

# **RIIO-ED2 Final Determinations Core Methodology** Document

Publication date:	30 November 2022
Contact:	RIIO-ED2 Team
Team:	Onshore Networks – Price Control Setting
Telephone:	020 7901 7000
Email:	RIIOED2@ofgem.gov.uk

The next electricity distribution price control (RIIO-ED2) will cover the five-year period to 31 March 2028. In December 2021 the Distribution Network Operators (DNOs) submitted their Business Plans to Ofgem setting out proposed expenditure for RIIO-ED2. We assessed these plans and published our consultation on Draft Determinations in June 2022.

This document and others published alongside it, set out our Final Determinations for companies under the RIIO-ED2 price control, which will commence on 1 April 2023.

© Crown copyright 2022

The text of this document may be reproduced (excluding logos) under and in accordance with the terms of the <u>Open Government Licence</u>.

Without prejudice to the generality of the terms of the Open Government Licence the material that is reproduced must be acknowledged as Crown copyright and the document title of this document must be specified in that acknowledgement.

Any enquiries related to the text of this publication should be sent to Ofgem at:

10 South Colonnade, Canary Wharf, London, E14 4PU.

This publication is available at <u>www.ofgem.gov.uk</u>. Any enquiries regarding the use and re-use of this information resource should be sent to: <u>psi@nationalarchives.gsi.gov.uk</u>

# **Decision** – RIIO-ED2 Final Determinations Core Methodology Document

1.	RIIO-ED2 Overview	5
	Purpose of this document	5
	Background to the RIIO-ED2 Price Control	5
	What we expect RIIO-ED2 to deliver for consumers	6
	Navigating the RIIO-ED2 Final Determinations documents	7
2.	Embedding the consumer voice in RIIO-ED2	
	The RIIO-ED2 enhanced engagement timeline	9
	The consumer voice in Final Determinations	11
	Enduring role of the CEGs	11
3.	Networks for Net Zero	14
	Overview	14
	Load Related Expenditure and Strategic Investment	15
	Innovation	37
	Delivering an environmentally sustainable network	44
4.	Supporting a smarter, more flexible, digitally enabled energy	y system
	Data and Digitalisation	
	Regulating Distribution System Operation functions	//
	Changing roles and responsibilities	
	Smart Optimisation Output	
_	whole System	
5.	Meeting the needs of consumers and network users	
	Deliver high quality customer service	
	Support for consumers in vulnerable situations	
	Annual vulnerability Report (ODI-R)	13/
	Providing a quality service to consumers seeking a connection	
~	Major Connections	
6.	Maintaining a safe, resilient and reliable network	158 150
	Maintaining world class lovels of reliability	150
	Information and other resilience	202
-	Information and other resilience	
/.	Delivering at lowest cost to energy consumers	
	Ex alle totex allowalles	
	Details of our approach to cost assessment	////
	Neuroplications and adjustments	
	Normalisations and adjustments	
	Normalisations and adjustments Totex benchmarking	222
	Normalisations and adjustments Totex benchmarking Disaggregated benchmarking	
	Normalisations and adjustments Totex benchmarking Disaggregated benchmarking Post modelling adjustments	

Real Price Effects and Ongoing Efficiency	351
Disaggregation of allowances	357
Appendix 1 Econometric model results	361
Appendix 2 Disaggregated regression models results	364

# **1. RIIO-ED2 Overview**

# **Purpose of this document**

1.1 The next electricity distribution price control (known as RIIO-ED2) will cover the five-year period from 1 April 2023 to 31 March 2028. This document sets out our Final Determinations on our core methodology and how these have been applied to the cost and output proposals common to all Distribution Network Operators (DNOs).

# Background to the RIIO-ED2 Price Control

1.2 The electricity distribution network carries electricity from the high voltage transmission network to industrial, commercial, and domestic users across the country, as well as distributing an increasing quantity of power from generation sources that are connected directly to the distribution networks. There are fourteen electricity DNOs operating in Great Britain (GB), which are managed by six companies. These are shown below:

Figure 1: Map showing the current ownership arrangements for the Electricity Distribution Networks



1.3 We use the RIIO model of economic regulation to set price controls for energy network companies, including the DNOs. RIIO stands for setting Revenues using Incentives to deliver Innovation and Outputs.

- 1.4 RIIO is a performance-based framework that seeks to put consumers at the heart of network companies' plans for the future and to encourage longer term thinking, greater innovation and more efficient delivery.
- 1.5 As monopoly providers of an essential service, DNOs are regulated through these price controls to ensure they deliver value for money network services to their customers. This includes the significant investments that are needed to renew their assets, connect new generation, and keep the system safe and reliable.
- 1.6 Price controls are a method of setting the amount of money (allowance) that can be earned by the DNOs over the length of a price control. DNOs recover their allowance from charges to energy suppliers, who in turn pass these costs on to customers through their energy bills. Allowances are set at a level which covers the DNOs' costs and allows them to earn a reasonable return subject to them delivering value for consumers, operating efficiently, and achieving their targets as set by Ofgem.

# What we expect RIIO-ED2 to deliver for consumers

- 1.7 Great Britain's energy system is already undergoing rapid change. This needs to accelerate over the next decade if the UK is to be on track for net zero in 2050. The unprecedented rise in gas prices over the last eighteen months only reinforces the need to accelerate the shift away from fossil fuels, strengthening the case for decarbonisation.
- 1.8 As set out in our Draft Determinations, RIIO-ED2 will play a pivotal role in shaping the local electricity distribution networks to deliver net zero at lowest cost to consumers.
- 1.9 In October 2021 the UK government pledged to decarbonise electricity generation by 2035<sup>1</sup>, subject to security of supply, and following Russia's invasion of Ukraine set even more ambitious targets to reduce reliance on expensive gas imports within the British energy security strategy published in April 2022<sup>2</sup>.
- 1.10 The electricity distribution network the wires that bring increasingly low carbon power to consumers and businesses is fundamental to enabling these changes and ensuring the energy sector is fit for the longer term, supporting growing sources of demand, particularly for heat and transport purposes, and making efficient use of cleaner, greener, secure home-grown energy.
- 1.11 These Final Determinations for RIIO-ED2 will ensure that the DNOs are:
  - delivering the local energy distribution networks needed for net zero, investing efficiently to increase network capacity, strengthening innovation, and delivering environmentally sustainable networks

<sup>&</sup>lt;sup>1</sup> <u>net-zero-strategy-beis.pdf (publishing.service.gov.uk)</u>

<sup>&</sup>lt;sup>2</sup> British energy security strategy - GOV.UK (www.gov.uk)

- supporting a smarter, more flexible, and digitally enabled energy system, maximising the potential of flexible and other smart technologies to provide cost effective network solutions
- maintaining world class levels of network reliability, further reducing the frequency and duration of power cuts, and ensuring long-term safety and resilience
- meeting the needs of customers and network users through the delivery of high-quality services, including timely and efficient connections and support for customers in vulnerable situations
- ensuring no one is left behind in the energy transition through stronger enforceable licence obligations (LO), funding to support delivery of vulnerability strategies and a new consumer vulnerability incentive framework
- delivering at lowest cost to consumers with downward adjustments to ex ante funding, a stretching efficiency challenge and a reduction to allowed returns meaning average bills will see no increase in network charges.

# **Navigating the RIIO-ED2 Final Determinations documents**

- 1.12 This Core Methodology Document sets out our detailed Final Determinations on the net zero, innovation, environmental, smart optimisation, quality of service and cost of service positions common to all DNOs.
- 1.13 This Core Methodology Document should be read alongside the following Final Determinations documents:
  - Overview Document: this sets out a high-level summary of our Final Determinations. It provides an update on the strategic context for the RIIO-ED2 price control and key interdependencies with wider regulatory programmes aimed at supporting the transition to a net zero energy system.
  - Finance Annex: this sets out our Final Determinations on the regulatory finance building blocks of RIIO-ED2. In general, these apply across all DNOs with any company-specific considerations identified.
  - Company Annexes: these set out our Final Determinations on areas specific to each individual DNO.
  - Impact Assessment: this sets out our final assessment of the likely impact of Final Determinations on consumers and the DNOs.
  - Technical Annexes: these set out any relevant detail underpinning our Final Determinations including, where appropriate, consultancy reports relevant to specific topic areas. Each Technical Annex will be cross-referenced where applicable.

# **2. Embedding the consumer voice in RIIO-ED2**

### Section summary

In this chapter, we set out how our enhanced stakeholder engagement process has strengthened the voice of consumers in reaching our Final Determinations.

We explain how the consumer groups have helped inform our decisions and provide our views on their continued role.

- 2.1 We expect companies to put consumers at the heart of the way they run their businesses. In our RIIO-ED2 Framework Decision<sup>3</sup>, we confirmed that we would apply the enhanced engagement arrangements for RIIO-ED2 that we did for other sectors.
- 2.2 As part of the RIIO-ED2 enhanced engagement process, each DNO undertook a programme of research and engagement to inform its business planning and established an independent Customer Engagement Group (CEG). Ofgem established the RIIO-ED2 Challenge Group (RIIO-ED2 CG) (collectively we refer to the CEGs and RIIO-ED2 CG as the 'Groups'). These Groups challenged the DNOs to develop business plans that address the needs and preferences of their stakeholders and consumers and deliver good value for money.
- 2.3 Ofgem received a report from each CEG on its respective DNO's final business plan, and one from the RIIO-ED2 CG covering all DNOs' final business plans. We also hosted six virtual open hearings, which offered an open forum for stakeholders and Ofgem to question DNOs on the proposals in their RIIO-ED2 business plans.
- 2.4 These key stakeholder inputs, alongside the evidence we received from DNOs on their consumers' and stakeholders' views and broader evidence submitted by stakeholders in response to our Call for Evidence on the final DNO business plans, have all been key considerations in the development of our Final Determinations.
- 2.5 In this section we provide further information describing:
  - how the enhanced engagement process for RIIO-ED2 has informed our Final Determinations; and
  - our views on the future role of CEGs as part of the operational phase of the RIIO-ED2 price control.

<sup>&</sup>lt;sup>3</sup> <u>https://www.ofgem.gov.uk/publications/riio-ed2-framework-decision</u>

# Figure 2: An Overview of Chapter 2

Embedding the consumer voice in RIIO-ED2			
The consumer voice in Final Determinations	An overview of how the enhanced engagement process has contributed to our Final Determinations proposals.		
Enduring role for CEGs	An overview of our views on the enduring role for CEGs during the RIIO-ED2 period.		

# The RIIO-ED2 enhanced engagement timeline

2.6 Table 1 provides a summary of the key milestones on the enhanced engagement process and links to further information.

