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for energy consumers

Decision

RIIO-2 Final Determinations Electricity Transmission System Annex (REVISED)

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

In 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 (ESO) submitted their business plans to Ofgem setting out proposed expenditure for RIIO-2. We assessed these plans and published our consultation on Draft Determinations for company allowances under the RIIO-2 price controls in July 2020.

This document and others published alongside it, set out our Final Determinations for company allowances under the RIIO-2 price control, which will commence on 1 April 2021.

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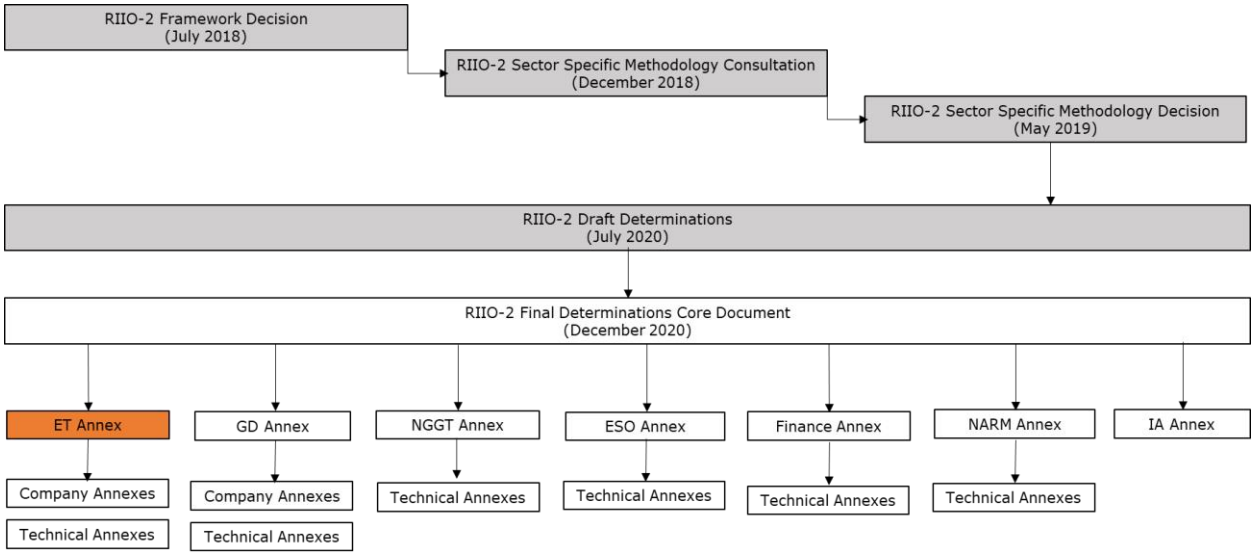
1. Introduction and overall package

Purpose of this document

1.1 This document sets out our Final Determinations for the Electricity Transmission (ET) price control (RIIO-ET2), for the areas that are common to all Electricity Transmission Owners (ETOs). This price control will cover the five-year period from 1 April 2021 to 31 March 2026. All figures are in 2018/19 prices except where otherwise stated.

1.2 This document is to be read alongside the RIIO-2 Final Determinations Core Document (Core Document) and the RIIO-2 Final Determinations company-specific annexes. Figure 1 sets out where you can find information about other areas of our RIIO-2 Final Determinations.

Figure 1: RIIO-2 Final Determinations documents map



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

1.3 NGET (England and Wales), SPT (southern Scotland) and SHET (northern Scotland) own and manage 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 By the end of RIIO-ET2, 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 ETOs to provide fast access to high quality connections and high network reliability
- Maintaining a safe and resilient network, by funding the ETOs to replace ageing assets while ensuring costs to consumers are kept as low as possible. We will allow funding for cyber resilience projects, as well as IT investments where the scope of work is well understood. We will use uncertainty mechanisms to fund further upgrades during RIIO-ET2 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 that the transmission network and related business activities can have on the environment. We are confident that the up-front funding we are providing, combined with our range of fast and flexible uncertainty mechanisms and incentives, will enable proactive work from the ETOs to deliver Net Zero.

Delivering a cost-effective price control

1.5 To deliver these objectives as cost efficiently as possible, we have set baseline totex allowances for all ETOs 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 have set the total baseline allowances in the ET sector at £8.8bn instead of £10.9bn[1] sought by the ETOs. We have set the ETO's baseline allowance as follows:

Table 1: Summary of baseline totex (£m, 2018/19 prices)

Network company	Company submitted totex	Ofgem Final Determination totex
NGET	7090	5377
SHET	2388	2158
SPT	1389	1226
ET sector total	**10867**	**8761**

[1] As requested in the ETOs' business plans submitted in December 2019. The ETOs have modified their requests in various areas, up or down, subsequently.

1.6 The above figures are the core baseline totex. In addition, we have also made allowances for items such as the initial RPE allowances, the network innovation allowances and the strategic innovation fund. Our financial model has also included estimated allowances for some uncertainty mechanisms, pass through costs and other revenue items. This results in a total modelled upfront funding of £11031m.

1.7 To ensure the ETOs are only funded for what they actually deliver for consumers, we have linked approximately 60% of baseline totex to outputs with mechanisms such as price control deliverables (PCDs), volume drivers or use-it-or-lose-it (UIOLI) to reduce allowances for non-delivery.

1.8 The Totex Incentive Mechanism (TIM) provides ETOs with a powerful incentive to deliver the required outputs efficiently while enabling customers to share the benefits of outperformance. We are reducing the totex sharing factor from an average of 44.7% in RIIO-ET1 to 33% for NGET, 36% for SHET and 49% for SPT in RIIO-ET2.

1.9 As a result of our decisions for RIIO-ET2, we expect to see reductions of around 0.6% in electricity transmission network charges relative to RIIO-ET1. This could reduce the average annual household bill by around £0.17 per year.

1.10 We are encouraging ETO innovation activities, which may not otherwise be undertaken, through the Network Innovation Allowance (NIA) and Strategic Innovation Fund (SIF) to support the energy system transition and address consumer vulnerability.

Delivering a flexible price control

1.11 We have put in place a range of Uncertainty Mechanisms (UMs) that will allow us to assess further funding during RIIO-ET2 as the need, cost or timing of works becomes clearer. This ensures that consumers fund projects only when there is clear evidence of benefit and we have clarity on likely costs. These mechanisms also ensure that the RIIO-ET2 price control has flexibility to adapt as clarity on the pathways to Net Zero becomes clearer.

1.12 Where possible, we have set automatic UMs, such as the generation and demand connection volume drivers, which provide ETOs with immediate funding when they are required to undertake important works.

1.13 In other areas, where the degree of uncertainty is too great to allow for an automatic mechanism, we are setting re-openers which will allow us to robustly assess ETO proposals as early as possible. The Medium Sized Investment Projects (MSIP) re-opener, for example, will provide ETOs with an annual opportunity to request additional funding for sub-£100m projects, many of which may be critical for achieving Net Zero. The Large Onshore Transmission Investments (LOTI) re-opener, on the other hand, assesses larger projects that take a longer time to develop. We have accordingly allowed for multiple stages of assessment which will provide ETOs and stakeholders with our views on the projects as they progress.

1.14 We are also providing more than £550m of funding to ETOs to allow them to undertake development work on these projects which may ultimately be brought to us for construction funding through re-openers.

Delivering a balanced incentive package

1.15 The financial Output Delivery Incentive (ODI)[2] package for the ETOs has been designed to encourage licensees to deliver outputs and service quality that consumers and wider stakeholders want to see. The package comprises three ODIs continued from RIIO-ET1: (Energy Not Supplied (ENS), Timely Connections, Insulation and Interruption Gas (IIG) Leakage) and three new ODIs: Quality of Connections, SO:TO Optimisation and the Environmental Scorecard.

1.16 We consider that we have developed a balanced ODI package that allows an efficient and proactive ETO to earn positive financial rewards.

1.17 We expect an efficient company to improve its performance over time. For the ENS and IIG Leakage ODI-Fs we have generally set targets for companies to go beyond their historical performance because external benchmarks and/or the comparative performance of their peer group, suggest that there is room for further improvement.

1.18 In the case of new incentives and where historical data is not available, we have set targets and rewards/penalties such that licensees and consumers are not exposed to undue risks of large financial penalties or excessive rewards. For example, our new incentive scheme to encourage better working between the ETOs and the ESO is designed to be a reward-only scheme (until better data is available) with a reward capped at 10% of the potential consumer benefit.

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

Similarly, the targets in the new penalty and reward incentive to encourage the ETOs to achieve beyond their Environmental Action Plan commitments apply over bounded performance thresholds which effectively contain the level of reward and penalty in any year at a pre-defined level.

1.19 The Timely Connections ODI is designed to be "penalty-only" but an efficient licensee should not expect to be penalised under this ODI. It has been calibrated so that penalties are proportionate to the degree of deterioration in performance. A material penalty would apply only if there was a significant deterioration that suggests a systemic failing in this area.

2. Setting outputs for RIIO-ET2

Introduction

2.1 This Chapter sets out the package of outputs that will apply in RIIO-ET2, including Licence Obligations (LOs), Price Control Deliverables (PCDs) and Output Delivery Incentives (ODIs).[3] It focuses on the common outputs (which will apply to all ETOs) – for details of bespoke outputs which only apply to a single ETO, see the company annexes.

2.2 The outputs are set out 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.

2.3 Table 2 below outlines the entire range of outputs that are applicable to all ETOs that are included in RIIO-ET2 and sets out where you can find full details. Any outputs that are specific to a particular company are covered in that company's respective annex.

Table 2: RIIO-ET2 outputs

Output name	Output type	Companies applied to	Final Determination section
Meeting the needs of consumers and network users			
Energy Not Supplied	ODI-F	ET sector	This Chapter
Timely Connections	ODI-F	ET sector	This Chapter
SO:TO Optimisation Survey	ODI-F	ET sector	This Chapter
Quality of Connections Survey	ODI-F	ET sector	This Chapter
New Infrastructure Stakeholder Engagement Survey	ODI-R	ET sector	This Chapter
Maintaining a safe and resilient network			
Network Asset Risk Metric (NARM)	PCD and ODI-F	ET, GT, GD sectors	NARM Annex
Cyber Resilience OT	PCD and UIOLI	ET, GT, GD sectors	Confidential annexes
Cyber Resilience IT	PCD	ET, GT, GD sectors	Confidential annexes

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

Output name	Output type	Companies applied to	Final Determination section
Physical Security	PCD	ET, GT, GD sectors	Company Annexes, Chapter 2
Large Project Delivery (LPD)	PCD and ODI-F	ET, GT, GD sectors	This Chapter
Network Access Policy (NAP)	LO	ET sector	This Chapter
Pre-Construction Funding (PCF)	PCD	ET Sector	Chapter 4
Wider Works	PCD	ET Sector	Company annexes, Chapter 2
Shared Infrastructure Schemes	PCD	ET Sector	Company annexes, Chapter 2
Atypical Generation Connection Schemes	PCD	ET Sector	Company annexes, Chapter 2
Atypical Demand Connection Schemes	PCD	ET Sector	Company annexes, Chapter 2
Resilience and Operability	PCD	ET Sector	Company annexes, Chapter 2
Delivering an environmentally sustainable network			
Environmental Action Plan and annual environmental report	ODI-R and LO	ET, GT, GD sectors	This Chapter; Core Document, Chapter 4; all ETO company annexes
Business carbon footprint	ODI-R	ET and GD sectors	Core Document, Chapter 4.
Environmental Scorecard	ODI-F	ET Sector	This Chapter; all ETO company annexes
Insulation and Interruption Gas (IIG) leakage incentive	ODI-F	ET Sector	This Chapter
Visual amenity in designated areas provision	PCD, UM	ET Sector	This Chapter
Net Zero and Re-opener Development	UIOLI	ET, GT, GD sectors	Core Document, Chapter 7

Meeting the needs of consumers and network users

2.4 Our RIIO-2 Framework supports the delivery of a high-quality and reliable service to all network users and consumers through the use of incentive mechanisms and other outputs.

2.5 This section sets out each of the outputs common to the ET sector related to meeting the needs of consumers and network users.

Energy Not Supplied ODI-F

Purpose: To encourage the ETOs to improve network reliability in an efficient way by managing short-term operational risk.

Benefits: Improving the reliability of electricity supply and reducing the negative impacts of disruption on customers.

Final Determination

Output Parameter	Final Determination	Draft Determination
ODI Type	Financial	Same as FD
Incentive Type	Reward/Penalty	Same as FD
Performance Measure	The volume of ENS[4] each year. Establish an industry working group in RIIO-T2 to include embedded generation in the calculation of the ENS performance measure for RIIO-T3.	Same as FD
Performance Target	NGET: 147MWh SPT: 130MWh SHET: 102MWh	NGET: Same as FD SPT: 86MWh SHET: Same as FD
Baseline Setting Methodology	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)	Same as FD
Incentive value	The incentive rate is set to the Value of Lost Load (VoLL) in 2018/19 prices (£21,000/MWh). The financial reward or penalty is calculated by multiplying the difference between actual ENS and the performance target, by VoLL and applying the TIM sharing factor. We will consider updating the VoLL if there is new evidence during RIIO-T2 that its value has changed materially.	Same as FD

[4] ENS is the annual sum of incentives designed to minimise loss of supply events in MWh on the licensee's transmission system that causes electricity not to be supplied to a customer, excluding the following: (i) any energy not supplied to customers that have requested a lower standard of connection than that provided in the National Electricity Transmission System Security and Quality of Supply Standard (or such other standard of planning and operation as the Authority may approve from time to time and with which the licensee may be required to comply); (ii) any energy not supplied resulting from a shortage of available generation; (iii) any energy not supplied resulting from a de-energisation or disconnection of a user's equipment under an event of default as defined in the CUSC; (iv) any energy not supplied resulting from a user's request for disconnection in accordance with the Grid Code; (v) any energy not supplied resulting from emergency de-energisation by a user as defined in the CUSC; (vi) any energy not supplied resulting from an emergency de-energisation or disconnection of a user's equipment necessary to ensure compliance with the Electricity Safety, Quality and Continuity Regulations 2002, as amended from time to time, or otherwise to ensure public safety; and (vii) any event lasting less than or equal to three minutes.

Output Parameter	Final Determination	Draft Determination
Financial Collar on Penalties	1.9% of ex ante base revenue	3% of ex ante base revenue
Reporting method	Annual RRP reporting	Same as FD.
Applied to	All ETOs	Same as FD.
Licence condition	Special Condition 4.2	N/A

Final Determination rationale and Draft Determination responses

2.6 We have decided to implement the ENS ODI-F as set out in Draft Determinations subject to three adjustments. The first is to increase the performance target for SPT. The second is to reduce the financial collar from 3% to 1.9% of ex ante base revenue. The third adjustment is to change the submission date for the ENS methodology from 31 December 2020 to 1 April 2021.

2.7 Six stakeholders responded on the ENS incentive on various aspects of the incentive that are discussed further below. The other area commented on was the requirement for the ETOs to submit a joint ENS methodology by 31 December 2020.

Baseline target

2.8 We have decided to implement the targets proposed in Draft Determinations for NGET and SHET and to increase the performance target for SPT.

2.9 NGET, SPT and one supplier responded on our proposed baseline setting methodology. Both ETOs consider that the methodology is inappropriate because the proposed targets are too challenging compared to their RIIO-1 targets.

2.10 SPT argued that the RIIO-T2 ENS target effectively reduces the level of investment in mitigating actions that they can make to reduce the risk of ENS by 60% compared to its RIIO-T1 position. They also said that the data used to calculate the performance target is incorrect and that the latter should be 133MWh if the methodology is applied to the appropriate ENS data. SPT also said that the ENS risks on its network would increase in RIIO-2 because there will be more instances of it operating under single circuit conditions to accommodate

work on the network.[5] It also considered that it was being penalised for its high performance in network reliability in RIIO-T1.

2.11 NGET said that its proposed performance target was too low given Ofgem's Draft Determination proposal to reduce its non-load related expenditure (NLRE) by 80%. It also said that its BP target of 175MWh was predicated on its NLRE, so it would be more stretching than expected and will represent a good outcome for consumers.

2.12 In contrast, a supplier raised concerns that the ENS baseline targets are above the level of ENS observed in RIIO-1. This could result in the ETOs being rewarded even though their performance in RIIO-ET2 worsens relative to RIIO-1. The supplier considered that the baseline setting methodology is too backward-looking (using data from the last 20 years) and does not give enough weight to the future network that is evolving rapidly.

2.13 Following its Draft Determination response, SPT supplied additional information to show that the ENS data[6] for the period 2000 to 2012, that were used to set its proposed baseline target, relate to specific aspects of some connections that are only present on NGET's network[7] and are not replicated on SPT's network. To correct this error, we have updated the ENS data for the period 2000 to 2012 so that it better matches the incentivised loss of supply measure for SPT, and re-applied the baseline setting methodology. As a result, we have decided to set SPT's baseline target at 130MWh.

