non-operational land	ODI-R	SPT	SPT Annex
Net Zero Fund	Use-it-or-lose-it allowance	SPT	SPT Annex
Maintaining a safe and resilient network			
Various project specific PCDs	PCD	NGET / SHET / SPT	Company annexes Chapter 2 and 3
Physical security	PCD	NGET	NGET Annex Chapter 3

Meeting the needs of consumers and network users

2.4 We expect companies to deliver a high quality and reliable service to all network users and consumers, including those in vulnerable situations. Our proposals for how RIIO-2 can achieve this largely build on ODIs used in RIIO-1.

Energy Not Supplied Incentive

Energy Not Supplied Incentive	
Purpose	A financial output delivery incentive to encourage companies to improve network reliability in an efficient way by managing short-term operational risk.
Benefits	Reducing the volume of loss of supply events improves the reliability of electricity supply and reduces negative impacts of disruption on customers (especially industrial customers and other directly connected customers).

Background

2.5 The incentive works by setting a target level of performance for the electricity TOs based on the volume of Energy Not Supplied (ENS). If a network company's incentivised ENS volume is lower than this target, they receive a financial reward, which is calculated by multiplying the volume of ENS below the baseline target by the incentive rate. Conversely, if a network company's ENS exceeds this baseline target, they receive a financial penalty, which is calculated by multiplying the volume of ENS above the baseline target by the incentive rate. The incentive rate is multiplied by the TIM. In RIIO-T1, a financial collar limits the penalty companies can receive.

2.6 In our SSMD,[3] we stated that we would be reaching a decision on a number of additional areas at Final Determinations. These were:

- the methodology for setting baseline targets and any necessary assumptions
- an appropriate Value of Lost Load (VoLL) value
- the financial collar on penalties
- whether there is a proportionate methodology for accounting for embedded generation and any necessary assumptions.

Consultation Position

Incentive parameter	Consultation position
Baseline setting methodology	Weighted average methodology using performance data from 2000-2019: • 50% weighting on average ENS performance during RIIO-ET1 (2013-2019) • 25% weighting on average ENS performance during TPCR4 (2007-2012) • 25% weighting on average ENS performance during TPCR3 (2000-2006)

[3] SSMD - ET Annex, paragraphs 2.218-2.262, https://www.ofgem.gov.uk/system/files/docs/2019/05/riio-2_sector_specific_methodology_decision_-_et_30.5.19.pdf

Incentive parameter	Consultation position
Incentive value	No change to the existing value. We propose to reflect the VoLL value in 2018-19 prices, and apply the TIM sharing factor. We propose to include in the ENS Licence condition a mechanism for the VoLL value to be amended during RIIO-2, to reflect any recent studies.
Financial collar on penalties	Retain 3% of Base Revenue as the financial collar for penalties.
Taking account of embedded generation in the calculation of the ENS metric	Establish industry working group to develop a way to include embedded generation in the calculation of the ENS metric for RIIO-ET3.
Bespoke outputs submitted by companies relating to ENS	All three TOs proposed bespoke outputs relating to ENS in their Business Plans. We have considered each of these and set out our rationale supporting our consultation position for each in the network company annexes.

Rationale for consultation position

Setting baseline performance targets

2.7 In our SSMD, we decided to use a consistent method for setting baseline targets across all three TOs. We also decided that we would consider a straightforward forecasting method for RIIO-ET2 based on past performance (eg performance average). We stated that we expect RIIO-ET2 targets to be more challenging than RIIO-ET1 and to reflect the improvements in performance observed in RIIO-ET1.[4] Lastly, we decided that we will determine a methodology for setting baseline targets and any necessary assumptions as part of Final Determinations.[5]

2.8 Network companies have been incentivised to mitigate loss of supply events efficiently over the last three price controls. During RIIO-ET1, TOs have demonstrated a significant, positive, step change in performance levels of ENS. We expect the improvements seen over previous price controls to be embedded in the way targets are set for RIIO-ET2.

2.9 For RIIO-ET2, we propose to set network company targets using a weighted average methodology that takes account of performance over the past three price controls from 2000 to 2019. While the parameters of the ENS incentive, in particular the definition of "incentivised loss of supply events", may have changed

[4] SSMD - ET Annex, paragraphs 2.229-2.239, https://www.ofgem.gov.uk/system/files/docs/2019/05/riio-2_sector_specific_methodology_decision_-_et_30.5.19.pdf
[5] SSMD - ET Annex, paragraph 2.263, ibid

over time, particularly for the Scottish TOs, we consider it appropriate to take account of historical performance in order to account for high impact/low probability events that have occurred in the past. We consider that price control periods provide a natural distinction for when the ENS incentive structure and its scope changed with each price control.

2.10 We consider that a weighting approach that emphasises performance that is more recent will better reflect the improvements in performance observed in RIIO-ET1 and will provide a more challenging baseline target compared to RIIO-ET1. We consider it will also better reflect the TOs' current and future capabilities to manage loss of supply events. We therefore propose to set network company performance targets using a weighted average methodology as follows:

- 50% weighting on average ENS performance during RIIO-ET1 (2013-2019)
- 25% weighting on average ENS performance during TPCR4 (2007-2012)
- 25% weighting on average ENS performance during TPCR3 (2000-2006).

2.11 We think that an even weighting on price controls prior to RIIO-ET1 is appropriate because the structure and scope of the incentive prior to RIIO-1 was relatively similar. We also consider that performance prior to RIIO-ET1 may be less reflective of the TOs' current and future capabilities to manage loss of supply events and therefore propose not to place equal weight on all three periods.

2.12 We propose to set the baseline targets as part of Final Determinations, as we did in RIIO-ET1, rather than setting baseline targets after companies have reported ENS performance data for the last year of the RIIO-ET1 price control (in 2021 after the start of the RIIO-ET2 price control). We consider that our proposed approach provides TOs and consumers with more certainty on ENS targets prior to the start of RIIO-2.

2.13 The table below shows for each TO their proposed baseline target using our proposed methodology and weightings, and their RIIO-ET1 baseline target for comparison. We have published our ENS Baseline Setting Methodology Technical Annex that sets out the weightings we considered in coming to our proposed approach for baseline setting.

Table 2: Proposed RIIO-2 baseline targets and current RIIO-1 baseline targets

	NGET	SPT	SHET
Proposed RIIO-2 baseline target	147 MWh	86 MWh	102 MWh

	NGET	SPT	SHET
RIIO-ET1 baseline target	316 MWh	225 MWh	120 MWh

Incentive Value

2.14 In our SSMD, we decided that we would continue to use VoLL to set the incentive strength and stated that we would consider if VoLL needs to be updated for RIIO-ET2.

2.15 We propose to continue with the RIIO-ET1 VoLL value of £16,000/MWh in RIIO-2 but to update this value to the 2018-19 price base. We also propose to multiply the VoLL value by the TIM sharing factor, as we did in RIIO-ET1, to ensure costs and quality of service on the transmission system are shared with consumers.

2.16 In addition, we propose to provide flexibility to amend the VoLL value during RIIO-2. We propose to include in the ENS Licence condition a mechanism for the VoLL value to be amended during RIIO-2, to consider any recent pieces of work. We propose to do this in order to best reflect the value consumers place on network reliability. Where we propose to amend the VoLL value, we propose to consult on our proposed change before it comes into effect.

2.17 To date, we have considered past and more recent studies regarding the value of VoLL. The table below shows the more recent studies we considered.

Table 3: Recent VoLL studies considered

Author of study	Year of study	Jurisdiction
ENWL[6]	2017-18	GB
ACER[7]	2018	EU
NGET, SPT, SHET[8]	2018-19	GB

2.18 We think that the ENWL study findings are more suitable for the distribution network, rather than the transmission network. ENWL's model focusses on disaggregating VoLL, and proposing various VoLL values, to better account for different types of customers and demographic indicators. Indicators include

[6] Value of lost load to customers, https://www.enwl.co.uk/zero-carbon/innovation/smaller-projects/network-innovation-allowance/enwl010---value-of-lost-load-to-customers/
[7] Study on the estimation of the Value of Lost Load of electricity supply in Europe, https://www.acer.europa.eu/en/Electricity/Infrastructure_and_network%20development/Infrastructure/Documents/CEPA%20study%20on%20the%20Value%20of%20Lost%20Load%20in%20the%20electricity%20supply.pdf
[8] Consumers' willingness to pay, https://www.ssen-transmission.co.uk/media/3455/consumers-willingness-to-pay-final-0107.pdf

rurality, income, fuel poverty, socio-economic status, and electricity consumption. TOs serve a larger region of customers and are less able to differentiate among individual customer types, compared with DNOs. Therefore, we think that a single VoLL is more appropriate for the transmission network.

2.19 We think that the ACER's VoLL results are broadly consistent[9] with the London Economics 2013 study,[10] on which the current RIIO-1 VoLL value is based. We do not think ACER's study suggests significant changes from the current VoLL value, and therefore, think our proposed approach is appropriate.

2.20 We also recognise that the TOs have undertaken a willingness to pay study. This study measured the costs customers are willing to pay for certain service levels (eg a 2 hour decrease in the duration of power cuts). While the study is a useful indicator to customer value of reliability, in our view it is not a direct interpretation of VoLL, and so is less relevant for the purpose of setting a VoLL value for RIIO-2.

Financial Collar

2.21 In our SSMD, our working assumption was that a financial collar on potential penalties of 3% of each TO's base revenue continues to be suitable for RIIO-ET2. We said that we will reach a final decision on this as part of Final Determinations.[11]

2.22 We propose to continue with a financial collar on penalties of 3% of each TO's base revenue, as was in place in RIIO-ET1. We think having a collar in place is important for protecting consumers' interests as without it, TOs may build in extra redundancy on the network in order to avoid large penalties, the costs of which could be disproportionate compared to the benefit they would bring in terms of increased reliability.

2.23 In our view, 3% of base revenue continues to provide an effective balance between providing a strong incentive to reduce ENS and protecting TOs from disproportionately large financial penalties, and should ensure a cost-effective level of reliable electricity supply for GB consumers.

[9] The ACER study found a VoLL value of €15,900/MWh for UK domestic customers (in 2018-19 prices). The current VoLL value is £16,000/MWh.
[10] The Value of Lost Load (VoLL) for electricity in Great Britain, https://www.ofgem.gov.uk/ofgem-publications/82293/london-economics-value-lost-load-electricity-gbpdf
[11] SSMD - ET Annex, paragraph 2.263, https://www.ofgem.gov.uk/system/files/docs/2019/05/riio-2_sector_specific_methodology_decision_-_et_30.5.19.pdf

Taking into account embedded generation in the ENS metric

2.24 In our SSMD, we said that we will reach a final decision on whether there is a proportionate method for accounting for embedded generation and any necessary assumptions as part of Final Determinations.[12] We stated that embedded generation is playing an increasingly large role in supplying energy to consumers on the distribution network. As a result, when there is a fault on the transmission network, the loss of supply experienced by end consumers may be greater than that reported at the transmission/distribution network interface (ie the Grid Supply Point).[13] We continue to think that there is merit in including the impact of embedded generation in the ENS incentive.

2.25 However, our assessment of TO proposals and wider stakeholder engagement has identified practical issues[14] with including embedded generation retrospectively to reflect volumes in baseline target setting at this stage. After considering Business Plan proposals, we have been unable at this stage to determine an appropriate and proportionate way to account for embedded generation that also demonstrates value for money for consumers.

2.26 We instead propose to establish an industry working group (including TOs, DNOs, ESO, ENA) to develop a methodology, including any necessary assumptions, for accounting for embedded generation in RIIO-T3. We expect TOs to test and refine that methodology in the last two years of RIIO-2.

Updating ENS Incentive Methodology Statements

2.27 We are proposing that TOs update their ENS Incentive Methodology Statements for RIIO-2 and submit them to Ofgem by 31 December 2020. The ENS Incentive Methodology Statement[15] sets out how TOs estimate ENS on their networks.

2.28 The Methodology Statement must include:

- any necessary updates to reflect its use in RIIO-ET2
- tangible commitments (including milestones and key deliverables) to develop and implement in RIIO-T3 a methodology that takes account of embedded generation in the ENS metric

[12] SSMD - ET Annex, paragraph 2.263, https://www.ofgem.gov.uk/system/files/docs/2019/05/riio-2_sector_specific_methodology_decision_-_et_30.5.19.pdf
[13] SSMD - ET Annex, paragraph 2.247, ibid
[14] SSMD - ET Annex, paragraph 2.249, ibid, sets out some of the practical issues we considered.
[15] ENS Incentive Methodology Statement, https://www.ofgem.gov.uk/system/files/docs/2016/05/joint_to_methodology_for_estimating_energy_not_supplied_issue_3_september_2015.pdf

- a review of the strengths and weaknesses of the TO's current ENS Incentive Methodology and how it intends to address those weaknesses and incorporate this into its RIIO-2 ENS Incentive Methodology Statement.

Quality of Connections Survey

Quality of Connections Survey	
Purpose	A financial output delivery incentive to incentivise companies to improve the quality of service delivered to connections customers.
Benefits	Improving the quality of service delivered to a TO's current and future connections customers, thereby enabling the transition to a low carbon economy.

Background

2.29 In our SSMD, we decided to isolate the connections component of the ET1 Stakeholder Satisfaction Survey (SSO), and to introduce the Quality of Connections survey for RIIO-ET2.[16]

2.30 We expect the energy transition will drive changes in the types of technologies seeking to connect to the transmission network. We are introducing this survey to incentivise TOs to provide a high quality connections service to their connections customers.

2.31 In our SSMD, we said that we would continue to assess the policy options for the elements of the survey design, which are set out in the table below.

Consultation Position

Output parameter	Consultation position
Methodology for setting baseline performance targets and incentive strength	We propose to switch off the incentive in year one to allow the TOs to pilot the survey. We propose to use the survey score data gathered from this pilot to develop the baselines for years 2-5 of RIIO-ET2, when the reward/penalties will be switched on. We propose to consult on the baseline targets and incentive strength once the pilot data has been received from the TOs during the first year of RIIO-ET2.
Survey Design: Content and Methodology	We propose to introduce common milestones in the connections process, which would trigger a survey to customers. We also propose the target audience that this survey will capture.

[16] SSMD - ET Annex, paragraphs 2.101-2.103, include our decision to remove the remaining components of the SSO, https://www.ofgem.gov.uk/system/files/docs/2019/05/riio-2_sector_specific_methodology_decision_-_et_30.5.19.pdf

Output parameter	Consultation position
	To calculate the scores of the Quality of connections survey, we propose to continue measuring the responses to the question of overall satisfaction. We have included the proposed survey milestones, target audience and question of overall satisfaction in Appendix 2.
Survey provider and assurance	We propose that the TOs can continue to select their own survey provider. We are of the view that the User groups could provide assurance on the scope of the customers that this survey captures and the questions being asked.

Rationale for consultation position

Methodology for setting baseline performance targets

2.32 We propose to switch off the reward and penalty associated with this incentive for the first year of RIIO-ET2 to allow the TOs to pilot the Quality of Connections survey for baseline development purposes. We propose to consult on the methodology for calibrating the baseline target, cap and collar on the completion of the pilot during the first year of RIIO-ET2. We propose that the incentive will go live on the 1st of April 2022.

2.33 We have considered the data from the RIIO-ET1 stakeholder satisfaction survey and other external sources to assess whether this could have allowed us to calibrate the baseline for the Quality of Connections survey.[17] We have come to the view that the RIIO-ET1 baseline framework would not be representative of the survey scope that this incentive is intending to capture and it is therefore not appropriate to use this data to calibrate the baselines for this incentive.[18]

2.34 We have also considered whether the survey could be piloted in the final year of RIIO-ET1. We have engaged with the TOs on this matter but due to the limited time available to collect significantly robust data to develop the baseline for RIIO-ET2, without coinciding with the T1 survey and potentially causing stakeholder fatigue, we are of the view that this would not be appropriate.