Date	Milestone
1 July 2021	Draft RIIO-ED2 business plans submitted to Ofgem
August 2021	CEG reports on their respective DNO's Draft ED2 business plans published on DNOs' websites
17 September 2021	RIIO-ED2 CG review of draft business plans published <sup>4</sup>
1 December 2021	Final RIIO-ED2 business plans submitted to Ofgem and published on the DNOs' websites
6 December 2021	Ofgem published a Call for Evidence <sup>5</sup> seeking views on DNOs' final business plans
January 2022	CEG reports on their respective DNO's RIIO-ED2 final business plans published on DNOs' websites
8 February 2022	RIIO-ED2 CG report on final DNO business plans published <sup>6</sup>
10 February 2022	Deadline for Ofgem's Call for Evidence on final DNO business plans to which we receive 35 responses

Table 1	Enhanced	engagement	milestones
---------	----------	------------	------------

<sup>&</sup>lt;sup>4</sup> <u>RIIO-2 Challenge Group: DNO draft business plan response letters</u>

<sup>&</sup>lt;sup>5</sup> Ofgem's call for evidence on RIIO-2 electricity distribution business plans

<sup>&</sup>lt;sup>6</sup> <u>RIIO-2 Challenge Group Independent Report to Ofgem on Electricity Distribution</u> <u>Business Plans</u>

Date	Milestone
March 2022	Ofgem holds Open Hearings where we discussed with stakeholders and DNOs their business plan proposals for the ED2 period <sup>7</sup>
29 June 2022	Ofgem published its Draft Determinations for RIIO-ED2
25 August 2022	Ofgem receives 148 responses to the Draft Determination consultation, including from the RIIO- ED2 CG and each of the six CEGs <sup>8</sup>

Customer Engagement Groups (CEGs)

- 2.7 The CEGs are company-specific groups which were established by each DNO and independently chaired. Their membership is diverse and varies across the different DNOs but includes energy sector experts, consumer research specialists, network users, and consumer advocates.
- 2.8 Their role, as set out in the RIIO-ED2 Enhanced Stakeholder Engagement Guidance issued in 2020<sup>9</sup>, is to provide scrutiny of individual company business plans throughout their development. This included consideration of the draft business plans published by the DNOs during 2021 prior to their final submission to Ofgem in December 2021. Their role also included assessing the extent to which the plans would address key stakeholder priorities, to drive culture change towards stronger and more effective engagement within the companies, and to influence company decisions in the interests of consumers and stakeholders. Following the publication of the DNOs' final business plans, each CEG prepared a report for Ofgem setting out their views on their respective DNO's business plan.
- 2.9 A 2021 evaluation of the enhanced engagement process carried out by Ofgem found that several process changes could be implemented that would help to enhance the outputs of the process. As a result, we provided the CEGs with updated guidance on questions which each CEG might consider when reviewing the DNO's business plan. We encouraged the CEGs to challenge the extent to which DNOs' business plan proposals were grounded in consumer and stakeholder research, in particular relating to: DNOs' ambition on efficiency and innovation; net zero and Distribution System Operation (DSO) activities; strategies and outputs related to vulnerability, major connections, reliability, and resilience; `whole systems'; competition; and flexibility optioneering.
- 2.10 Each CEG provided us with a report with their views on their DNO's business plan for RIIO-ED2, and DNOs published the CEG reports during January 2022. Following publication of our Draft Determinations in June

<sup>&</sup>lt;sup>7</sup> <u>RIIO-ED2 Open Hearings March 2022 Transcripts</u>

<sup>&</sup>lt;sup>8</sup> Ofgem's RIIO-ED2 Draft Determinations and Consultation Responses

<sup>&</sup>lt;sup>9</sup> <u>RIIO-ED2 Enhanced Stakeholder Engagement Guidance – Version 2 | Ofgem</u>

2022, the CEGs each provided a response setting out the extent to which they agreed our proposals aligned with consumer priorities.

## The RIIO-ED2 Challenge Group

- 2.11 The RIIO-ED2 CG is independently chaired and comprised of energy sector experts and consumer advocates with specialist knowledge of the electricity distribution sector and economic regulation. In line with its terms of reference<sup>10</sup>, the RIIO-ED2 CG provided an independent challenge to, and scrutiny of, draft and final RIIO-ED2 business plans from the perspective of current and future consumers. The group focussed on affordability, protection of consumers in vulnerable circumstances, and sustainability, including but not limited to impact on the environment and the net zero transition.
- 2.12 The RIIO-ED2 CG provided us with a report in February 2022 setting out its views on each DNO's final business plan which we published on our website. Following publication of our Draft Determinations in June 2022, the RIIO-ED2 CG also provided a response setting out its view on the extent to which our proposals will ensure that regulated network companies deliver the value for money services that both existing and future consumers want.

# The consumer voice in Final Determinations

- 2.13 In our Draft Determinations, we summarised how DNOs had sought to evidence consumer and stakeholder engagement in building their business plans and the important role CEGs had played in providing independent assurance of the quality, depth and targeted nature of DNO's engagement activities. We reviewed the CEG reports alongside the evidence submitted by DNOs and this enabled us to consider the quality of the DNOs' consumer engagement in our assessment.
- 2.14 Overall the CEG reports, the RIIO-ED2 CG report and the responses to our Call for Evidence and discussion in open hearings has helped us to better understand consumer and stakeholder priorities. This substantial stakeholder input was a key consideration in reaching our Draft Determinations proposals. We have welcomed the additional input through the Draft Determination consultation process which has helped to inform our Final Determinations.

# **Enduring role of the CEGs**

2.15 In our Draft Determinations, we welcomed indications from the DNOs that they are intending to contract their independent CEGs, or a group with similar independence, remit and expertise, to challenge their business plan implementation and monitor delivery against their commitments

<sup>&</sup>lt;sup>10</sup> <u>RIIO-2 Challenge Group Terms of Reference | Ofgem</u>

throughout the course of RIIO-ED2. Because of this, we did not see the need to set a formal requirement to keep such groups.

- 2.16 In our Draft Determinations we encouraged DNOs to work together and with the CEGs or successor panels to evolve the CEG's role and ensure that the customer voice continues to be heard over the duration of the price control. We recommended CEGs focus on the following areas:
  - independent scrutiny and challenge of the company's performance in relation to its RIIO-2 commitments, including but not limited to commitments in their business plans which we do not monitor through the Regulatory Reporting Packs (RRPs)
  - independent periodic reporting to the company, Ofgem and the public on the price control commitments the CEG has been scrutinising
  - any specific arrangements needed to ensure that the consumer voice is shaping company board level decision-making.
- 2.17 We also encouraged DNOs to design terms of reference for their CEGs or successor groups such that CEGs could work together to define their methodology and scope of their monitoring and reporting.
- 2.18 We received 20 responses to our Draft Determinations proposals in this area. All respondents agreed that there should be an enduring role for CEGs, particularly with the number of uncertainty mechanisms (UM) and re-openers proposed during the price control and the majority of DNOs said that each firm should shape its respective CEG according to its own needs.
- 2.19 The majority of stakeholders disagreed with our proposal not to mandate the continuation of CEGs. The overriding view presented in their consultation responses was that, without a formal requirement for their continuation, the independence of the CEGs/successor groups would be undermined, and they would be less able to hold DNOs to account.
- 2.20 The majority of stakeholders agreed that it would be useful for the CEGs to collaborate and coordinate both with each other and with Ofgem and other stakeholders in order to share best practice. However, there was concern that, without a mandate from Ofgem, DNOs would take their CEGs/successor groups in different directions, which could lead to inconsistent outputs and make any collaboration and coordination between groups more difficult.
- 2.21 Stakeholders did not think it would be appropriate for the CEGs to produce comparative reports on DNO performance. All said that this should be the role of Ofgem as the regulator.
- 2.22 Having considered the stakeholder feedback, we maintain that it is important that all DNOs enable enduring consumer input to decision-making during the price control from their CEG or a successor panel. Notwithstanding the concerns set out above, we remain of the view that it would not be appropriate to mandate the specific form in which that should be given effect or to impose specific terms of reference for groups

established for that purpose. That is because individual DNOs have indicated the need to adapt the form consumer input will take to the specifics of their particular business model. For instance, SPEN intends to put in place a single consumer panel covering both their transmission and distribution networks. Given the different scope that consumer panels will cover, we do not think it is appropriate for Ofgem to impose common terms of reference. We do, however, encourage DNOs to share proposed terms of reference with a view to sharing best practice.

- 2.23 We will also expect DNOs to submit the terms of reference for their enduring consumer engagement panels to Ofgem ahead of the start of the price control to confirm arrangements have been put in place.
- 2.24 Arrangements for enhanced engagement for future price controls will be addressed through our consultation on Future Systems and Network Regulation<sup>11</sup>.

<sup>&</sup>lt;sup>11</sup> Open Letter FINAL\_20220929.pdf

# **3. Networks for Net Zero**

## Section summary

In this chapter we describe the methods we will use to ensure RIIO-ED2 supports the transition to net zero, supporting the connection of new clean sources of energy to homes and businesses and meeting expected increases in electricity demand. This covers our approach to setting ex ante allowances for network upgrades and the arrangements for additional investment in period to respond to changing demands.

We set out our approach to network innovation, aimed at identifying and funding ambitious projects that are focused on the most pressing, strategic challenges facing the energy sector. We also set out our package of outputs to ensure DNOs deliver an environmentally sustainable network.

# **Overview**

- 3.1 To achieve net zero we need local electricity networks that can support increases in demand, particularly for transport and heating, and connect more dispersed sources of low carbon generation. Networks must be efficient and maximise the opportunities from innovation and smart technologies, with new investment providing value for money for consumers who will meet the costs through their energy bills. The networks must also take steps to reduce the environmental impact of their own activities and support the transition to a sustainable low carbon energy system.
- 3.2 While Government legislative targets for net zero remain clear, the pace of change we will see over the next few years is uncertain. The outlook for the UK economy has deteriorated in recent months, and the depth and duration of any contraction in economic activity is unclear, as is the impact that this may have on consumers and network users seeking to move to low carbon technologies (LCTs).
- 3.3 The economic and decarbonisation landscape will evolve within the RIIO-ED2 period, and it is vital that the price control can accommodate this, ensuring the networks can invest to avoid becoming a blocker to achieving national and local decarbonisation targets whilst also ensuring that we do not commit consumers to paying more than is necessary at such an economically challenging time.
- 3.4 There are four strands to how we intend for RIIO-ED2 to prepare the networks to deliver net zero:

- up-front investment of £3.2bn<sup>12</sup> in network upgrades to support the rollout of electric vehicles (EVs), heat pumps (HPs) and the connection of more local, low carbon generation including solar, wind and batteries.
- an agile package of UMs that will allow investment to increase quicky to support higher volumes of LCTs if networks are faced with sharper uptakes than expected.
- significant commitments to research and development of green energy through an extension of the Strategic Innovation Fund (SIF) to cover the electricity distribution companies and £68.4m of additional allowances to support smaller scale innovation projects through the Network Innovation Allowance (NIA).
- funding the DNOs to undertake activities to decarbonise the electricity distribution networks and to reduce the wider impact of network activity on the environment. This includes, among other things, efforts to reduce their business carbon footprint, mitigate environmental damage from fluid-filled cables and polychlorinated biphenyls, and gain a further understanding of embodied carbon and supply chain emissions.