2.14 We disagree that the target setting methodology itself is inappropriate. Our rationale for the weighted approach is that it aims to balance the historical volatility of transmission reliability performance against the overall improving trend that the companies have achieved.

2.15 In terms of the comment about the RIIO-ET2 targets potentially reducing investment in mitigating actions, the ODI-F will continue to provide the same

[5] Under single circuit conditions there would not be the back-up of the adjacent circuit. In the event of a fault this would likely result in ENS.
[6] The ENS data measure incentivised loss of supply events involving more than three customers.
[7] The historical ENS data for loss of supply events excluding three or less customers is used for NGET because this category of interruption effectively exclude incidents that affect large industrial and commercial users with direct connections to the transmission system that are of a lower standard than is usually provided (as a result of the customer exercising choice in the type of connection provided). SPT do not have connections of this type. SHET has advised that there was an loss of supply event on its transmission system involving a lower standard connection (at the users choice) and that the ENS data for loss of supply events excluding three or less customers is appropriate to set their ENS target.

marginal penalty and reward incentive for companies to manage ENS risks and deliver the level of reliability that is expected by consumers.

2.16 On SPT's concern about ENS risk due to single circuit operation, we consider that we have accommodated this as best we can by using the full historical record of transmission reliability performance, which captures periods when ENS risks have been high. Lastly, we disagree that the baseline targets are penalising the companies for their good performance in RIIO-ET1. Network reliability of all the ETOs has improved significantly compared to the 12 years prior to RIIO-ET1.[8] The targets are set to provide a fair challenge to all the companies to maintain the high levels of reliability that consumers want.

Incentive value

2.17 We have decided to implement the Draft Determination proposal on the marginal incentive based on the Value of Lost Load (VoLL) in 2018/19 prices. We will only consider amending the incentive rate during RIIO-ET2 if there is new evidence that VoLL has changed materially from the current estimate.

2.18 All three ETOs commented on the proposal to set the incentive rate on the VoLL, which they supported. However, they disagreed with the proposal that Ofgem may amend the incentive rate during RIIO-ET2. They said that the incentive rate should be set for the full price control period otherwise it would amount re-opening the financial package and could cause uncertainty for both consumers and investors. SPT said that if Ofgem wants to amend the incentive rate during the price control period, there should only be one change and there should be a limit on the amount by which it can be changed.

2.19 In general, we agree that incentives should be fixed for the price control period so that the companies can assess the trade-offs and plan accordingly.[9] However, the current estimate of VoLL is nearly 10 years old and it is possible that a new estimate of VoLL could be available during RIIO-T2. The new VoLL estimate could be significantly different because of, for example, increased electrification of heating and transport. We think that if a new VOLL estimate was materially different to the current value, it would be necessary to amend the ENS incentive rate to ensure that the ETOs' incentives under the ENS ODI-F are aligned with consumers' priorities. We agree that is should only be necessary to adjust the

[8] For each ETO, average ENS in RIIO-T1 is at least 80% lower than the average for the period 2000 to 2012.
[9] There can be good reasons to adjust incentive rates during the price control period, for example, where time is needed to get additional information to calibrate the value of the incentive rate.

incentive rate for changes in VoLL only once during the price control period. We note that amending the incentive rate would not affect the overall financial collar (which is set as a percentage of ex ante base revenue). As a result, changing the incentive rate within the period would not have any implications for the potential maximum downside of the ENS ODI-F.

Financial Collar on penalties

2.20 We have decided to set the financial collar on the penalty as 1.9% of ex ante base revenue.

2.21 All ETOs disagreed with the proposed 3% of ex ante base revenue financial collar. Two ETOs argued that the collar should be reduced to 1.9%, which is proportionate to the reduction in the length of the price control period from eight years to five years.

2.22 We accept the argument that the financial collar should be reduced for the shorter price control period, given that it was increased in RIIO-T1 for the longer period. As a result, we have decided to reduce the collar to 1.9% of ex ante base revenue. We are satisfied that the financial collar will still be strong enough to encourage the ETOs to efficiently manage the risk of ENS for the benefit of consumers.

Embedded generation

2.23 We have decided not to account for embedded generation in the measure of ENS in RIIO-T2. As explained in Draft Determinations, this is because we do not have an agreed and practical methodology to do so. We will establish an industry working group, as proposed in our Draft Determinations, to look at updating the ENS methodology to take account of the increasing level of distributed generation. We believe an adjustment will be necessary in future because that the ENS measure would otherwise underestimate the impact of interruptions in transmission supply. The working group will be convened in the first year of RIIO-2 and the output of the working group will inform the approach taken to address this issue in the next price control, RIIO-T3.

2.24 Only SPT responded on this issue. They said that there are challenges of incorporating embedded generation in the ENS calculation and that Customer Minutes Lost (CML) and Customer Interruptions (CI) may be better alternative

measures within ENS. We expect these issues to be raised with and taken into account by the working group.

ENS Methodology

2.25 The deadline for companies to submit their updated ENS methodology statements[10] is 1 April 2021. This is a departure from our Draft Determinations proposal that the deadline would be 31 December 2020.

2.26 All three ETOs responded to our ENS Methodology proposal saying that setting the submission deadline for 31 December 2020 is not reasonable. Two ETOs requested at least a three-month extension to allow a full review of the new licence conditions that will be in force during RIIO-2 as well as sufficient time to collaborate with the other ETOs on their ENS methodology.

2.27 Taking into account consultation responses, we have decided to set the ENS methodology submission date as 1 April 2021 to allow the ETOs enough time to fully consider RIIO-2 licence requirements and submit their ENS methodology early in the price control.

Bespoke Outputs

2.28 Our decisions and consideration of stakeholder responses on the companies bespoke outputs relating to ENS are set out in each of the ETO annexes.

Timely Connections ODI-F

Purpose: To encourage the efficient timely delivery of connection offers to applicants (via the ESO) for new connections to the Transmission Network.

Benefits: Higher quality of service to connection customers, improved stakeholder engagement between connection customers and network companies, and streamlined new connections.

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[10] The ENS methodology sets out the way that the ETOs will measure the volume of energy not supplied from each incentivised loss of supply event. The ETOs must have an approved ENS methodology and apply it for the ODI-F to operate.

Output parameter	Decision	Draft Determination
ODI type	Financial	Same as FD
Incentive type	Penalty only	Same as FD
Performance measure	Performance will be measured annually by the number of offers which are timely (made within three months, minus 13-15 working days)[11] as a percentage of the total number of offers	Same as FD
Performance target	100%	Same as FD
Incentive value	The penalty is calculated by dividing the total number of untimely offers, by the total number of offers, multiplied by 0.5% ex-ante base revenue	Same as FD
Cap	N/A	N/A
Collar	0.5% of ex ante base revenue	Same as FD
Reporting method	Annual RRP reporting	Same as FD
Applied to	All ETOs	Same as FD
Licence condition	Special Condition 4.4	N/A

Final Determination rationale and Draft Determination responses

2.29 We received two responses in relation to our Timely Connections incentive proposal. NGET supported our proposal to retain the same penalty rate for the current RIIO-ET1 incentive. NGET also said that the incentive should be balanced, and it proposed a separate, bespoke reward-only incentive, focused specifically on low carbon connections. SHET disagreed with the consultation position and suggested the introduction of flexibility to allow certain offers to be exempt from being considered untimely, during the connection offer process.

2.30 We have decided to set a penalty-only incentive with the maximum penalty capped at 0.5% of ex ante base revenue, in line with our Draft Determination position. We do not consider the incentive to be suitable for a reward, as we expect companies to meet the licence requirement for timely offers on all connection requests. Over RIIO-T1, the ETOs have met the timely offer requirement on 99.5% of connections requests. Therefore, we consider that the strength of the incentive remains fit for purpose.

2.31 We have reviewed the evidence and justification for amending the incentive to allow for more flexibility for what is considered an untimely offer. However, we consider the three-month offer period to be suitable to enable ETOs to make changes, without risking delays in submitting offers to the ESO. Any risks should

[11] 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).

be further mitigated by pre-engagement with connection customers, to identify any potential change to needs, prior to the start of the connection offer process. We also consider that allowing flexibility could lead to gaming risk and reduce the effectiveness of the incentive.

2.32 Our decisions and consideration of stakeholder responses on the companies' bespoke outputs relating to bespoke low carbon connection ODI-Fs are set out in each of the ETO annexes.

SO:TO Optimisation ODI-F

Purpose: A two-year trial incentive to encourage the ETOs to provide solutions to the ESO to help reduce constraint costs according to the STCP11-4 procedures.

Benefits: A reduction in constraint costs.

Final Determination

Output parameter	Final Determination	Draft Determination
ODI type	Financial	We consulted on rejecting three bespoke proposals from each of the ETOs and a joint ETO proposal that related to constraint cost mitigation in our Draft Determinations.
Incentive type	Reward only during the trial period of year 1 and 2 of RIIO-2. Following the trial, the performance of this ODI-F will be assessed through a report provided jointly by the TOs and another report provided separately by the ESO.[12] The details of this performance report will be provided in the relevant governance document, which we will aim to consult on prior to April 2021. The incentive could be extended to the remaining years of RIIO-2 subject to the review of the trial.	
Performance measure	The ex-ante forecast constraint savings provided through the solutions delivered by the ETO, as determined by the ESO through the usual STCP11-4 processes.[13]	
Performance target	N/A	
Incentive value	10% of the forecast constraint cost savings from all solutions provided in that regulatory year.	
Cap (annual)	£1.2m SHET £2.5m SPT £5.0m NGET	
Collar	N/A	

[12] Chapter 8 of the ESO annex sets out our decision for the ESO's role within this trial ODI.
[13] STCP11-4 can be found on the ESO's website:
https://www.nationalgrideso.com/document/141111/download

Output parameter	Final Determination	Draft Determination
Reporting method	Annual RRP ETOs will provide a joint report on how this ODI-F has been utilised during the trial period. The format of this report will be provided in the relevant governance document. The ESO will report separately on their assessment of the benefit delivered through this ODI-F.	
Applied to	All ETOs	
Licence condition	Special Condition 4.7	

Final Determination rationale and Draft Determination responses

2.33 Almost all 12 responses we received regarding our Draft Determination proposal to reject the RIIO-T2 System Outage Management ODI-F disagreed with our position to reject the bespoke outputs proposed in this area.

2.34 One supplier supported our Draft Determination position not to introduce the ODI-F, as it was concerned that these proposals could risk delays to construction. The supplier flagged that there is a need to have incentives to investigate and propose NOA reinforcements that deliver congestion relief, for example by bringing projects forward.

2.35 Another supplier supported Ofgem's encouragement for the ETOs and the ESO to continue discussions on how to resolve the barriers that they have identified in the use of STCP11-4. However, it stated that if these cannot be resolved through the existing STC modification process then Ofgem should further consider the constraint management incentive mechanisms proposed by the ETOs.

2.36 The remaining respondents flagged that ETOs need incentives to optimise outages and system availability for generators and that although the Network Access Policy (NAP) Key Performance Indicators (KPIs)[14] will provide information to indicate performance improvements, there is no incentive for ETOs to change behaviour to improve performance.

2.37 Respondents generally noted that resolving the STCP 11-4 barriers flagged by the ETOs will not address the root of the problem, which is that there is a lack of a clear and specific regulatory mandate for both ESO and ETOs to proactively seek

[14] The NAP for RIIO-2 will include 12 KPIs which the ETOs will publish and which should reflect their management of outages. For further information see further down this Chapter.

solutions to deliver future constraint savings. These responses noted that the proposed incentive, in their view, will reduce long unpaid outages for generators. One stakeholder flagged that the solution provided under this incentive should not overlap with existing services currently offered to the ESO.

Rationale for ODI Trial

2.38 We have decided to introduce an ODI-F to encourage ETOs to deliver solutions under STCP11-4 for a trial period of two years. In Draft Determinations we proposed rejecting this ODI-F for three main reasons: (1) based on the information we had we could not see a clear and identifiable gap in the arrangements that require new incentives and funding, (2) we were of the view that we did not have the tools to measure the impact of these proposals and (3) we considered that the proposals could drive unintended consequences or inefficient behaviours through commercialising the ESO/TO relationship.

2.39 Following our consideration of Draft Determination responses, we agree that within the existing arrangements the ETOs may not be sufficiently incentivised to identify whole system solutions that mitigate constraint costs. We therefore agree with respondents that an incentive should be introduced in addition to the existing arrangements, as a trial.

2.40 We still have some concerns with the difficulty in assessing the reduction of constraint costs directly attributable to each ETO's actions. We also recognise that this ODI could create unintended consequences or inefficient behaviour by the ETOs. Despite this, we note that constraint costs are estimated to rise significantly over the period of RIIO-2 and we agree that the ETOs have a role to play in reducing these constraint costs. Given these concerns, we have decided to introduce this ODI as a trial for the first two years of RIIO-2.

2.41 We will introduce reporting requirements on the ETOs and the ESO to provide information on the activities that are carried out as part of the incentive, including clarifications on how they differ from BAU activity, and the value they provide for consumers in terms of reduced constraint costs. We will use these reporting requirements to monitor the use of this ODI trial and to ensure that this incentive is not creating inefficiencies between the ESO and the ETOs. We will also use these reports to assess whether this ODI trial is reducing constraint costs directly attributable to solutions delivered by the ETOs. We believe that these reporting

requirements will mitigate the risks associated with potential unintended consequences or concerns relating to measuring constraint cost reductions.

2.42 Overall, we think a trial ODI would be appropriate to test whether consumer benefits can be delivered through incentivising the ETOs to use the existing STCP11-4.

Incentive trial design

2.43 We are setting a trial incentive to encourage the ETOs to provide solutions to the ESO to help reduce constraint costs according to the STCP11-4 procedures.

2.44 The incentive rewards will be calculated using the ESO's ex-ante forecast constraint savings for the solutions provided in each regulatory year. As proposed by the ETOs in their joint proposal which was submitted and discussed after Draft Determinations, they will receive a 10% sharing factor on the forecast constraint savings. We think this is a strong incentive to drive the ETOs to identify innovative whole system solutions.

2.45 We will introduce a cap on rewards for this ODI. We engaged with the ETOs and the ESO following Draft Determinations and the ETOs provided their views on how an incentive cap should be set. Their proposal included an incentive cap which was calibrated by applying 1% to the respective 2018/19 constraint costs attributed to each ETO's network forecasted by the ESO.

2.46 We think that this is reasonable basis on which to calibrate the incentive cap, and we have used it to set the cap during the trial period for SHET and SPT. However, we have set a lower cap for NGET. We have done so because we recognise that this is a trial ODI and we think that applying 1% to the 2108/19 constraint costs attributed to NGET could provide a disproportionately high reward during the trial period. Given the uncertainty around the consumer benefits from this ODI, we prefer to take a cautious approach to setting the cap. We think that the caps that have been set are will sufficiently incentivise the ETOs, whilst also minimising the exposure for consumers.

ODI trial review and governance

2.47 We will work with the ETOs and the ESO to develop a governance document for the SOTO ODI. This governance document will detail the scope of solutions that can be provided through this incentive trial, the methodology by which the ESO will assess ex-ante forecast constraint savings and the trial reporting process. The

implementation of this ODI-F will be subject to the agreement of an appropriate incentive scope. We aim to consult on the governance document for this ODI-F ahead of April 2021.

2.48 ETOs will submit a performance report ahead of or at the end of the trial period. The ESO will also be required to submit a separate report setting out their independent views on whether the ODI has driven benefits of the trial period. The format and the content of both of these reports will be included in the governance document.

2.49 We will set out the process for the ODI trial review within the governance document.

Bespoke proposals

2.50 ETOs proposed bespoke ODIs and CVPs in this area. We have rejected all bespoke proposals in favour of this common ODI-F trial. Our rationale is set out in the respective ETOs' annexes.

Quality of Connections Survey (QCS) ODI-F

Purpose: To incentivise companies to improve the quality of service delivered to connections customers.

Benefits: Improving the quality of service delivered for current and future connections customers, thereby enabling the transition to a low carbon economy.