[17] In addition to the RIIO-1 SSO data and the methodologies applied in RIIO-ED1, GD1 and GT1, we have considered the UKCSI metrics and the approach taken to develop the baselines of the C-Mex and D-Mex incentives implemented by Ofwat.
[18] The RIIO-ET1 stakeholder satisfaction survey scope is targeted at all of a TO's stakeholders, whereas the RIIO-ET2 Quality of Connections survey scope is targeted at all customers connected and looking to connect over RIIO-ET2.

2.35 We are therefore proposing that the TOs pilot the survey in the first year of RIIO-ET2. During this period, the TOs will not receive a reward or penalty based on their performance. This data will be used to inform the baselines for years 2-5 of the RIIO-ET2 period when the incentive will be live and the TOs will receive a reward or penalty relative to their performance against the baseline in those years.

2.36 We propose to ask the network companies to produce a report outlining the results from the survey pilot, to inform our proposed approach to setting the baselines.

Incentive strength

2.37 We do not think that we have enough information at this time to assign the strength for this incentive. As set out in the text above, we are proposing to pilot the survey in year one of RIIO-2 for baseline development purposes. We consider that we will be best placed to assign the strength of the incentive once we have a better understanding of the data received from the survey pilot. Following the survey pilot, we propose to consult on the baseline target and the appropriate incentive strength to encourage the TOs to drive improvements in their services and meet the baseline target.

2.38 We also propose to consider the incentive strength in line with the approach taken in other sectors, and consult on our proposed incentive strength in 2022.[19]

Survey design: content and methodology

2.39 We want to incentivise the TOs to enhance the quality of service that is delivered at each stage of the customer process. To this end, we propose that the TOs will have common milestones in the connections process at which point a survey to their customers will be triggered. We also propose to retain our methodology from RIIO-ET1 for collating the survey scores based on one question of overall satisfaction.

2.40 The TOs have provided us with a suggested methodology for the quality of connections incentive, which sets out their proposed milestones in the customer journey where a survey will be issued, the target audience for these milestones,

[19] Please see our consultation position for the customer satisfaction surveys in the RIIO-GD2 and RIIO-GT2 annex.

and the question of overall satisfaction. The TOs have incorporated our feedback into the methodology paper and we have included this in Appendix 2.

Survey provider and independent assurance

2.41 We propose that the TOs use their own survey provider for the Quality of Connections survey. Following discussions with the TOs, we note that their individual survey providers allow instant feedback from their surveys and that they are concerned that using one survey provider across the TOs would put this at risk.

2.42 We are also of the view that the User Groups have a good understanding of the TO's Business Plans and activities and can therefore provide assurance on the customers being captured in the survey sample as well as the questions being asked to these customers, subject to our final approval. However, this does remain subject to ongoing consideration of the enduring role (if any) of the User Groups.[20] We would also expect the TOs to report on feedback received from this survey and how they intend to act, if at all, on this feedback.

Consultation questions

ETQ1. Do you agree with our proposals to switch off the incentive in year one of RIIO-ET2 in order to pilot the Quality of Connections survey and develop the baseline targets?

ETQ2. Do you have views on the common milestones, target audience and question of overall satisfaction for the Quality of Connections survey incentive provided in Appendix 2?

Stakeholder Survey for New Transmission Infrastructure Projects

Stakeholder Survey for New Transmission Infrastructure Projects	
Purpose	An ODI-R to encourage the TOs to survey stakeholders impacted by new infrastructure projects.
Benefits	To encourage the TOs to tailor their engagement to meet the needs of local stakeholders impacted by transmission works.

[20] Please see the Core Document chapter on 'Embedding the consumer voice in RIIO-2' for our consultation position on the enduring role of the User Groups.

Background

2.43 In our SSMD, we decided to introduce a reputational ODI for the TOs to survey stakeholders who are potentially impacted by new transmission infrastructure projects about their experience of the TOs engagement processes.[21] We believe that a survey is an appropriate tool to incentivise a TO's stakeholder engagement processes on new projects, and will complement the companies' stakeholder engagement processes on proposed new developments.

Consultation position and rationale

2.44 All of the TOs incorporated this survey into their Business Plans. We are therefore of the view that a Licence condition is not required.

2.45 We expect the TOs to report on feedback received from the survey and how they intend to act, if at all, on this feedback via their User Groups and publicly on their website, where appropriate. However, this does remain subject to ongoing consideration of the enduring role (if any) of the User Groups.[22]

Timely connections

Timely connections incentive	
Purpose	A financial incentive to encourage the efficient timely delivery of connection offers to new connections to the Transmission Network.
Benefits	Encourage improved stakeholder engagement between connection customers and network companies, and streamline new connections.

Background

2.46 In our SSMD we decided to retain the financial (penalty-only) incentive for Timely Connections offers for RIIO-T2 and apply this to all TOs. We noted that we would reach a final decision on our working assumption around the maximum penalty rate as part of Final Determinations.[23]

[21] SSMD - ET Annex, paragraphs 2.120-2.125, https://www.ofgem.gov.uk/system/files/docs/2019/05/riio-2_sector_specific_methodology_decision_-_et_30.5.19.pdf
[22] Please see the Core Document chapter on 'Embedding the consumer voice in RIIO-2' for our consultation position on the enduring role of the User Groups.
[23] SSMD – ET Annex, paragraph 2.164, https://www.ofgem.gov.uk/system/files/docs/2019/05/riio-2_sector_specific_methodology_decision_-_et_30.5.19.pdf

Consultation position

Output parameter	Consultation position
Incentive Value	Retain -0.5% of Base Revenue as the maximum penalty cap.

Rationale for consultation position

2.47 We explained in our SSMD that our working assumption for the level of the penalty was, at that stage, to remain at -0.5% Base Revenue, at the same level as RIIO-T1, following consultation in the SSMC. The level of the penalty is determined by the proportion of offers which are deemed untimely[24], against the total sum of all offers in the period.

2.48 Due to the high level of compliance under this incentive for RIIO-1, we do not believe adjusting the strength of the incentive or the formula will provide sufficient improvement, and are of the view that this remains fit for purpose at the current level. We consider that retaining the incentive value at the RIIO-T1 rate reflects the right balance for an incentive of this design.

Maintaining a safe and resilient network

2.49 Our RIIO-2 Framework aims for companies to deliver a safe and resilient network that is efficient and responsive to change.

2.50 To allow for this, there are some areas, such as Network Asset Risk Metric (NARM) and Network Access Policy (NAP), where we are looking to build on existing policy developed in RIIO-1. There are other areas, such as Large Project Delivery (LPD), which we propose to introduce in RIIO-2, to reflect our learnings from RIIO-1. These areas are discussed in this section.

[24] See Standard Licence Condition D4A, (Obligations in relation to offers for connection etc), and Part 2, Para 4.8.1 Section D of the System Operator – Transmission Owner Code (STC), https://epr.ofgem.gov.uk/Content/Documents/Electricity%20transmission%20full%20set%20of%20consolidated%20standard%20licence%20conditions%20-%20Current%20Version.pdf?utm_source=ofgem&utm_medium=&utm_term=&utm_content=licencecondition&utm_campaign=epr

Network Asset Risk Metric

Network Asset Risk Metric (NARM)	
Purpose	To set primary outputs relating to replacement and refurbishment of network assets and to put in place a funding adjustment and penalty mechanism for these activities. Full details can be found in the NARM Annex.
Benefits	Helps to ensure that network companies manage appropriately their existing network assets and maintain the risk of asset failure within acceptable bounds.

2.51 Network asset risk relates to the consequence of failure of a network asset and the likelihood of a failure occurring. If a network network company does not maintain, replace, or refurbish its assets, the likelihood of them failing will generally increase over time, and so will the risk of the consequence of the failure materialising. To keep network asset risk within reasonable bounds, gas and electricity network companies are funded to carry out asset management activities such as replacement or refurbishment.

2.52 The NARM has been developed to allow us to quantify the benefit to consumers of the companies' asset management activities. In RIIO-2, this will be used as the output to hold the companies accountable for their investment decisions.

2.53 Our Draft Determinations for NARM (full details in 'Draft Determinations – NARM Annex') set out the outputs we propose to be associated with the relevant baseline allowances, and our proposed mechanism for adjusting allowances and applying penalty in certain delivery scenarios.

2.54 We have used the companies' submitted views of the monetised risk reduction they expect to be delivered through their proposed investments, along with our separate assessment of allowed intervention volumes to come to our view of the outputs.

2.55 We have also developed a NARM Funding Adjustment and Penalty Mechanism that relates the network companies' final funding to their level of output delivery and the cost incurred by them in delivering those outputs. This mechanism has been designed in order to protect consumers from the potential for disproportionate unearned gains by network companies.

Network Access Policy

Network Access Policy (NAP)	
Purpose	To require TOs to have in place a policy to support engagement between themselves and the ESO around outage planning.

Network Access Policy (NAP)	
Benefits	Enhanced outage planning coordination and communication between parties.

Background

2.56 In our SSMD,[25] we decided that we would retain the LO for TOs to have in place and act consistently with a NAP. We also set out that the TOs should develop a single, consolidated NAP to be agreed with the ESO, and submit this as part of their Business Plans. We decided not to include other parties such as DNOs in the NAP at this stage, however, we asked TOs to ensure that additional clarity on roles and responsibilities is provided in the NAP for RIIO-2. We also invited TOs to identify potential metrics for measuring the benefit of the NAP.

2.57 A draft of the consolidated NAP was provided in each of the TO's Business Plans, with a final version submitted to Ofgem in May 2020. The majority of the changes since December 2019 were made in order to add clarity and to simplify the language of the document following engagement with and feedback from the TOs' respective stakeholders. The final version of the NAP also included a set of 12 KPIs to support measuring the benefit of the NAP.

2.58 Separately, all TOs included proposals in their Business Plans for additional whole system incentives related to reducing constraint costs through optimising system outage management to further support the objective of the NAP. Our assessment and consultation position on these is set out in the respective network company annexes.

[25] SSMD - ET Annex, paragraphs 4.52-4.82, https://www.ofgem.gov.uk/system/files/docs/2019/05/riio-2_sector_specific_methodology_decision_-_et_30.5.19.pdf

Consultation position

Output parameter	Consultation position
NAP	We propose to approve this version of the NAP under the existing RIIO-1 Licence condition (specifically, under paragraph 2J.13 of Special Condition 2J - Network Access Policy (SpC 2J)) to ensure that it will be in place for the start of RIIO-2. We propose to work with the network companies to agree the format of the reporting and publication of the KPIs ahead of our decision in Final Determinations.

Rationale for consultation position

2.59 We consider that this version of the NAP sets out clearly its scope, as well as the processes and procedures for planning and managing outages, and that the TOs have engaged with stakeholders appropriately.[26] This NAP refers to other industry arrangements that deal with outage planning, such as the SO-TO code procedures (STCPs), and sets out how these arrangements are complementary to the NAP. We consider that this NAP also includes sufficient clarifications of roles and responsibilities around decision-making.

2.60 In addition, in our view, the 12 proposed KPIs should allow the TOs and Ofgem to monitor adherence to the NAP and the benefits thereof, and should enable the identification of any issues and/or gaps in the NAP and its implementation. These KPIs should also provide additional transparency for stakeholders, such as generators and DNOs, on the processes and procedures around outage planning, management and implementation.

2.61 We note that stakeholders with whom the respective TOs were engaged were content with the NAP, especially with the proposed KPIs.

Consultation questions

ETQ3. Do you think there are any additional KPIs that have not been included in the final NAP which would support monitoring of performance in adherence to the

[26] In accordance with the requirements of Part C of SpC 2J, each TO submitted to Ofgem a statement of the proposed amendments to the NAP, which included an explanation of the reasons for the proposed amendment, together with supporting evidence. The TOs also provided evidence of the stakeholder engagement they carried out to support the NAP development.

NAP and/or add transparency of the outage planning, management and implementation process for relevant stakeholders?

Large Project Delivery

Large Project Delivery (LPD)	
Purpose	To incentivise the timely delivery of large transmission projects.
Benefits	Minimise consumer detriment from projects being delivered late.

Background

2.62 In our SSMD,[27] we set out that large transmission projects that are delayed and/or not successfully delivered to the required level of quality can cause significant detriment to consumers. We decided to provide for an automatic re-profiling mechanism, where we do not apply a milestone-based approach. We also committed to continue to develop our thinking on:

- a milestone-based approach to ensuring TOs do not benefit financially from delay and/or poor quality delivery
- minimising consumer detriment during the delivery of large capital investment projects
- characteristics of the project that these mechanisms would be applied to.

Consultation position

Output parameter	Consultation position
Large Project Delivery (LPD)	We propose to introduce a suite of three LPD mechanisms that should be available for application to large (£100m+) transmission projects in RIIO-2 in order to incentivise their timely delivery, and to minimise consumer detriment if delivered late. The three mechanisms are: • re-profiling of allowances • milestone based approach to recovery of allowances • project delay charge.

2.63 We propose to consider the application of the LPD mechanisms on a project-by-project basis to projects over £100m, and consult on our view alongside any consultation on setting allowances on that project. We have set out below some of

[27] SSMD - ET Annex, paragraph 4.93, https://www.ofgem.gov.uk/system/files/docs/2019/05/riio-2_sector_specific_methodology_decision_-_et_30.5.19.pdf

the matters we would expect to consider when judging which mechanism(s) to apply to a particular project.

- Re-profiling of allowances - this will be our default mechanism for all large projects meeting our LPD criterion, and will operate mechanistically through the PCFM, as set out in paragraph 2.65 below.
- Milestone-based approach to recovery of allowances - we propose to consider using this mechanism instead of re-profiling on large projects where we expect that there could be a particularly large consumer detriment caused by late delivery.
- Project delay charge - this mechanism could be applied in addition to either of the two mutually exclusive mechanisms listed above, where we expect that there could be a particularly large consumer detriment caused by late delivery.

2.64 In the remainder of this section we provide additional detail on our proposed design of these mechanisms and set out our LPD criterion.

Re-profiling of allowances

2.65 In the Finance Annex, we set out a proposal for RIIO-2 to include forecasts in the PCFM, which can then be updated annually to better reflect actual expenditure. Consistent with those wider proposals, we propose that all projects that match our proposed LPD criterion are included as forecast costs when we set the allowances for those projects. These would then have allowances updated annually to match actual spend, unless we opt to pursue a milestone-based approach to recovery of allowances on that project.

2.66 We consider that this is the most practical means of delivering the policy intent of ensuring that TOs do not benefit from delayed expenditure (and potentially delivery) on large projects.

Milestone-based approach to recovery of allowances

2.67 We consider that this approach should project value for consumers by ensuring that consumers only pay for large transmission projects when key stages of the projects are delivered.

2.68 Because of the challenges associated with setting various milestones for multiple projects at the start of the price control, we propose that milestones should be agreed closer to the start of the project (ie at the funding decision stage).

2.69 This mechanism would work in a similar way to the re-profiling mechanism; TOs would be required to forecast milestone delivery dates ahead of Ofgem taking a funding decision for the project. The allowances contingent on those milestones would be included as forecasts in the PCFM, such that the allowance is delayed in the event that a milestone was not delivered on time.

2.70 We consider that in circumstances where a milestone is significantly delayed, it may be that this mechanism could impact the financing arrangements of the relevant TO. We intend to explore this further with the TOs (and any other interested stakeholders) prior to Final Determinations.

Project delay charge

2.71 We propose to implement a project delay charge to minimise consumer detriment and/or share consumer detriment in the event of delayed delivery, which largely reflects industry standard arrangements where contractors pay TOs liquidated damages for projects that are delivered late. The details of this proposed mechanism are set out below.