# Load Related Expenditure and Strategic Investment

- 3.5 A key objective of RIIO-ED2 is to help deliver net zero at lowest cost to consumers, while maintaining world-class levels of system reliability.
- 3.6 Load Related Expenditure (LRE) is the investment in electricity networks that responds to increases in demand to upgrade the capacity of network, for example to connect LCTs or new generation.
- 3.7 In funding LRE in RIIO-ED2, we have two main objectives:
  - Ensuring the networks enable net zero by having sufficient funding to invest in network capacity and to ensure that LCTs and the connection of new clean energy sources do not face installation or operational delays; and
  - protecting consumers by keeping costs as low as possible, avoiding investment in network upgrades that are not required.
- 3.8 Balancing these objectives has been our priority in setting the LRE package for RIIO-ED2. The wider economic situation that has developed since business plans were received in December 2021 made this additionally challenging. RIIO-ED2 will be a key part of ensuring that we overcome the current energy crisis, and put ourselves in a better position in the years to come, driving the investment needed to make

<sup>&</sup>lt;sup>12</sup> This value includes £439m of Access SCR related costs, that were not included in our Draft Determinations. Our approach to Access SCR costs is described in Chapter 12 of the Overview Document.

sure we can connect new forms of local generation, EVs and electric heating. To help achieve that, we are providing annual LRE allowances that are 40% higher than in RIIO-ED1. But we also want to ensure that investment can track the changes in the demand picture that we are likely to see, avoiding unnecessary increased network charges on bills from mistargeted expenditure. Our overall LRE approach will ensure the right investment at the right place at the right time while also helping to unlock the full potential of a smarter, more flexible energy system.

- 3.9 We are confident that we have got this balance right in our Final Determinations for RIIO-ED2:
  - We have reduced LRE allowances from those proposed in our Draft Determinations by £188m to reflect consultation feedback on our cost assessment methodology. This ex ante allowance is calibrated using various parameters, including adjustments of some elements to match a net zero compliant Future Energy Scenario (FES), System Transformation, for LCT uptake. However, we have implemented a package of UMs that will enable networks to invest immediately and without administrative burden if LCT uptake exceeds this scenario.
  - The ex ante reduction better reflects the changed economic climate in Great Britain since RIIO-ED2 business plans were received. It is possible that LCT uptake will be slower than previously expected, which would reduce the urgency with which DNOs need to reinforce the network. This lower allowance, coupled with the monitoring framework we have in place for our LRE UMs, will ensure that consumers do not pay more than necessary on LRE over the next five years. The UMs will ensure that the networks can be responsive to the changes needed to enable net zero.
  - We have also provided £439m of allowances to account for the additional costs that DNOs will face as a result of our Access and Forward-Looking Charges Significant Code Review decision (Access SCR). This is detailed in Chapter 12 of the Overview Document.
- 3.10 Our LRE package will also enable Strategic Investment<sup>13</sup> in distribution networks, where the DNOs demonstrate that the is a strong case to invest ahead of immediate need:
  - We have funded £71.5m<sup>14</sup> of Strategic Investment ex ante allowances, primarily through UKPN's off-gas grid PCD.
  - We will allow additional Strategic Investment proposals for discreet projects to be brought forward under the LRE re-opener at least twice during the price control.

<sup>&</sup>lt;sup>13</sup> Strategic Investment refers to investment which enables enhanced capacity on the Distribution System to be deployed in the short term in anticipation of expected longer term need.

<sup>&</sup>lt;sup>14</sup> Assessed value, net before non price control allocations and efficiency challenge.

- Ex ante allowances will also enable a degree of Strategic Investment because the metrics that govern the operation of the LRE Secondary Reinforcement Volume Driver include tolerances that will enable DNOs to invest strategically, where they see it as efficient to do so.
- 3.11 The sections below describe our approach to setting ex ante LRE allowances and set out the UM package that will enable these allowances to increase, if necessary. This package is summarised in Figure 3.

٦	Networks for Net Zero		
Funding Load Related Expenditure Baseline investment and agile uncertainty mechanic ensure the DNOs can invest to support net zero, protecting consumers from higher costs than necessa			
Net Zero Re-opener	A re-opener to ensure the price control can adapt in response to major changes related to the delivery of net zero.		
Innovation	Innovation stimulus aimed at identifying and funding projects focussing on the most strategic challenges facing the energy sector.		
Delivering an environmentally sustainable network	Funding, including uncertainty mechanisms, for the DNOs to undertake activities to deliver an environmentally sustainable network with annual reporting to track progress.		

Figure 3: An overview of Chapter 3

## LRE ex ante allowances

Purpose	To enable up-front investment to support net zero where		
	there is high confidence in its needs case and to allow		
	DNOs to respond quickly to future changes in demand.		
Benefits	Ensure networks have sufficient funding to enable net		
	zero and protect consumers from paying higher costs		
	than necessary.		
	-		

## Final Determination summary

3.12	The table below	provides a	summary	of our Final	Determination	position.
------	-----------------	------------	---------	--------------	---------------	-----------

Parameter	Final Determination	Draft Determination
CV1 – Primary reinforcement	£721m	£649m

Parameter	Final Determination	Draft Determination
CV2 - Secondary Reinforcement	£1,095m <sup>15</sup>	£1,253m
CV3 – Fault level reinforcement	£190m	£207m
CV4 – New Transmission Capacity Charges	£78m	£71m
C2 – Connections	£555m	£646m <sup>16</sup>
Total LRE (excluding Access SCR) – Net Before Non-Price Control Allocations (NPCA)	£2,638m	£2,826m
Total LRE (excluding Access SCR) – Net After NPCA	£2,755m	£2,950m
Additional costs resulting from Access SCR - Net After NPCA	£439m <sup>17</sup>	£0m
Total LRE (including Access SCR) - Net After NPCA	£3,194m	£2,950m

Final Determination rationale and Draft Determination responses

3.13 We have decided to set ex ante allowances of £2.64bn for LRE, before taking into account the impact of the Access SCR. This is £206m lower than proposed at Draft Determinations. This reduction is driven by changes to our cost assessment approach, following feedback on our Draft Determinations. This represents a 40% increase on annual LRE allowances relative to RIIO-ED1, and a c.95% increase on actual load related spend in RIIO-ED1.

Policy treatment of ex ante LRE allowances

3.14 More than half of the 58 responses received that covered LRE disagreed with our proposal to adjust DNO LCT forecasts, and resulting allowances, using the levels identified in the ESO's System Transformation FES.

<sup>&</sup>lt;sup>15</sup> This includes £637m of activities that will be subject to the Secondary Reinforcement Volume Driver, and £260m of activities that will be subject to the LV Services Volume Driver.

<sup>&</sup>lt;sup>16</sup> Draft Determinations modelled allowances included LV Service reinforcement reported in C2 in the Connections allowances. For Final Determinations we have reallocated the LV Service reinforcement reported in C2 into CV2 - Secondary Reinforcement. <sup>17</sup> This includes £61m of indirect operational capex funding.

- 3.15 The main reasons cited for this were that the scenario was too conservative and would hinder the investment needed to match national and local net zero ambitions, particularly in relation to the speed of LCT uptake. We do not agree with this concern because our LRE UM package will enable allowances to increase, without delay or onerous administrative burden, if necessary. We do not consider that it would be in consumers' interests to set ex ante allowances based on more ambitious scenarios because doing so would risk consumers paying for work that isn't yet needed; an especially pertinent concern given the current economic climate. As such, we have decided to maintain the use of the System Transformation FES to adjust certain parameters, including DNO forecasts for LCTs.
- 3.16 Most DNOs agreed with the principle of adjusting LCT forecasts to a common scenario across all DNOs. However, all DNOs raised concerns with the methodology used to adjust LCT forecasts, and this has resulted in adjustments to our costs assessment process, detailed in Chapter 7.
- 3.17 We received three responses which suggested that our proposed LRE allowances were too high. In part this was because it was felt that we hadn't adjusted allowances to a level which reflected the potentially reduced spending power of consumers, resulting in a slower uptake of LCTs, as a result of the current economic climate. Concerns were also raised regarding the possibility of windfall gains for the DNOs, if they underspent these allowances. We consider that our Final Determinations of LRE allowances, including the reduction compared to Draft Determinations (excluding the impacts of Access SCR), are a fair reflection of the level of expenditure that will be required to facilitate the net zero transition, without leaving the networks with too much catching up to do in the future. In addition, we have included an ex ante allowance of £439m to reflect the potential impact of the Access SCR on LRE, but this is relative to a total DNO request exceeding £1bn. As detailed in Chapter 12 of the Overview Document, this has been set to reflect the significant uncertainty in this area and the fact that it can be revisited through the LRE Re-opener, if necessary.
- 3.18 However, we are conscious that a very large portion of LRE allowances, c.£2.16bn, are not funded through our LRE volume drivers and are therefore not subject to any form of control if assets do not get built. As such, and in response to the concerns raised by stakeholders regarding high allowances and the risk of windfall gains, we have decided that we will revisit DNOs' LRE allowances during RIIO-ED2 closeout if DNOs have not spent more than 80% of their non-volume driver LRE allowances. This assessment will include a consideration of how much of the underspend is due to cost efficiency (which we would not seek to claw back) and how much is due to works not being completed, which could lead to undeserved windfall gains. This review may result in an ex post reduction to RIIO-ED2 allowances, to better reflect the work that has actually been undertaken. We consider that this approach will provide an

appropriate control on LRE spend that is consistent with the operation of the LRE volume drivers (where DNOs will not receive allowances for work that isn't done), and follows the precedent set in RIIO-ED1, where an underspend of more than 20% on LRE could be clawed back.