Final Determination

Output parameter	Final Determination	Draft Determination
ODI type	Financial	Same as FD
Incentive type	Reward only in year 1 Reward and penalty in years 2-5	We did not consult on these aspects of the QCS policy in DDs. In DD we consulted on switching off the incentive whilst we pilot the survey for baseline development purposes. We consulted interested parties via a working group on these aspects
Performance measure	Measuring the satisfaction score from a scale of 1-10	
Performance target	7.7/10 with a reward score cap of 9/10 and a penalty score collar of 6.4/10.	
Incentive value	Reward: 0.19% of ex ante base revenue for each score point for year 1 0.38% of ex ante base revenue for each score point for years 2-5 Penalty:	

Output parameter	Final Determination	Draft Determination
	0.38% of ex ante base revenue for each score point for years 2-5	of the policy following DD responses
Cap	0.25% of ex ante base revenue for year 1 0.5% of ex ante base revenue for years 2-5	
Collar	n/a for year 1 0.5% of ex ante base revenue for years 2-5	
Incentive metrics review period	We will review the performance target, cap, collar, and incentive value in period	
Reporting method	Annual RRP	Same as FD
Customer scope	The ETOs will survey their customers at common milestones, as set out in DD	Same as FD
Survey provider	The ETOs can use their own survey provider	Same as FD
Applied to	All ETOs	Same as FD
Licence condition	Special Condition 4.5	N/A

Final Determination rationale and Draft Determination responses

Whether to switch on the incentive in year one

2.51 In our Draft Determination responses, four stakeholders agreed that the incentive should be switched off for the first year if there is no viable data to develop the baseline. One stakeholder suggested that an extension of the trial period may be necessary to ensure the baseline targets derived are statistically robust. Across two of the responses there are suggestions that an upside performance 'dead band' should be introduced or a minimum performance level for the first year of RIIO-2. Both suggestions have the common aim of mitigating the risk of underperformance to achieve a lower baseline for the remaining years in the price control.

2.52 We received responses from the other ETOs who disagreed with our proposal to turn off the incentive in the first year of RIIO-2 to pilot the survey. In their view there is already sufficient evidence to set a baseline for the first year of the price control and that the pilot will delay progress during the price control period, consequently impacting consumer benefit. One ETO agreed that there is limited evidence to set a target for year one but thinks that the incentive should be upside only during the pilot to maintain an incentive in year one.

2.53 All three ETOs dispute the lack of clarity over the strength of this incentive and provided an alternative proposal which set out that the baseline target from the RIIO-1 SSO should be set for the Quality of Connections incentive. This proposal included a methodology for adjusting the baseline target in period.

2.54 Whilst we still consider that there is limited historical data to assign a baseline target from RIIO-ET1, we agree with the concerns raised by the ETOs and other stakeholders that our Draft Determination position could create a perverse incentive to deliver a reduced service to connection customers during the pilot year, in order to achieve a lower baseline for years 2-5 of RIIO-2. We also acknowledge that it is important to maintain a strong incentive for the ETOs to deliver new low carbon connections and their ongoing operation.

2.55 To that end, we held a working group to consult on switching on the incentive from year one. We consulted on the baseline performance target and incentive strength via a working group and two follow up conversations with interested parties. We invited all stakeholders that responded to our draft determination proposals to the working group.

Baseline Target

2.56 We proposed to set a baseline target of 7.7/10 from years 1-5 of RIIO-2.

2.57 Whilst we still consider that the RIIO-1 SSO historical data is not fully reflective of the RIIO-2 QCS, we do think that this data can provide an indication of minimum satisfaction levels and can be used as a basis to set the RIIO-2 QCS baseline target. Therefore, in arriving at the target of 7.7/10, we have considered the trend in performance from overall stakeholder satisfaction output (SSO) in RIIO-1 as well as the average satisfaction scores from connections customers that were surveyed through the RIIO-1 SSO.

2.58 We have calculated the 7.7 baseline target calculating the average between the RIIO-1 SSO baseline target (7.4/10) and the RIIO-1 connection customer satisfaction scores (7.94/10). We think that 7.7 is an appropriate target to incentivise the TOs to perform well under this incentive from the beginning of RIIO-2. We also think this target also embeds good performance under the RIIO-1 SSO.

2.59 We have not chosen the upper level of this dataset (7.94). We do not think it would be appropriate to set the target at this point due to the uncertainty around how the TOs will perform. We also note that from the general trend in performance from customer satisfaction scores under the RIIO-1 incentive, some ETOs would be penalised from a target set at this point.

2.60 We consider that a cap of 9/10 is appropriate as we think that scores beyond 9 would be challenging to achieve, and therefore the highest reward should be provided to ETOs that score 9 and above. We have set the collar at a symmetrical downside. This means that the maximum penalty in years 2-5 will be capped at 6.4/10. This is the approach that was taken in RIIO-1.

2.61 We recognise that the baseline target, cap and collar may not be based on statistically relevant historical data that reflect the satisfaction levels of this customer group and as such, we will review the baseline targets, caps and collars in period and consider whether these metrics should be updated to reflect the satisfaction levels of the new customer focus for RIIO-2. We have set out how this review process will take place below.

2.62 In our working group, we set out the rationale for the baseline target of 7.7/10 with a review period during RIIO-2 attached.

2.63 Two stakeholders queried whether the baseline target should be more stretching. One stakeholder suggested introducing a dead band, whilst another stakeholder raised their views that setting the target of 7.7/10 is too low and would mean that the ETOs would be incentivised below their RIIO-1 average performance rate. One stakeholder noted that under the DNO customer satisfaction incentive, the DNOs score above 9/10.

2.64 We think that the baseline target of 7.7/10 is appropriate at this time given the trend in performance of the RIIO-1 incentive and the uncertainty associated with the new incentive scope. As noted below, we will review these targets in period to ensure that they remain relevant.

2.65 We note that one stakeholder is of the view that this cap is unattainable and will not drive improved performance under this incentive. We disagree with this view, as we note that that the RIIO-1 SSO cap at 9/10 sufficiently incentivised improved performance throughout RIIO-1. We also note that in the GD and ED sectors, the network companies have scored above 9/10.

Incentive strength

2.66 In our working group, we proposed an upside only incentive strength in year one of +0.25% of ex ante base revenue. We then proposed to introduce a maximum reward and penalty of +/-0.5% of ex ante base revenue in years 2-5. The cap and collar will correspond to the over-performance of 9/10 and underperformance of

6.4/10. This means the incentive rate for each score point above or below target, the reward is 0.19% of ex ante base revenue in year 1 and 0.38% in years 2-5, and the penalty is 0.38% of ex ante base revenue in years 2-5.

2.67 As set out above, there is uncertainty in how the TOs will perform under the RIIO-2 incentive baseline target, due to change in focus from RIIO-1. Given this uncertainty, we think that it is appropriate to set a lower upside only incentive strength in the first year of RIIO-1.

2.68 An upside only incentive ensures that the TOs are sufficiently incentivised to perform well in the first year of RIIO-2 whilst also protecting TOs from penalties, should the baseline target be set too high.

2.69 Additionally, we think that reducing the incentive strength in the first year will minimise exposure to consumers, should the baseline target be set too low.

2.70 We think that it is appropriate to introduce a penalty and reward after the first year of RIIO-1. This will ensure that companies have a stronger incentive to improve their performance throughout the RIIO-2 period when we have greater certainty around how the TOs perform against the baseline target.

2.71 Through our working group, one stakeholder disagreed with the upside only incentive in year one and set out that there should be a small downside in year one of RIIO-2 to ensure the ETOs are improving performance in this year. Two of the ETOs highlighted that the application numbers for connections are increasing for RIIO-2 and questioned whether the incentive will be strong enough to drive behavioural change to meet the expectations of new customers. One other stakeholder agreed with this position.

2.72 We disagree with the stakeholder's views that there should be a stronger incentive associated with this survey, whether that be a stronger upside or downside. We believe that we need to balance the incentive strength against the uncertain nature of the baseline target and we therefore consider this incentive strength to be proportionate.

Incentive metrics review period

2.73 In our working group, we proposed to review the incentive metrics in period to ensure that these metrics are relevant and sufficiently incentivising the TOs to drive service improvements over the RIIO-2 period.

2.74 All stakeholders consulted agreed with this aspect of the proposal.

2.75 In line with stakeholder feedback, we will review the baseline target, caps and collars throughout the RIIO-2 period. We will also consider whether the incentive strength is appropriate for driving performance under this QCS.

2.76 We will consult on directing any adjustment to the incentive metrics should there be material differences between the expected and out-turn performance. We think that this review period is necessary to ensure that the incentive metrics are relevant to the new customer group and to ensure that the TOs are incentivised to improve their service delivery throughout the RIIO-ET2 period.

2.77 The ETOs will be expected to provide their performance scores for each of the survey milestones at the mid period of each regulatory year.

Survey content and methodology

2.78 Regarding our question on the survey content and methodology in Draft Determinations, we received 5 positive responses, which generally agreed with the scope of the incentive. All ETOs agreed with the Draft Determination position.

2.79 We received four other responses that commented on the scope of the customers that this survey will target and whether the weighting of the survey responses could skew the overall score in favour of large corporate entities. We also received one response detailing that the ETOs provide an inferior customer service than the DNOs and at a much higher cost.

2.80 We have decided to maintain our Draft Determination position on the common milestones that this survey will be triggered, the target audience for these milestones and the question of overall satisfaction. The QCS will measure the satisfaction levels of connections customers against the common milestones across all ETOs. We will maintain our RIIO-1 approach to measuring satisfaction scores. We will collate satisfaction scores using one question of overall satisfaction.

2.81 We note concerns raised from stakeholders on the scope and the weighting of survey responses. We think that the survey milestones ensure that all relevant customers are captured and surveyed for the full customer journey, including ongoing engagement for non-outage plan matters. We also think that it is appropriate for each customer response from each survey milestone to hold the

same weighting and be actioned by the ETOs on its own merit. Lastly, we also note the views from stakeholders that the TOs deliver an inferior customer service to the DNOs. We will monitor the responses throughout RIIO-2 to understand the participation of different categories of customer groups.

Survey provider and independent assurance

2.82 We did not receive any responses in relation to this aspect of Draft Determinations.

2.83 We have decided to maintain our Draft Determination position that ETOs will use their own survey provider for the Quality of Connections Survey, for the reasons provided in our Draft Determination.

2.84 As set out in Chapter 3 of the Core Document, we have decided to review the role of the User Groups for RIIO-3. As such, the User Groups may be unable to provide assurance to the survey. We will continue to monitor the responses to the survey throughout RIIO-2.

New Infrastructure Stakeholder Engagement Survey ODI-R

Purpose: To encourage the ETOs to survey stakeholders impacted by new infrastructure projects **on their stakeholder engagement experience.**

Benefits: Tailored engagement that better meets the needs of local stakeholders impacted by transmission works.

Final Determination

Output parameter	**Final Determination**	**Draft Determination**
ODI type	Reputational	Same as FD
Measurement	Survey of stakeholders affected by new transmission projects on stakeholder engagement process	
Reporting method	Reporting via the company's websites, where appropriate	
Applied to	All ETOs	
Licence condition	No	

Final Determination rationale and Draft Determination responses

2.85 We consulted and decided on this survey as part of our SSMC and SSMD, respectively.

2.86 ETOs must survey stakeholders impacted by new transmission infrastructure projects and report on the outcomes under this ODI-R.

2.87 Our decision is intended to add a transparent stakeholder feedback loop on the engagement processes adopted by an ETO on a specific project. The main aim of the survey is to allow stakeholder-led identification of opportunities for potential development of an ETO's stakeholder engagement processes. To this end we anticipate such a survey will include several open-ended questions to allow stakeholders to identify challenges and future opportunities in the stakeholder engagement process.

2.88 ETOs should report on the feedback received from the survey and how they intend to act, if at all, on this feedback publicly on their website, where appropriate.

Maintaining a safe and resilient network

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

2.90 This section sets out each of the outputs common to the ET sector related to maintaining a safe and resilient network.

Network Access Policy (NAP) LO

Purpose: To require ETOs to have in place a policy to support engagement between themselves and the ESO around outage planning.

Benefits: Enhanced outage planning coordination and communication between the respective ETOs and the ESO.

Final Determination

Output parameter	Final Determination	Draft Determination
NAP	Pursuant to paragraph 2J.13 of Special Condition 2J - Network Access Policy (SpC 2J) of the RIIO-1 licence, we have decided to approve the final version of the consolidated NAP which was submitted to us in May 2020 following some changes to the version of the NAP as submitted to us by the ETOs as part of their business plans[15]	Same as FD
Reporting requirements for RIIO-2	ETOs should publish the KPIs on their respective websites in a way that is accessible to users. These should be published within two months of the end of each Regulatory year The KPIs should be accompanied by text explaining what they stand for, and year on year changes where applicable The NAP working group will govern the processes and procedures to populate the KPIs to ensure transparency, alignment, and comparability between the ETO's respective KPIs.	In DDs, we proposed 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
Applied to	All ETOs	Same as FD
Licence reference	Special Condition 9.10	2J

Final Determination rationale and Draft Determination responses

2.91 We have decided to approve the consolidated NAP under the existing RIIO-1 licence condition (specifically under paragraph 2J.13 of Special Licence Condition 2J – Network Access Policy (SpC 2J).[16]

2.92 All ETOs supported our Draft Determination proposal to approve the NAP and flagged that additional KPIs are not needed. We have recently engaged with the ETOs on the format and timing of the publication of the KPIs and we subsequently agreed on the reporting requirements as set out in the table above. We agree that there is no need for additional KPIs at this point. We also note that ETOs consulted with their respective stakeholders on the KPIs ahead of submission of their

[15] 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.
[16] The current LC requires the Authority to consult and to approve or reject the NAP. Using the DD and FD process to consult and make a decision on the NAP will ensure the NAP is in place for the start of RIIO-2 and no additional consultation process will be needed. A copy of the consolidated approved version is included in this publication as an annex.

updated NAP. The ETOs provided Ofgem with a summary of the stakeholder responses, which showed that stakeholders were content with the proposed KPIs.

Large Project Delivery ODI-F

Purpose: To incentivise the timely delivery of large transmission projects.

Benefits: Minimising consumer detriment from projects being delivered late.

Final Determination

Output parameter	Final Determination	Draft Determination
ODI type	Financial	Same as FD
Incentive type	LPD is a combination of an ODI-F and a PCD. To remove financial benefit from delay based on either of the following: • Re-profiling mechanism • Milestone-based approach To ensure that consumer harm caused by delay is minimised: • Project Delay Charge	Same as FD
Performance measure	Performance will be assessed against the delivery dates for large (£100m+) projects, set out in licences on a project-by-project basis.	Same as FD
Performance target	Delivery of large (£100m+) projects by the delivery dates stated for them in the licence.	Same as FD
Incentive value	To be determined on a project-by-project basis	Same as FD
Cap	N/A	N/A
Collar	To be determined on a project-by-project basis	Same as FD
Reporting method	Annual RRP reporting on general progress and a specific independent report to confirm delivery of the output.	Same as FD
Applied to	Cross-sector ODI - All ET, GT, and GD companies	Same as FD
Licence condition	No – Where appropriate we will modify the licence during the RIIO-ET2 period when we decide to apply an LPD mechanism.	N/A

Final Determination rationale and Draft Determination responses

2.93 We have decided to include the LPD ODI-F framework in our Final Determination for large (£100m+) projects. Which LPD mechanism or mechanisms below will be applied to a project will be decided on a project-by-project basis.

2.94 Either one of the following two mechanisms will be applied to remove any financial benefit to the company from delay:

- Re-profiling – When projects are delivered late, we will re-profile the allowances provided to a network company in its licence to reflect actual expenditure, to avoid the network company benefitting from delayed expenditure
- Milestone-Based Approach – Instead of the Re-profiling mechanism, we may set project allowances based on the delivery of specific, pre-agreed, milestones. The allowances would only be granted following confirmation that a milestone had been delivered.

2.95 The following mechanism may also be applied to reduce the consumer detriment caused by a delay:

- Project Delay Charge – For each day that a project is delivered late, network companies would pay a pre-agreed day-rate charge to compensate GB consumers for the late delivery.

2.96 The sections below set out our rationale for the LPD framework generally, provide detail and rationale regarding each of the mechanisms, and address Draft Determination responses that related to LPD.

Overall LPD framework

2.97 Generally, the ETOs expressed opposition to the LPD framework in their responses, arguing that it could: discourage innovative approaches to project delivery; result in contractors increasing their prices; and that it may create a perception amongst investors that the sector is more risky. Five other stakeholders were broadly supportive of our proposals, if implemented reasonably, stating that the LPD mechanisms appear to broadly reflect standard commercial arrangements.

2.98 We are adopting our Draft Determination position to include the LPD ODI-F in our Final Determination, though we have made certain specific tweaks to the respective mechanisms described in their respective sections below further to consideration of Draft Determination responses. We consider that there is significant benefit to consumers in strengthening the incentive for network companies to deliver large network investments on time. This is particularly true given forecast increasing constraint costs and role of the networks in facilitating the transition to Net Zero.