- We would set a pre-agreed ex-ante day-rate charge, payable by the TOs to consumers, for each day that a project is delivered late.
- Consistent with industry standard approach to liquidated damages, the total amount payable by the TO would be capped at a fixed, pre-agreed, level.
- Using industry benchmarks, at Final Determinations we propose to provide an indicative view of what the charge could be and what level the cap could be set at, and then confirm this on a project-by-project basis through project-specific consultations.

2.72 Our rationale for proposing to implement the project delay charge is to ensure that consumers are compensated if projects are delayed. We consider that linking the project delay charge back to the industry standard approach to liquidated damages that we have seen operate on previous projects should help ensure that there is no impact on the project costs that TOs negotiate with contractors.

LPD criterion

2.73 Our ET SSMD[28] set out a proposal to use LPD mechanisms on projects which meet the 'high-value' criterion that we have established for competition in onshore

[28] SSMD - ET Annex, paragraph 4.152, https://www.ofgem.gov.uk/system/files/docs/2019/05/riio-2_sector_specific_methodology_decision_-_et_30.5.19.pdf

electricity transmission (£100m). We propose to retain this criterion as it matches our proposed threshold for the LOTI re-opener (see Chapter 4). The projects we expect to assess through LOTI would also be the projects that we would expect to consider LPD mechanisms for.

2.74 As stated above, we propose that the automatic re-profiling mechanism will apply to all RIIO-ET2 projects that meet the LPD criterion, including those that are agreed in baseline allowances. Through this consultation we are seeking views on whether to apply the milestone-based approach and/or the project delay charge to following projects, all of which we propose to fund in baseline allowances or through PCDs. We are particularly seeking views on whether the late delivery of these projects would create a consumer detriment material enough to warrant application of the milestone-based approach and/or the project delay charge.

- London Power Tunnels (NGET)
- Bramford-Twinstead (NGET)
- Port Ann / Crossaig 132kV (SHET)
- East Coast 275kV (SHET)
- East Coast 400kv (SHET)
- North East 400kV (SHET)
- Kinardochy Reactive Compensation (SHET)
- Denny-Wishaw (SPT)

2.75 We are also considering whether our LPD mechanisms should be applied to RIIO-ET1 Strategic Wider Works projects that have not reached the Project Assessment stage, or where we have not yet approved a Final Needs Case. We welcome views from stakeholders on this matter.

Consultation questions

ETQ4. Do you agree with our proposed LPD mechanisms and do you agree with the criterion that we are proposing to use for our LPD mechanisms?

ETQ5. What are your views on applying our LPD mechanisms to some or all of the projects identified at paragraph 2.74?

Delivering an environmentally sustainable network

2.76 The transmission network and related business activities can be harmful to the environment and stakeholders expect the companies to take appropriate steps to

mitigate their environmental impacts, such as pollution to the local environment, resource waste, biodiversity loss and visual amenity issues relating to infrastructure.

2.77 In this section, we set out our consultation position on the environmental elements of the TOs' RIIO-2 Business Plans. This includes:

- common elements of the TOs' Environmental Action Plans (EAPs)
- insulation and interruption gas (IIG) leakage incentive
- visual amenity in designated areas provision.

2.78 Our consultation position on the minimum requirements of the EAP for RIIO-2, which apply to both the transmission and gas distribution sectors, is in the Draft Determinations - Core document. Our consideration of the TOs' bespoke environmental RIIO-2 proposals is in the network company-specific annexes.

Environmental Action Plan and Annual Environmental Report commitments and targets

Environmental Action Plans and Annual Environmental Report	
Purpose	To ensure that the TOs take responsibility for the environmental impacts arising from their networks and are more transparent in what they are doing to mitigate these.
Benefits	These mechanisms will support cross-sector consistency and greater environmental ambition from the companies.

Background

2.79 In our SSMD, we adopted a cross-sectoral environmental framework requiring the TOs to develop an EAP as part of their RIIO-2 Business Plans. We also said that we expected the TOs to assess the environmental impacts of their RIIO-2 Business Plans, and to identify in their EAPs value for money initiatives and actions to mitigate those impacts.[29]

2.80 We have set out the EAP framework, and inclusion of the EAP Commitments in RIIO-2, in the Core Document. This section provides more detail on our

[29] SSMD - ET Annex, paragraphs 3.35-3.36, https://www.ofgem.gov.uk/system/files/docs/2019/05/riio-2_sector_specific_methodology_decision_-_et_30.5.19.pdf

consultation position on the common elements of the TOs' EAP proposals relating to:

- reducing business carbon footprint (BCF)
- enhancing the biodiversity and natural capital
- reducing pollution to the local environment
- sustainable resource use, recycling and reducing waste.

Consultation position

Output parameter	Consultation position
ODI-R for BCF reduction	We propose to set a common ODI-R for the BCF reduction targets proposed by NGET and SHET in their EAPs. SPT to submit further information by September 2020 on its science-based CO_2e reduction target for RIIO-2.
EAP commitments	We propose to accept all of the TOs' proposals with the following conditions or revisions for specific areas. Reducing building energy use • Baseline funding for SPT and SHET subject to their submitting information on the planned interventions. • Commitment to target 34% reduction in BCF in 2025-26 compared to 2018-19 and a science-based target (SBT)for a 50% reduction in scope 1 and scope 2 emissions by 2030 EVs and charging infrastructure • Our consultation position on NGET's bespoke PCD proposal for transitioning to alternative fuel vehicles is set out in the NGET Annex. Implementing IIG strategies • Our consultation position on NGET's bespoke UM proposal for a SF_6 asset intervention plan is in the NGET Annex. Enhancing biodiversity and natural capital • Our consultation positions on NGET and SPT's bespoke ODI-F proposals are set out in the respective network company annexes.

2.81 We expect all companies to report in their AERs over the course of RIIO-2 on their progress against their EAP commitments. We propose to remove the existing Licence condition on reporting transmission losses but instead incorporate the reporting in the AERs.

Rationale for our consultation position

2.82 As shown in the above table, we propose to accept the vast majority of the TOs' EAP commitments, mostly without amendment. This is because we consider that the TOs' EAP commitments should lead to a significant improvement in the environmental performance of the transmission networks by 2025-26 and justify the £81m cost of EAP commitments covered in this chapter.[30]

2.83 We estimate that nearly half of the £81m cost is for the TOs to continue doing what they have done over the course of RIIO-ET1 in relation to managing environmental risks, and complying with environmental requirements and standards. The additional cost is for new activities or initiatives that the TOs have proposed to significantly reduce the environmental impact of their networks and business activities over RIIO-ET2.

2.84 We propose to include the funding for the EAP commitments covered in this section in the respective TO's baseline allowance without specifying PCDs. This is because the amounts for individual EAP commitments are not material enough to warrant a PCD, and we consider that the reputational incentive of the AER is a sufficient safeguard to mitigate the risk that a TO does not deliver on an EAP commitment.

2.85 There are a small number of cases where we propose to modify a network network company's proposal in order to harmonise it with a similar proposal by another TO. For example, categorising all of the TOs' proposals in a particular area as either an ODI-R or an EAP commitment.

2.86 We have also highlighted the areas where a TO needs to provide further information to justify the funding request for a particular initiative, and/or to better specify the proposal so that there is greater clarity about what it is committing to do.

[30] There are additional potential costs associated with the EAPs which are covered separately in the relevant network company annexes, as well as in the UM chapter.

2.87 In the remainder of this section, we provide more detail on the TOs' EAP proposals and the rationale for our consultation position on the specific commitments in each area.[31]

Table 4: TOs' proposals for science-based targets for reducing BCF

Network company	Proposals in TOs' EAPs
NGET	Commitment to target 34% reduction in BCF in 2025-26 compared to 2018-19 and a science-based target (SBT)for a 50% reduction in scope 1 and scope 2 emissions by 2030.
SHET	PCD for target reduction in BCF by 33% by 2025-26 compared to 2018-19 and long-term reduction target of 45% by 2030.
SPT	Commitment to adopt an SBT for BCF ahead of RIIO-2. Additional EAP Commitment to adopt an SBT for scope 3 emissions by 2023.

Note: The TOs' BCF targets cover scope 1 and scope 2 greenhouse gas emissions but exclude electricity losses.[32]

2.88 We propose to accept NGET's and SHET's proposed targets for reducing BCF because the targets are based on scientific evidence, and in our view, are robust.[33] At the time of the RIIO-2 Business Plan submission, SPT was still in the process of finalising its SBT. Ahead of Final Determinations, SPT must provide us with an update on its SBT, as well as its interim target for the end of RIIO-2. This will be used to assess whether SPT is on track to establish an SBT, which is an EAP minimum requirement.

2.89 The type of output category that each of the TOs proposed for their SBT proposals differed slightly. As summarised in the consultation position of the above section, we propose to set a common ODI-R for the TOs' SBTs in order to harmonise the output classification.

[31] The tables included in this section on the TOs' EAP proposals are not an exhaustive list of all the initiatives that are included in their EAPs. We have only included initiatives in each area that we consider are the most significant to highlight in our consultation position. If an EAP commitment is not listed in the table, it should be taken as meaning that we are consulting on accepting it without amendment. Further detail on all of the initiatives included in each of the TOs' EAPs can be found here: NGET's EAP, https://www.nationalgrid.com/uk/electricity-transmission/document/131996/download, SHET's EAP, https://www.ssen-transmission.co.uk/media/3759/sustainability-action-plan.pdf, and SPT's EAP, https://www.spenergynetworks.co.uk/userfiles/file/RIIO-T2_Annex_7_Environmental_Action_Plan.pdf.

[32] Scope definitions are from the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard. Scope 1 emissions are direct emissions from sources owned or controlled by the reporting network company, eg emissions from network company owned or operated boilers or vehicles. Scope 2 emissions are from the generation of purchased electricity (or other forms of imported energy or cooling). Scope 3 emissions are all the other indirect emissions which are related to the reporting network company's activities, such as the embodied emissions of purchased goods and services, business travel in third-party owned vehicles.

[33] An SBT for greenhouse gas emissions is consistent with what the latest climate science says is necessary to meet the goals of the Paris Agreement - to limit global warming to well-below 2°C above pre-industrial levels and pursue efforts to limit warming to 1.5°C.

Table 5: TOs' proposals for reducing emissions from building energy use

Network company	Proposals in TOs' EAPs
NGET	Commitment to purchase 100% renewable electricity by the end of RIIO-2. Commitment to develop and implement an energy efficiency programme for electrical substations.
SHET	Commitment to install energy efficiency and renewable energy measures at 83 electrical substations by 2026 with a funding request of £12.7m.
SPT	Commitment to install energy efficiency and renewable energy measures at 48 electrical substations by 2026 with a funding request of £7.6m.

2.90 Energy used to control the building environment in substations contributes to overall losses on the transmission system. In our SSMD, we said we would consider trials around metering or energy efficiency at substations, as appropriate.[34] In line with our Business Plan Guidance (BPG) on EAP minimum requirements, all three TOs have set or committed to implementing a programme of measures in older substations to create low carbon buildings, where these provide value for consumers.

2.91 We propose to approve the baseline funding request by SPT and SHET relating to this commitment subject to both companies providing further detail of their planned interventions. This is because we expect that the planned interventions would be economic overall given the results of several recent trials.[35]

2.92 NGET has requested no additional funding for this EAP Commitment, ie it will cover the costs from its overall RIIO-2 baseline Totex allowance. We propose to accept NGET's commitment subject to it providing additional information on the specific outputs for which it will be accountable.

[35] For example, Edinburgh Napier University Research Study (2018) on 'Reducing energy losses and greenhouse gas emissions from substations, https://www.ssen-transmission.co.uk/media/4472/napier-university-research-study-2018-reducing-energy-losses-greenhouse-gas-emissions-from-substations.pdf

Table 6: TOs' proposals for reducing emissions from operational and business transport

Network company	Proposals in TOs' EAPs
NGET	Bespoke ODI-F to reduce carbon emissions from business transport with baseline target of -10% compared to T1 averages. Bespoke ODI-F to reduce carbon emissions from operational transport with baseline target of -54% compared to 2018-19. Bespoke PCD to replace 60% of its operational fleet with alternative fuel vehicles and install charging points across 234 transmission sites by 2025/26. Associated funding request of £15.3m and £11.4m to cover costs of converting to electric vehicles/alternative fuel vehicles and charging points in RIIO-2.
SHET	Commitment to replace 50% of its operational fleet with electric vehicles by 2025/26. Together with a funding request of £2.7m to install 132 charging points across the network by 2025-26.
SPT	Commitment to replace 100% of operational fleet with electric vehicles by 2025/26. Together with a funding request of £0.8m to install 76 charging points across the network by 2025-26. Bespoke ODI-F to accelerate the adoption of low carbon fleet in RIIO-2.

2.93 We consider that the energy networks have a role to play in facilitating the decarbonisation of transport, as well as leading by example to convert their own fleets to EV/AFVs. Converting their fleet to EV will also encourage the networks to be proactive with industry in addressing network-related issues that might otherwise hinder the wider rollout of EV/AFVs.

2.94 We therefore propose to accept SPT's and SHET's proposed:

- EAP commitments for fleet replacement to EVs in RIIO-2
- funding for installing EV charging points, which we propose to include into their respective RIIO-2 baseline funding allowances as the amounts are not sufficiently material to set a PCD.

2.95 We have set out our consultation position on NGET's bespoke PCD and bespoke ODI-Fs in our NGET Annex.

2.96 Our consultation position on SPT's bespoke ODI-F is in our SPT Annex.

Table 7: TOs' proposals for reducing embodied carbon in new network build

Network company	Proposals in TOs' EAPs
NGET	Commitment to achieve net zero carbon construction by 2025-26 using PAS 2060 Carbon Neutrality and PAS 2080 Carbon Management in Infrastructure.[36] Commitment to create an offsetting policy to achieve net zero in construction of new projects.
SHET	Commitment to define industry approach to embodied carbon assessment, reporting and management by end of price control. Commitment to ensure all new large construction projects are compliant with PAS 2080 by end of price control.
SPT	Commitment to collaborate with other TOs to introduce measurement tool for embodied carbon in new projects, in order to establish a baseline and set a reduction target by 2023. Commitment to ensure that carbon management in relevant business activities are aligned with PAS 2080 by 2023.

2.97 Physical infrastructure assets are a significant source of the UK's carbon emissions.[37] If the UK is to achieve its Net Zero ambition, it is imperative that the whole life carbon of infrastructure assets, covering construction, maintenance and decommissioning, is significantly decarbonised.

2.98 We propose to accept the TOs' commitments, without amendment, to measure and baseline embodied carbon of new projects as an essential first step for reducing the whole life carbon impacts of network infrastructure.

2.99 NGET is the only TO to have proposed a target in its EAP for net zero construction by the end of RIIO-2. We encourage both SHET and SPT to strengthen their ambitions in this area by setting a target for reducing the amount of carbon embedded in new infrastructure during the course of RIIO-2.

[36] Publicly Available Specification (PAS) are developed by industry to standardise best practice on a specific subject. PAS are subject to an acceptance process overseen by the British Standards Institute.
[37] The 2013 Infrastructure Carbon Review, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/260710/infrastructure_carbon_review_251113.pdf, estimated that the total impact of the infrastructure on UK carbon emissions is 53%. The infrastructure industry directly controls 16% of the UK's total carbon emissions and has influence over a further 37%.

Table 8: TOs' proposals for reducing emissions of IIGs

Network company	Proposals in TOs' EAPs
NGET	Commitment to implement IIG strategy in RIIO-2. Bespoke UM to fund an SF_6 asset intervention plan to reduce leakage by 34% by the end of 2025-26 compared to 2018-19 levels.
SHET	Commitment to implement IIG strategy in RIIO-2 and a funding request of £4.5m.
SPT	Commitment to implement IIG strategy in RIIO-2 and a funding request of £7.7m.