#### Cost adjustments to setting LRE allowances

- 3.19 This section summarises the key changes that have been made in our approach to setting LRE allowances between Draft Determinations and Final Determinations. We have made the changes in response to consultation feedback received. Full details on this, including how consultation responses have affected our Final Determination in this area, is contained in Chapter 7.
- 3.20 The general approach to setting LRE allowances is largely unchanged from Draft Determinations, though there are a few adjustments we've made, the most material of which are:
  - For the demand adjustment, we apply a different approach to the LRE components of the disaggregated model, relative to how totex is treated. We now apply a demand adjustment within modelling to the secondary reinforcement categories of transformers, circuits and reactive service reinforcement. We then normalise DNO's volumes of activity by benchmarking to industry median ratios of reinforcement relative to forecast LCT demand. Modelled allowances are then recalibrated based on a FES 2022 System Transformation view of LCT uptake. This approach aims to set a consistent level of ex ante allowances across industry and is aligned with the volume driver funding package.
  - On primary reinforcement, we've incorporated an engineering assessment adjustment in response to DNO feedback.
  - On secondary reinforcement, we have:
    - Calculated the volume adjustment for transformers using net megavolt amperes (MVA) for all DNOs, as this dataset was more accurate than gross MVA;
    - assigned a percentage of LCT growth to each transformer type using the approximate share of customers served by Pole Mounted Transformers (PMTs) and Ground Mounted Transformers (GMTs); and
    - implemented a separate unit cost and volumes assessment for the four circuit reinforcement categories.
  - For LV Services, to ensure that unit costs were comparable in the LV Service asset categories, we adjusted ENWL and NGED volumes so that their ratio of asset interventions to properties unlooped was on a consistent basis to other DNOs. With this adjustment, we determined a common unit cost for proactive and reactive service reinforcement in each asset category and modelled costs using these. Our approach to setting the baseline intervention rate for proactive service

reinforcement has also changed in response to DNO feedback. We assess DNOs on the basis of their forecast properties unlooped in RIIO-ED2 relative to their total population of looped properties, and benchmark ex ante allowances to the industry upper quartile ratio.

• We have included an 'Indirects Scaler', following feedback from all DNOs that this would be required given the volume of LRE costs that are subject to UMs. This is detailed in Chapter 6 of the Overview Document and Chapter 7 of this document.

Purpose	To enable additional investment in DNOs primary networks, if required.
Benefits	Ensure networks have sufficient funding to enable net
	zero and protect consumers from paying higher costs
	than necessary.

#### Final Determination summary

3.21	The table below	provides a	a summary	of our Final	Determination	position.
------	-----------------	------------	-----------	--------------	---------------	-----------

Output Parameter	Final Determination	Draft Determination
UM type	Re-opener	Same as FD
Re-opener Window	January 2025 and January 2027	April 2025
Trigger	Licensee and authority triggered	Same as FD
Materiality threshold	RIIO-ED2 common materiality threshold of 0.5%.	RIIO-ED2 common materiality threshold of 1%.
Additional requirements	DNOs must comply with the LRE Re-opener Guidance.	Same as FD
	PCDs may be set for proposed works that the Authority considers are Strategic Investments.	
Licence condition	Special Condition 3.2, Part K	New to FD

Final Determination rationale and Draft Determination responses

- 3.22 We have decided not to alter the scope of the LRE Re-opener, which will cover the following cost categories:
  - CV1 Primary reinforcement

- CV2 Secondary reinforcement, excluding the areas covered by the LRE volume drivers
- CV3 Fault level reinforcement
- CV4 New Transmission Capacity Charges
- C2 Connections
- Load related Strategic Investment
- 3.23 As set out at Draft Determinations, additional costs arising as a result of Access SCR will also be assessed through the LRE Re-opener, where these were not funded in ex ante allowances. We expect that these costs will be captured under the cost categories identified above at paragraph 3.22. The treatment of Access SCR costs is discussed further in Chapter 12 of the Overview Document.
- 3.24 Strategic Investment can also be assessed under the LRE Re-opener, and where we decide to fund Strategic Investment, we will consider setting a PCD for its delivery to ensure that DNOs are held to account for delivery on these ore anticipatory types of work. UKPN's Off-Gas Grid PCD is a good example of the type of coordinated, discreet and anticipatory project that we might look to fund as Strategic Investment through the LRE Re-opener. We would also welcome projects that look to resolve potential constraints on the network related to the interface between the transmission and distribution networks, before they become significant issues.
- 3.25 In a change from our Draft Determinations position, we consider that an LRE Re-opener window in Year 2 and then subsequently in Year 4 will provide appropriate flexibility for DNOs to react quickly to changing network demands if ex ante allowances are insufficient to do so.
- 3.26 The LRE Re-opener Guidance will set out the detailed assessment process and submission requirements for the DNOs under the LRE Re-opener.

#### Scope of the LRE Re-opener

- 3.27 Five DNOs and nine industry stakeholders that provided comment on the LRE Re-opener supported its existence and general design.
- 3.28 The consultation responses received largely did not cover in any detail the scope of the re-opener, with only ENWL requesting clarity on the areas that fall within the scope of the Re-opener, specifically LV monitoring and flexibility procurement at all voltage levels.and UKPN also requested clarity on whether flexibility will fall within the scope of the reopener. Our decision for RIIO-ED2 is that flexibility on secondary networks will be funded via a specific unit rate under the Secondary Reinforcement Volume Driver (see paragraphs 3.44 - 3.49), and additional flexibility on primary networks can be funded under cost category CV1 through the LRE Re-opener.

- 3.29 NGED was the only DNO that did not support the LRE Re-opener, stating that it does not consider the LRE Re-opener provides the agility needed to support their customers' ambitions. Instead NGED set forward its 'best view' of future demand which it says meets the capacity and timescales required by its customers, and how this should translate into higher ex ante allowances. We do not agree with this approach because, as described in our Draft Determinations, we retain concerns regarding insufficient justification for the DNOs scenarios. We consider that using a combination of ex ante allowances and UMs ensures we only provide funding for investment we have confidence is justified, thereby protecting consumers from higher costs than necessary.
- 3.30 There were very limited responses on the treatment of Access SCR and Strategic Investment under the LRE Re-opener. Of the responses that did cover these areas, concerns were limited to the restrictions a single re-opener window may cause, the preference being to have an additional earlier re-opener window to allow for the impacts of Access SCR to be considered at an earlier stage of the price control. Our views on the timing of the LRE Re-opener window are set out below.

#### Re-opener window

- 3.31 Most respondents to our questions about the LRE Re-opener argued that more frequent re-opener windows should be provided due to concerns regarding the lack of agility and flexibility that just one re-opener window provided. All DNOs agreed that there are not enough opportunities for the LRE Re-opener to be triggered, and that this may delay the investment needed to meet net zero targets. ENWL suggested a re-opener window in years 2, 3 and 4 whilst UKPN queried whether a year 1 and 3 re-opener would be more appropriate, arguing that a year 4 window may end up funding RIIO-ED3 works.
- 3.32 We consider that an additional window in Year 1 would be too early as ex ante allowances will be sufficient to meet demand by that point, and it would be unlikely that network conditions would have changed enough to see clear trends in such a short time. We do not agree with UKPN's concerns regarding a re-opener window in Year 4. Although a Year 4 window could result in funding some projects that run into RIIO-ED3, they would still be part of the RIIO-ED2 allowance. We want to ensure that DNOs can develop and build projects as and when they are required, regardless of regulatory periods.

#### LRE Secondary Reinforcement Volume Driver

Purpose

To enable additional investment in DNOs' secondary networks, if required.

BenefitsEnsure networks have sufficient funding to enable netzero and protect consumers from paying higher coststhan necessary.

### Final Determination summary

3.33 The table below provides a summary of our Final Determination position.

Parameter	Final Determination	Draft Determination
UM type	Volume Driver	Same as FD
Volume measure	Capacity-based mechanism to set volumes, and associated unit costs, to vary allowances:	Same as FD, except Flexibility was not included as a volume measure at Draft Determinations
	Substation: MVA gross additions for pole and ground mounted transformers (PMTs and GMTs).	
	Circuits: Km additions with separate unit costs by voltage level.	
	Flexibility: Deferred secondary reinforcement in substations (MVA) and/or circuits (km)	
	Ex ante allowances will adjust (up or down) to the sum of the volume metrics multiplied by the relevant unit rates.	
Unit rates <sup>18</sup>	PMT: £89.5k / MVA	PMT: £103,900 / MVA
	GMT: £63.3k / MVA	GMT: £70,800 / MVA
	LV cable: £141.3k / km	LV Circuit: £120,400 /
	LV OHL: £49.8k / km	km
	HV cable: £127.3k / km	HV Circuit: £102,600 /
	HV OHL: £39.6k / km	
	Flexibility: See formula set out at Table 2.	
Controls	Five metrics to flag potential sub- optimal investment:	Four metrics to flag potential sub-optimal

<sup>&</sup>lt;sup>18</sup> These are the industry median unit rates. The unit rates of certain DNOs have been adjusted to account for the reversal of regional labour and company specific factor adjustments. DNO-specific will be set out in each DNOs' licence.

Parameter	Final Determination	Draft Determination
	<ol> <li>Transformer utilisation</li> <li>Transformer capacity released ratio</li> <li>Circuits length added ratio</li> <li>Peak Demand Growth and Energy Growth Indices</li> <li>Flexibility Procured Transformer Utilisation metric</li> </ol>	investment, three of which are the same as FDs. 'LCT forecast ratio' was proposed at Draft Determinations but has now been removed. The 'transformer capacity released ratio' and the
	An overall cap on how much expenditure can be incurred under the volume driver, set out in each DNOs licence condition.	transformer utilisation metric' were not proposed at Draft Determinations.
	A review of all the LRE volume drivers will be started in September 2025, or earlier if necessary.	Otherwise same as FD.
TIM application	TIM will apply to over or underperformance against unit costs.	Same as FD
Licence condition	Special Condition 3.9	New in FD

Final Determination rationale and Draft Determination responses

- 3.34 We have decided to introduce the Secondary Reinforcement Volume Driver to fund work related to capacity constraints affecting substations and circuits on the secondary network (LV and HV).
- 3.35 As proposed at Draft Determinations, the volume driver will fund transformer and circuit reinforcements that are required to meet increased demand. In a change from our Draft Determination position, we will also provide a unit rate through the volume driver for the procurement of flexibility services on the secondary network.
- 3.36 The overall allowance for secondary reinforcement will adjust up or down depending on the volume of works delivered under this volume driver.
- 3.37 We have decided to implement a monitoring framework comprised of:
  - Five metrics, which will have clear parameters to justify the needs case for investment. These will be reported on annually and will require DNOs to provide us with information that will enable us to check that investment is not outside an appropriate range. This will enable a direct but proportionate monitoring of the volume driver use, with Ofgem retaining an ability to withhold inefficiently incurred allowances above ex ante allowances that are outside the metric tolerances.