2.99 Consistent with our Draft Determination, and as suggested in some responses, we will consider the merits of applying each LPD mechanism, or a combination of the mechanisms, on a project-by-project basis during RIIO-ET2, and we will aim to set out this intention as early in the project review process as possible. We expect that one of the Re-profiling Mechanism or Milestone Based Approach will be applied to all projects, and the Project Delay Charge may also be applied. We will consult on our views regarding the application of LPD mechanisms to specific projects alongside our consultation on cost allowances.

2.100 For projects costing more than £100m that have been granted baseline allowances or set as PCDs in our RIIO-2 Final Determinations:

- Re-profiling of allowances will be applied to any projects that are delivered late
- The Project Delay Charge will not be applied because it is a new mechanism that companies would not have been aware of when negotiating their contracts. However, if these projects are delivered late, we will engage with network companies regarding the return to consumers of any delay clause damages they receive.

2.101 As proposed in our Draft Determinations, we have decided to leave open the possibility of applying these mechanisms in the GD and GT sectors. However, we expect that these mechanisms will be most relevant to the ET sector, because ET is where we expect to see the majority of high value projects where late delivery would be most likely to cause a material detriment to GB consumers. This is why the detail of the mechanisms has been set out in this document.

2.102 For the avoidance of doubt, we do not consider that the application of these mechanisms would preclude the possibility of also pursuing enforcement action in the event that a project is delivered in breach of the licence.

Re-profiling

2.103 In their Draft Determination responses, the ETOs argued that it would be unreasonable to re-profile allowances in the manner described in our Draft Determinations where a project is not delivered late. We agree with this view, and as such, on projects where we have identified the re-profiling mechanism as a relevant LPD tool, we will only re-profile allowances to match actual spend where a project is delivered late. This would ensure that ETOs do not financially benefit from delayed expenditure on a project which has experienced delays.

Milestone-Based Approach

2.104 ETOs expressed strong opposition to the Milestone Based Approach, arguing that withholding or clawing back allowances where a network company has already incurred the respective costs could create cashflow impacts that may be detrimental to overall company financeability.

2.105 Having considered the ETOs' comments, we have decided to retain the Milestone-Based Approach as an option under the LPD framework. This is primarily because we consider that it would provide a strong incentive on companies to deliver projects on time.

2.106 We would ensure that this approach would only be applied in a manner that takes into account company financeability, as appropriate. For the avoidance of doubt, we commit to carefully assess the financial impact on network companies of applying the Milestone-Based Approach on a project-by-project basis. This may involve project-specific adjustments to the approach set out at Draft Determinations, such as varying the timing of release of funding and/or combining the Milestone-Based Approach with the Re-Profiling Mechanism.

Project Delay Charge

2.107 The Draft Determination responses from the ETOs raised various questions regarding the Project Delay Charge, specifically highlighting a concern that it could increase contract costs. To address these concerns, we would expect to set the Project Delay Charge in a manner consistent with the principles set out below.

2.108 The level of the Project Delay Charge will be set on a project-by-project basis, based on a consideration of various factors, including:

- estimates of potential consumer detriment (including consideration of the Needs Case prepared for the project by the network company)
- industry benchmarks for delay clauses on similar projects
- the delay clause(s) that the network company negotiates with its contractor(s) for that project (the delay clauses that the network company negotiates with its contractor(s) should be shared with Ofgem).

2.109 The structure of the Project Delay Charge will be similar to delay clauses set out in standard form contracts such as the NEC/JTC/FIDIC suites which are widely used.

2.110 Any Project Delay Charge would:

- be set on an ex ante basis
- be charged after reasonable notice has been given
- follow an approach that allows for reasonable changes to the project schedule if that would facilitate returning the project to its original delivery dates or otherwise minimise delay
- be set on the basis of a day rate, taking into account an ex ante estimate of consumer detriment and relevant delay clause benchmarks, subject to a pre-agreed cap. Our initial view is that the cap should not normally exceed 15% of the total cost of the project, but we will take account of TO and wider stakeholder views on this matter and other relevant considerations on a project-by-project basis before coming to a firm view.

2.111 Under the licence, network companies will be required to return sums determined by the Project Delay Charge to consumers.

2.112 Where we indicate an intention to apply a Project Delay Charge, we would not expect an increase in contract costs negotiated by the network company. Our understanding is that delay clauses are routinely negotiated by network companies on large investment projects, and our expectation is that network companies would utilise their own contract delay clauses to cover most or all of any Project Delay Charge in the event that a project is delivered late.

Delivering an environmentally sustainable network

2.113 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.

2.114 In this section we set out our decision on the outputs related to delivering an environmentally sustainable network that will apply to the ET sector.

Environmental Action Plan and annual environmental report

Purpose: To ensure that the ETOs 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 suppor cross-sector consistency and greater environmental ambition from the companies.

Final Determination

ODI-R on business carbon footprint (BCF) reduction target

Output parameter	Final Determinations	Draft Determinations
ODI type	To set a common reputational incentive for NGET, SHET and SPT on their respective BCF reduction targets	We proposed a common ODI-R for the BCF reduction targets for NGET and SHET and noted that SPT had to submit further information on its science-based CO2e reduction target for RIIO-2
Measurement	ETO's business carbon footprint comprising scope 1 and 2 emissions excluding electricity losses (based on GNG Protocol Corporate Standard); tons of carbon dioxide equivalent emissions (tCO2e)	BCF reduction targets proposed by ETOs in their EAPs
Performance target	ETO's BCF reduction target for the end of RIIO-ET2 (interpolated from each licensee's science-based target validated by the SBTi)	Same as FD
Reporting method	Annual RRP reporting and the AER	Same as FD
Applied to	All ETOs	Same as FD
Licence condition	N/A	N/A

ETOs' EAP commitments[17]

Output parameter	Final Determinations	Draft Determinations
EAP commitments	We are accepting all of the TOs' EAP commitments (that are not bespoke PCD, ODI or UM) for: • Business carbon footprint reduction and related initiatives • Sustainable resource use, recycling and reducing waste • Reducing pollution to the local environment • Enhancing biodiversity and natural capital	Same as FD
Measurement	Milestones and metrics as specified in each licensee's EAPs	Same as FD

[17] EAP commitments is the term we have given to the initiatives that the TOs included in their respective EAP to improve their environmental performance that were not otherwise specified as one of the components in the RIIO-2 output framework described in Chapter 4 of the FD Core Document (i.e. licence obligations, price control deliverables or output delivery incentives). EAP commitments will be included in the reporting guidance that we are developing for the Annual Environmental Report.

Output parameter	Final Determinations	Draft Determinations
Performance target	Targets as specified by the licensee in their EAPs	Same as FD
Reporting method	AER	Same as FD
Applied to	All ETOs	Same as FD
Licence condition	N/A	N/A

Annual Environmental Report Licence Obligation

Output parameter	Final Determinations	Draft Determinations
Licence obligation	New requirement to publish in AER on progress in achieving EAP commitments, relevant ODIs, PCDs, UMs and an annual update on the environmental impact of their network	Same as FD
Applied to	All ETOs	Same as FD
Licence reference	Special Condition 9.1	Same as FD

Final Determinations rationale and Draft Determination responses

2.115 We received 9 responses to our proposals in relation to the EAP and AER in the Draft Determinations ET sector Document.

ODI-R for BCF reduction targets

2.116 All stakeholders supported the introduction of the ODI-R for the ETOs. A consumer body said that it was difficult to judge whether the ETOs' BCF reduction targets are comparable, particularly as SPT had not made as much progress the other TOs in developing its Science-Based Target (SBT).

2.117 SPT has submitted further information to us on its progress in setting a SBT and we are satisfied that it will meet this minimum requirement before the start of RIIO-ET2 in April 2021.18 We explain our rationale in the Core Document that the BCF reduction target for the ODI-R will be defined as scope 1 and 2 emissions excluding losses as at the end of RIIO-T2 interpolated from each TO's SBT.19

[18] SPT is in the final stages of developing a SBT aligned a temperature increase of no more than 1.5 degrees scenario compared to pre-industrial levels.
[19] Science based targets for greenhouse gas emissions typically cover a longer period than the end of the RIIO-T2 price control period (up to a maximum of 15 years). To set an ODI-R for BCF reduction for RIIO-T2, it will be necessary to estimate the point on the emissions reduction path between the base year and the science-based target year that each TO will need to reach by the end of RIIO-T2.

ETOs' EAP commitments

2.118 All 9 stakeholders that responded in this area welcomed our proposal to accept the ETOs' EAP commitments to address a wider range of impact areas than were in RIIO-ET1 price controls. The advisor to Government on the natural environment particularly welcomed the ETOs' commitments in relation to achieving biodiversity net gain on new network projects in RIIO-ET2, and suggested that visual amenity and landscape enhancements are included in the Environmental Action Plan.

2.119 A consumer body noted that there was a range of commitments with varying degrees of ambition across the ETOs in the same area. It asked whether Ofgem should accept different levels of commitments, or if instead, it should be driving more consistency in the ETOs' ambition. SHET also raised a concern about consistency in relation to whether the bespoke outputs proposed by the two other ETOs, which Ofgem had proposed to accept in Draft Determinations, should be made a common output for all ETOs. Several stakeholders, including SPT and SHET, also considered that NGET's bespoke Environmental Scorecard ODI-F should be extended to the other ETOs because it would provide an incentive to deliver not only on the EAP commitments but additional improvements in RIIO-ET2.

2.120 Given the feedback from stakeholders, we considered whether we should pursue greater consistency in the level of ambition that the ETOs have adopted in EAP commitments that are similar in type. Overall, we have decided that it would not be appropriate to unilaterally set the level of ambition. While it was relatively straightforward to establish the minimum EAP requirements, we are less confident that we could set a common appropriate level of ambition beyond the minimum requirement for each company. There are several reasons for this:

- the EAP covers a wider range of impact areas than was previously covered in RIIO-ET1. In many areas we do not have information on the past performance of companies that might inform our expectations about their future performance
- each ETO's EAP commitments depend on the circumstances of their network. When we challenged the TOs on the ambition of their EAP commitments, these could generally be explained by differences in the underlying environmental challenges and opportunities, variations in devolved environmental policy, as well as the relative priorities of the parent group's sustainability strategy.

2.121 We note that there was good evidence in the ETOs' business plans that they had tested their EAP commitments, including the level of ambition, with stakeholders and their User Groups. In our view it is appropriate that the companies worked with stakeholders and their User Groups to set the level of ambition that was right for their circumstances. Overall, we are satisfied that the range of ambition across the TOs' EAP commitments is justified.

2.122 We also considered whether there is a case to roll out to all ETOs any of the three bespoke outputs that we proposed in Draft Determinations to accept for one of the ETOs. Our views are outlined below.

NGET's bespoke PCD for SF6 asset replacement

2.123 We have considered additional supporting evidence provided by SHET and SPT in response to Draft Determinations regarding their proposed SF6 asset replacement schemes that we proposed to reject. We decided to accept these schemes with bespoke PCDs where relevant. Further detail on the individual schemes are in each respective company annex.

2.124 After considering SHET's arguments about the need for more flexibility to fund works on SF6 assets and reviewing more evidence from NGET, we have decided to add SF6 abatement as a potential trigger under the MSIP re-opener to facilitate further non-lead asset replacement to reduce harmful SF6 emissions during RIIO-T2. This re-opener will be available to all the ETOs. See Chapter 4 of this document for further information on the MSIP re-opener.

SPT's bespoke UIOLI allowance for a Net Zero Fund (NZF) to assist vulnerable communities in the low carbon energy transition

2.125 We have considered feedback from SHET and a consumer body about the potential regional funding disparity that might arise because of SPT's bespoke proposal for an NZF. However, by allowing the companies to initiate bespoke proposals that reflect the specific priorities of their stakeholders in the RIIO-2 framework, we generally accepted that this could be an outcome, especially if other companies did not work up proposals for similar schemes in their BPs. Therefore, we have decided to implement our Draft Determination proposal not to extend SPT's bespoke proposal to the other electricity ETOs.

2.126 Please see the SPT Annex for our consideration of stakeholder responses and decision rationale on the company's bespoke proposal for the NZF.

NGET's bespoke environmental scorecard ODI-F

2.127 Most stakeholders that responded on the EAP, asked whether reputational incentives would be sufficient and suggested that NGET's bespoke environmental scorecard should be made a common ODI-F, to ensure consistency, and to encourage all of the ETOs to go beyond the EAP commitments over RIIO-T2.

2.128 In Draft Determinations, we proposed not to make NGET's bespoke environmental scorecard a common ODI-F because the other ETOs had comparable EAP commitments in only some of the impact areas that the scorecard covered. However, prompted by stakeholder feedback, we have reconsidered and note that SPT and SHET both indicated in their Draft Determination responses that they would also welcome the opportunity to develop the necessary targets and adopt the environmental scorecard ODI-F.

2.129 After Draft Determinations, we followed up with each company to discuss how they would adopt the environmental scorecard ODI-F. Following those conversations, we have decided to introduce a process whereby SPT and SHET could "turn on" their environmental scorecard ODI-F by working with their stakeholders to define a set of parameters, including the scope, baseline years, and annual threshold targets, for each of the impact areas in the scorecard that is materially relevant to the ETO's network. Each company would then need to submit this information, as well as evidence of stakeholder support for the proposed parameters, for Ofgem to review before updating each company's licence to switch the environmental scorecard ODI-F on in the year following the submission.

Annual Environmental Report Licence Obligation

2.130 All stakeholders that responded on the EAP strongly supported the introduction of the Annual Environmental Report (AER). Please see the Core Document for further detail on specific feedback received on the AER.

Environmental Scorecard ODI-F

Purpose: To incentivise the ETOs to outperform selected RIIO-2 targets in their Environmental Action Plan (EAP)

Benefits: Further reducing carbon emissions, improving the environment, and reducing resource use for the benefit of existing and future consumers

Final Determination

Output parameter	Decision	Draft Determination
ODI type	Financial	We consulted on accepting the proposal for NGET only.
Incentive type	Reward and penalty	
Performance measure	Percentage change in the following impact areas, where it is materially relevant to the ETO's licence area: • Operational transport emissions • Business mileage emissions • Waste recycling • Waste reduction • Water use reduction • Environmental value of non-operational land • Biodiversity net gain on new network projects	
Performance target	Performance thresholds specified by each company (see NGET Company Annex for detail)	
Incentive value	• Incentive is calculated by comparing actual percentage change in impact areas to annual reward/penalty thresholds. If the actual percentage change is above or below the relevant threshold, the ETO will receive a reward or a penalty. There is no reward or penalty if the actual percentage change is between the first penalty or reward thresholds • Incentive rates are based on the economic value of the percentage change in the impact area • TIM is applied to overall payment	
Cap	NGET: £3.5m p.a. (before TIM) SPT and SHET: Cap to be calculated after each company has worked with stakeholders to set the incentive parameters and submitted these to Ofgem for review	
Collar	NGET: -£3.5m p.a. (before TIM) SPT and SHET: Collar to be calculated after each company has worked with stakeholders to set the incentive parameters and submitted the incentive parameters to Ofgem	
Reporting method	Annual RRP reporting and AER	
Applied to	All ET companies	
Licence condition	Special condition 4.6	

Final Determination rationale and Draft Determination responses

2.131 We have decided to make the environmental scorecard ODI-F a common incentive for all ETOs. Please see discussion on NGET's bespoke Environmental Scorecard

ODI-F in the previous section for our Final Determinations rationale and Draft Determination responses. Please also see NGET's Annex for Draft Determination responses and our Final Determination on the incentive parameters specific to NGET.

Insulation and Interruption Gas (IIG) leakage ODI-F

Purpose: To incentivise a reduction in leakage of SF6 and other IIGs from assets on the transmission network, and to support the transition to low greenhouse gas alternative IIGs.

Benefits: Reduction in the volume of harmful leakage of greenhouse gas emissions from GB's Electricity Transmission network.

Final Determination

Output parameter	Decision	Draft Determination
ODI type	Financial	Same as FD. Decided at SSMD
Incentive type	Reward and penalty	Same as FD. Decided at SSMD
Performance measure	IIG emissions leakage below the annual target are rewarded, with a penalty applied for emissions leakage above the target	Same as FD. Decided at SSMD
Performance target	Initial baseline calculated, using the average leakage rate from 2013-20, with separate levels of improvement applied (0%-15%) for each TO. Initial leakage rate is multiplied by the IIG Inventory at the end of RIIO-1 to provide a target baseline in tonnes of CO2e	Initial baseline calculated, using the average leakage rate from 2013-20, with a 15% improvement applied for all TOs. Initial leakage rate is multiplied by the IIG Inventory at the end of RIIO-1 to provide a target baseline in tonnes of CO2e
Incentive value	Reward/Penalty calculated by applying the value of CO2 equivalent (using the Non-Traded Carbon price), for every ton over or below the target, and applying the TIM sharing factor	Same as FD
Cap	N/A	N/A
Collar	N/A	N/A
Reporting method	Annual RRP reporting	Same as FD
Applied to	All ETOs	Same as FD
Licence condition	Special condition 4.3	N/A

Final Determination rationale and Draft Determination responses

2.132 We received 6 responses regarding our proposals for the IIG leakage ODI-F. Responses primarily focused on the Draft Determination proposal methodology for setting the initial incentive baseline, using the average leakage rate from 2013-2020, with a 15% improvement factor applied. Most respondents disagreed with the inclusion of the improvement factor and the level in which it was set.