2.100 Emissions of IIG (primarily SF_6 whose greenhouse warming potential is approximately 23,900 times more than CO_2) make up the single largest component of each TO's BCF. All of the companies included an IIG strategy for RIIO-2 as part of their EAP, which set out their proposed approach to:

- reducing emissions
- leak repair
- asset management
- procurement
- innovation and collaboration for alternative IIGs.

2.101 The companies have committed to procuring equipment (such as switchgear, busbars, etc) with IIG alternatives that have a lower greenhouse warming potential than SF_6, where commercially available. In effect, this will mean that the TOs will no longer procure new 132kV assets containing SF_6. All of the TOs have also committed to working with suppliers and manufacturers to innovate and develop alternatives to SF_6.

2.102 In addition, all of the TOs have committed to using alternatives to SF6 for assets at higher voltage (275kV, 400kV) but expect that these will only be available in the second half of RIIO-2 (or post 2026). We note that commercial alternatives at higher voltages may be viable earlier according to a number of global asset manufacturer roadmaps.

2.103 SPT has committed to procuring assets with a leakage rate that is half that of typical manufacturers' guaranteed leakage rate (ie 0.25% instead of 0.5%). We consider that this sets a new benchmark for best practice.

2.104 We are consulting on accepting the TOs' proposed IIG strategies as outlined above without any amendment. We are satisfied that by implementing their strategies,

the TOs will reduce IIG leakage rates in RIIO-2 and also avoid a proportion of new SF_6 additions on the network. This will contribute to fewer CO_2e emissions than might otherwise be the case in the absence of the strategies and is, in our view, in the interests of current and future consumers.

2.105 Our consultation position on NGET's bespoke UM proposal for replacing the highest leaking SF_6 assets on their transmission network is in the NGET annex.

Table 9: TOs' proposals for electricity losses from the transmission network

Network company	Proposals in TOs' EAPs
NGET	Commitment to implement transmission losses strategy in RIIO-2.
SHET	Commitment to implement transmission losses strategy in RIIO-2.
SPT	Commitment to implement transmission losses strategy in RIIO-2.

2.106

2.107 Energy losses on the transmission system contribute to CO_2 emissions and higher system costs for consumers. In our SSMD, we decided to incorporate transmission losses into the TOs' EAPs, rather than keep it as a standalone area. We also decided to retain the requirement for TOs to report annually on the transmission losses, but to do so as part of their AERs instead of in a separate report, and to retain the requirement for them to implement a strategy for loss reduction.[38]

2.108 In our SSMD, we also said that we would consider strengthening the relevant Licence condition that requires the TOs to report on transmission losses, to emphasise the importance of losses minimisation and to align messaging across sectors.[39]

2.109 All companies have submitted an updated Transmission Losses Strategy as part of their Business Plans. These include common commitments to consider, as part of their procurement processes, the cost of losses within the lifecycle of new assets. These losses strategies also include their proposed approaches to:

- minimising losses
- estimating and calculating losses
- asset replacement
- asset specifications
- innovation and new technologies

[38] SSMD - ET Annex, paragraphs 3.94-3.99, https://www.ofgem.gov.uk/system/files/docs/2019/05/riio-2_Sector_specific_methodology_decision_-_ET_30.5.19.pdf
[39] Special Condition 2K (Transmission losses).

- Stakeholder Engagement and reporting.

2.110 All of the TOs anticipate that despite efforts to reduce losses, total losses will increase on their networks during RIIO-T2, primarily due to network expansion and the growth of distributed generation. At the same time, the carbon intensity of these losses is expected to fall.

2.111 We welcome the commitments the TOs have made in their transmission losses strategies and propose to accept these without any amendment. We are satisfied that if they implement their proposed losses strategies, the TOs will make a positive contribution to an efficient level of transmission losses, which we consider is in the interests of current and future consumers.

2.112 Having considered it further, we do not think it is appropriate to emphasise loss minimisation in a Licence condition for the TOs. This is because transmission losses are largely the result of the energy flows and loading on the system, which the ESO controls. The TOs have a partial influence on transmission losses through decisions they make on asset procurement and network design. We think that a Licence condition to minimise losses could give undue weight to reducing losses in network investment decisions over factors such as cost and system need, which are important considerations to ensure that any proposed investment is economic and efficient.

2.113 Finally, our SSMD also set out our decision to incorporate transmission losses into the TOs' EAPs and relevant reporting as part of their AERs. We propose to remove the losses-specific Licence condition for RIIO-2, and instead cover the reporting requirements in our guidance to the network companies on publishing an AER. We consider that reporting in the AER will make this information more accessible to stakeholders, who will be able to see the TOs' progresses against their losses strategies.

Table 10: TOs' proposals for embeDraft Determinationsing circular economy principles and improving supply chain sustainability

Network company	Proposals in TOs' EAPs
NGET	Commitment to pilot and implement circular economy principles across business, compliant with BS8001.[40] Commitment to implement ISO20400 sustainable sourcing process.[41]
SHET	Commitment to pilot a new supply chain sustainability reporting system by 2021-22. Commitment to target 80% of suppliers (by value) meeting the requirements of SHE Transmission's Sustainable Procurement Policy during T2.
SPT	Commitment to embed circular economy principles into business processes, considering whole life cycle environmental impacts by 2023. Commitment to implement ISO20400 into procurement process by 2023. Commitment to target 80% of suppliers (by value) meeting the requirements of SHE Transmission's Sustainable Procurement Policy during T2. Commitment to collaborate with suppliers to develop a suite of key performance indicators to drive environmental improvements through the supply chain throughout T2.

2.114 Infrastructure businesses are resource intensive. In the face of environmental degradation and resource scarcity, linear models of resource use that follow a take, make and dispose pathway are not an environmentally sustainable approach.

2.115 There are good economic reasons for the TOs to improve the resource efficiency of their infrastructure assets and move to a more environmentally sustainable business model. In addition, embedding environmental considerations into spending and investment decisions can also bring about significant environmental improvements through the supply chain.

2.116 We are consulting on accepting the commitments that the TOs have made in this impact area without any amendment. This is because there are negligible direct costs associated with embedding circular economy principles into the network business, but they would help to reduce the whole life environmental impact of network infrastructure. We note that the TOs have proposed different approaches in this area. Generally, we consider that each TO's proposals would improve upon practices during RIIO-T1. In addition, we think that there is more than one way to adopt business practices that promote a more circular economy. Therefore, we

[40] BS8001 is a standard for translating the principles of the circular economy into tangible actions for businesses to take.
[41] ISO20400 provides guidance for organisations on delivering sustainable outcomes through their supply chains by adopting a strategic framework to procure sustainably.

consider it would not be appropriate to specify a uniform course of action for the TOs to adopt at this time.

Table 11: TOs' proposals for enhancing biodiversity and natural capital

Network company	Proposals in TOs' EAPs
NGET	Bespoke ODI-F for a 10% increase in natural capital value on all non-operational land by 2025-26. Bespoke ODI-F for a 10% biodiversity net gain on 100% of new construction projects in RIIO-2.
SHET	Commitment of no net loss on 100% of new construction projects in RIIO-2. Commitment of no net loss of native woodland on 100% of new projects in RIIO-2. Commitment of 5% biodiversity net gain on 100% new projects from 2025 onwards.
SPT	Bespoke ODI-F to deliver biodiversity net gain initiatives. Bespoke ODI-R to deliver biodiversity enhancements on non-operational land. Commitment to develop a measure of biodiversity and natural capital and establish baseline by 2021. Commitment to pilot biodiversity and natural capital assessment tools on selected T2 projects by 2023. Commitment to work with stakeholders to deliver no net loss in biodiversity and options for delivering biodiversity net gain by 2026.

2.117 Many parts of the UK's natural environment are in decline.[42] In its 2020 annual report,[43] the Natural Capital Committee said that an environmental census is needed urgently to assess fully the state of natural capital assets and to measure progress towards the environmental goals set out in the UK Government's 25-year environmental plan.

2.118 We propose to accept all of the EAP Commitments made by the TOs in this area. This is because there is strong evidence that stakeholders and consumers strongly support the TOs moving towards a land stewardship approach to managing their network land portfolios.[44]

[42] Sixth National Report to the UN Convention on biological diversity: overview of the UK assessments of progress for the Aichi Targets, March 2019, http://data.jncc.gov.uk/data/527ff89f-5f6b-4e06-bde6-b823e0ddcb9a/UK-CBD-Overview-UKAssessmentsofProgress-AichiTargets-web.pdf
[43] See page 24 of the Natural Capital Committee Annual Report, January 2020
[44] The TOs jointly commissioned NERA to undertake a willingness-to-pay studying covering improvements in several service attributes, including the delivery of enhancements to improve the environmental quality and value of land and biodiversity. A summary of the study can be found here: https://www.ssen-transmission.co.uk/media/3455/consumers-willingness-to-pay-final-0107.pdf

2.119 Our consultation positions on NGET's and SPT's bespoke ODI-F and ODI-R proposals relating to biodiversity and natural capital improvements are in the respective network network company annexes.

Table 12: TOs' proposals for reducing pollution to the local environment

Network company	Proposals in TOs' EAPs
NGET	Commitment to maintain high standards of oil containment and pollution management. Commitment to remove all equipment containing polychlorinated biphenyl (PCB) by 2025.
SHET	Commitment to remove all equipment containing polychlorinated biphenyl (PCB) by 2025.
SPT	Commitment to remove all equipment containing polychlorinated biphenyl by 2025. Commitment to remove 318,000 litres of oil from network.

2.120 We have assessed the proposed works to remove all equipment from the transmission network containing PCBs and are satisfied that the relevant engineering interventions would be required to comply with all relevant requirements. We also consider that the proposed expenditure to be efficient. Therefore, we propose to accept the TOs proposals without any amendment.

Table 13: TOs' proposals for sustainable resource use, recycling and waste reduction

Network company	Proposals in TOs' EAPs
NGET	Bespoke ODI-F to increase operational and office recycling from 45% to 60% by 2025-26. Bespoke ODI-F to reduce water use at offices by 20% by 2025-26 compared to a 2019/20 baseline. Commitment to achieve zero waste to landfill on all waste streams by the start of RIIO-2. Commitment to reduce waste intensity of construction projects year-on-year compared to a 2018-19 baseline.
SHET	Commitment to implement best practice reporting for all waste streams by the start of RIIO-2. PCD to achieve zero waste to landfill by 2025-26. PCD to achieve recycling, recovery and re-use rate of 70% across all waste streams by 2025-26.
SPT	Commitment to divert 95% of waste from landfill by 2023 and achieve zero waste by 2050. Commitment to reduce water use by 10% by 2023, 25% by 2030 and 50% by 2050. Commitment to include considerations of operational and end of life stages in design process to eliminate project waste by 2023. Commitment to set targets to recycle/re-use materials as a % of total input materials for 2025-26, 2030 and 2050.

2.121 We propose to accept all of the proposals made by the TOs in this area because if achieved, they should reduce the environmental impact of the TOs activities at minimal additional costs to consumers.

2.122 We note that SHET proposed PCDs for their waste to landfill and recycling targets, while NGET and SPT proposed these as commitments. We think it would not be appropriate to set a PCD for this activity as the funding SHET requested is not material enough to justify setting a PCD.

2.123 Our consultation positions on NGET's bespoke ODI-F proposals relating to recycling and reducing water use in offices are in the NGET Annex.

Consultation questions

ETQ6. What are your views on our consultation position for the three electricity TOs' EAP proposals in RIIO-2 as set out in this document?

Insulation and Interruption Gasses (IIG) leakage incentive

IIG leakage incentive	
Purpose:	To incentivise a reduction in leakage of SF_6 and other IIGs from assets on the transmission network, and to support the transition to low Greenhouse Gas alternative IIGs.
Benefits:	To reduce the volume of harmful leakage of greenhouse gas emissions from GB's Electricity Transmission network.

Background

2.124 SF_6 and other IIGs[45] are used in some transmission assets such as high-voltage (HV) switchgear, because they have excellent insulating properties. However, the leakage of these gases is harmful for the environment. SF_6, in particular, has a Global Warming Potential approximately 23,900 times stronger than CO_2.

2.125 The IIG Incentive[46] is designed to incentivise network companies to reduce leakage of IIGs from their networks, by setting an annual target for leakage. Where companies have leakage below the target, they receive a reward. Conversely, if leakage exceeds the target, the network company receives a penalty. The level of reward or penalty is determined by using the value of the difference between the target and the level of emissions, using the Non-Traded Carbon Price[47] of the relevant gas.

2.126 In our SSMD, we decided to retain a financial incentive for leakage of SF6 and to expand the incentive to include leakage of alternative IIGs, and to update the baselines each year with well-justified additions and disposals.[48] We left certain aspects to Draft and Final Determinations. These were: setting the baseline target, and whether to include a materiality threshold for IIG exceptional events.

[45] Means a gas with a global warming potential of greater than zero, used within electrical switchgear and transmission assets with a suitable dielectric strength to enable use as an insulator to prevent discharge or as an interruption aid to prevent flow of current during planned or non-planned switching.
[46] In RIIO-1 this was referred to as the SF_6 Incentive. For RIIO-2 this has been expanded to also include other IIGs.
[47] As set out in the supplementary guidance to UK Government Treasury's Green Book, for valuation of energy use and greenhouse gas emissions.
[48] SSMD - ET Annex, paragraph 3.167, https://www.ofgem.gov.uk/system/files/docs/2019/05/riio-2_sector_specific_methodology_decision_-_et_30.5.19.pdf

Consultation Position

Output parameter	Consultation position
Baseline target methodology	Set the initial baseline target using the average leakage rate from 2013-20, with a 15% improvement factor applied.
Exceptional events materiality threshold	We propose not to include a materiality threshold. We instead propose to include a Licence requirement for the value of exceptional event leakage to exceed the network network company's resource cost for completing the submission.
IIG Methodology Statements	Statements to be submitted to Ofgem for review by 31 December 2020.
Associated bespoke outputs	NGET has proposed a bespoke output relating to the reduction of SF_6 within their assets. We have set out our consideration and consultation position in the NGET Annex.

Rationale for Consultation Position

Setting baseline targets

2.127 In our SSMD, we set out three options for setting the initial amount of base emissions that we were considering, based on the TOs' leakage rates measured over various years of RIIO-T1.[49] However, having considered these options and feedback from SHET, we instead propose to set the incentive baseline using the average leakage rate between 2013/14 and 2019/20 for each network company, with a 15% improvement factor applied.[50]

2.128 We consider that using actual performance data provides greater certainty than waiting to take into account performance data from the final year in 2021. In our view, the proposed 15% improvement factor, which would apply to the average leakage rate over the first seven years of RIIO-1, sets a challenging yet achievable target and reflects stakeholders' expectations of improvement in this area.

[49] SSMD - ET Annex, paragraph 3.165, https://www.ofgem.gov.uk/system/files/docs/2019/05/riio-2_sector_specific_methodology_decision_-_et_30.5.19.pdf
[50] Data for 2019-20 is expected in July 2020, and therefore the proposed initial baseline targets are to be confirmed.

IIG exceptional events materiality threshold[51]

2.129 We do not propose to introduce a monetary materiality threshold for IIG exceptional events; however, we propose instead to require the TOs' submissions in this regard to represent value for money. Specifically, we propose that the TO be required to demonstrate in its submission that the value of the exceptional event leakage volume exceeds the cost to the TO of putting together the submission. This seeks to ensure that this is in the interests of consumers and that regulatory intervention is proportionate. The value of the exceptional event leakage volume should be determined using the annual Non-Traded Carbon Price against the volume of the relevant IIG (in tonnes of CO_2 equivalent). We propose that the relevant RIIO-2 Licence condition reflect this.