- An overall expenditure cap on secondary reinforcement for each DNO, which DNOs cannot spend more than, unless the cap is adjusted by Ofgem.
- A review of the LRE UM package in Year 3 of RIIO-ED2 to ensure that the mechanisms are fit for purpose and being used as intended, and that the cap is at an appropriate level given changes in demand.
- 3.38 We set out below how the responses to our Draft Determinations have informed our design of the Secondary Reinforcement Volume Driver. Full details on the design and operation of the Secondary Reinforcement Volume Driver can be found in our LRE Volume Drivers Governance Document, which will be consulted on in December 2022 and be in operation for the start of RIIO-ED2.

# Transformer and circuit unit rates

- 3.39 There were limited responses on this particular area, with respondents generally stressing that they are supportive of the existence of the volume drivers, but that support naturally relies on fair and accurate unit rates being established. Please see paragraphs 7.177-7.202 for detail on how we considered consultation responses on transformer and circuit unit rates and reached our Final Determination in this area.
- 3.40 SSEN raised concerns that the unit rates for SSE Hydro (in the north of Scotland) may be too low, because of the challenging terrain and longer distances between population centres. We disagree with this concern because:
  - On primary reinforcement, we divided the £k/MVA unit costs for all circuit constraint reinforcement by the total length of circuit being reinforced (total km added from CV1 asset register). We found that this significantly increased the range of unit costs and the coefficient of variance. We also observed that for this sub-category, SSEH £k/MVA unit cost did not appear to be the only outlier. We therefore decided to maintain our position as it did not improve the benchmarking.
  - On secondary reinforcement, we disagree with this concern due to a lack of evidence. SSE Hydro's unit costs for transformer and circuit reinforcement compare favourably to the industry median. In fact, their unit cost is only higher than the median in one of those six categories and does not appear as a clear outlier.
- 3.41 Following feedback in most DNO responses, we have decided to split out cable and overhead line (OHL) unit rates for circuits at high and low voltages, to provide better cost reflectivity in the unit rates.

## Scope

3.42 There was general agreement with the scope of the Secondary Reinforcement Volume Driver, except in relation to the treatment of flexibility services. This is covered in paragraphs 3.44-3.50 below. 3.43 Otherwise, the main concern with scope was raised by SSEN. It said that the Secondary Reinforcement Volume Driver should be extended to cover Fault Level Reinforcement works but provided very limited detail or evidence to support this. We therefore remain of the view that Fault Level Reinforcement works should not be included within the scope of the Secondary Reinforcement Volume Driver. We consider that unlike circuits and transformers on the secondary network, there is unlikely to be a need to rapidly increase investment in Fault Level Reinforcement in a manner that would require a volume driver, and that the LRE Re-opener in years 2 and 4 of RIIO-ED2 will be sufficient to provide any increase in expenditure required to meet the need for increased investment in this area.

## Flexibility services

- 3.44 Ten responses from a variety of stakeholders raised material concerns with our Draft Determinations position regarding the procurement of flexibility services on secondary networks ("secondary flex").
- 3.45 Nine of these responses argued that by not providing funding for secondary flex through the volume driver we would significantly weaken the incentive on DNOs to procure secondary flex, and that by relying solely on ex ante allowances we risked significantly underfunding DNOs for the costs that DNOs may need to incur in this area during RIIO-ED2.
- 3.46 ENWL shared concerns that secondary flex may be underfunded, but it argued that this should be addressed through the LRE Re-opener.
- 3.47 Following this feedback, we considered three broad options for funding secondary flex. These are set out in the table below, along with our views of the benefits and drawbacks of each option.

Option	Benefits	Drawbacks
1 - Retain Draft Determinations position and include the ex ante allowances requested by DNOs for secondary flex only, relying on the TIM to incentivise its use.	Least potential for gaming by DNOs of the three options. Where flex is used and reduces overall totex spending by offsetting need for investment, benefit will be shared with consumer though TIM.	Provides very little incentive for DNOs to procure secondary flex, because the Secondary Reinforcement Volume Driver would adjust allowances downwards if conventional network build solutions were not delivered. Risks underfunding DNOs if use of secondary flex increases beyond current expectations during RIIO-ED2.
2 - Provide an additional use-it- or-lose-it (UIOLI)	Provides additional secondary flex funding, reducing underfunding risk.	Difficult to set appropriate level of funding under UIOLI that would address

Table 2: Options for funding secondary flex in RIIO-ED2

Option	Benefits	Drawbacks
allowance for secondary flex.	Will only pay for tendered flex costs, removing the risk of DNOs benefitting from a high unit rate.	uncertainty but not risk inefficient procurement of flex.
		No cost efficiency signal so could be very high risk of pump priming and use of secondary flex where sub- optimal.
		Provides limited incentive for DNOs to procure secondary flex, because the Secondary Reinforcement Volume Driver would adjust allowances downwards if conventional network build solutions were not delivered.
3 - Provide a unit rate in the volume driver for secondary flex, using the formula set out below:	Consistent treatment with conventional reinforcement (ie a unit rate in the volume driver), keeping incentive to use secondary flex strong.	Difficult to calculate value of deferral, creating a gaming risk. Possible that unit rate is higher than actual cost of
Reinforcement deferred (MVA) * £/MVA unit cost for GMT * WACC^contract length	Formula accounts for deferral length and NPV, adding confidence that flex is only procured when optimal over reinforcement.	secondary flex. Doesn't align to our typical principles for use of volume drivers, ie stable and known unit cost.

- 3.48 As shown in the table, each of these options carry potential drawbacks. Given the strength of consultation responses in this area, and the importance that flexibility markets could play in the long term with regards to reducing the need to invest in upgrading the network, we agree that we need to ensure that secondary flex is properly funded. As such, we further developed our thinking on options 2 and 3, in conjunction with DNOs at working groups.
- 3.49 We have decided to pursue Option 3, instead of Option 2, for the reasons set out below:
  - We feel it is important to treat secondary flex on the same basis as conventional reinforcement (ie a unit rate in the volume driver) to keep the incentive to use secondary flex as strong as possible. This incentive would have been weaker under Option 2.
  - Although we have concerns over the potential for perverse incentive properties for Option 3, ie by DNOs procuring secondary flex when it's not needed or overstating the deferral value, we feel this risk is

mitigated because the formula accounts for deferral length and NPV, adding confidence that flex is only procured when optimal over reinforcement. In addition, we will require secondary flex to be procured in accordance with Standard Licence Condition (SLC) 31E, which requires that flexibility is only used where economically advantageous and procurement is transparent and competitive. Finally, with the TIM applying to the unit rate, consumers will share any cost savings if the actual cost of secondary flex is lower than the unit rate.

- It would be difficult to set an appropriate value under Option 2. Given the nascent state of the secondary flex market and the uncertainty regarding how quickly it will grow, Option 2 would risk either setting an allowance that is too high, artificially pump-priming the market, or too low, leaving DNOs underfunded in this important area.
- 3.50 The secondary reinforcement volume driver (SRVD) is intended to enable funding of secondary flex over and above the ex ante secondary flex allowances that have been set for RIIO-ED2. As such, during RIIO-ED2 closeout, we will undertake a reconciliation of secondary flex spend across both ex ante allowances and the volume driver. If all ex ante secondary flex allowances haven't been used, we will adjust secondary flex allowances funded through the volume driver down by the total of the unused ex ante allowance.

#### Metrics

- 3.51 Responses on this area were limited in detailed comment but were generally supportive of the metrics and what we intend for them to achieve. Responses from the DNOs sought clarity on the detail of how the performance metrics will operate, which we have provided below, and further information will be provided in the LRE Volume Driver Governance Document, which will be consulted on in December 2022 and be in operation for the start of RIIO-ED2.
- 3.52 The performance metrics described below are designed to protect customers against unjustified costs arising from sub-optimal investment in the network. This is achieved by each metric identifying whether DNOs are exhibiting unexpected behaviour, eg increasing investment when LCT demand is less than expected, or reinforcing a high proportion of low utilised assets.
- 3.53 The five metrics that we will use to monitor DNO investment under the Secondary Reinforcement Volume Drivers are:
  - The 'transformer utilisation metric' is designed to control against sub-optimal reinforcement in transformers. The metric checks that works are occurring within areas of projected 'high' utilisation.<sup>19</sup> A tolerance of 10% of capacity additions in 'low' utilisation bands will be

<sup>&</sup>lt;sup>19</sup> By this we mean 100% year-ahead forecast utilisation.

permitted under the metric to account for situations where it is justified, or necessary for safety reasons, to invest in transformers with a utilisation below 100%.

- The **'transformer capacity released ratio'** checks that transformer capacity additions (broken down by PMTs and GMTs) are proportional to changes in LCT demand, by measuring the ratio of net transformer capacity additions to the increase in peak load capacity for transformers caused by new LCT demand. Each DNO is compared to an industry benchmark, which is fixed at the beginning of RIIO-ED2. A tolerance of 10% above the industry benchmark is permitted.
- The 'circuits length added ratio' checks that the addition of circuit length (broken down by OHL and cables) is proportionate to changes in LCT demand, by measuring the ratio of additions to the increase in peak load capacity caused by new LCT demand. Each DNO is compared to an industry benchmark. A tolerance of 10% above the industry benchmark is permitted, with any deviation above that meaning that the check will not be passed.
- The 'peak demand growth and energy growth indices' measure the change over time in the peak load and energy volume measured at the discrete points where LV monitoring equipment has been installed on the network. The metric monitors whether year on year growth is positive, with an error being produced if it is negative. It is intended to provide visibility of the change in demand on the low voltage (LV) network as opposed to check whether DNO expenditure is sub-optimal.
- The 'flexibility procured transformer utilisation metric' is designed to control against sub-optimal procurement of flexibility for deferring investment in PMTs and GMTs. The metric checks that flexibility is being procured for PMTs and GMTs with 'high' projected utilisation.<sup>20</sup> No tolerance for flexibility procured in 'low' utilisation bands will be permitted, because DNOs should only report flexibility procured to defer transformer reinforcement.
- 3.54 DNOs will annually provide information which we will use to track their performance against these metrics. While DNO expenditure is within ex ante allowances for secondary reinforcement, the results from the metrics will not lead to withholding of allowances. If, having exceeded its ex ante allowance, a DNO does not pass all the metrics, we will initiate a review of costs, volumes, and additional information submitted by the DNOs. This review could lead to allowances incurred above the ex ante allowance being disallowed, on the basis they are inefficient, unless we see strong justification as to why the expenditure was required. More

<sup>&</sup>lt;sup>20</sup> By this we mean 100% year-ahead forecast utilisation.

detail on this process will be contained in the LRE Volume Driver Governance Document.