2.133 We have decided to implement the position set out in Draft Determinations and will continue to apply the IIG leakage ODI-F to all ETOs in RIIO-2, including NGET. On specific aspects, we will look to introduce measures to adjust the incentive targets take into account reduction delivered through additional works funded under other mechanisms such as NGET's bespoke SF6 Asset Intervention PCD, MSIP and Net Zero re-openers.

2.134 With regards to our proposal on setting the initial baseline for the incentive, we have decided to adjust the improvement factor used in our initial calculation, taking into account further evidence ETOs submitted about their respective circumstances and past performance. The changed improvement factor and the resulting level of baselines for the start of RIIO-ET2 are set out in the table below:

Table 3: IIG baselines for the start of RIIO-ET2

ETO	Baseline methodology	Initial Baseline leakage rate
SHET	Average leakage from 2013-20	0.38%
SPT	Average leakage rate from 2013-20, with a 4% improvement factor	0.79%
NGET	Average leakage rate from 2013-20, with a 10% improvement factor	1.18%

- SHET: We have decided to remove the proposed improvement factor, given that SHET's average level of leakage from 2013-20 is below the typical manufacturers' annual leakage rate of 0.5%, and therefore the scope for further improvement is limited
- SPT: We have decided to change the improvement factor to 4%. This decision considers SPT's past performance, and level of improvement over the RIIO-T1 period, while recognising there remains room still for moderate improvement

in RIIO-T2. We do not consider the alternative methodology proposed by SPT suitable as it does not reflect its past performance

- NGET: We have decided to change the improvement factor to 10%. Based on NGET's further evidence and arguments for a lower value and wider feedback, we consider that this reflects the room for further improvement in NGET's leakage rate.

2.135 We have decided to implement our Draft Determination proposal not to introduce a materiality threshold for IIG exceptional events, but to allow ETOs to only make event claim submissions where the cost of doing so is likely to exceed the value of the volume of leakage claimed. We received no further evidence or responses to this proposal.

2.136 In terms of the definition of an Insulation and Interruption Gas, in light of responses and additional evidence submitted to us, we have decided to update this definition to include any gases with a Global Warming Potential (GWP) of 1 or greater. This will ensure that we incentivise the reduction of leakage of gases with significant global warming potential and facilitate the introduction of very-low GWP IIG alternatives.

2.137 We have decided to implement the proposals in Draft Determinations on the content and due date of the IIG Methodology Statements (31 December 2020) from each ETO, as no further evidence or alternatives were suggested.

Visual amenity in designated areas provision re-opener

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: Restoring 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.

Final Determination

UM parameter	Final Determination	Draft Determination
UM type	Re-opener	Same as FD
Re-opener window	Any time during the price control	Same as FD
Re-opener materiality threshold	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	Same as FD
Authority triggered re-opener?	No	Same as FD
Additional requirements	Expenditure cap of £465m across the ET sector in 2018-19 prices. Expenditure cap includes £7.5m baseline allowance per TO for projects that utilise landscaping and environmental enhancement to mitigate visual impacts of existing infrastructure	Same as FD
Applied to	All ETOs	Same as FD
Licence condition	Special condition 3.10	N/A

Final Determination rationale and Draft Determination responses

2.138 We have decided to set an overall expenditure cap of £465 million. We remain of the view that it strikes the right balance of allowing for the delivery of visual amenity outputs that are highly valued by consumers at an exceptional time when there will be high competing demand on the TOs to deliver on Net Zero imperatives, and the financial position of some consumers are under intense pressure from the economic fallout of the COVID-19 pandemic.

2.139 We received 18 responses in relation our Draft Determination proposals for the visual amenity re-opener. This included two network companies, an energy supplier, a consumer group and 14 other organisations that promote the conservation and enhancement of natural beauty including the physical, natural, cultural, historical and built environment.

2.140 Eleven stakeholders, including one network company, did not support the level of the expenditure cap proposed in Draft Determinations. They considered that it was too low and conservative, or poorly justified. Three stakeholders consider that willingness to pay (WTP) is not a suitable methodology and that willingness to accept (WTA) should be adopted to inform the level of the cap.

2.141 Seven stakeholders considered that Ofgem should increase the cap in order not to stifle ambition of TOs/under-deliver the visual amenity benefits for consumers.

Several other stakeholders also noted that a higher cap would help assist the green recovery, particularly in areas that have suffered heavily during the pandemic (due to reduced visitors).

2.142 Six stakeholders, including one network company, an energy supplier and a consumer group, supported our Draft Determination proposal of setting the expenditure cap at £465 million.

2.143 We do not agree that WTA is preferable to WTP for the purpose of informing the value of the expenditure cap for mitigation projects in RIIO-T2. We believe there would be issues with WTA eg an upward bias because people are asked the amount of compensation they would require to accept a loss of visual amenity without considering who bears the direct financial consequence of any such compensation value. Factors such as household budgets should be considered because the cost of the visual amenity projects are paid for by consumers. In our view, WTP is a better approach because it is a measure of both the ability and inclination of consumers to pay for mitigation projects.

2.144 While we agree that visual amenity projects will likely contribute to a Green Recovery and 'building back better' in UK – we note that this is an additional benefit of the expenditure cap (set at any level) and is not itself a basis for setting the cap.

2.145 We anticipate that significant levels of network investment could be needed over RIIO-ET2 to support the energy system transition on the path to Net Zero in 2050. Delivering on the necessary Net Zero investment is one of the highest priorities in the next price control period because of the urgency to decarbonise.

2.146 However, the economic impact of COVID-19 pandemic has been severe with abrupt falls in employment and household earnings, affecting the poorest households the most. The pace and extent to which the economy recovers will depend on the how long the epidemic continues and much permanent damage and/or structural change there is in the economy. The affordability of energy bill increases for many consumers has reduced and could deteriorate further, particularly if the epidemic continues into 2021/22.

2.147 In the price control setting process, we must consider the overall impact of the package on energy bill affordability. It is necessary sometimes to moderate the ambition for delivery in some areas, particularly when there are competing

imperatives, to keep the impact on energy bills affordable. Given the vital areas of investment necessary to meet decarbonisation goals over RIIO-T2, and the deterioration in energy bill affordability for many consumers, it is our view that it is not in the interests of consumers to increase the level of the expenditure cap proposed in Draft Determinations. We consider that the expenditure cap will allow the TOs to continue to deliver important visual amenity benefits for consumers over the T2.

3. Setting baseline allowances

Introduction

3.1 This Chapter sets out our approach to setting RIIO-ET2 baseline totex allowances.

3.2 We have set baseline totex allowances for all ETOs only where we are satisfied of the need for and certainty of the work, and where there is sufficient certainty of the efficient cost of the work. Where we consider the needs cases and/or costs are capable of being justified during the price control as further information becomes available, we have moved these proposed work volumes to UMs.

3.3 Our baseline totex for each ETO is shown in the table below.

Table 4: Network company baseline allowance

ETO	ETO's baseline request (£m)	Ofgem Draft Determination (£m)	Ofgem Final Determination (£m)
NGET	7090	3332	5377
SHET	2388	1609	2158
SPT	1389	970	1226
ET sector total	10867	5911	8761

The make-up of Totex

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:

- Load-related (LR) capex, which relates to investment to expand current network capacity or to connect with new generation or demand sources
- Non-load related (NLR) capex, 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.

3.6 There are two main opex components:

- Network operating costs, which are costs incurred in the day-to-day running of the network, for example, rectifying faults, repairs and maintenance activities
- Indirect opex, which encompasses business support costs (BSC), i.e. costs relating to functions such as corporate governance, and closely associated indirect (CAI) costs, i.e. back office functions closely involved in the construction and operation of network assets such as project management and network design.

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

3.8 In addition to our view on the efficient level of relevant components of totex achievable at the beginning of RIIO-ET2, we also expect the companies to strive for improvements in the way they operate through the price control period. We do this by imposing 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 material prices.

3.9 The rest of this Chapter sets out our Final Determination decisions on cost categories that are common to all network companies. For our decisions on costs that are bespoke to each network, please see the company annexes.

Capex

Load and non-load related capex

3.10 Our cost assessment for both LR and NLR capex followed a two-stage approach: firstly, a review of the needs case for each proposed project/scheme and the options considered by the ETO; and then, for those projects/schemes that passed the first stage, an assessment of the efficient cost of delivering them.

Final Determination

Load and non-load related capex			
ETO	**ETO's baseline request[20] (£m)**	**Ofgem Draft Determination (£m)**	**Ofgem Final Determination (£m)**
NGET	3766.5	1635.1	3228.9
SHET	1664.0	1257.8	1609.7
SPT	938.5	692.2	892.8
Total	6369.0	3585.1	5731.4

Final Determinations rationale and Draft Determinations responses

3.11 In our Draft Determinations, we proposed to reduce a significant proportion of the baseline capex work volumes as set out in the ETOs' business plans due to the lack of justification or certainty of the need for the work. This was particularly the case for NGET's asset health works. We also proposed to reduce the cost of work volumes that we accepted in the baseline, based on a combination of benchmarking analysis and individual assessments of certain cost components. The detail of what was proposed to be allowed and disallowed for each company can be found in our Draft Determinations.

3.12 All ETOs disagreed with our proposed work volume and cost reductions and brought forward additional evidence to support investments that we had disallowed in our Draft Determinations. They also challenged the basis of our unit cost reductions, citing inconsistencies in the base data set.

3.13 Discussion of the responses received and the rationale for our Final Determinations are set out in the respective company annexes, but the principles we applied are summarised below.

Assessment of company work volumes

3.14 During the consultation phase following publication of Draft Determinations, all of the ETOs challenged our proposals on schemes rejected or volumes adjusted. They did this through the submission of: additional Engineering Justification Papers (EJPs); further evidence to support that which had already been reviewed; modified schemes taking into account our views in Draft Determinations; submitting all new papers to support schemes that had none previously; or,

[20] These are the numbers as submitted in December 2019 business plans. The ETOs have subsequently modified their requests up or down in a number of areas.

improved narratives explaining the reasoning behind the inclusion in their business plans of particular schemes.

3.15 In some instances, ETOs also proposed new schemes that had not been included in their business plans. This was the case with NGET's SF6 abatement proposals and also with schemes that had been given a positive signal in the latest round of the NOA process. In other instances, ETOs revised their proposals in light of our views in Draft Determinations.

3.16 We have taken into account responses to Draft Determinations and the further evidence submitted. Where the additional evidence sufficiently supported the original proposal, we have adjusted our view of volumes. The result of this is that most of the works submitted by SHET and SPT that we had proposed to reject have now been approved and included in the baseline, and the same is true of NGET's Incremental Wider Works.

3.17 Where the additional evidence partially addresses the concerns we set out in Draft Determinations, but where we still have concerns over the scheme scope or timings of delivery, we have approved the volumes that we consider are likely to be needed for consumers' benefit. These are attached to PCDs for adjusting down allowances if the outputs are not delivered in full, and/or to re-openers for considering changing need for funding. This approach has been particularly prevalent in NGET's NLR capex proposals.

Assessment of efficient costs

3.18 Our proposed approach at Draft Determinations was to apply our view of efficient asset unit costs derived from benchmarking across the ETOs to determine allowances for projects that have had their needs case accepted. ETOs questioned the validity of most of these unit costs, highlighting differences in the way the data had been compiled by the different ETOs, which they claimed undermined the basis of the cost assessment process. Whereas the other ETOs followed our guidance and broke costs down by civil, risk and contingency, and other costs, NGET grouped a large portion of such costs into their asset costs due to their historical method of cost reporting. In light of this, we conducted a thorough review of the data submitted in the Business Plan Data Templates (BPDT) in conjunction with the ETOs. In some instances, companies had not entered data in the way that we had expected as per our BPDT guidance document and subsequent discussions prior to the December 2019 BPDT submission. In other

instances, there were valid reasons why companies had entered data in a way that was not aligned with Ofgem's expectations. All instances where incorrect data entry was affecting the calculation of unit costs were reviewed and either corrected by the companies or resolved in a pragmatic way. Accordingly, we have had to revise our approach to cost assessment of NGET's LR (and NLR) capex program for Final Determinations.

3.19 For the Scottish ETOs, we decided to rely on comparative cost assessment across the range of asset types where we had sufficient volumes of data. Where this was not the case, we decided to rely on an engineering review to ascertain the validity of the proposed costs. Non-asset costs were also appraised by our engineers.

3.20 We do not have the benefit of significant comparative asset data for NGET's portfolio of work. Neither do we have the same level of granularity around its civils costs or embedded risk and contingency costs. Accordingly, we have had to take a more holistic view of the robustness of its costs, considering factors such as how their total costs compare with the Scottish ETOs on comparative work, the levels of cost efficiency offered by NGET in their December 2019 original submission and historical levels of cost efficiency in previous submissions. Further details on our assessment of cost efficiency for each of the ETOs are provided in the company annexes.

Risk and Contingency Costs

3.21 When setting out their LR and NLR capex project cost forecasts, it is prudent for ETOs to include an additional amount, known as risk and contingency, to cover events outside of their direct control, e.g. significantly adverse weather, failure of suppliers to meet their contractual commitments, or late delivery of key components. Historically, these costs have tended to range from 5 – 25% of the final cost of a project, with a median close to 10% of the final cost.

3.22 In our Draft Determinations, we proposed allowances for risk and contingency costs for each ETO's LR and NLR capex using the following approach:

- We removed risk and contingency components associated with assets where our applied benchmark unit costs were set on the basis of historical costs, because we considered that these historical costs already included the relevant outturn risk
- We removed risk and contingency components associated with delivery and construction phases of projects that will sit outside the RIIO-2 price control,

on the basis that the most material elements of risk are likely to crystallise in the early to middle period of a project's lifecycle

- We accepted companies' requests for risk and contingency costs for the remaining LRE and NLRE components, subject to a cap that was derived from the companies' historical average risk and contingency costs for their LR and NLR capex schemes.

3.23 We received responses from all three ETOs, none of which supported our approach to risk and contingency costs.

3.24 All ETOs claimed that removing the risk allowance pro-rata across cost categories is an inaccurate reflection of the actual risk incurred.

3.25 They also set out that it should not be assumed that risk is embedded in certain project costs, as neither Ofgem's cost assessment nor ETOs' own cost submissions were wholly based upon RIIO-T1 outturns costs.

3.26 In addition, they stated that Ofgem's methodology for restricting expenditure beyond the RIIO-ET2 period is unjustified. They also disagreed with our proposed downward-only adjustment, with one of them citing this could lead to a position of lower than the average risk provision for the whole portfolio.

3.27 We sought further information from each ETO on the timing of risk occurrence, any inclusion of risk provision in their unit cost submission, historical evidence of risk exposure amongst cost elements, and further evidence of their view of risks in RIIO-ET2.

3.28 Based on consultation responses and the further evidence provided by the ETOs, we have changed our overall approach to risk and contingency costs for Final Determinations.

3.29 For risk and contingency costs associated with non-asset elements (civils, other and pre-construction), the evidence provided by the ETOs demonstrated that risks may materialise at any stage throughout the project lifecycle and that these risks are not exclusive to any particular type of project. Therefore, we accept the network companies' arguments and we have decided to provide all ETOs with their requested allowances for the non-asset element of their risk and contingency costs, up to the average level of risk and contingency allowance. This includes risk

elements for projects that extend beyond RIIO-ET2 period, where we will provide risk allowances in line with the projects' approved capex profiles.

3.30 For some ETOs, the determination of their asset unit costs is largely based on their tendering and contract award process, whilst for others the unit costs are constructed from primarily historical cost trends. As a result, we have taken a more bespoke approach for determining an efficient level of asset related risk and contingency costs, based on the specific evidence provided by each ETO. Further details can be found in the company-specific annexes.

Holding ETOs to account for delivery

3.31 For LR and NLR capex projects that are forecast to complete within the RIIO-T2 period, we have put in place a variety of mechanisms to hold them to account:

- A volume driver for generation and demand connection projects
- PCDs for specific projects with defined outputs
- NARM for lead assets under the NLR capex category.