IIG Methodology Statements

2.130 We propose that each TO must have in place an IIG Methodology Statement approved by Ofgem for the start of RIIO-T2. These statements must set out the methodology used to measure the leakage of each type of IIG on the TO's network, and how this determines the values used within the incentive calculations.

2.131 In order to allow sufficient time for these to be reviewed and agreed by Ofgem before the start of RIIO-T2, we are proposing that these be submitted to Ofgem by 31 December 2020.

Visual amenity in designated areas provision

Visual amenity in designated areas provision	
Purpose:	To fund mitigation projects that reduce the visual amenity impacts of existing infrastructure in National Parks, Areas of Outstanding Natural Beauty and National Scenic Areas.
Benefits:	To restore the quality of visual amenity in National Parks, Areas of Outstanding Natural Beauty and National Scenic Areas for the enjoyment of current and future consumers.

[51] SSMD - ET Annex, paragraph 3.177, https://www.ofgem.gov.uk/system/files/docs/2019/05/riio-2_sector_specific_methodology_decision_-_et_30.5.19.pdf

Background

2.132 In our SSMD[52], we decided to retain the re-opener provision to fund mitigation projects that reduce the impacts of existing transmission infrastructure on the visual amenity of National Parks, Areas of Outstanding Natural Beauty and National Scenic Areas. We said that we would decide on the cap of the total amount of funding for all TOs' mitigation projects based on evidence of stakeholder support and updated consumer willingness to pay.

2.133 In setting the cap, we said we would use the median estimate of consumer willingness to pay as a starting point, but could determine the value of the cap having considered the robustness of the updated willingness to pay and other relevant considerations to balance issues of affordability for consumers, and to facilitate the TOs to deliver visual amenity benefits in landscapes with high visual amenity.

2.134 We also decided to continue to fund mitigation projects that utilise landscaping and other measures that do not involve significant changes to transmission infrastructure, with up to 2.5% of the expenditure cap for each TO.

Consultation Position

Parameter	Consultation position
Value of the expenditure cap	Expenditure cap of £465m in 2018-19 prices. No baseline funding for T2 projects. Expenditure allowances approved for T2 projects through the re-opener process will be subject to a PCD.

Rationale for Consultation Position

Setting the value of the expenditure cap

2.135 In their RIIO-2 Business Plans, the TOs provided information on:

- the results from a survey of consumer Willingness to Pay[53] for mitigation projects in designated areas involving undergrounding

[52] SSMD - ET Annex, paragraphs 2.232-2.252, https://www.ofgem.gov.uk/system/files/docs/2019/05/riio-2_sector_specific_methodology_decision_-_et_30.5.19.pdf

[53] The TOs jointly commissioned NERA to undertake a WTP studying covering improvements in several service attributes, including undergrounding of transmission infrastructure in designated areas. A summary of the study can be found here: https://www.ssen-transmission.co.uk/media/3455/consumers-willingness-to-pay-final-0107.pdf

- their best view on the potential pipeline of mitigation projects in the RIIO-2 price control period.

2.136 In evaluating the options for setting the expenditure cap we took the results of the 2019 joint willingness to pay (WTP) study as our starting point then had regard to the following considerations:

- the pipeline of potential new projects in the TOs' RIIO-2 Business Plans
- the additional costs that energy consumers will face in the RIIO-2 price control period to facilitate the Net Zero transition in the energy sector (ie costs in excess of the Net Zero service attributes that were included in the WTP survey)
- the potentially long-lived economic shock arising from the COVID-19 pandemic that could adversely affect the affordability of energy bill increases for many consumers.

2.137 We identified three options for setting the expenditure cap for mitigation projects in RIIO-2.

- Option 1: Aggregate consumers' median WTP estimate for undergrounding plus an additional 2.5% for each TO to deliver non-undergrounding mitigation projects. Overall expenditure cap = £925m.
- Option 2: Cover costs of all potential pipeline projects identified in the Business Plans plus an additional 2.5% for each TO to deliver non-undergrounding mitigation projects. Overall expenditure cap = £725m.
- Option 3: Cover those potential pipeline projects identified in the Business Plans that have an affordable impact on energy bills and visual impacts of high importance, plus an additional 2.5% for each TO to deliver non-undergrounding mitigation projects. Overall expenditure cap = £465m.

2.138 We propose to set the cap at £465m using Option 3. This is because it is within the expenditure cap set by WTP and will allow the TOs to deliver significant visual amenity benefit in T2 at least impact on energy bill.

Consultation questions

ETQ7. What are your views on our consultation position for setting the expenditure cap for visual amenity mitigation projects in RIIO-2?

Consultation questions – Chapter 2 generally

ETQ8. Do you have any views on our outputs that have not been covered through any of the specific consultation questions set out elsewhere in this chapter? If so, please set them out, making clear which output you are referring to.

3. Cost of service - setting baseline allowances in RIIO-ET2

Introduction

3.1 This chapter provides an overview of our approach to assessing the baseline funding requests from the three electricity TOs and sets out our proposed baseline totex allowances and relevant PCDs for each.

3.2 We have set baseline totex allowances for all TOs only where we are satisfied of the need for and certainty of the proposed work, and where there is sufficient certainty of the efficient cost of the work. Our proposed baseline totex allowances for each TO is given in the table below.

Table 14: Network company baseline funding request and Ofgem's proposals

Network company	Baseline request £m	Ofgem view £m
NGET	7090.3	3331.7[54]
SHET	2388.4	1608.7
SPT	1388.5	969.6

3.3 Our proposed reductions result from us not being satisfied with the justifications for certain work or activity levels and from us taking a view of efficient costs that is lower than companies' proposals for justified work or activities.

The make-up of a totex allowance

3.4 Network company Business Plan costs are broadly categorised as two types: capital expenditure (capex), and operational expenditure (opex). In general, capex is associated with installing new long-life assets or maintaining/upgrading existing assets, while opex relates to the costs of running and maintaining the network.

3.5 There are three main capex components:

[54] This figure includes an adjustment of -£556m for the recovery of unused RIIO-1 allowances for works started in the RIIO-1 period and to be completed in RIIO-2. Relevant detail is set out in the NGET Annex, Chapter 3.

- load-related expenditure (LRE), which relates to investment to expand current network capacity or to connect with new generation or demand sources
- non-load related expenditure (NLRE), which relates to investment to maintain the health of the existing asset base
- non-operational capex, which relates to assets not directly connected to the network, but which support the general functioning of the business, eg vehicles and transport, and office buildings.

3.6 There are two main opex components:

- network operating costs, which are those costs incurred in the day-to-day running of the network, eg rectifying faults, repairs and maintenance activities
- indirect opex, which encompasses business support costs (BSC), ie cost relating to functions such as corporate governance, and closely associated indirects (CAI), ie back office functions directly involved in the construction and operation of network assets, such as Project Management and Network Design.

3.7 There may also be other one-off or bespoke costs, such as for cyber security. These costs are a mix of capex and opex.

3.8 In addition to our current view of efficient cost levels as set out above, we also expect the companies to strive for improvements in the way they operate through the price control period. We do this through the imposition of an efficiency challenge on the totex amount derived through our assessment. The level of this challenge is informed by forecasts of growth in the general economy and specific inputs to the companies' activities, for example, labour and input material prices.

3.9 The remainder of this chapter sets out the processes and methodologies we followed in arriving at our proposed allowances. Specific detail on our assessment of the work and activities underlying the proposed allowances is in the network company annexes.

Transmission cost assessment process

3.10 Companies submitted their Business Plans to Ofgem, which set out their proposed activities and associated funding requests covering the period from 1 April 2021 to 31 March 2026. Alongside their core Business Plan submissions, the companies

also submitted numerous subsidiary documents, which set out the detail behind those plans. The key documents relating to the cost assessment process are:

- Engineering Justification Papers (EJPs) - these set out for each of the main schemes of work; the needs case, optioneering, and associated cost benefit analysis which underpin the proposed solution
- Business Plan Data Templates (BPDTs) - these detail the costs and volumes of asset interventions proposed during the period, along with the operational costs of running the network
- Network Asset Risk Metric (NARM) tables - these set out the proposed network in-year and lifetime risk reduction for each intervention detailed in the BPDTs
- supporting papers - many of the significant interventions and activity types have additional papers giving further detail on why the TO considers their proposal to be in consumers' interests.

3.11 The difficulties with transmission cost assessment are well documented: there are only a few companies to compare, and they vary significantly in size and scale. Forward-looking Business Plans are specific to each region, though there is a degree of interdependence through boundary transfer flows between adjacent regions. Lack of cost comparability with other national and international regulatory regimes means that the availability of useful datasets is limited. Nonetheless, there are also commonalities among the TOs: the basic types of assets on their networks, and the processes and activities to maintain the network and facilitate their efficient operation.

3.12 Accordingly, our approach to assessing network company costs relies on a combination of bespoke review and comparison across the companies, as appropriate to the nature of the cost. Capex programmes have been subjected to bespoke assessment of their needs cases and optioneering, followed by a review of the efficiency of the proposed costs. Opex costs have been reviewed by comparing the network company submission with both historical incurred costs and cost levels across the sector(s) for similar activities, where possible. Some areas of opex assessment have also been informed by independent expert review.

3.13 In assessing efficient costs, we used companies' historical incurred costs as a valuable input given their factual nature and the effect of the totex efficiency incentive they already contain. We also took into account companies' forecast costs, both in our benchmark analysis to reflect relevant up-to-date efficiency

improvement, and in our case-by-case assessment of costs that cannot be informed by historical data. Given the sparsity of relevant data points and the spread of cost variation, we generally took the average of dataset in our unit cost analysis instead of other statistical metrics such as percentiles. A further efficiency challenge is included separately.

3.14 The following sections detail the ET cost assessment processes followed in each of the main BPDT cost groupings; load and non-load related capex, non-operational capex, and opex.

Load and non-load related capex

3.15 Load and non-load related capex relate to investment to expand the network capacity and to investment to maintain the health of the network company's existing asset base, respectively. Our cost assessment follows a two-stage approach: firstly, a review of the needs case and the options considered by the TO; and then, for those schemes/volumes that passed the first stage, an assessment of the efficient cost for delivering them. The next sections discuss these stages in more detail.

Needs case review

3.16 As part of their RIIO-2 Business Plan submissions, network companies were required to provide EJPs, which set out the need, options, scope, costs and benefits for major projects or aggregated investment programmes aimed at improving asset health of existing equipment or providing increased capacity on the network. These EJPs underpin the high-level outputs contained in the Business Plans by detailing the investments required to meet the proposed outputs and summarising the needs case and supporting evidence.

3.17 The EJPs should act as a robust decision support tool, open to scrutiny and challenge in conjunction with other appropriate means of justification for investment decisions. They should be transparent about options scope, and which risks, costs and benefits were considered by the TO as part of the analysis to inform the need for intervention and their proposed solutions. In support of these aims, Ofgem published EJP templates and Guidance,[55] issued as part of the overall

[55] RIIO-2 final data templates and associated instructions and guidance, https://www.ofgem.gov.uk/publications-and-updates/riio-2-final-data-templates-and-associated-instructions-and-guidance

RIIO-2 BPG. The EJP Guidance set out the expected content and format of the EJPs.

3.18 In support of the assessment of the RIIO-2 Business Plans, Ofgem developed an EJP assessment framework in order to ensure that the EJPs meet the published guidance and provided sufficient evidence for the proposed investments. The assessment framework considered the following:

- the needs case for the investment - as per the EJP Guidance, this is demonstrated by the provision of an explanatory narrative and evidence to support the need for investment. Supporting evidence includes; asset condition and performance data, degradation projections, boundary power flow assessments, and references to the outputs of other industry standard assessment methodologies (eg NG ESO Network Options Assessment processes)
- the options development and assessment process - whether all credible options to meet the needs case have been identified, including do nothing or minimum intervention, whether the reasons for the rejection of options are presented and the rationale for rejection is clear. This ensures that the most relevant options are progressed to the Cost Benefit Analysis (CBA)
- efficiency of engineering solutions - whether the chosen/preferred option is a proportionate solution to the identified needs case and the scope of the solution has not expanded beyond meeting the identified need without further justification. This process confirms that the associated CBA supports the solution proposed
- investment delivery timings and volumes - whether the volumes proposed as part a proposed solution can be delivered in the RIIO-2 period, and for asset replacement projects, whether they deliver a net risk reduction as measured by NARM
- maturity of submitted costs - how well developed the project costings are, for example, whether they are supported by market tested tenders, or whether they are still just at desktop study stage.

3.19 To support the assessment of NGET's plan we commissioned Atkins Consultancy[56] to provide a view on the EJPs, including the needs case and options selection. From this and our own review of NGET's plan, we were able to form a view on the justified volume of work and whether additional protections, such as UMs or PCDs,

[56] The report provided by Atkins Consultancy will not be published on our website due to the commercially sensitive nature of the subject matter.

were required to manage the risk to the consumer of under-delivery or increased requirements of investment.

Cost efficiency review

3.20 After establishing our view of the justified investment work from each network company's schemes plus a view on their cost maturity, we then assessed the efficient cost for this work. This was broken down to three parts; the costs directly associated with individual types of transmission assets being included within that scheme (the 'asset costs), other related costs, such as civils works (the 'non-asset costs'), and risk and contingency costs.

3.21 The scope of work included in the asset costs is based on the scope of work listed for each asset in the 'RIIO-T2 regulatory instructions and guidance: Glossary' document.[57] In general, it includes direct costs for procurement, installation, and electrical commissioning work, and excludes 'indirect costs' and the majority of civil works costs associated with the asset intervention, which are reported separately and treated as non-asset costs.

3.22 For assessing the asset costs, our primary approach was to apply our independent benchmark of unit cost for each type of asset, where relevant data is available in the companies' BPDT submissions. This is the lower of the historical and forecast average unit costs for each asset type across the three TOs.

3.23 In each scheme, our proposed allowance for asset costs is based on the lower of the network company's proposed unit costs for the scheme and Ofgem's benchmark unit cost for all asset types, subject to any case-by-case adjustments for material deviation where there were justifiable reasons.

3.24 A number of asset types were either lacking RIIO-T1 comparators or their asset data was deemed to be insufficiently reliable, for example, where the dataset had a high degree of variability. In such instances, we conducted a specific review of the associated asset costs and supporting information from the relevant TO, to arrive at a view of efficient costs. The review included considering the variation in scope of work or variation in type of plant.

[57] Please see Ofgem webpage: https://www.ofgem.gov.uk/publications-and-updates/riio-2-final-data-templates-and-associated-instructions-and-guidance.

3.25 Non-asset cost elements of schemes were reviewed on a case-by-case basis, taking into account specific information provided by the network company.

3.26 For risk and contingency costs, our guidance for completion of the BPDTs instructed the companies to separate these out from the asset and activity costs. This was so that we could take a more holistic view of the levels of risk allowance embeddedin the network company's submission.

3.27 Our proposed allowance for risk and contingency costs was based on companies' submissions and the following adjustments:

- removing risk and contingency components associated with assets where our applied benchmark unit costs were set by historical levels, because it already includes the relevant outturn risk
- removing risk and contingency components associated with delivery and construction phases of projects sitting outside RIIO-2
- accepting companies' requests for risk and contingency for the remaining components, subject to a cap that is derived from the companies' historical average for their LRE and NLRE schemes.

3.28 After summing up all the cost elements for each scheme, we applied the annual cost profile that was submitted by the companies to allocate allowances for each relevant year.

3.29 The final outputs of the load and non-load related capex cost assessment process were:

- a list of schemes and their associated volumes that we propose to include in the baseline allowance
- Ofgem's view of the efficient costs for each of those schemes
- any volumes from the accepted baseline proposals that we propose to designate as PCDs
- any volumes from the companies' baseline proposals that we propose to allocate to uncertainty mechanisms.