3.55 We did consider, following feedback from UKPN, the RIIO-ED2 CG and a consumer group, whether to extend the clawback of allowances under the Secondary Reinforcement Volume Driver to all relevant allowances, using our automatic checks to flag unjustified investment under ex ante allowances as well as over ex ante allowances. However, we are concerned that this approach may create a reluctance amongst DNOs to invest, hindering the long term net zero transition by leaving networks with significant catching up to do in RIIO-3, which the supply chain flagged in Draft Determination responses may be challenging.

#### Cap and Year 3 review

- 3.56 Paragraphs 3.57-3.59 are relevant to both the Secondary Reinforcement Volume Driver, and the LV Services Volume Driver.
- 3.57 Six respondents, including three DNOs, specifically raised concerns with our proposed volume driver caps, and three respondents, including two DNOs, supported them.
- 3.58 Those that were opposed to the caps were concerned that they may prevent necessary investment in the network. We do not agree because, taken in combination with the volume driver metrics and the Year 3 review, we are confident that we will have sufficient information and time to adjust the cap upwards (and indeed downwards) if at that stage, based on network demand to-date, there is a clear reason to do so.
- 3.59 Respondents supported the Year 3 review, with DNOs requesting clarity regarding its scope, which will include, but will not necessarily be restricted to:
  - the efficacy of the unit costs set out in the volume drivers.
  - a review of whether the volume driver caps are set at the right level.
  - a review of the flexibility services element of the Secondary Reinforcement Volume Driver, including consideration of the nature of DNO activity under this part of the volume driver.
  - consideration of whether the volume driver metrics are functioning effectively, ie whether they are identifying unjustified investment and not incorrectly identifying justified investment.
  - review of the method statements required under the Secondary Reinforcement Volume Driver metrics.
  - an assessment of progress against the expectations of granular utilisation data to be available for RIIO-ED3 (or equivalent).

#### LRE Low Voltage Services Volume Driver

Purpose	To enable additional investment in the LV services that
	DNOs provide to properties, if required.

BenefitsEnsure networks have sufficient funding to enable netzero and protect consumers from paying higher coststhan necessary.

### Final Determination summary

3.60 The table below provides a summary of our Final Determination position.

Parameter	Final Determination	Draft Determination
UM type	Volume Driver	Same as FD
Volume measure	£ per asset reinforced. Ex ante allowances will adjust (up or down) to the sum of the volume metrics multiplied by the relevant unit rates.	Same as FD
Unit rates <sup>21</sup>	LV Service (OHL): £0.35k LV Service (UG): £1.60k Cut out (metered): £0.30k Fuse upgrades: £0.13k	LV Service (OHL): £0.47k LV Service (UG): £1.42k Cut out (metered): £0.25k Fuse upgrades: not in Draft Determinations
Controls	An overall cap on how much expenditure can be incurred under the volume driver, set out in each DNOs licence condition. A metric to ensure that no more than 20% of proactive work undertaken under this volume driver does not relate to 'unlooping'. This matches the policy intent behind introducing the volume driver.	Same as FD, except no metric was proposed.
	A review of all the LRE volume drivers will be undertaken in September 2025, or earlier if determined by the Authority.	

<sup>&</sup>lt;sup>21</sup> These are the industry median unit rates. The unit rates of certain DNOs have been adjusted to account for the reversal of regional labour and company specific factor adjustments. DNO-specific will be set out in each DNOs' licence.

Parameter	Final Determination	Draft Determination
TIM application	TIM will apply to over or underperformance against unit costs.	Same as FD
Licence condition	Special Condition 3.9	New to FD

Final Determination rationale and Draft Determination responses

- 3.61 We have decided to introduce the LV Services Volume Driver to fund work related to the reinforcement of LV services, in particular the 'unlooping' of the LV service cables.
- 3.62 The overall allowance for LV Services will adjust up or down depending on the volume of works delivered under this volume driver.
- 3.63 We have decided to implement a monitoring framework comprised of:
  - One metric, which is an addition since our Draft Determinations. This
    will be reported on annually and will flag if investment in proactive
    non-unlooping related work is outside a tolerable range (described
    above). We will retain an ability to withhold inefficiently incurred
    allowances above ex ante allowances that are outside the metric
    tolerance.
  - An overall expenditure cap on LV Services investment for each DNO, which DNOs cannot spend more than, unless the cap is adjusted.
  - A review of the LRE UM package in Year 3 of RIIO-ED2, or earlier if necessary, to ensure that the mechanisms and metrics are fit for purpose and being used as intended, and that the cap is at an appropriate level given changes in demand.
- 3.64 Here we describe how the responses to our Draft Determinations have informed our design of the LV Services Volume Driver. Full details on the volume driver can be found in our LRE Volume Drivers Governance Document, which will be consulted on in December 2022 and be in operation for the start of RIIO-ED2.

#### Unit rates and scope

- 3.65 Please see paragraphs 7.177-7.202 for information on how we considered consultation responses on LV Services unit rates and reached our Final Determination in this area.
- 3.66 We proposed to include funding for the replacement of cut outs as part of our LV Services Volume Driver at Draft Determinations. Some DNOs advised us that they might only replace fuses during a service upgrade, rather than the whole cut out, and requested that this activity be included separately. We have therefore decided to separate out 'fuse upgrades' as a separate activity in the LV Services Volume Driver, to allow for the situation where only the fuse is upgraded. Otherwise the scope of the volume driver is unchanged from our Draft Determinations.

#### Metric

- 3.67 No metric was proposed for this area in our Draft Determinations, and no responses to our Draft Determinations were received which called for a metric in this area.
- 3.68 However, we have further considered the design of this volume driver and believe that as set out at Draft Determinations there is a risk that DNOs could act inefficiently by completing proactive LV service works that were not required. The policy intent of this volume driver is to facilitate unloopings, so we have decided to introduce a metric that will ensure that a suitable proportion of the proactive work undertaken under the LV Services Volume Driver relate to unlooping.
- 3.69 The LV Services Unlooping metric is designed to control against supoptimal proactive reinforcement of LV Services assets. The metric checks that LV Service cables (overhead pole lines and cables), fuse upgrades and cut outs (metered) are only being proactively reinforced when a property is unlooped. A tolerance of 20% is permitted, with any deviation above that meaning that the check will not be passed.
- 3.70 DNOs will annually provide information which we will use to track their performance against this metric. While DNO proactive expenditure is within ex ante allowances for LV Services, the results of the metric will not lead to withholding of allowances. If, having exceeded its ex ante allowance for LV Services, a DNO does not pass the metric, we will initiate a review of costs, volumes, and additional information submitted by the DNOs. This review could lead to allowances relating to proactive LV Services activities incurred above the ex ante allowance being disallowed, on the basis they are inefficient, unless we see strong justification as to why the expenditure was required. More detail on this process will be contained in the LRE Volume Driver Governance Document.

### Cap and Year 3 review

3.71 Paragraphs 3.57-3.59 discuss responses to the volume driver caps and Year 3 review for both the Secondary Reinforcement Volume Driver, and the LV Services Volume Driver.

#### **Net Zero Re-opener**

Purpose	To introduce an increased level of adaptability into the
	RIIO-ED2 price control by providing a means to amend
	the price control in response to changes relating to the
	meeting of the net zero carbon targets, which affect the
	costs and outputs of network licensees.

Benefits To allow for necessary amendments within the RIIO-ED2 period, as opposed to waiting until the settlement of the price control.

## <u>Background</u>

- 3.72 In our Decarbonisation Action Plan,<sup>22</sup> we said that we would seek to introduce a system-wide Net Zero Re-opener spanning the gas and electricity sectors. In the RIIO ED2 Sector Specific Methodology Decision (SSMD), we decided to introduce a Net Zero Re-opener that will facilitate adjustments to allowances and outputs within RIIO-ED2 to align the price control with Net Zero targets.
- 3.73 In our Draft Determinations, we set out our proposal for the parameters of a Net Zero Re-opener in RIIO-ED2, after its introduction in the other sectors in April 2021. This would be used to reflect changes connected to the achievement of net zero carbon targets not otherwise captured by any other RIIO-ED2 mechanism, especially where those changes are driven by external factors such as changes in Government policy.

Output Parameter	Final Determination	<b>Draft Determination</b>	
UM type	Re-opener	Same as FD	
Re-opener Window	Any time during RIIO- ED2	Same as FD	
Trigger	Authority triggered only	Same as FD	
Materiality threshold	RIIO-ED2 common materiality threshold of 0.5%.	RIIO-ED2 common materiality threshold of 1%.	
Additional requirements	n/a	n/a	
Licence condition	Special Condition 3.6, Part C	New to FD	

Final Determination summary

3.74	The table below	provides a	summary of	of our Final	Determination	position.
		•	,			•

Final Determination rationale and Draft Determination responses

3.75 We have decided that Ofgem should retain the sole ability to trigger the Net Zero Re-opener. This will ensure that the Re-opener is only used where Ofgem is satisfied that there is a sufficient level of certainty over the change in question and its impact.

<sup>&</sup>lt;sup>22</sup> <u>https://www.ofgem.gov.uk/publications/ofgems-decarbonisation-action-plan</u>

- 3.76 We have kept the materiality threshold for the Net Zero Re-opener consistent with the common RIIO-ED2 materiality threshold, which has been reduced in Final Determinations to 0.5%.
- 3.77 The scope of the Net Zero Re-opener is unchanged from our Draft Determinations.
- 3.78 Six DNOs and nine industry stakeholders responded. All agreed with need for Net Zero reopener, however there was consistent concern regarding the Authority only trigger.

#### Trigger

- 3.79 Four out of six DNOs disagreed with the authority only trigger. Reasons given by DNOs include that DNO's will have a greater insight into events which will require the Net Zero Re-opener to be triggered, and an Authority only trigger will likely cause delay in additional allowances needed to deliver justified network capacity requirements.
- 3.80 Four industry stakeholders disagree with an authority only trigger, with suggestions such as DNOs, the Net Zero Advisory Group (NZAG) and other energy industry bodies having the ability to trigger the Net Zero Re-opener.
- 3.81 We considered responses on which parties should have the ability to trigger the Net Zero Re-opener and our view remains that we alone should retain the ability to trigger this mechanism. This is because this approach will ensure that the Re-opener is only used where:
  - It is the most appropriate mechanism to deal with a given change.
  - We are satisfied that the impact of the change in question should be funded via consumers and otherwise reflected within the price control.
  - We are satisfied that there is a sufficient level of certainty over the change in question and its impact.
- 3.82 To make ongoing funding decisions on major strategic investments in a cohesive way, we are committed to improve coordination with the UK and devolved governments and other key stakeholders. To do this, we have established NZAG, alongside other relevant considerations, to help inform the circumstances where triggering the Net Zero Re-opener may be necessary.<sup>23</sup> We consider that this will provide the insight necessary for us to know if and when the Net Zero Re-opener should be triggered. Two stakeholders queried whether the membership of the NZAG could be expanded. Given the relative infancy of the NZAG, we do not consider it appropriate to explore that currently.