Treatment of projects that cross over price control periods

3.32 For capex projects that span from RIIO-ET1 to RIIO-ET2, we have decided to implement our Draft Determination proposal to carry out the RIIO-ET1 funding true-up when making our RIIO-ET2 Final Determinations for NLR capex projects and to carry out the true-up as part of the RIIO-ET1 closeout for LR capex projects. More detail is set out in relevant company annexes.

3.33 For projects that cross over RIIO-ET2 and RIIO-ET3, we have decided to implement our Draft Determination proposal, with further clarification on specific mechanisms as follows:

- The generation and demand connection volume driver for connection projects delivering outputs in year 1 and year 2 of RIIO-ET3, as set out in more detail in Chapter 4
- Project-specific funding decisions through baseline or re-openers (such as MSIP or LOTI) for the whole project costs over the price controls
- Bridging allowance in the baseline to fund the RIIO-ET2 part of costs for projects already identified and assessed. This will be subject to true-up at either RIIO-T2 closeout or the setting of RIIO-T3.

Non-Operational Capex

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

Final Determination

Non-operational capex			
ETO	**ETO's baseline request (£m)**	**Ofgem Draft Determination (£m)**	**Ofgem Final Determination (£m)**
NGET	376.9	175.4	273.4
SHET	108.9	54.8	103.9
SPT	14.9	4.5	10.0
Total	500.7	234.7	387.3

Final Determination rationale and Draft Determination response

3.35 In Draft Determinations, we proposed to move a significant proportion of the largest component of Non-Operational Capex – IT&T investments – from baseline funding to a re-opener. This was due to our view of lack of cost certainty reflecting a general level of project immaturity.

3.36 The ETOs generally disagreed with our evaluation of the IT&T elements of their business plans. They expressed concerns about the level of funding that was proposed to be subject to an UM and the risk this created for progressing their investments. They considered that more detail underpinning our proposals should be provided. One respondent was of the view that our assessment set an unreasonable expectation of how far proposed investments would have progressed through an ETO's governance process. ETOs also challenged the veracity of the proposed funding reductions using the assessment methodology employed by our consultants.

3.37 Since the publication of Draft Determinations, we have actively engaged with the ETOs on their proposals and the level of cost certainty provided within their IT&T investment proposals in order to improve the level of confidence we have in the IT&T projects. As a result, we have decided to allow baseline funding for a number of IT projects which we had proposed in Draft Determinations to subject to a UM. We have also set out which projects should remain subject to a UM. For further information on the Non-operational IT and Telecoms Capex re-opener, please see the Core Document.

3.38 The ETOs were generally content with the assessment process and proposed funding across the other non-operational categories, with some notable exceptions, which are set out in company annexes.

Opex

Network Operating Costs

3.39 Network Operating Costs comprise of expenditure on faults, inspections, repairs and maintenance, vegetation management, operational protection measures and IT capex, and legal and safety.

Final Determination

Network Operating Costs			
ETO	**ETO's baseline request (£m)**	**Ofgem Draft Determination (£m)**	**Ofgem Final Determination (£m)**
NGET	1174.6[21]	549.0	723.4
SHET	207.8	90.2	165.8
SPT	110.1	85.6	110.1
Total	1492.5	724.8	999.3

Final Determination rationale and Draft Determination response

3.40 Our approach to assessing the costs in this category is unchanged from our Draft Determination approach. We received additional evidence from the ETOs following publication of Draft Determinations, which included data clarification, feedback on our modelling, additional justification of proposed costs and volumes, and revised EJPs. The specific detail of each company's further evidence, along with our subsequent consideration for Final Determinations, is given in the company annexes.

Indirect Opex

3.41 Indirect Opex consists of both BSC and CAI costs.

Final Determination

[21] Including visual amenity projects.

Business Support Costs (BSC)			
ETO	**ETO's baseline request (£m)**	**Ofgem Draft Determination (£m)**	**Ofgem Final Determination (£m)**
NGET	458.4	438.3	458.4
SHET	104.9	104.3	104.3
SPT	103.9	80.0	94.9
Total	667.2	622.6	657.6

Closely Associated Indirects (CAI)			
ETO	**ETO's baseline request (£m)**	**Ofgem Draft Determination (£m)**	**Ofgem Final Determination (£m)**
NGET	1050.9	623.8	829.7
SHET	253.5	161.5	253.4
SPT	169.3	129.6	165.1
Total	1475.6	914.9	1248.2

3.42 Our largest proposed reductions at Draft Determinations were in the CAI category (£560.7m), which reflected both our modelled view of efficiency reductions and the impact of our proposed lower levels of capex.

3.43 Our BSC position at Draft Determinations was a proposed £44.6m reduction from that requested by the ETOs, reflecting our modelled view of efficiency.

Final Determination rationale and Draft Determination response

3.44 In Draft Determinations, we proposed to reduce both the BSC and CAI costs requested by the ETOs, which reflected our modelled view of efficiency and, in the case of CAI, also the impact of our proposed lower levels of capex.

3.45 Both NGET and SPT raised concerns regarding our reliance on regression modelling, pointing out issues due to small sample size, and difficulty to predict certain costs for which there is lack of historic precedent and/or which have a unique network characteristic. Instead, they proposed that opex allowances should be set based on current levels of indirect costs, with indexation over time for inflation, RPEs, ongoing productivity and changes in capex due to changing workload requirements.

3.46 SHET agreed with our proposed allowance for BSC. However, they disagreed with the outcome of the CAI model, citing an error in the Ofgem model which adversely impacted the result for them. They agreed with our proposed cost drivers for CAI

overheads but asserted that we could identify a better balance of explanatory variables than those we had used.

3.47 SPT noted that allowances are set on a view of baseline which does not take account of projects delivered through a UM.

3.48 The companies also raised a number of technical points in respect of the specification and application of our regression model, namely:

- a number of alternative specifications, e.g. using quadratic and/or interaction terms, pass the modelling criteria set out in the report, leading to a wide dispersion of results
- too narrow a range of cost drivers were tested in the report. They proposed a number of alternative drivers that should have been tested
- skewing effect by NGET's relative size and scale
- questions about the robustness of our econometric modelling approach with observation of the wide range of efficiency scores and failure of the model to pass certain statistical tests. Network companies noted the failure of some statistical tests as evidence that econometric modelling is inappropriate with this data set.

3.49 With respect to NGET's and SPT's preference of setting allowances based on current costs, our analysis and the wide range of models tested suggest that companies' actual spend is inefficient and therefore a poor estimator for setting future allowances.

3.50 We continue to believe that regression modelling for indirect opex is appropriate as a commonly adopted regulatory tool. In respect of the concerns raised above:

- We have tested alternative model specifications e.g. quadratic term for both BSC and CAI, and discounted them as unreliable due to implausible results across the range of companies or poor statistical fit; for example, although a quadratic term is found to be statistically significant, the negative coefficient means that increases in MEAV/CSV at low levels of MEAV translate to lower BSCs
- We have tested alternative drivers in our model and found no improvements in the fit to the historical data. We have also ruled them out as impractical and/or implausible in a regulatory setting. However, some sensitivity tests encouraged us to consider our approach to allowances including excluding

some costs from benchmarking (e.g. Operational Training; wayleaves etc.) and considering the results of other specifications or estimators to inform our Final Determination

- Our chosen driver MEAV is statistically significant giving confidence in its application and is generally accepted as being a relatively complex, single variable for capturing how scale drives costs
- For the BSC model, regression checks confirmed the chosen drivers remain statistically significant variables. Regression checks on the CAI model find that the alternative models proposed by the ETOs do not lead to plausible capex coefficients or reasonable efficiency scores, which led us to be cautious about using them for setting allowances in a small sample. We retain our view that failure of the RESET test is not in itself a reason to dismiss the form of model we are using being preferable to directly test a translog model rather than rely solely on the RESET test result.

3.51 However, we have used alternative models, where appropriate, to inform our final allowance position and have considered, outside modelling, other factors that are specific to the ETOs. We have used both quantitative and qualitative evidence to inform our view and have used our regulatory judgement to set allowances within a plausible range of model results. Specific changes we have made to our modelling since Draft Determinations include:

- we have subjected the cost categories of Operational Training and Insurance to separate analysis and excluded them from our regression analysis. As regards to Wayleaves and costs arising from Environmental Action Plans, which are embedded in CAI sub-categories, these have been assessed out with the modelling process and we have allowed for these costs where we considered them to be efficient
- We have also considered the qualitative evidence presented by the ETOs in support of their unique network characteristics. These include: NGET's network complexity and the range of stakeholders and DNO interactions they have to deal with, and SPT's disaggregated delivery model
- We have addressed a sequencing issue in our model, which had supressed allowances on an annual basis.

3.52 In addition, we have decided to implement our Draft Determination proposal for an opex escalator for relevant capex UMs. This uplift is predicated on the workload volume driver coefficient used in our CAI model and ensures any appropriate capex incurred through UM is afforded a CAI allowance in line with that set for the

baseline expenditure. There was no objection to this proposal in Draft Determination responses, and we note SPT's comment that allowances set on a view of baseline would not take account of projects delivered through a UM. Our decision on the opex escalator is discussed in further detail in Chapter 4.

Other costs

Physical security

3.53 There have been no material changes to the assessment approach that we set out at Draft Determinations. Our Final Determinations and the rationale for any changes to allowances from our Draft Determination proposals are set out in the company annexes.

Cyber security

3.54 For details on our approach to assessing Cyber OT and IT, please see Chapter 7 of the Core Document. In the interests of national security, cyber resilience OT and IT outputs are confidential and are therefore not discussed in this document. Confidential Cyber Resilience Annexes containing our Final Determinations have been shared with each network company.

Ongoing Efficiency

3.55 At Draft Determinations we applied an ongoing efficiency challenge of 1.00% capex and 1.20% opex to ETOs allowances. Additionally, we set a further 0.2% innovation challenge on the resulting totex. This resulted in an ongoing efficiency challenge of £406m across the ET sector at Draft Determinations.

3.56 In response to our consultation, ETOs claimed that the efficiency rates chosen were not substantiated by the evidence we had produced, though other non-network stakeholders approved of our stance in this area. ETOs also claimed that the implementation of this challenge was a double count of efficiencies, as there were already efficiencies embedded in their submissions.

3.57 We have reviewed the arguments presented by network companies and other stakeholders and have had our consultants conduct a review of the technical points put forward by the ETOs and other network companies. This has led to a

slight downgrade of the ongoing efficiency rate to be applied. For further information on our consideration of responses on ongoing efficiency.

3.58 At Final Determinations we have decided to apply an ongoing efficiency challenge of 0.95% to capex and 1.05% to opex to ETOs' costs, with the same additional 0.2% innovation challenge applied to these adjustments. The reduction in efficiency challenge rate is somewhat offset by the increased totex allowances relative to the Draft Determination position, such that the sector challenge is now £483m.

Real Price Effects

3.59 At Draft Determinations, we proposed to include adjustments for RPEs for all network companies based on forecasts of input price indices in upfront allowances and "true up" RPE adjustments annually based on out-turn differences between CPIH and input price indices. This was to be undertaken as part of our Annual Iteration Process (AIP). We would index RPEs where evidence suggests that input price risks are materially different from inflation (CPIH) risk and set RPEs at zero where differences are not material. We proposed to apply this to company-specific cost structures for ETOs.

3.60 Network company respondents urged us to consider alternative indices for use in this process and asked us to review the materiality threshold to be passed before costs categories would subject to indexation. Following review of responses and further work undertaken with our consultants, we have decided to change some of the indices that we will use. However, we have maintained our position on the level of the materiality threshold. For further detail on responses and our consideration of the points raised on RPEs, see Chapter 5 of the Core Document.

4. Adjusting baseline allowances for uncertainty

Introduction

4.1 This Chapter sets out our decisions for each UM that will apply to all the ETOs during the RIIO-ET2 price control period as outlined in Table 5 below. For details of our decisions on bespoke UMs, see the company annexes.

4.2 As set out in the Core Document, the UM that we will utilise in the ET sector in RIIO-2 are volume drivers, re-openers, pass-through, and indexation mechanisms. We have decided a common set of design parameters for re-openers – see the Core Document for details.

Table 5: UMs included in our Final Determinations for RIIO-ET2

Uncertainty Mechanism	UM type	Network company	Final Determination section
Cross-sector			
Bad Debt	Pass-through	ET, GT, GD sectors	Finance Annex
Business Rates	Pass-through	ET, GT, GD sectors	Finance Annex
Ofgem Licence Fee	Pass-through	ET, GT, GD sectors	Finance Annex
Pensions (pension scheme established deficits)	Re-opener	ET, GT, GD sectors	Finance Annex
Tax Review	Re-opener	ET, GT, GD sectors	Finance Annex
Cost of debt indexation	Indexation	ET, GT, GD sectors	Finance Annex
Cost of equity indexation	Indexation	ET, GT, GD sectors	Finance Annex
Inflation Indexation of RAV and Allowed Return	Indexation	ET, GT, GD sectors	Finance Annex
Real Price Effects	Indexation	ET, GT, GD sectors	Core Document, Chapter 5
Cyber Resilience OT	Re-opener	ET, GT, GD sectors	Core Document, Chapter 7
Cyber Resilience IT	Re-opener	ET, GT, GD sectors	Core Document, Chapter 7
Non-operational IT and Telecoms Capex	Re-opener	ET, GT, GD sectors	Core Document, Chapter 7
Physical Security (PSUP)	Re-opener	ET, GT, GD sectors	Core Document, Chapter 7
Coordinated Adjustment Mechanism	Re-opener	ET, GT, GD sectors	Core Document, Chapter 8
Net Zero	Re-opener	ET, GT, GD sectors	Core Document, Chapter 8
ET-specific UMs			
Generation Connections	Volume Driver	All ETOs	This Chapter

Uncertainty Mechanism	UM type	Network company	Final Determination section
Demand Connections	Volume Driver	All ETOs	This Chapter
Large Onshore Transmission Investments (LOTI)	Re-opener	All ETOs	This Chapter
Pre-Construction Funding	Re-opener and PCD	All ETOs	This Chapter
Medium Sized Investment Projects (MSIP)	Re-opener	All ETOs, but there are bespoke parts of the re-opener	This Chapter
Opex Escalator	Volume driver	All ETOs	This Chapter
Access Reform	Re-opener	All ETOs	This Chapter
Visual amenity in designated areas	PCD and re-opener	All ETOs	Chapter 2
Bespoke ET UMs			
Incremental Wider Works	Volume driver	NGET only	NGET Annex
Tyne Crossing	Re-opener	NGET only	NGET Annex
Bengeworth Road GSP	Re-opener	NGET only	NGET Annex
Substation Civil Proactive Investment Works	Re-opener	NGET only	NGET Annex
Towers and Foundations	Re-opener	NGET only	NGET Annex
Optel Fibre Wrap	Re-opener	NGET only	NGET Annex
Subsea cable repairs	Re-opener	SHET only	SHET Annex
Uncertain non-load projects	Re-opener	SPT only	SPT Annex

Generation connections volume driver / Demand connections volume driver

Purpose: To manage the uncertainty associated with the amount of load related capex required to connect new generators and new demand customers to the transmission network.

Benefits: Enabling ETOs to continue to meet their regulatory requirements to provide new or modified connections offers to customers in a timely manner.