Projects spanning price controls

3.30 The TOs' Business Plans include capex projects starting in RIIO-1 and completing in RIIO-2. We assessed the total efficient cost for each project as a whole

according to the methodology set out above, except where RIIO-1 volume drivers are already applicable.

3.31 We then divided the total project efficient cost into the following two parts according to the TOs' submitted profiles. Our proposed funding approach is:

- for the first part up to and including 31 March 2021, this will be funded in RIIO-1 subject to true-up
- for the second part from 1 April 2021 to 31 March 2026, this will be part of RIIO-2 baseline allowances with a relevant PCD.

3.32 For some projects, funding in RIIO-1 is driven by a relevant uncertainty mechanism based on the TOs' own forecast outputs in RIIO-2. For true-up, we will need to confirm the actual funding amount and the eventual outturn costs after the end of RIIO-ET1. We propose to carry out the true-up for these projects in the RIIO-ET1 close-out. For other projects, the funding provided in RIIO-ET1 is a fixed amount, and regardless of the TO's eventual spend on such projects in RIIO-ET1, the true-up can already be done with certainty together with our determination of the net amount to be allowed in RIIO-ET2. We have reflected such true-up in our proposed RIIO-ET2 baseline totex allowances.

3.33 TOs also reported in their Business Plans capex projects starting in RIIO-ET2 and completing in RIIO-ET3. Our SSMD[58] set out our decision in respect of the funding approach for asset intervention projects spanning RIIO-ET2 and RIIO-ET3. This is to provide a bridging fund in RIIO-ET2, carry out a true-up at the end of RIIO-ET2 and reflect this in funding for RIIO-ET3. As any unused excess funding from this bridging fund will be subject to a true-up at the end of RIIO-ET2, this funding will be exempt from the TIM mechanism and the costs related to this funding will not be used in the calculation of the TIM sharing factor. We propose to extend this approach to cover both LRE and NLRE capex projects.

Non-Operational Capex

3.34 Non-operational capex costs comprise the following four categories: Property, Small tools, equipment, plant and machinery (STEPM), Vehicles and Transport, and Information Technology and Telecoms (IT&T).

[58] SSMD- ET Annex, paragraphs 6.50-6.51, https://www.ofgem.gov.uk/system/files/docs/2019/05/riio-2_sector_specific_methodology_decision_-_et_30.5.19.pdf

3.35 For both Property and STEPM costs, we examined the historical run-rates for spend over the RIIO-ET1 period and performed ratio analysis against Modern Equivalent Asset Value (MEAV) and capex to establish baseline requirements. This was supplemented by a review of specific non-operational property funding requests where these were separately presented by the TOs within their EJPs.

3.36 For Vehicles and Transport costs, we used a historical trend model based on RIIO-ET1 actual incurred costs for non-electric vehicles. We then multiplied the model's output by the proportion of the fleet that is not being replaced with electric vehicles (EVs). For the EV element, we multiplied our view of the proposed volume by an appropriate EV unit cost based on our review of the companies' submissions. We added both of these figures together to determine an overall proposed allowance for Vehicles and Transport.

3.37 In assessing IT&T costs, we were assisted by external consultants with expertise in this subject area. This assessment reviewed the strength and traceability of the IT proposals against four criteria; robustness of project justification, credibility of planning, understanding and deliverability of resource definition, and efficiency and certainty in costing.

3.38 Projects that met all four assessment criteria are proposed for baseline funding. Projects that failed to meet all criteria are proposed to be subject to the IT&T UM, details of which can be found in the Core Document.

Opex

3.39 Opex analysis centres around two areas: network operating costs and indirect opex. The former relates to expenditure that is primarily for the day-to-day maintenance of the electricity transmission network to a safe and good standard, the latter concerns costs incurred supporting both general business activities and operational activities.

3.40 In contrast to capex, opex costs are expected to be more regular and less prone to significant shifts in activity levels. It lends itself to analysis through historical run rates and econometric techniques, as there is a more direct comparability of activities across companies. The following sections explain how these have been applied in our assessment of the TO Business Plans.

Network Operating Costs

3.41 Network Operating Costs comprise expenditure on; faults, inspections, repairs and maintenance, vegetation management, operational protection measures and IT capex, and legal and safety. Our assessment is based on a comparison of the individual network company's historical incurred costs for the first six years of RIIO-T1 against their proposed spend for the RIIO-T2 period, at the disaggregated level of each of the above cost sub-categories.

3.42 We have used both 'unit costs' and 'average annual cost' calculations in deriving our proposed allowances for relevant cost sub-categories depending on the cost and volume data submitted by the companies in their BPDTs. This is explained as follows.

- Unit costs approach: we applied this approach for cost sub-categories where a network company submitted in its BPDTs both costs and volumes for both the first six years of RIIO-T1 and for the RIIO-T2 period. We calculated a sub-category historical and forecast unit cost by dividing the total cost by the total volume over the relevant period. We then multiplied the lower of the RIIO-T1 unit cost and RIIO-T2 unit cost by the proposed RIIO-T2 volumes for that sub-category to derive the proposed allowed costs for that sub-category.
- Average annual cost approach: we applied this approach for cost sub-categories where a network company failed to provide in its BPDTs volumes for either the first six years of RIIO-T1 or for the RIIO-T2 period. We calculated an historical and forecast average annual cost by dividing the total cost by the number of years in the relevant timespan. We then multiplied the lower of the RIIO-T1 average annual cost and RIIO-T2 average annual cost by the five years of RIIO-T2 to derive the proposed allowed costs for that sub-category.

3.43 There are sub-categories of Network Operating Costs where the above general approach is not applicable. For example, where a network company is proposing works in the RIIO-T2 period without either an historical equivalent or comparator in the RIIO-T1 period. In these instances, we relied on our assessment of the network company's EJPs to come to a view on the appropriate allowances. We have provided further information on these cases in the respective network company annexes.

Indirect Opex

3.44 Indirect Opex consists of both Business Support Costs (BSC) and Closely Associated Indirects (CAI). BSC are incurred supporting companies' general business activities, while CAI costs are those that support operational activities.

3.45 We performed a joint assessment of both BSC and CAI across ET and GT due to the commonality of their sub-categories, but excluded NGGT (SO) given its different business nature.[59] We also excluded Electricity Distribution Network Operator data, despite the advantage of increasing sample size, as this would require significant data normalisations to ensure costs were being compared on a like-for-like basis.

3.46 The individual cost sub-categories are set out in the tables below.

Table 15: Business Support Cost sub-categories by sector

Business Support category	GT	ETO
Information Technology and Telecoms (IT&T)	Yes	Yes
Property management	Yes	Yes
Audit, finance, and regulation	Yes	Yes
HR and non-operational training	Yes	Yes
Insurance	Yes	Yes
Procurement	Yes	Yes
CEO and group management	Yes	Yes

[59] Note that the Electricity System Operator was also excluded from this analysis due its activities and cost structures being very different from those of the TOs.

Table 16: Closely Associated Indirects sub-categories by sector

CAI category	ET	GT (TO)	GT (SO)
Operational IT and Telecoms (IT&T)	Yes	Yes	Yes
Project management	Yes	Yes	No
Network design and engineering	Yes	Yes	No
System mapping	Yes	Yes	No
Engineering management and clerical support	Yes	Yes	No
Network policy (including R&D)	Yes	Yes	No
Health, safety, and environment (HSE)	Yes	Yes	Yes
Operational training	Yes	Yes	No
Store and logistics	Yes	Yes	No
Vehicles and transport	Yes	Yes	No
Market facilitation	Yes	Yes	No
Network planning	Yes	Yes	No

3.47 We assessed the IT&T costs as part of a separate expert review (see the Non-operational capex section above, which discusses our approach to assessing those costs). For all of the other sub-categories, we were assisted in our analysis by external econometric specialists.

3.48 Our benchmarking approach is to apply an econometric approach with Pooled Ordinary Least Squares (POLS) estimators on the aggregation of relevant cost categories. We used POLS given their relative simplicity, transparency, and favourable small sample properties. Our assessments were conducted on a top-down basis rather than at an activity level to reduce potential distortion from differences in cost allocations and to reduce the risk of inadvertently 'cherry picking' results.

3.49 Our selection of econometric model first assessed the model's general statistical fit, the robustness of the chosen cost drivers, and whether the modelled results appeared plausible. We then ran a range of diagnostic tests to further test the model's robustness. Details of this approach and the assessment conclusion can be found in full in our consultant CEPA's report on Indirect opex assessment methodology, which is published along the Draft Determinations.

3.50 Our models used only historical data to avoid undue dependency on network company view. However, we conducted model sensitivity checks which included forecast data to confirm consistency and applicability of the model.

3.51 To ensure comparability of costs, we assessed costs at a gross rather than net level. Otherwise, a model's assessment may be influenced by differing cost allocation policies between networks rather than actual efficiency.

Modelling of Business Support Costs

3.52 BSCs have shown similar trends for both ET and GT across both the RIIO-1 and RIIO-2 periods. This provides confidence in pooling ET and GT for BSC benchmarking given that similar aggregate trends allow for our model to have a stronger predictive capability than if trends were diverging.

3.53 We considered a number of potential cost drivers for BSCs, recognising they are a combination of fixed and semi-variable factors that will increase by step changes in response to both size and volume and as a result of the complexity of an organisation.

3.54 The broad options include MEAV, which simultaneously reflects the scale, complexity, characteristics and composition of the network asset base, and Composite Scale Variables (CSV), which incorporate other cost drivers, namely Full Time Employees for Human Resources costs and Total Spend / Totex for Procurement costs.

3.55 Our proposed solution is to use CSV combined with a relevant statistical adjustment for GT and ET sector compatibility as this was found to give a stronger model fit than a MEAV-only regression.

Modelling of Closely Associated Indirects

3.56 After considering a number of potential cost drivers, we concluded that a multivariate regression that includes both MEAV and Total Capex, was the most appropriate. The Total Capex + MEAV regression has robust cost driver coefficients and an adjusted R-squared of 0.79 for the preliminary model specifications. There is also the intuitive reasoning that Total Capex and MEAV should together reflect both the workload and scale effects that drive CAIs.

3.57 In view of the spread in network company efficiency scores arising from our chosen model, we also considered the results from different estimators and simple ratio benchmarks to cross-validate our model outputs. These gave us confidence that the results were robust and reliable for setting an efficiency challenge. Details of these alternative approaches can be found in our consultant CEPA's report on

Indirect opex assessment methodology, which is published along the Draft Determinations.

Other costs

3.58 Other costs comprise resilience work for cyber resilience (cyber OT), business IT security (cyber IT) and physical security. For details on cyber OT and IT, please see Chapter 8 of the Core Document.

3.59 Our approach to physical security follows the same approach as NLRE described above except the needs case for new sites is approved by government. For details on physical security, please see Chapter 8 of the Core Document.

Ongoing efficiency

3.60 In addition to the processes of assessing efficient costs of individual cost categories based on current available information as set out above, we have included an ongoing efficiency (OE) challenge as part of the allowances determined in each cost area. This is to incorporate the expected growth in productivity across the general economy, coupled with sector-specific considerations. As set out in Chapter 5 of the Core Document, the level has been informed by work carried out by our consultants CEPA and their report is published alongside our Draft Determinations.

3.61 We consider that an appropriate efficiency challenge is to apply 1.2% to all capex costs (excluding those subject to use-it-or-lose-it conditions) and 1.4% to all opex costs, this includes additional productivity gains consumers should expect to see following investment in innovation over RIIO-1 across all sectors. Prior to applying our OE challenge, we removed any network company-proposed OE from its plan. We propose to apply these efficiency challenges as a compounding annual reduction to the baseline revenue allowances throughout the RIIO-T2 period.

Consultation questions

ETQ9. Do you have any views on our overall approach to setting totex allowances?

4. Adjusting baseline allowances to allow for uncertainty

Introduction

4.1 This chapter outlines our approach to addressing uncertainty during the RIIO-2 price control.

4.2 The UMs that we are proposing for companies in the ET sector in RIIO-2 are outlined in Table 17. These have been developed based on our assessment of the TOs' Business Plans and further engagement with TOs following the submission of their Business Plans.

4.3 As set out in our Core Document, the four types of UM that we are proposing to utilise in the ET sector in RIIO-2 are volume drivers, re-openers, pass-through and indexation mechanisms.

4.4 We are proposing a common set of design parameters for re-openers. Our proposal and rationale can be found in the Core Document. Unless explicitly stated otherwise for specific circumstances, re-openers are proposed to follow the common set of design parameters including:

- one week-long re-opener window in January of the relevant year for network network company applications
- application requirements will be set in Licence conditions and guidance where possible
- the ability for both the Authority and the network companies to trigger the re-opener
- a materiality threshold such that we will only adjust allowances if the changes to allowances resulting from our assessment, multiplied by the TIM incentive rate applicable to that licensee, exceeds a threshold of 1% of annual average base revenues (as set out in Final Determinations).

Table 17: UMs included in our Draft Determinations for RIIO-ET2

Name	Type of mechanism	Network company	Draft Determinations Section
Cross-sector			
Ofgem Licence fee	Pass-through	All	Core Document
Business rates	Pass-through	All	Core Document
Inflation indexation of RAV and allowed return	Indexation	All	Core Document
Cost of debt indexation	Indexation	All	Core Document
Cost of equity indexation	Indexation	All	Core Document
Real Price Effects	Indexation	All	Core Document
Tax liability allowance	Re-opener	All	Core Document
Pensions (pension scheme established deficits)	Re-opener	All	Core Document
Physical security	Re-opener	All	Core Document
Cyber resilience IT	Re-opener	All	Core Document
Cyber resilience OT	Re-opener	All	Core Document
Information Technology and Telecoms (IT&T)	Re-opener	All	Core Document
Net Zero	Re-opener	All	Core Document
Coordinated Adjustment Mechanism	Re-opener	All	Core Document
ET-specific			
Opex escalator	Indexation	All	Chapter 4
Generation and Demand connections	Volume Driver	All	Chapter 4
Shunt Reactors	Volume Driver	All	Chapter 4
Large Onshore Transmission Projects (LOTI)	Re-opener	All	Chapter 4
Pre-Construction Funding (PCF)	Re-opener	All	Chapter 4
Medium Sized Investment Projects (MSIP)	Re-opener	All	Chapter 4
Visual amenity in designated areas provision	Re-opener	All	Chapter 2
Bespoke Uncertainty Mechanisms			
Net-zero carbon capital construction	Use-it-or-lose-it allowance	NGET	NGET Annex
Subsea cable repairs	Re-opener	SHET	SHET Annex
Uncertain non-load projects	Re-opener	SPT	SPT Annex

Consultation position for ET specific UMs

Generation and Demand connections

Generation and Demand connections	
Purpose	To deliver capacities to accommodate changing volumes of connection of generation and demand customers.
Benefits	Providing flexible funding for the network companies to invest in the transmission network in response to the uncertain need of new generation or demand customers to connect.

Background

4.5 All network companies are required to provide new or modified connections offers to customers within the required Licence timescales and to ensure the transmission network is capable of meeting technical requirements.

4.6 The customers who connect to the transmission networks are in two categories: generation and demand. The former includes electricity generators and storage operators, and the latter includes industrial or large commercial sites, and DNOs.[60]

4.7 For generation connection, the work required typically includes building additional capacity at an existing or new substation. It may also require the reinforcement of the existing network and can include new circuits or cables to connect it to the existing transmission system.

4.8 For demand connection, the works required to provide additional capacity can range from installing a new bay at an existing Grid Supply Point (GSP), to constructing an entirely new GSP, and include circuits and cables to connect it to the transmission system.