Materiality threshold

<sup>&</sup>lt;sup>23</sup> <u>https://www.ofgem.gov.uk/energy-policy-and-regulation/engagement/forums-and-working-groups/net-zero-advisory-group-nzag</u>
3.83 In response to our Draft Determinations, all six DNOs agreed with the need for the Net Zero Re-opener but disagreed with the proposed Materiality Threshold. DNOs preferred a materiality threshold of 0.5%. The common RIIO-ED2 materiality threshold has been reduced from 1% at Draft Determinations to 0.5% at Final Determinations. Our decision on the common Materiality Threshold and the reasons behind it are discussed further in Chapter 6 of the Overview Document.

#### Scope

- 3.84 All six DNO's agreed with the need for the Net Zero Re-opener, however views on the scope of the re-opener were mixed. NPg and NGED supported a well calibrated scope, avoiding overlap and addressing only expenditure associated with a change in legislation or policy. ENWL raised concerns that the scope was too similar to RIIO-GD2/RIIO-ET2, and that the scope should be reviewed in light of additional UMs in the ED2 framework that are not in RIIO-GD2/RIIO-ET2.
- 3.85 Nine industry stakeholders responded generally agreeing with the proposed scope of the Net Zero Re-opener. One consumer body agreed that it was sufficient to manage unexpected large-scale net zero changes affecting DNOs, while one energy industry body stated that they would prefer a clearer view of how the Sixth Carbon Budget would be met. Another stakeholder generally supported the scope but questioned how the NZAG would consider a London specific plan.
- 3.86 We have decided that the scope of the Net Zero Re-opener, when considered alongside our suite of LRE and legislative UMs, is suitable for RIIO-ED2. The Net Zero Re-opener ensures the price control is adaptable to a wide range of net zero developments, such as changes in national (eg Sixth Carbon Budget) or local government policy or changes in the pace or nature of the connection of new low carbon generation and the uptake of low carbon technologies.

## Innovation

## Strategic Innovation Fund (SIF)

Purpose	To support network innovation that contributes to the
	achievement of net zero, while delivering real net benefits
	to network companies and consumers; and to work with
	other public funders of innovation so that activities
	appropriately funded by network consumers are
	coordinated with activities funded by Government.
Benefits	Supports strategic network innovation projects that would
	not otherwise be supported by the price control or other

sources of funding and contributes to the energy system transition.

#### **Background**

3.87 In our SSMD<sup>24</sup> we decided to introduce the SIF, in line with our decisions in the other RIIO-2 sectors.

#### Final Determination summary

3.88	The table below	provides a	a summary	of our	Final	Determination	position.
------	-----------------	------------	-----------	--------	-------	---------------	-----------

Parameter	Final Determination	Draft Determination
Value of the SIF	Make available a level of total funding equivalent to that provided via the RIIO-1 Network Innovation Competition (NIC), which was an initial £450m, and increase this if necessary.	Same as FD

Final Determination Rationale and Draft Determination responses

- 3.89 We made an initial £450m available through the SIF for the RIIO-ET2, RIIO-GT2, RIIO-GD2 and ESO price controls. We have decided not to increase the SIF funding pot at this time to reflect DNO participation in the SIF, but we will keep the funding pot under review during the price control period.
- 3.90 We received eleven responses to our consultation question on the value of the SIF, ten of which supported our proposal. Only NGED did not agree with the proposal, stating that the value should be increased in the light of the challenges facing the sector in transitioning to a net zero energy system.
- 3.91 Seven of the eleven responses received criticised the governance arrangements for the SIF, as established through the SIF licence condition and Governance document.<sup>25</sup> Respondents highlighted that the structure and timings of the SIF may create barriers to small businesses and universities participating.
- 3.92 We recently made changes to the SIF Governance Document and will consider whether further changes are needed and achievable within applicable regulatory parameters, ahead of consulting on and directing any changes at the earliest available opportunity.
- 3.93 We disagree with NGED's view that the SIF funding provided is too little to meet the net zero challenge because we can increase the funding available at a later date if necessary.

<sup>&</sup>lt;sup>24</sup> RIIO-ED2 SSMD Overview Document, Paragraph 4.86 - 4.89 <u>RIIO-ED2 Sector Specific</u> <u>Methodology Decision | Ofgem</u>

<sup>&</sup>lt;sup>25</sup> Version 2 of the SIF Governance Document

## **Network Innovation Allowance (NIA)**

_	
Purpose	To fund innovation relating to support for consumers in
	vulnerable situations and/or the energy system transition.
Benefits	The NIA will enable DNOs to take forward innovation
	projects that have the potential to address consumer
	vulnerability and/or deliver longer-term financial and
	environmental benefits for consumers, which DNOs would
	not otherwise undertake within the price control.

#### Final Determination summary

Parameter	Final Determination	Draft Determination
Provision of NIA funding	£68.4m NIA funding.	£62.4m <sup>26</sup> NIA funding
Reviewing NIA funding by 2025	By 2025, we will review whether more NIA funding is needed.	Same as FD
Flexibility to allocate funds	DNOs would have a 'use it or lose it' allowance defined in £, with flexibility to allocate funds across RIIO-ED2, as long as projects are registered within the first three regulatory years, ie before 1 April 2026. The projects may be scheduled to start after this date.	Change: we proposed that the allowance can be used flexibly across 5 years, as long as projects are registered and start work within the first three regulatory years, ie before 1 April 2026

3.94 The table below provides a summary of our Final Determination position.

Final Determination rationale and Draft Determination responses

- 3.95 We have decided to confirm our approach to setting NIA but are providing more NIA funding to two DNOs, increasing NIA overall by £6m. We will review at the latest by 2025 whether more NIA is required for the final two regulatory years of RIIO-ED2. However, we have decided to extend the flexibility for DNOs on when projects funded through NIA must begin work.
- 3.96 We received 15 responses to our consultation on the RIIO-ED2 NIA.

<sup>&</sup>lt;sup>26</sup> In our Draft Determinations publication, this was stated erroneously as £66.9m due to a transposition error in SSEN's and NGED's proposed NIA.

#### Provision of NIA funding

- 3.97 Of eight respondents who commented on our methodology to assess DNOs' business plan requests and to setting NIA, UKPN, SSEN, the RIIO-ED2 CG and a consumer group agreed with our approach.
- 3.98 ENWL, SPEN, NPg and NGED disagreed with our approach, arguing that our proposal resulted in lower allowances than they require and had provided justification for in their business plans.
- 3.99 We disagree with ENWL and NPg that all DNOs with business plan submissions of similar quality, regardless of their size, should receive the same amount of innovation funding. As set out in Draft Determinations, we don't believe that consumers in smaller DNOs' licence areas should be paying substantially more proportionally for innovation than consumers in larger DNO groups' areas. The evidence shows that in RIIO-ED1 smaller DNOs who received substantially less NIA than larger DNO groups were able to run successful innovation programmes which delivered benefits for consumers. Furthermore, network companies can and should cooperate to realise the best innovation projects. Smaller DNO groups do not need to rely only on their own NIA funds to realise promising ideas but should be able to benefit from larger DNOs' NIA, if the industry collaborates and shares learnings.
- 3.100 We therefore confirm our approach to setting RIIO-ED2 NIA allowances as set out in Draft Determinations.<sup>27</sup>
- 3.101 ENWL and SPEN stated that our approach to setting NIA with reference to RIIO-ED1 allowances was inconsistent with our SSMD. We disagree and maintain that our approach is consistent with SSMD because the allowances are directly informed by our assessment of DNOs' performance against the five NIA criteria, first set out in our SSMD:
  - they have identified areas in which to target NIA funding that are high-risk and in need of ring-fenced innovation stimulus
  - they are proposing to undertake other innovation as BAU activities during RIIO-ED2
  - their proposals incorporate the application of best practices
  - there are clear processes to rollout proven innovation into BAU and they are already doing so

<sup>&</sup>lt;sup>27</sup> We calculated DNOs' proposed NIA as an annual figure initially, and then multiplied this by three to arrive at the RIIO-ED2 allowance. We scored DNOs against five criteria as set out in SSMD. DNOs who presented satisfactory evidence against all five criteria receive an allowance either based on what they were allowed in RIIO-ED1 or based on their annual requested RIIO-ED2 allowance, if this was lower. For each criterion not met, the figure would reduce. Criteria were weighted equally. We finally assessed whether DNOs made a strong, evidence-based case for why they needed to spend more NIA than in RIIO-ED1.

- there are processes in place to monitor, report and track innovation spending, submitting evidence that they are already doing so.
- 3.102 In SSMD we also stated that we do not intend to raise the NIA funding level above RIIO-ED1 levels without clear justification from the DNO. In accordance with SSMD, we assessed the evidence submitted by the three DNOs who requested an increase to arrive at the allowances proposed at Draft Determinations.
- 3.103 In its Draft Determinations response, ENWL set out that it would be unable to deliver material portions of its innovation programme with the significantly reduced proposed RIIO-ED2 NIA, relative to RIIO-ED1. ENWL has satisfied us that the NIA proposed at Draft Determinations would result in a materially reduced innovation offering both relative to RIIO-ED1 and its RIIO-ED2 business plan submission. We consider that this would be detrimental to consumers so have decided to adjust our approach to benchmarking in ENWL's case and provide it with an annual figure equivalent to what it had access to in RIIO-ED1 (see ENWL Annex).
- 3.104 NGED and NPg in response to our Draft Determinations submitted additional evidence to challenge our assessment that each had only met four out of five NIA criteria. We have decided to revise NGED's assessment on the basis of its submission and are therefore adjusting its NIA award (see NGED Annex). We have decided to confirm NPg's NIA award as set out at Draft Determinations (see NPg Annex).
- 3.105 We disagreed with DNOs' responses that their business plan submissions justified awarding more NIA than was available in RIIO-ED1. ENWL, SPEN and NPg requested more compared to RIIO-ED1 but did not submit new evidence as part of their Draft Determination responses to justify why more NIA is needed to meet challenges in RIIO-ED2.
- 3.106 The table below shows the NIA we are awarding to each DNO. Further detail can be found in the Company Annexes.