Final Determination

Parameter	Final Determination	Draft Determination
Type	Volume driver	Form and values of volume driver based on regression analysis at the time.
Volume metrics	The following volume metrics are all measured relative to the defined baseline levels for each company: 1. the number of generation or demand connection projects	

<table>
<tr><th>Parameter</th><th>Final Determination</th><th>Draft Determination</th></tr>
<tr><td></td><td>2. the incremental Connection Entry Capacity for generation connected to the network or the system capacity associated with connection of multiple new generation connections as specified in relevant agreement between the ETO and the ESO pursuant to the STC
3. the incremental Connection Exit Capacity for demand connected to the network or the system capacity associated with connection of multiple new demand connections as specified in relevant agreement between the ETO and the ESO pursuant to the STC
4. circuit length of new build OHL
5. circuit length of reconductoring OHL
6. circuit length of new underground cables each shorter than 1km
7. circuit length of new underground cables each equal to or longer than 1km</td><td rowspan="5"></td></tr>
<tr><td>Delivery date</td><td>The connections volume driver will apply to works anticipated to deliver within the RIIO-2 period and in year 1 and year 2 of RIIO-3 (31st March 2028), except for:
8. projects that NGET and SHET start in RIIO-1 and deliver in year 1 and year 2 of RIIO-2 are funded via the existing respective RIIO-1 volume drivers
9. projects whose expected costs are beyond the defined tolerance range (see detail below) will be considered under the MSIP re-opener.</td></tr>
<tr><td>Totex baseline allowances</td><td>Company-specific</td></tr>
<tr><td>Baseline outputs profile</td><td>Company-specific</td></tr>
<tr><td>Unit rates</td><td><table>
<tr><th>Volume Metric (Unit)</th><th>Unit Rate</th></tr>
<tr><td>Number of connection projects (#)</td><td>Company-specific</td></tr>
<tr><td>Generation capacity (MW or MVA)</td><td>Company-specific</td></tr>
<tr><td>Demand capacity (MW or MVA)</td><td>Company-specific</td></tr>
<tr><td>New Build OHL (km)</td><td>Company-specific</td></tr>
<tr><td>Reconductoring OHL (km)</td><td>Company-specific</td></tr>
</table></td></tr>
</table>

Parameter	Final Determination		Draft Determination
	Underground Cable <1km (km)	Company-specific	
	Underground Cable = or >1km (km)	Company-specific	
Reporting method	Annual reporting on outturn and updated forecast costs will be facilitated through the RRP.		
Adjustment mechanism	Adjustment to allowance (up or down) is the sum of the volume metrics multiplied by the relevant unit rates as set out above. Allowances will be profiled through this mechanism to ensure adequate funding is provided to ETOs. Further detail is set out in relevant section below.		
Additional requirements	An upper and lower tolerance range will be set based on the standard error resulting from our regression analysis for each ETO multiplied by a factor of 1.5. Projects whose expected costs are beyond this range will be considered under the MSIP re-opener.		Indicated for finalisation at FD
Applied to	All ETOs		No change
Licence condition	Special condition 3.11		N/A

Final Determination rationale and Draft Determination responses

4.3 In Draft Determinations, we proposed a volume driver mechanism for both generation and demand connections which was comprised of three variables: the combination of the capacity of the new Megawatt (MW) or Megavolt Ampere (MVA) capacity to be connected, and separate unit rates associated with two linear elements – lengths of additional overhead line (OHL) or underground cable measured in kilometres (km).

4.4 Respondents that commented on the volume driver design disagreed with our proposals and made the following observations:

- The creation of a single unit rate for electrical output (MW and MVA) and a single rate for all OHL activity (new build and reconductoring) is not justified and over-simplifies the range of solutions that may be deployed
- The proposed cable rate is extremely low for the types of activity anticipated
- The regression bears no resemblance to a "real world" cost for physical assets that is required to connect new users to the transmission network and the resultant model is not statistically sound
- A disaggregated approach can provide greater cost reflectivity

- There is no proposal on how cross-price control outputs (i.e. those that will commence in RIIO-T2 and deliver outputs in RIIO-T3) will be funded through this mechanism.

4.5 All ETOs have provided further supporting information to justify both the use and efficiency of a volume driver design incorporating a broader range of possible variables to explain cost variance.

4.6 Constructive engagement with the ETOs has led to revisions in the approach to managing the uncertainty associated with future investment changes driven by the customer requirements. The result of our further regression analysis and engagement is that we have decided to introduce unit rates for additional output metrics to better reflect efficient costs.

4.7 In response to further engagement with the companies and having considered respondents' views, we have updated our analysis using ETOs' clarified input data. We have decided to make adjustments in a number of areas as set out below.

Driving variables

4.8 We have decided to expand to the following:

- Number of connection projects
- Connecting additional generation capacity (MW). A single rate will apply to connection at new or existing structures and by different types of substation technology
- Installing additional infrastructure capacity (MVA). A single rate will apply to connections at new or existing structures and regardless of types of substation technology.

4.9 Delivery of the following activity types associated with OHL:

- additional length of new build line (a single rate for all voltages associated with this activity)
- additional length of OHL reconductoring activity on existing assets (a single rate for all voltages associated with this activity).

4.10 Delivery of the following activity types associated with additional length of new underground cable:

- Cable length under 1km
- Cable length equal to or greater than 1km.

4.11 ETOs will report annually on the amount of new generation capacity they have connected and the number of kilometres of OHL and cable used. We will use the volume driver to automatically calculate the allowed expenditure for the delivered output and OHL or cable in a given price control year and compare this to each ETO's baseline allowances. An adjustment will be made to their allowed expenditure if more or less than the baseline level of output is delivered in completing the connections.[22]

Establishing unit rates

4.12 Based on consultation responses and the further discussion and evidence provided by the ETOs, we have changed our overall approach to determining the unit rates applicable under the generation and demand volume driver mechanism.

4.13 The applicable unit rates for NGET are based on the total costs of schemes in their dataset and includes the costs of investment required to connect new connection customers across two assets types:

- connection assets (those forming the immediate connection to the transmission substation and capable of use by only one customer)
- assets beyond the connection charging boundary, known as infrastructure assets, which are associated with an individuals' choice of the design and type of connection.

4.14 The applicable unit rates for SPT and SHET are based on the infrastructure costs of schemes in their dataset only.

4.15 The decision to continue with the different regulatory approach to deriving unit rates under NGET's connection volume driver while retaining the historical separation of elements that are funded through the connection charging methodology within the unit rate calculation for SPT and SHET, has been informed by the following factors.

[22] In the event output delivery in a given year was less than that allowed for in the baseline, the volume driver will reduce baseline revenues for that year. Conversely, if output delivery exceeds the baseline level, the volume driver will increase allowed expenditure for the efficient costs of delivery. Adjustment is based on the relevant ex-ante unit cost allowance.

4.16 The transmission network in Scotland covers lower voltages and the geography is conducive to larger volumes of onshore renewable energy, leading to smaller customer connections that are often more electrically distant (relative to NGET's area) from the integrated transmission network. This results in higher numbers of connection assets and at lower voltages than transmission infrastructure.

4.17 In NGET's transmission area there are fewer transmission connection assets due to the prevalent ownership boundary arrangements where generator customers tend to own their transmission connection assets.

4.18 The different method will require the adjustment to the reconciliation process applicable to NGET, requiring changes to the annual regulatory reporting structure, charge setting and the annual iteration process to enable this approach.[23] The reconciliation process that currently applies in RIIO-ET1 will remain largely unchanged for SPT and SHET.

Establishing outliers

4.19 We are introducing an upper and lower tolerance range based on the standard error resulting from our regression analysis for each network company multiplied by a factor of 1.5. In regression analysis, the term "standard error" refers the standard error for a particular regression coefficient. Projects that sit outside the upper and lower tolerance levels will be available for consideration and assessment through the MSIP process (excluding projects that meet the LOTI threshold). This means that, if an ETO considers a project to be atypical in scope and costs and will sit beyond the upper or lower limit identified by the standard error range then it can approach Ofgem for it to be appropriately scrutinised on behalf of consumers to establish the level of efficient costs to be remunerated.

4.20 Any Generation Connection project or Demand Connection Project with forecast costs of which are at least above or below a value that is 1.5 the value of the standard error will be treated as an "outlier". Projects that meet this "outlier" criteria will quality for submission via the MSIP reopener.

Connection projects with zero electrical output

4.21 There may be instances where assets are provided as part of a customer connection that intended to address a system operability issue and therefore

[23] The AIP will effectively perform recalculations each year to ensure that Maximum Allowed Revenue and income received from customers through the connection charging methodology match the recalculated total allowance.

create no output capacity (MW or MVA), and no basis to provide funding through the volume driver mechanism. This may occur where the ESO pathfinder assessment triggers a customer application to resolve a stability issue at a specific location on the network that requires an ETO to deliver an operability asset (e.g. a reactor).

4.22 We have decided that where a TO is providing operability services (connection for a third party or owning the asset) a request for additional funding can be made via the MSIP reopener to recover the efficient costs of providing the ESO driven works.

4.23 In the case of NGET, we note that for certain demand connections there may be instances where additional work is triggered at substation site in response to customer demand that does not require provision of additional export capacity. For example, a demand connection may involve reconfiguration of an existing bay or construction of a new feeder bay. If the TO is required to undertake such work at an infrastructure substation then a request for additional funding can be made via the MSIP re-opener.

Profiling allowance

4.24 In order to ensure funding is made available as a project progresses, the profile of the allowance provided via the volume driver will be a percentage of the total allowance for the project. This percentage will be based on a standard construction expenditure profile provided the ETOs. A flat four-year profile will apply to both SPT and SHET (25% per annum). For NGET, the following profile will apply to the delivery of new generation connections: 16.0%/31.5%/31.5%/21.0%. For new demand connection projects, the following profile will apply: 16%/26%/37%/21%.

4.25 The efficient costs of the delivered output in a given year as calculated by the volume driver will be profiled over the relevant price control years using the agreed four-year profile.

MSIP thresholds

4.26 We have decided to introduce an upper and lower tolerance range based on the standard error resulting from our regression analysis for each ETO, to better reflect efficient costs in funding allowance. Projects that are atypical in scope with

costs outside this range will be eligible for consideration and assessment through the MSIP re-opener (excluding projects that meet the LOTI threshold).

Treatment of RIIO-T2 and RIIO-T3 crossover projects

4.27 Similar to the arrangement for NGET and SHET in RIIO-ET1, we have decided to include a provision in the volume driver to trigger a funding adjustment to cover 'crossover' connection projects that require costs to be incurred in RIIO-T2 to facilitate delivery in the first or second year of RIIO-T3 (i.e. "T2+2"). We consider that it is in existing and future consumers' interests to set clear parameters and incentives for ETOs to deliver these customer-driven outputs in an efficient and timely manner.

4.28 For cross-over connection projects not covered by this volume driver, please see funding arrangements as set out in Chapter 3 and relevant detail in specific ETO annexes.

Large Onshore Transmission Investments (LOTI) re-opener

Purpose: To ensure that TOs are funded to undertake necessary large investments on the transmission network.

Benefits: Allows Ofgem to scrutinise, on behalf of consumers, large transmission investments at the point at which needs case and efficient costs can be scrutinised more effectively.

Final Determination

UM parameter	Final Determination	Draft Determination
UM type	Re-opener	Same as FD
Re-opener window	Any time during the price control	Same as FD
Re-opener materiality threshold	ET projects expected to cost £100m or more that are in whole or in part load-related or related to a shared-use or sole-use generator connection project.	Same as FD
Authority triggered re-opener?	No	Same as FD
Additional requirements	There is a four-stage assessment process that ETOs must followed to secure LOTI funding, unless otherwise directed by Ofgem in accordance with the relevant licence provisions. In summary:	Broadly the same as FD, though timings of stages have been

UM parameter	Final Determination	Draft Determination
	Eligibility to apply – a short notification to Ofgem signalling an intent to use the LOTI process. Initial Needs Case – an early assessment of the need for the project and its initial optioneering. Final Needs Case – final confirmation that the project is required. Project Assessment – detailed assessment of project costs to determine allowance - costs to be set out in licence.	condensed slightly, further to consideration of DD responses.
Applied to	All ET sector companies	Same as FD
Licence condition	Special Condition 3.13	N/A

Final Determination rationale and Draft Determination responses

4.29 Consistent with our Draft Determination, we will implement the LOTI re-opener to allow ETOs to bring forward large transmission (£100m+) investments during the RIIO-ET2 period. Consultation responses agreed with our view that this re-opener was necessary to facilitate and scrutinise the investment required on the network.

4.30 ETOs and at least 10 other responses, focussed on whether the LOTI assessment process that our Draft Determinations set out is flexible and fast enough to accommodate the high volume of varied projects that we may receive through LOTI during RIIO-2. Responses on this theme included the following specific comments:

- The potential for a 30-month assessment process under LOTI could create material project delays, which may in turn impact the delivery of Net Zero
- Ofgem should commit to only taking 6 months for each assessment
- For certain smaller projects, the 4-stage assessment process may not be practical and Ofgem should allow for removal of the Initial Needs Case on some projects.

4.31 Having considered consultation responses and all other relevant considerations, we have made the following updates to our LOTI assessment process:

- The eligibility assessment submission need only be submitted 3 months in advance of the intended Initial Needs Case submission date, rather than the 6 months set out at Draft Determination
- We will aim to ensure that our conclusions on the Initial Needs Case and Project Assessment stages are published 6-9 months after robust and comprehensive submissions are received from the ETOs

- We will aim to ensure that our decision on the Final Needs Case is published 4-6 months after a robust and comprehensive submission is received from the ETO. We may be willing to receive this submission prior to the project securing all material planning consents, if the ETO provides sufficient evidence that it may be appropriate to do so.

4.32 In addition, as set out at Draft Determinations, in the exceptional circumstance where the LOTI timings set out in the licence are not practical for a specific project, ETOs are able to outline alternative timings for this process when they seek approval of eligibility to apply under LOTI.

4.33 The full timeline for the LOTI assessment process will be set out in our LOTI Guidance.

4.34 Overall, we are confident that the LOTI re-opener process will enable us to robustly assess these significant investments in the interests of consumers whilst ensuring that ETOs can progress development of these projects in the timely manner required. This process has been carefully developed to reflect learnings from the RIIO-ET1 Strategic Wider Works process, which has supported timely delivery of a range of different projects that have been demonstrated to be in the interests of GB consumers. The LOTI process we have designed can operate in parallel to the ETOs work developing a project, and we are confident that there are no foreseeable times in the process where an ETO would need to pause its work on a project whilst it awaits a decision from Ofgem.

Pre-Construction Funding (PCF) re-opener and PCD

Purpose: The PCD ensures that allowances can be adjusted downwards if there is no longer a need for an ETO to develop one or more of the large transmission projects. The re-opener provides flexibility in the event that further PCF is required during the price control period.

Benefits: Allows timely development of important strategic projects whilst protecting consumers from providing PCF for speculative projects.

Final Determination

UM parameter	Final Determination	Draft Determination
UM type	Re-opener	Same as FD
Re-opener window	Alongside an Initial Needs Case for a LOTI project	At the end of the price control period
Re-opener materiality threshold	There is no materiality threshold for the value of PCF requested, but the re-opener can only be used to request PCF for LOTI projects.	Same as FD
Authority triggered re-opener?	No	Same as FD
Additional requirements	Generally, we would only expect the PCF re-opener to be used for projects which did not receive baseline PCF PCDs (these are set out in company annexes). However, where PCF costs are expected to be more than double the amount provided for in the baseline PCD allowance, submissions for additional allowances can be submitted. The definition of PCF is "the funding required to develop a LOTI project to the point that consents are obtained and the project is ready to begin construction."	PCF re-opener to be used for projects which did not receive baseline PCF PCDs. The definition of PCF was "the funding required to develop a LOTI project to the point that consents are obtained."
Applied to	All ET sector companies	Same as FD
Licence condition	Special condition 3.15	n/a

Final Determination rationale and Draft Determination responses

Overall commentary on PCF

4.35 We are setting baseline PCF allowances with associated PCDs for projects where an ETO has sufficiently justified the need for PCF expenditure on a potential LOTI project during RIIO-ET2. We are establishing a PCF re-opener for ETOs to request additional PCF funding (again with associated PCDs) where the need for PCF emerges during the period. These areas are detailed in the sections below.

4.36 In their consultation responses, the ETOs argued that our Draft Determination definition of PCF was insufficient, as providing PCF allowances only to the point of securing planning consent would force them to spend 'at risk' whilst they developed the project to the point of construction beginning. We acknowledge this view and have decided to proceed with the following definition of PCF for potential LOTI projects in RIIO-ET2:

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

Approach to baseline PCF

4.37 We have decided to provide baseline allowances for approximately £520m of PCF for potential LOTI projects that have been identified by the ETOs, with associated PCDs. This follows improved justification from the ETOs regarding the need for pre-construction work during RIIO-ET2. This will help ensure that ETOs are able to develop these projects in a timely manner and that there is no delay to the development of these projects, many of which may be vital in delivering Net Zero.

4.38 However, to reflect the uncertainty regarding the need for these projects and to protect consumers from expenditure that could have reasonably been avoided, we have decided to structure the PCF PCDs as follows for each project identified:

- If planning consent is never applied for and the project's Final Needs Case is not approved during RIIO-2, only 20% of the allowance can be recovered by ETOs
- If planning consent is applied for but the project's Final Needs Case is not approved during RIIO-2, 60% of the allowance can be recovered by ETOs
- If planning consent is applied for and the project's Final Needs Case is approved during RIIO-2, 100% of the allowance can be recovered by ETOs.

4.39 We will undertake an ex post review and, if a PCF PCD is not delivered or is partially delivered, we will clawback the allowance linked to that PCD less any expenditure that the licensee can demonstrate was incurred efficiently until either the decision to cancel the project was taken, or if the project is still in development, until the end of RIIO-ET2. For PCF PCDs, examples of inefficient expenditure may include expenditure on a project which had received a 'Stop', 'Delay', or equivalent signal in the Network Options Assessment (NOA) at the time the expenditure was incurred, or expenditure on projects where the main driver of the needs case had fallen away.