4.9 Due to the customer-led nature of these works, there is uncertainty in the future investment necessary to accommodate the connection of new customers to the transmission system. To overcome this, we propose to use volume drivers that will provide TOs with ex-ante allowances for the provision of customer-driven generation and demand connections.

[60] Connections between the transmission system and the distribution networks are made at Grid Supply Points (GSPs) and each DNO will have several GSPs. The capacity of a GSP is generally governed by the number of supergrid transformers, which form a connection between the transmission and the distribution network.

4.10 Our proposed design of the volume drivers took into account the different proposals from the TOs and is aimed at achieving proportionality, reflecting efficient costs and where appropriate, achieving commonality across all TOs.

Modelling approach for drivers

4.11 We have reviewed the range of options proposed by the companies and consider that a disaggregated driver comprising the capacity to be provided and the associated linear elements (overhead line and/or underground cable) best meets the above-mentioned aims.

4.12 We reviewed all of the generation and demand project information provided by the TOs as part of their baseline submissions, and also obtained restatements of their uncertain projects in a format that was compatible with the BPDT. We then used the same approach as described in the section on LRE and NLRE capex in Chapter 3 to derive our view of efficient costs for each of these projects.

4.13 We ran a series of regression analysis of our view of efficient costs against a number of potential cost drivers, to determine which combinations had the best predictive power. This was done against each network company's baseline projects, the combination of baselines and uncertain projects, and also across all network company projects pooled together.

4.14 We concluded that:

- the combination of the capacity of the new generation (MW) or demand (MVA) in conjunction with the linear assets (km of overhead line, km of underground cable) gave the closest predictions to modelled efficient cost
- models based on individual network company project portfolios gave better predictions than those based on the pooled sample of all TOs' projects
- These multivariate models gave better predictions than the single rate models used during RIIO-ET1.

4.15 Our analysis also identified the potential for certain projects to incur justifiable costs that are materially outside the range covered by the volume driver approach. We therefore considered alternative treatment for such projects as set out below.

Consultation position

UM parameter	Consultation position
Design of Volume Driver	Allowances linked to specific outturn incremental value of drivers including the incremental capacity of generation (MW) or demand (MVA), the length of overhead line (km), and the length of cable (km) required for the connection. The parameters for revenue associated with each output to be specific to each network company: • upward adjustment if outturn exceeds baseline volume of new generation or demand capacity and new linear assets required • downward adjustment if outturn is lower than baseline funded new generation or demand capacity and/or linear assets.
Materiality threshold / trigger for being covered by the MSIP re-opener	Projects with a total cost that are both: • at least double the allowances provided by the Volume Driver • not less than £25m and not more than £100m.

4.16 For the avoidance of doubt, this proposed mechanism would only apply to generation and demand connection projects that start and end within the RIIO-2 period. Our proposals for projects spanning cross price control periods are set out in Chapter 3.

Rationale for consultation position

4.17 We propose to use multiple drivers because our analysis has shown that the use of a single rate volume driver provides more risk of windfall gains and losses whereas the set of drivers we propose to use better reflect the costs that companies will be exposed to in connecting generation and demand.

4.18 We propose to use network company-specific volume driver parameter values given the clear difference in the result from the network company-specific regression analysis based on our view of efficient costs for each network company's proposed baseline generation and demand projects. Even though we have used a common set of benchmark asset unit costs to model all the TOs' project costs, each TO has a different spread of types of assets in their projects reflecting the location of the connection and status of local existing network. Our calculation results may also have been affected by potential misalignment between our BPDT definition and how companies reported certain cost elements such as civil costs in their submission. We will examine this area further before making a decision in Final Determinations.

4.19 We propose to exclude from this volume driver mechanism the outlier projects whose costs are justifiably and materially higher than the level calculated from volume drivers, and instead propose to assess these through the MSIP re-opener. We consider that including outlier projects with atypical characteristics in the volume driver mechanism may unnecessarily inflate allowances for more 'typical' projects as well as provide insufficient funding for the TO. This in turn would over-remunerate the TO for the majority of the projects, and disincentivise the delivery of required connections, both of which could be detrimental for consumers.

4.20 Our proposed threshold for excluding from the volume driver is for the project cost to be above 100% of the volume driver prediction, as well as a £25m threshold. We consider this strikes the right balance between the proportionality of the approach and reflecting of efficient costs.

4.21 Once the outlier projects are excluded, our analysis on a range of scenarios of each network network company's proposed project portfolio indicated that costs calculated by using the proposed volume drivers is within a reasonable range of the expected costs.

Large onshore transmission investments re-opener

Large onshore transmission investments (LOTI) re-opener	
Purpose	To ensure that TOs can undertake necessary large investments on the transmission network.
Benefits	Allows large transmission investments to be appropriately scrutinised on behalf of consumers.

Background

4.22 In RIIO-T1 we put in place a UM for large reinforcements on the transmission system known as Strategic Wider Works (SWW) outputs, where funding had not been awarded as part of the price control settlement. SWW enabled detailed assessment by us, to establish whether a reinforcement was needed, and a view on the level of efficient costs.

Consultation position

UM parameter	Consultation position
Re-opener Window (year)	N/A - Submissions can be made at any time

UM parameter	Consultation position
Materiality threshold / trigger	Investments in the transmission network that are expected to cost £100m or more

Rationale for consultation position

4.23 The LOTI process will allow us to assess the need for, and efficient costs of, large reinforcements in relation to which there is a high degree of uncertainty as to the need, scale and/or timing of delivery at the start of RIIO-T2. LOTI seeks to replicate much of the policy intent and mechanics of SWW, with a few amendments to incorporate RIIO-1 learnings that have informed the RIIO2 policy.

4.24 We propose that LOTI applies to projects with a minimum materiality threshold of £100m for all TOs, rather than the differing thresholds that apply under SWW.[61] This reflects our view that it is in consumers' interests for us to more closely scrutinise the need for, cost and design of large investments on the network that are expected to cost £100m or more.

4.25 To further ensure that we can effectively scrutinise the most material TO investments, our intention is that LOTI is used as a route to request project specific revenue adjustments for the following types of projects (when expected to cost £100m or more):

- boundary reinforcements designed to provide greater transfer capability across system boundaries and/or maintain NETS SQSS[62] compliance
- penerator and demand connection projects
- Projects related to the health of existing assets on the network, where funding has not been proposed elsewhere within the Business Plan.[63]

4.26 We are proposing that our assessment process under LOTI is formed of three main stages.[64] Our aim is to ensure that we are able to effectively scrutinise LOTI investments on behalf of consumers while providing the TOs with a process which enables them to progress projects effectively.

[61] SWW had minimum thresholds of £500m for NGET, £100m for SPT and £50m for SHET, in 2009-10 prices.
[62] National Electricity Transmission System Security and Quality of Supply Standard.
[63] If an asset health driven project is approved via this method, the NARMs benefit will be neutralised.
[64] These are Initial Needs Case, Final Needs Case and Project Assessment. In addition, and also consistent with SWW, we are proposing that LOTI has a stage before Initial Needs Case, where the TO provides us with early sight of the project and where we confirm the eligibility of the project to apply for funding through LOTI. This would be a very short process known as "Approval of eligibility to apply."

4.27 To reflect what we have learnt from RIIO-1, we intend to be more prescriptive regarding the timings of these stages during RIIO-2. These proposed timings, and a summary of each assessment stage, are detailed below:

Table 18: LOTI assessment process

Stage	Submission Timing	Assessment	Output
Initial Needs Case	Not less than 12 months prior to the TO's final statutory planning consultation, to allow us to provide views at a relatively early stage of the planning process.	6-12 month assessment focussed on main drivers of need and optioneering that the TO has done to reach its preferred technical option	Document outlining our views. No formal decision.
Final Needs Case	After TO has secured all material planning consents, to provide us with comfort that the project (and associated design/costs) will not significantly change following our approval.	3-6 month assessment focussed on key drivers of need and whether the TO has factored in our Initial Needs Case views.	Ofgem decision regarding whether the project is needed.
Project Assessment	After Ofgem has approved a Final Needs Case, and when majority of procurement is finalised.	6-12 month assessment focussed on the detailed project costs that the TO is seeking allowances for.	Ofgem decision setting a funding allowance reflecting our view of efficient project costs.

4.28

4.29 In the exceptional circumstance where the timings outlined above are not practical for a specific project, we propose that TOs outline alternative timings for this process when they seek approval of eligibility to apply under LOTI and this would be considered. However, these timings have been developed following our experience on numerous projects during RIIO-1, and our expectation is that the timings outlined will only be amended in very rare cases.

4.30 We are proposing that any project which has been considered through one or more assessment stages under SWW, but has not received funding under SWW, can be assessed through LOTI.[65] We will engage directly with network companies to address any project specific questions on this issue.

- Paragraph 10.92 of our SSMD confirmed the availability of late competition models (eg CATO, SPV, CPM) for all sectors. Chapter 9 of the core document sets out our proposals for late and early competition during RIIO-2. It sets out

[65] For example, a project that has secured an approved Final Needs Case under SWW, but has not yet gone through a Project Assessment, could progress straight to a Project Assessment under LOTI.

our proposal that all projects in all sectors that meet the criteria for competition and are brought forward under a uncertainty mechanism will be considered for delivery through late competition. In the case of LOTI, it explains that we expect that the Initial Needs Case stage is the earliest point at which we could assess whether the project meets the criteria for competition and is suitable for delivery through late competition, and the Final Needs Case is the latest point at which we could assess whether the project meets the criteria for competition and is suitable for delivery through late competition.

4.31 We intend to set out additional detail on LOTI in a separate Guidance document, which will be consulted on and published ahead of RIIO-2.

4.32 We do not think it is appropriate that LOTI follows our common approach to re-openers, set out in the Core Document, because we consider that:

- there is merit in allowing the re-opener to be available to TOs at all times given the various assessment stages involved and the complex and varied timescales associated with LOTI projects
- £100m is an appropriate threshold at which to apply the additional scrutiny afforded by LOTI
- it would not be practical for Ofgem to trigger the LOTI process, given the detailed development of projects that is required by the TOs.

Consultation questions

ETQ10. Do you agree with our proposed eligibility criteria for the LOTI re-opener and do you agree with the assessment stages, and their associated timings?

Pre-construction funding

Pre-construction funding	
Purpose	To ensure that TOs are funded for the efficient costs that are incurred prior to commencing construction of large transmission projects.
Benefits	Protects consumers from providing PCF for speculative projects.

Background

4.33 TOs have highlighted that some of their uncertain large transmission investments may require some funding in order to develop the project before it seeks full construction funding. This is described as 'Pre-Construction Funding' (PCF).

Consultation position

UM parameter	Consultation position
Re-opener window (year)	At RIIO-T2 close-out.
Materiality threshold / trigger	A transmission investment expected to cost £100m or more, which receives a 'Proceed' signal in the NOA.

Rationale for consultation position

PCF definition

4.34 Each TO proposed a slightly different definition for what constitutes PCF. For consistency, we propose to use the following definition for all TOs:

> *"Pre-Construction Funding is the funding required to develop a LOTI project to the point that consents are obtained."*

4.35 The rationale for using this definition is that it provides a tangible deliverable to assess the request for funding against. We consider that an alternative, which defines PCF as expenditure incurred up to the point that construction begins, is less effective in providing a clear demarcation between activities.

4.36 The following activities are those which we consider can form part of efficient expenditure required to the point that consents are obtained:

- surveys, assessments and studies (those associated with developing the project itself, not those associated with furthering construction of the solution to be delivered)
- project design
- engineering development
- stakeholder engagement and consultation, including legal costs
- wayleaves, including legal costs
- planning applications, including legal costs.

PCF in baseline allowances

4.37 As set out in the network network company specific documents, we propose to provide efficient baseline PCF for projects identified as requiring PCF in the December Business Plans which have a 'Proceed' signal in NOA 2019-20 and are supported by clear engineering justification documentation.

4.38 Baseline PCF allowances will be attached to a PCD to ensure that unused allowances can be returned to consumers in the event that either:

- the needs case for the project(s) changes following NOA updates
- the scope of required pre-construction work materially deviates from what the TO proposed in its Business Plan.

4.39 PCF received through the baseline allowances will not be substitutable between projects.

PCF for projects not funded in baseline allowances

4.40 For projects which require pre-construction expenditure during RIIO-2 due to 'Proceed' signals received through future NOA processes but which did not receive PCF in baseline allowances, we propose that TOs can incur efficient costs for the activities listed above in paragraph 4.36. These costs will be assessed through an ex post cost assessment as part of RIIO-2 Closeout. We acknowledge the importance of TOs progressing these projects in a timely manner and consider that this approach provides TOs with the necessary flexibility to respond to NOA signals. However, through this consultation process we are open to considering alternative suggestions, such as whether a bridging fund for true-up at the end of period or a within period adjustment to pre-construction allowances is necessary.

4.41 We propose to allow efficient PCF at RIIO-2 Closeout on projects where there was a NOA 'Proceed' signal in place at the time the costs were incurred, even if that proceed signal subsequently changes. This protects consumers from funding work on highly speculative projects or projects that are not supported by the ESO. For projects that are not considered by the NOA which may incur pre-construction costs, we welcome views regarding an equivalent signal for investment.

4.42 We consider 'efficient' PCF costs to be up to around 2.5% of total anticipated project costs. This is the guiding benchmark that we propose to use when assessing PCF as part of RIIO-2 Closeout. We would only expect to provide funding above this threshold in exceptional circumstances, but even allowances

sought up to this threshold should be well justified. This figure has been derived from historical costs on comparable projects:

Table 19: Historical PCF costs[66]

TO	Project	PCF (£m)	Construction cost total (£m)	PCF % of total project cost
NGET	Hinkley-Seabank	22.8	514.7	4.4%
NGET	Canterbury-Richborough	15.9	82.0	19.4%
NGET	Western HVDC	10.0	719.7	1.4%
SPT	Western HVDC	10.3	331.0	3.1%
SHET	Caithness-Moray	5.8	958.6	0.6%
SHET	Orkney	13.8	205.0	6.8%
SHET	Shetland	7.6	478.0	1.6%
SHET	Western Isles	10.0	489.0	2.0%
SHET	Kintyre-Hunterson	1.2	174.1	0.7%
WEIGHTED AVERAGE TOTAL PCF %				2.5%

4.43

4.44 We are proposing this approach having considered various PCF approaches suggested by the TOs. We think that this approach strikes the right balance between providing comfort to the TOs that they will receive funding for pre-construction work undertaken during RIIO-2, while at the same time protecting consumers from paying for speculative projects.

4.45 We do not think it is appropriate that our proposed approach for PCF on uncertain projects follows our common approach to re-openers, set out in the Core Document, because we consider that only at the end of the price control will it be possible for TOs to provide a robust view regarding the pre-construction costs that they have incurred.

Consultation questions

ETQ11. Do you agree with our proposed definition of PCF for RIIO-2, and the areas of work that we intend that definition to cover?

ETQ12. Do you agree with our proposal to assess PCF costs as part of RIIO-2 Closeout, following the principles set out in Chapter 4?

[66] All costs in this table are in 2009-10 prices and are from the RIIO-T1 Licences, apart from: Orkney, Shetland and the Western Isles are all projects still in development, so we have used construction costs based on recent estimates received from SHET, which have been translated into 2009-10 prices; construction and PCF costs for Canterbury-Richborough, which were taken from NGET's Regulatory Reporting 2019 submission and translated into 2009-10 prices.

Medium sized investment projects re-opener

Medium sized investment projects (MSIP)	
Purpose	To ensure that TOs are able to undertake necessary investments in the transmission network, which are not provided for elsewhere in RIIO baseline allowances or in uncertainty mechanisms.
Benefits	Allows Ofgem to scrutinise, on behalf of consumers, the need for and cost of projects with more unusual characteristics.

Background

4.46 As set out in the section on generation and demand connection volume drivers above, we consider that funding for certain 'outlier' projects needs to be treated separately to the volume driver mechanism.

4.47 Also, all TOs proposed a number of bespoke outputs to fund various specific areas of their businesses which have uncertain costs. These are detailed at paragraph 4.57 below.

4.48 We have considered the similar features of these cost areas and propose to use a common re-opener mechanism.

Consultation position

UM parameter	Consultation position
Re-opener window (year)	January 2024 with a true-up at RIIO-2 closeout.
Materiality threshold / trigger	£25-100m, or projects directed by Ofgem to be assessed under the MSIP re-opener.

Rationale for consultation position

4.49 Our proposed design of this re-opener considers three broad areas:

- outlier connections projects (Generation, Demand)
- projects which increase boundary transfer capability
- externally-driven works (listed at paragraph 4.57).

4.50 The rationale for our proposal in relation to the connections projects is set out in the section above on generation and demand connection volume drivers.

4.51 We consider that there is a need for a re-opener for projects that increase boundary transfer capability and that are below the £100m LOTI threshold where these have been signalled to proceed by the NOA. In comparison to an alternative of a volume driver-based mechanism, which would work automatically, this would ensure that decisions to fund these projects are more directly linked to the optimal engineering solution for delivering the required boundary transfer capability. As observed in RIIO-1, the relationship between efficient costs and outputs for such projects can be highly uncertain, largely due to a wide range of potential engineering solutions for delivering boundary transfer capability. We have not seen convincing evidence to suggest a more stable relationship in RIIO-2 between outputs and efficient costs and therefore think a re-opener to consider these projects is appropriate.

4.52 We have carefully considered some potential concerns with using the re-opener approach.

- Linking funding more closely with actual engineering work could weaken the incentive strength for innovation and efficiency - our current view is this is balanced by the benefit of better protecting consumers from overpaying for the outputs and avoiding undue windfall gains or losses for the network companies.
- Potential delay to the progress of required investments - all projects that have developed clear needs cases with mature plans are proposed to be provided with baseline funding, covering most if not all investments required to proceed before the re-opener window. We have not seen any evidence of a delay that would be caused by this proposed re-opener mechanism.

4.53 We will evaluate any further relevant evidence or analysis provided in responses to Draft Determinations in considering whether there is a stronger case for an alternative mechanism for some or all of the areas proposed to be covered by this re-opener.

4.54 For the externally-driven projects, TOs submitted a number of bespoke outputs, typically related to areas where system needs may change due to external events where they consider that a re-opener may be necessary. While we agree that re-openers may be required in these areas, we consider it would create a disproportionate regulatory burden to have numerous re-openers, each covering one specific area.

4.55 As such, we propose to implement the medium sized investment projects (MSIP) re-opener to assess projects which are any of the following:

- expected to cost between £25m-£100m (construction and pre-construction)[67] and have forecast costs that are at least double the level provided for in the relevant volume driver;
- expected to cost between £25m-£100m (construction and pre-construction) and have received a NOA 'Proceed' signal; or
- related to an area that in our RIIO-2 Final Determinations we decide will be assessed through the MSIP re-opener (provisionally listed at paragraph 4.57).

4.56 As set out in section above on the proposed generation and demand connection volume driver mechanism, we consider the £25m minimum threshold to be a proportionate response to the likely scale of the works in question and an appropriate approach to the sharing of commercial risk to which the TO is exposed under totex regulation. Projects expected to cost more than £100m can be assessed through the LOTI mechanism. In terms of triggers for non-connection projects to be covered by this re-opener, projects that receive a NOA proceed signal which have not been funded in baseline allowances could also be brought to us through this re-opener, as we consider that a NOA proceed signal is a clear indicator that the project may benefit consumers.

4.57 The other areas we propose to include as eligible for assessment through the MSIP re-opener are summarised below. We have also proposed conditions that would need to be satisfied before we assess a funding request in relation to these areas under MSIP. These were all originally submitted as bespoke ouputs by at least one TO, but unless otherwise stated, we consider there is merit in allowing all TOs to submit a re-opener application in the following areas because all areas relate to either ensuring security of supply for GB consumers or reducing network operating costs. We propose that the total requested funding in relation to the following areas would need to meet our common de minimus limit of the 1% of annual average Base Revenue to warrant a request through this re-opener.

- Flooding - requests to be considered following updated Energy Networks Association Engineering Technical Report (ETR138) guidance on flooding, and/or a direction from BEIS to protect sites from flooding.

[67] Our definition of pre-construction for the purposes of the MSIP re-opener will be consistent with our definition of pre-construction used for LOTI projects, set out in paragraph 4.

- Black Start - requests to be considered following a new Black Start Standard, currently under review by BEIS. We note that TOs made baseline funding requests relating to Black Start in their Business Plans, but as set out in the network network company annexes, we do not propose to include these.
- ESO-driven requirements - requests to be considered following a formal written request by the ESO for additional investment in relation to system operability and constraint management requirements. Related to this, we intend to discuss the development of an additional process with the ESO and the TOs, similar to the NOA, for the ESO to request works where there is a clear CBA supporting the intervention. We expect both build and non-build options to be considered.
- Projects to maintain SQSS compliance – requests to be considered where TOs can demonstrate need to modify the network to meet SQSS compliance for security and system operability.
- Harmonic Filtering - requests to be considered following requests from TO customers to aggregate and deliver harmonic filtering requirements, or following ESO/TO system studies showing a potential beach of planning limits.
- Energy Data Taskforce recommendations – requests to be considered following Energy Data Taskforce recommendations regarding specific outputs required to meet principles developed via industry wording groups. This could include Supervisory Control and Data Acquisition (SCADA) related works.
- Operational Load Management Schemes (SPT only) - requests to be considered following receipt of an STC planning request.
- Port of Tyne (NGET only) - requests to be considered following a written request from BEIS/DfT to Ofgem outlining a view that GB consumers should pay for a project which will deliver a localised benefit.

4.58 We propose that there is one submission window under MSIP, in January 2024. This would allow time for a better understanding of whether the various externally driven events will occur, allow for several more iterations of the NOA, and would avoid disproportionate regulatory burden. We also propose to undertake an ex-post true-up of allowances in this area at RIIO-2 Closeout.

4.59 Submissions would be required to set out detailed justification for the need for the investment as well as for the associated costs. TOs could contact us regarding specific submission requirements in the 6 months prior to the submission window.

4.60 We propose that TO submissions under the MSIP re-opener could request ex-post funding for eligible costs that were incurred efficiently in years 1-2 of RIIO-2, as well as ex-ante requests for efficient costs expected to be incurred in years 3-5.

4.61 We do not think it is appropriate that volume driver or boundary capability requests under the MSIP re-opener follow our common approach to re-openers in relation to the common de minimus limit, set out in the Core Document, because of the close relationship between these areas and other UMs.

Consultation questions

ETQ13. Do you agree with our proposed scope of, associated eligibility criteria for, and timing of the submission window under the MSIP re-opener?

Opex escalator

Opex escalator mechanism	
Purpose	To provide allowed expenditure to network companies as part of their totex to implement efficient IT enhancements in support of the business systems and networks.
Benefits	Would ensure that network companies are able to achieve their IT strategies and meet the aspiration of digitalising the energy sector.

Background

4.62 An uplift to opex was proposed by SHET to recognise the operating activities arising from RIIO-T2 UM assets being energised onto the network.

4.63 As set out in Chapter 3, our proposed view of baseline CAIs and Network Operating Costs (NOCs) is derived by regression analysis or historical benchmarking using cost drivers including the total baseline capex or Regulated Asset Value (RAV). The actual capex allowance and RAV will be different from the baseline view during RIIO-2 due to the effect of various UMs or mechanisms linking funding with outputs. Our proposed approach to setting allowances for RIIO-2 differs from RIIO-1, where allowances were set on a post-capitalisation basis. For RIIO-2, we are proposing to set efficient allowances at an activity level, pre-capitalisation. Therefore, an opex escalator UM would recognise the additional impact on CAIs and NOCs from the delivery of capex through UMs.

Consultation position

UM parameter	Consultation position
CAI adjustment	0.754% uplift to CAI for each 1% uplift in capex
NOCs adjustment	0.5% of the uplift to RAV resulting from the project delivery, where the uplift is given as efficient incurred cost multiplied by the regulatory capitalisation rate

Rationale for consultation position

4.64 We reviewed the analysis presented by SHET, and the relationship of opex to RAV observed in RIIO-T1, and consider that the principle of costs arising from new assets being installed onto the network is sound and that a consistent relationship was observable in RIIO-T1 data (post capitalisation). We therefore consider that a UM for CAIs is appropriate. We also consider that if a UM is being proposed on this basis for indirect opex, then by applying the same rationale, a NOC uplift should also be provided in line with the observed relationship described above, ie an efficient uplift to NOCs can be established by observing the historical relationship of NOCs to the RAV.

4.65 Our proposed uplift for CAIs is consistent with our proposed approach to determining the efficient CAI baseline allowances. Our proposal is to use the coefficient for capex from the same POLS regression analysis, which is a 0.754% uplift to CAI for each 1% uplift in capex. We consider this an effective method to fund an efficient level of indirect opex caused by any additional capex delivered through a UM.

4.66 For NOCs, our proposed uplift is based on the analysis of historical data to establish the relationship of NOCs to the RAV, which is equivalent to 0.5% of the uplift to RAV resulting from the project delivery, where the uplift is given, post energisation of the asset, as efficient incurred cost multiplied by the regulatory capitalisation rate.

Shunt reactors

Background

4.67 The TOs indicated in their Business Plans the need to install shunt reactors on their networks to manage system high voltage with growing embedded

generation. They also proposed using uncertainty mechanisms to fund potential additional costs in this area during RIIO-2.

Consultation position

UM parameter	Consultation position
Funding for installing additional shunt reactors	Subject to further information from TOs, set volume driver(s) to fund the installation of additional shunt reactors, which is supported by a request from the ESO. The form of the volume driver could be based either on the unit cost of the capacity installed £/MVAr, or on the unit cost of the number of individual units installed £/unit. Either form could be a single rate regardless of the size or type of reactors installed, or a suite of rates reflecting such differences. If the data available does not support the derivation of robust ex-ante volume drivers, then we propose to use a re-opener mechanism instead.

Rationale for consultation position

4.68 We propose to set a volume driver mechanism to fund the TOs to install additional shunt reactors, which are requested by the ESO to manage system voltage. This is subject to us receiving further information from the TOs on the range and type of delivered or proposed transmission solutions within each of their network areas that support the design of the volume drivers.

4.69 So far, the TOs have indicated a range of sizes (from 60MVAr to 200MVAr) and types (static vs dynamic), with a wide spread of costs in terms of per unit capacity or per unit equipment. If further data and evidence can support the design of robust volume drivers, we propose to confirm the design in the Final Determinations, including the form and granularity of the volume drivers to reflect the possible size and type of shunt reactors. Otherwise, we propose to consider the use of a re-opener instead for this area.

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Appendix 1 – Consultation questions

This list is generated automatically as a custom table of contents based on the 'Consultation Question' numbering.

ETQ1. Do you agree with our proposals to switch off the incentive in year one of RIIO-ET2 in order to pilot the Quality of Connections survey and develop the baseline targets?

ETQ2. Do you have views on the common milestones, target audience and question of overall satisfaction for the Quality of Connections survey incentive provided in Appendix 2?

ETQ3. Do you think there are any additional KPIs that have not been included in the final NAP which would support monitoring of performance in adherence to the NAP and/or add transparency of the outage planning, management and implementation process for relevant stakeholders?

ETQ4. Do you agree with our proposed LPD mechanisms and do you agree with the criterion that we are proposing to use for our LPD mechanisms?

ETQ5. What are your views on applying our LPD mechanisms to some or all of the projects identified at paragraph 2.74?

ETQ6. What are your views on our consultation position for the three electricity TOs' EAP proposals in RIIO-2 as set out in this document?

ETQ7. What are your views on our consultation position for setting the expenditure cap for visual amenity mitigation projects in RIIO-2?

ETQ8. Do you have any views on our outputs that have not been covered through any of the specific consultation questions set out elsewhere in this chapter? If so, please set them out, making clear which output you are referring to.

ETQ9. Do you have any views on our overall approach to setting totex allowances?

ETQ10. Do you agree with our proposed eligibility criteria for the LOTI re-opener and do you agree with the assessment stages, and their associated timings?

ETQ11. Do you agree with our proposed definition of PCF for RIIO-2, and the areas of work that we intend that definition to cover?

ETQ12. Do you agree with our proposal to assess PCF costs as part of RIIO-2 Closeout, following the principles set out in Chapter 4?

ETQ13. Do you agree with our proposed scope of, associated eligibility criteria for, and timing of the submission window under the MSIP re-opener?

Appendix 2 - Quality of Connections Survey Methodology

We have worked with the TOs to develop the survey methodology. We have collectively developed common milestones and trigger points at which we propose the survey will be issued, the target audience that this survey will capture and the question of overall satisfaction, which we propose to use to collate performance scores.

We have set out each of these aspects of the survey methodology below.

Common Milestones

We propose that responses received at each of the survey milestones should be of equal weighting when calculating the TO's score, reflecting that each milestone is of equal importance.

Common Milestones	Trigger points
A. Pre-application engagement	Up to 30 calendar days after engagement eg pre-application meeting, email, discussion or application receipt.
B. Application Process and Offer	Whichever comes first: Up to 30 calendar days after National Grid Electricity System Operation (NG ESO) notifies a Transmission Owner (TO) an offer has been issued to a connection customer (TO should be contacted within 2 days of NG ESO issuing offer to a connection customer), or, up to 60 calendar days after the TO offer is issued to NG ESO.
C. Project Development	Trigger point will be within 30 calendar days of the end of Project Development, which is indicated by the issue of a "Section 37 consent" (or "Gate C" for National Grid Electricity Transmission) and issue of an "Invitation to Tender" (ITT). Connection customers will be surveyed as a minimum on an annual basis during project development whether or not their project has hit a specific trigger point.
D. Project Delivery	Trigger point for end of Project Delivery will be within 30 calendar days of completion of commissioning and energisation. A post evaluation survey may be carried out 12 months after commissioning and energisation. Connection customers will be surveyed as a minimum on an annual basis during project delivery whether or not their project has hit a specific trigger point.
E. Outage Management	At a minimum on an annual basis and within 30 calendar days following engagement with those connection customers affected by the year ahead outage plans or post outage management.
F. Connected Customer Reviews	Within 30 days following direct engagement with connected customers in respect of non-outage plan matters. For example: Safety and site access/project closure/repowering

4.70

Target Audience

We propose that the survey will target generation or demand customers who are:

- researching into/intending to connect to the transmission system
- researching into/intending to connect to the distributions system in a way that required transmission works (embedded generators)
- Connected to the transmission system or a distribution system and impacted by transmission activities.

We consider this target audience to capture all relevant connection customers that are impacted by transmission activities.

Question of Overall Satisfaction

We do not think it would be appropriate to introduce standardised questions beyond the question of overall satisfaction at each of these milestones. We recognise that the TOs have different customers connected and intending to connect over the T2 period, and therefore the TOs should have the flexibility to include bespoke questions beyond the question of overall satisfaction. We think this direct feedback will allow the TOs to tailor and improve their services.

We propose that the responses to the question of overall satisfaction for each TO will be collated across all milestones on an annual basis and form their annual submission to Ofgem. As in RIIO-ET1, the scores from this question will be used to calculate the incentive award during RIIO-ET2.

We are consulting on the use of the following question to collate the scores for the Quality of Connections survey:

- 'Overall on a scale of 1 to 10, where 1 is 'very dissatisfied' and 10 is 'very satisfied', taking account of the service you have received during [add moment that matters], how satisfied are you with [add network company name]'