4.40 Details regarding the PCF PCDs for each ETO are set out in Chapter 2 of their respective company annexes.

Approach to uncertain PCF

4.41 ETO responses highlighted that assessing non-baseline PCF through a re-opener at the end of the price control would place a large amount of risk on them, which could potentially delay projects. To reflect this feedback, we will allow PCF re-opener submissions alongside the LOTI Initial Needs Cases for any project that did

not receive a baseline PCF PCD. If, through the re-opener, we agree the need for PCF allowances, the same PCF structure as set out above will apply.

4.42 In addition, for the baseline PCF PCD projects where PCF costs are expected to be more than double the amount provided for in the baseline PCD allowance, submissions for additional allowances can be submitted. In such cases, we would expect to see very strong justification for why further allowances are required, and we expect that this provision will only be used in highly exceptional circumstances such as when a fundamental change to the project has occurred.

Opex Escalator

Purpose: To ensure ETOs are funded through an automatic mechanism for varying operational costs associated with capital investments delivered through UMs.

Benefits: Provides the ETOs with opex allowances when capex allowances are funded through the relevant UM and ensures that those opex allowances are consistent with those set for baseline allowances.

Final Determination

UM parameter	Final Determination	Draft Determination
Type	Volume driver	
Volume Metrics	• The RAV addition measured in £m arising from the new asset of specific load related UMs at the point of energisation: All ETOs ○ Connection/demand volume driver ○ MSIP re-opener ○ LOTI re-opener NGET only ○ Incremental Wider Works volume driver ○ Tyne Crossing re-opener ○ Bengeworth Road GSP re-opener • The capex addition measured in % of the baseline Capex allowance from specific UMs: All ETOs ○ Connection/demand volume driver ○ MSIP re-opener ○ LOTI re-opener	Same as FD

<table>
<tr><th>UM parameter</th><th>Final Determination</th><th>Draft Determination</th></tr>
<tr><td></td><td>

Visual amenity in designated areas provision

NGET only

Incremental Wider Works volume driver
Tyne Crossing re-opener
Bengeworth Road GSP re-opener
Substation Civil Proactive Investment Works re-opener
Towers and Foundations re-opener
Optel Fibre Wrap re-opener

SHET only

Subsea cable repair re-opener

SPT only

Uncertain non-load projects re-opener.

</td><td></td></tr>
<tr><td>Unit rates</td><td>
<table>
<tr><th>Volume Metric (Unit)</th><th>Unit Rate</th></tr>
<tr><td>RAV addition (£m)</td><td>0.5% per year from the year of energisation</td></tr>
<tr><td>Capex addition (% of baseline Capex allowance)</td><td>0.734% of baseline CAI allowance per 1% of capex addition</td></tr>
</table>
</td><td>Indicated values to be set in FD</td></tr>
<tr><td>Reporting method</td><td>Annual RRP</td><td>Same as FD</td></tr>
<tr><td>Adjustment mechanism</td><td>Adjustment to opex allowance is the RAV addition and Capex addition multiplied by the relevant unit rates.</td><td>Same as FD</td></tr>
<tr><td>Applied to</td><td>All ET sector companies</td><td>Same as FD</td></tr>
<tr><td>Licence condition</td><td>Applied to all relevant capex Uncertainty Mechanisms conditions</td><td>N/A</td></tr>
</table>

4.43 Our approach to the opex escalator for CAI applies the formula used in establishing the relationship between the workload driver, capex, and efficient CAI. It is defined as a % increase of the baseline CAI allowance for each individual licensee for 1% of increase of capex allowance above the baseline allowance through specified UMs. The relevant baseline capex and CAI allowances are as set out below:

Table 6: Capex baselines that are relevant for the Opex Escalator

Licensee	Baseline Capex allowance (£m)	Baseline CAI allowance (£m)
NGET	3606.0	829.7
SHET	1719.8	253.4
SPT	902.8	165.1

Final Determination rationale and Draft Determination responses

4.44 Consistent with our position at Draft Determinations, we acknowledge that additional opex costs may be incurred by licensees when new assets, which are funded through UMs, are installed onto the network. We therefore consider that an uplift for CAIs is appropriate. We also consider the same rationale applies to NOCs for Load Related UMs and therefore an uplift should also be provided, i.e. an efficient uplift to NOCs, the level of which is established by observing the historical relationship of NOCs to the RAV.

4.45 Network companies generally agreed in principle with the proposed opex escalator, though they challenged the analysis underpinning the proposed level of the uplift, arguing that this understated the true cost of the activities being funded.

4.46 For CAI, the companies disagreed with our use of our regression modelling to determine CAI allowances and its subsequent use in setting the CAI element of the opex escalator.

4.47 The level of the uplift we have decided to set for CAI is consistent with our approach to determining the efficient CAI baseline allowances. We have used the coefficient for capex from the same regression analysis, which is a 0.734% uplift to CAI for each 1% uplift in capex. We consider this an effective method of funding an efficient level of indirect opex incurred as a result of additional capex funded through an UM.

4.48 For NOCs, stakeholders did not object to the proposed NOC uplift but sought further detail on its calculation. We have decided to implement our Draft Determination proposal for NOC uplift. The level of the uplift will be based on the analysis of historical data to establish the relationship of NOCs to the RAV, which is equivalent to 0.5% per year of the uplift to RAV resulting from the project delivery, where the uplift is given, post energisation of the asset, as the efficient incurred cost multiplied by the regulatory capitalisation rate.

Medium Sized Investment Projects (MSIP) re-opener

Purpose: To ensure that ETOs are able to undertake necessary investments in the transmission network, funding for which has not been provided in RIIO baseline allowances.

Benefits: Allows Ofgem to scrutinise, on behalf of consumers, the need for and cost of projects with more unusual characteristics.

Final Determination

UM parameter	Final Determination	Draft Determination
UM type	Re-opener	Same as FD
Re-opener window	Each year of the price control between January 25th and January 31st.	January 2024 only
Re-opener materiality threshold	One or more project(s) expected to cost less than £100m each, which cumulatively exceed 0.5% of ex ante average annual base revenue when allowances are set.	Various thresholds, specific to each area.
Authority triggered re-opener?	No	Same as FD
Additional requirements	Most areas covered by MSIP are driven by circumstances outside of the control of the ETOs, so submissions in respect of each area will be required to meet certain criteria in order to be eligible for consideration under the MSIP re-opener. These criteria are set out in Table 7.	Same as FD
Applied to	All ETOs, with some exceptions set out in Table 7 below.	Some areas have been added or removed since DDs. See Table 7.
Licence condition	Special condition 3.14	n/a

Final Determination rationale and Draft Determination responses

4.49 We have decided to establish the MSIP re-opener as an annual re-opener for various cost areas (set out in Table 7) with a materiality threshold of 0.5% of ex ante annual average base revenue. Allowances provided under the MSIP re-opener will have corresponding PCDs.

4.50 There were more than 15 responses that commented on the MSIP re-opener, most of which disagreed with our Draft Determinations proposals. We discuss below the key areas of disagreement raised in the responses and set out the rationale for our decisions in each of those areas.

The regularity of the re-opener window

4.51 Almost all responses argued that a single re-opener window in the middle of the period would be insufficient for some of the time critical areas that MSIP covers,

such as NOA projects and ESO-driven works. We understand these concerns and have decided to allow annual submissions under the MSIP re-opener.

Materiality thresholds

4.52 There were various strands of argument against the proposed materiality thresholds:

- Some responses flagged that the £25m threshold pertaining to the atypical connection projects and NOA projects should be lowered or removed given the time criticality of these projects and the fact that some low value projects in this area can provide significant consumer benefits
- Similarly, the ETOs also argued that the additional "twice the unit cost allowances" threshold for atypical connection projects would leave ETOs unreasonably exposed in the event that the volume driver allowance was insufficient to cover their costs
- Some respondents argued that there should be no materiality threshold across many of the areas covered by MSIP, given the likely low cost and/or time criticality of these areas, and the fact that the projects would largely be driven by third parties.

4.53 In response to these concerns, we have decided to set the annual materiality threshold for the MSIP re-opener at 0.5% of ex ante average annual base revenue for any combination of the areas covered by MSIP. We consider that this significant reduction in the materiality threshold relative to our Draft Determinations proposal should ensure that this re-opener is not a barrier to ETOs progressing important projects.

4.54 To ensure that no projects are delayed as a result of the requirement to meet this threshold, we will allow ETOs to 'log-up' MSIP costs, such that if a materiality threshold is not met one year, those projects can be included (as ex ante or efficient ex post costs) in a submission in a later year.

Areas covered by MSIP

4.55 Respondents were broadly supportive of the areas that we proposed for consideration under the MSIP re-opener as well as the proposed submission triggers. As such, the areas captured in the table below generally reflect the areas we proposed in Draft Determinations to be covered by the MSIP re-opener.

Table 7: Areas covered by the MSIP re-opener

Area	Criteria for assessment under MSIP	ETO
Atypical connection projects	Minimum and maximum intervals to determine instances of material deviation between the predicted allowance generated by the application of the volume driver unit rates to the total forecast cost of each project. For NGET and SPT, the upper and lower thresholds are based on 1.5 times the standard error of the full dataset used in the regression analysis. For SHET, the intervals are based on the application of the standard error. NGET: +/- £12m (std error £7.9m x 1.5). SPT: +/- £4m (std error £2.6m x 1.5) SHET: +/- £12.6m (std error)	All
NOA 'Proceed' Projects	For SHET and SPT, any project that secures a NOA 'proceed' signal in most recent NOA. For NGET, only projects that that cannot be funded by the IWW volume driver as set out.	All
ESO-driven requirements	Written request by the ESO for additional investment in relation to system operability and constraint management requirements.	All
Harmonic Filtering Equipment	Requests from ETO customers to aggregate and deliver harmonic filtering requirements, or following ESO/TO system studies showing a potential beach of planning limits,	All
Protection Equipment	Protection changes required to address system issues following ESO/ETO system studies and includes Operational Load Management Schemes, subject to the receipt of an STC planning request, and dynamic line rating equipment.	All
Energy Data Taskforce recommendations	Recommendations regarding specific outputs required to meet principles developed via industry working groups (including SCADA).	All
Projects to maintain SQSS compliance	ETO demonstration of the need to modify the network to meet SQSS compliance for security and system operability.	All
Black Start	A new Black Start Standard, currently under review by BEIS.	All
Flooding	Updated ETR138 guidance on flooding, and/or a direction from BEIS to protect sites from flooding.	All
SF6 Asset Intervention	Where ETOs can demonstrate efficient costs and asset intervention at sites containing SF6, through a well-justified intervention plan. Consideration should be given to retro-fill and SF6 alternative gasses. We would expect only one submission in this area per ETO during the RIIO-ET2 period.	All
NGET Resilience	For Blackstart and Flooding upon completion of surveys for both the needs case and costs of the original December 2019 RIIO-T2 proposals. We would expect only one submission in this area during RIIO-ET2.	NGET

4.56 The main changes to the table set out above relative to Draft Determinations are:

- Changes to the criteria for the atypical generation and demand volume driver projects

- NGET's scope to request funding through MSIP for NOA 'Proceed' projects has been reduced due to the implementation of the Incremental Wider Works volume driver
- The introduction of the 'SF6 Asset Intervention' and 'NGET Resilience' areas.

Other points raised

4.57 Some respondents queried the reference to an ex post true-up at the end of the price control. For the avoidance of doubt, the approach taken under MSIP will be no different to any review of PCDs that occurs across the price control.

4.58 Some broader RIIO-2 concerns were raised by a large portion of stakeholders in relation to the volume of allowances that may be granted through re-openers, and the perceived risk this places on the network companies in developing those projects. To address those concerns, we have established the Re-opener Development UIOLI Allowance, which, in ET, will primarily fund the development of potential MSIP projects. More detail on this is set out in Chapter 8 of the Core Document.

Access and Charging Reform re-opener

Purpose: A mechanism to reduce Totex allowances if changes to industry codes arising from our Access and forward-looking charges Significant Code Review (SCR) leads to a reduction in network costs.

Benefits: This re-opener would ensure that consumers receive the benefits of changes to transmission use of system charges and access rights through lower charges in a timely manner.

Final Determination

UM parameter	Final Determination	Draft Determination
UM type	Re-opener	We sought views in the DD Core Document on how the Access review may manifest in its interaction with elements of the price control.
Re-opener window	Any time during the price control	
Re-opener materiality threshold	0.5% of ex ante average annual average base Revenue	
Authority triggered re-opener?	Exclusively Authority-triggered	
Additional requirements	Adjustments to baseline allowances and unit rates for volume drivers, would be triggered if there is a demonstrable likelihood of reduction in costs as a result of industry code	

UM parameter	Final Determination	Draft Determination
	changes to implement the outcome of our access and forward-looking charges SCR.	
Applied to	All ET sector companies	
Licence condition	Special Condition 3.16	N/A

Final Determination rationale and Draft Determination responses

4.59 In our Draft Determinations, we said that we were not proposing to include re-opener mechanisms relating to changes in legislation, policy, or technical standards as we did not yet have sufficient information to justify the need for or scope of any such mechanisms in any sector. This included the Access and forward-looking charges SCR, where we acknowledged the potential for reductions in network costs following the implementation of our decision and we asked companies to provide more information on how our Access review may interact with RIIO-2 mechanisms (e.g. volume drivers, TIM).

4.60 We received two responses that directly addressed the potential impacts of the Access and forward-looking Charges SCR on ETOs. These focused on the potential impacts on future implementation costs rather than on network investments.

4.61 One stakeholder also highlighted the fact that it would be very challenging for companies at the time of writing their business plans to assign a detailed cost for a qualitative reform such as Access reform, where companies do not know what to expect from this change. For the company, the provision from Ofgem of a generic re-opener related to policy and legislative changes could be a sensible compromise.

4.62 We note that the responses did not directly address uncertainties relating to the range of impacts that these reforms may have on network costs. However, as noted in DDs, we continue to believe that SCR changes are likely to result in investment savings for networks, by driving down costs of delivering and accommodating new connections and supporting network investment through the identification of efficient alternative solutions to new capacity. This could potentially impact on both baseline allowances and parameters of volume drivers associated with volume of demand or generation connections.

4.63 Such changes include:

- Changes to Transmission Network Use of System charges: These changes can improve how well charges reflect transmission network costs and could bring behaviour change in order to reduce peak transmission network flows. Particularly, changes to ensure distributed generation face equivalent charges to larger generators could reduce amount of generation locating in areas that would require expensive transmission reinforcements.
- Changes to access right choices and charges for distribution networks: These changes would improve cost reflectivity relative to distribution network costs and may lead to more efficient use of scarce network capacity by incentivising use of the networks in locations or time periods that reflect distribution network constraints. This includes encouraging distributed generation to locate where they help offset demand and reduce flows on the transmission network.

4.64 We note that Draft Determination responses did not provide tangible information on the scope for investment savings within the RIIO-2 period that we could have taken into account in setting baseline allowances. However, we continue to believe, as set out in SSMD and in DD, that our Access reform would lead to investment savings that would not be adequately addressed by other UMs. In order to protect the interests of consumers and pass on such cost reductions to them in a timely manner, we have decided to put in place an "Access and charging reform re-opener".

4.65 This re-opener would allow Ofgem to make reductions to baseline allowances and connection volume driver unit costs if costs are expected to be lower than assumed when setting these values in our Final Determinations.

4.66 For the Access and Charging reform re-opener, we have decided to set the materiality threshold at 0.5% of ex ante average annual base revenue, in line with the cross-sector default approach on materiality thresholds (see Core Document, Chapter 7). In estimating the impact on allowances for the purposes of applying the materiality threshold, we will take account of the likely impact of changes to forecast allowances through the relevant volume driver mechanisms.

4.67 Prior to the publication of FDs, we held a policy workshop on this area and we invited all TOs to explain the rationale for our position and we sought views on our proposed re-opener.

4.68 At this workshop, two licensees disagreed with the downward-only scope of the Access and Charging Reform re-opener and set-out the possibility that while there may be a reduction in some parts of the network from Access Reform, there could be an increase on other parts of the network. We do not consider it likely that our Access reforms would lead to an overall increase in network costs in a way that is not adequately addressed by other RIIO-2 mechanisms.

4.69 Furthermore, we acknowledge the comment from two TOs that Access Reform implementation may not trigger material changes to networks' costs during T2, but instead in T3. However, we have decided to include the re-opener in T2 to protect consumers and note that it will only be applied if there is evidence of reductions to network costs during RIIO-2.

4.70 Another comment from a TO was that the proposed policy is unclear. We disagree with this comment as we set our position that we expect cost reductions following Access reform both in SSMD and in our Draft Determination. We also sought stakeholder views on the best way to deal with this uncertainty via the workshop described above.

4.71 To inform our decision of whether to trigger this re-opener, we will consult with all TOs and other stakeholders to better understand the impact on transmission network costs of the implementation of the Access reform and forward-looking charges SCR.