DNO group	NIA funding requested for RIIO-ED2 (annual equivalent)	Final Determination	Draft Determination
ENWL	£25m (£5m)	£8.4m	£6m
SSEN	£17.5m (£3.5m)	£8.4m	£8.4m <sup>28</sup>
SPEN	£35m (£7m)	£11.1m	£11.1m
UKPN	£25m (£5m)	£15m	£15m

Table 3: Network Innovation Allowance Final Determination

 $<sup>^{\</sup>rm 28}$  In Draft Determinations, this number was stated erroneously as £9.6m due to a transposition error.

DNO group	NIA funding requested for RIIO-ED2 (annual equivalent)	Final Determination	Draft Determination
NPg	£25m (£5m)	£7.5m	£7.5m
NGED	£30m (£6m)	£18m	£14.4m <sup>29</sup>
Total	£156.5m	£68.4m	£62.4m

Ofgem to review whether more NIA is necessary during ED2

- 3.107 Ten respondents commented on our proposal to reduce the NIA to an overall value equivalent to three years of the price control as compared to RIIO-ED1 levels, and to later review whether more NIA is necessary in light of development of the SIF and the wider innovation stimulus package across all RIIO sectors.
- 3.108 UKPN, the RIIO-ED2 CG and Citizen's Advice were supportive of our proposal.
- 3.109 The other five DNOs, an academic institution and a representative of third-party innovators argued that providing less NIA than in RIIO-ED1 and reviewing the amount available by 2025 would have detrimental effects on the pace and ambition of innovation activities as well as on the wider supply chain. Respondents suggested that the uncertainty would disincentivise long term thinking, to the detriment of small and medium enterprises and to academic research into electricity network challenges. These respondents argued that DNOs would focus on projects with higher technology readiness level (TRL) at the expense of earlier phase exploratory research, and that shorter, less effective projects would be prioritised.
- 3.110 In a change from the position stated in Draft Determinations, reflecting the concerns raised regarding flexibility, we have decided that projects will only need to be registered by the end of Year 3, but can start work later.
- 3.111 We disagree with the responses claiming that our review will be detrimental. The RIIO-ED2 NIA can be spent flexibly by DNOs throughout the price control, as long as projects are registered by 31 March 2026.
- 3.112 DNOs could plan to spread NIA spend across the entire RIIO-ED2 period, should they wish to avoid a complete stop to NIA funding, in the event that the Authority decides not to award additional NIA for the final two years of RIIO-ED2. Some projects could start in the final two years of RIIO-ED2 and run until the end of RIIO-ED2 if necessary. Our proposal therefore avoids the detrimental 'start-stop' nature to funding which respondents claimed we are creating, if DNOs plan accordingly.

 $<sup>^{29}</sup>$  In Draft Determinations, this number was stated erroneously as £17.7m due to a transposition error.

- 3.113 If we decide later that more NIA is necessary, we will amend licences and the NIA Governance Document to allow later project registration.
- 3.114 We will endeavour to conduct the review of whether more NIA is required during RIIO-ED2 early in the price control, and at the latest, by the end of 2025.

## Tracking the benefits of innovation

- 3.115 In our Draft Determinations, we requested that DNOs provide evidence to satisfy us that the Innovation Measurement Framework (IMF), recently developed by network companies and the Energy Network Association (ENA), is robustly quantifying the benefits created by innovation on a consistent basis across DNOs.
- 3.116 Following our request, DNOs provided us with examples of how they intend to report the benefits of innovation projects during RIIO-ED2, using this framework. They also submitted a joint report setting out opportunities for improvements to the IMF, including the incorporation of whole system benefits through reporting of Social Return on Investment (SROI) from innovation projects. On consistency, networks agreed that standardisation of how benefits are reported would be beneficial but argued that there are limits to standardising methodologies and assumptions that underlie the calculations presented in the reports.
- 3.117 We consider that further joint work between network companies is required in this area and that consistency in how benefits are measured across network companies and sectors can improve. We plan to work with network companies on this during RIIO-ED2.
- 3.118 Furthermore, we will consult on adding a requirement to NIA governance for network companies to publish benefit statements including costbenefit calculations alongside project progress information, to increase transparency.

Purpose	To prevent the abrupt ending of some RIIO-1 NIA projects, and potential reductions in innovation activity.
Benefits	To enable project delivery and completion, and resulting lessons learned to be shared across industry, with
	potential consumer benefits.

#### **Carry-over RIIO-1 Network Innovation Allowance**

#### Final Determination summary

3.119 The table below provides a summary of our Final Determination position.

Parameter	Final Determination	Draft Determination
End date for spending RIIO- ED1 NIA funds	Allow companies to carry over any unspent NIA funds from the final year of RIIO-ED1 into the first year of RIIO-ED2.	Same as FD.

Final Determination rationale and Draft Determination responses

- 3.120 We received ten responses that all agreed with our proposal to allow DNOs to carry forward unspent 2022/23 RIIO-ED1 NIA funds into 2023/24 (the first year of RIIO-ED2).
- 3.121 We have decided to maintain our Draft Determination proposal.

## **Delivering an environmentally sustainable network**

- 3.122 DNOs have made good progress in RIIO-ED1 in reducing the environmental impact of network activity. This has been largely achieved through reputational incentives, in the form of a requirement on DNOs to publish annual reports outlining progress in the reduction of their Business Carbon Footprint (BCF), the management of leakages of Sulphur Hexafluoride (SF<sub>6</sub>) and of oil from fluid filled cables and to record noise complaints. For some areas, such as SF<sub>6</sub>, DNOs set company specific targets for RIIO-ED1 which are included in annual reporting.
- 3.123 However, at a company level, performance in some areas is mixed and in multiple areas there have been changes in the reporting or recording of indicators. This has made it difficult to assess performance on a consistent basis both over time and between companies.
- 3.124 Furthermore, while the Losses Discretionary Reward incentivised DNOs to focus on activities that managed losses effectively and to try to lower these as much as possible on their networks, there remain significant challenges in accurate measurement and the administrative burden of this incentive was not matched by the benefits it has brought.
- 3.125 In this section, we outline our RIIO-ED2 approach to ensuring DNOs take actions towards delivering an environmentally sustainable network. In particular to decarbonise their own network, reduce the wider environmental impact of network activity and support the transition to a sustainable low carbon energy system.
- 3.126 Ofgem and stakeholders expect DNOs to take appropriate steps to mitigate their environmental impacts, such as pollution to the local environment, loss of visual amenity and a reduction in biodiversity. These also include arrangements which will encourage DNOs to minimise their own carbon and greenhouse gas (GHG) emissions such as SF<sub>6</sub>.
- 3.127 We will drive performance improvements in these areas by using reputational incentives where we are confident in the measures of performance.

- 3.128 DNOs should, through a new LO, develop Annual Environmental Reports (AERs) detailing their progress in activities outlined in their business plans and against their targets, using the agreed metrics from their Environmental Action Plans (EAPs).
- 3.129 We set out below our Final Determinations on the environmental elements of DNOs' RIIO-ED2 Business Plans. This includes:
  - the AER reputational Output Delivery Incentive (ODI-R)
  - common elements of the EAPs
  - the Environmental Re-opener
  - visual amenity in designated areas provision
  - the environmental financial Output Delivery Incentive (ODI-F), the "Environmental Scorecard"
  - polychlorinated biphenyl (PCB) volume driver
- 3.130 Our decisions on DNOs' bespoke environmental proposals can be found in the company-specific annexes.

#### Annual Environmental Report (ODI-R)

Purpose	To ensure the DNOs are reporting transparently on the environmental impacts arising from their networks and demonstrate what they are doing to mitigate these.
Benefits	To bring greater awareness on the environmental impacts that arise from network activities and increase transparency on their actions and plans to decarbonise in line with net zero.

#### **Background**

- 3.131 In our RIIO-ED2 SSMD, we decided that DNOs should be required through a reputational ODI to develop and publish an AER detailing their progress in activities outlined in their Business Plans and against their targets, using the agreed metrics from their EAPs.
- 3.132 Our RIIO-ED2 Draft Determinations set out that an annual report would drive the DNOs to consistently improve their environmental performance throughout RIIO-ED2 and hold them accountable to their respective EAP commitments and targets on a yearly basis. We set out that a public report will increase the transparency of the DNOs' environmental impact and enable comparability of performance between DNOs.
- 3.133 We also considered a review of progress made in the first half of the RIIO-ED2 price control may be beneficial to consumers as it would illustrate if DNOs are on track to meet their targets or where performance might be lacking.

#### Final Determination summary

3.134 The table b	below provides a	summary of o	our Final I	Determination	position.
-------------------	------------------	--------------	-------------	---------------	-----------

Output Parameter	Final Determination	Draft Determination
ODI Type	ODI-R	Same as FD
Incentive type	Reputational	Same as FD
Performance measure	DNOs shall: Track, measure and report annually against targets and activities as set out in their EAPs using methodologies approved by Ofgem. This will include key performance indicators as well as efforts towards a longer-term plan to net zero by 2050. Report on bespoke commitments as it relates to their EAPs. Submit their AER to Ofgem annually as well as publish on their respective websites.	Same as FD
Mid-period review	We will implement a mid-period review that looks at the performance to date of all DNOs on a comparative basis where possible.	Same as FD
Licence condition	SpC 9.1	New to FD

Final Determination rationale and Draft Determination responses

- 3.135 We will introduce the requirement for an AER to help increase the accountability of the DNOs in relation to their environmental responsibilities. We consider the annual report to be an effective safeguard against the risk that a licensee does not deliver on commitments, as it is a public facing report that will be visible to stakeholders keen to see progress.
- 3.136 We will further strengthen the AER within RIIO-ED2 by including a midperiod review. We will continue to work with stakeholders to define what this looks like in practice. We will further explore the potential for Ofgem to publish or commission a report during RIIO-ED2, drawing upon the AER submissions from the companies and which looks at the performance of all DNOs to date on a comparative basis, where possible.

## Annual Environmental Report (AER)

3.137 We received 15 responses on the AER. Ten respondents supported our Draft Determination position, stating that the AER should help ensure transparent and regular updates on progress in a structured and comparable way and would enable stakeholders to be kept informed of progress and commitments.

- 3.138 However, five industry stakeholders were concerned with DNOs having the responsibility to report on their own progress. The NPg CEG stated that if the DNOs are required to report their own performance without an independent assessment and comparative reporting by Ofgem, it would be unlikely to meet the stated objective to pursue transparent and robust environmental reporting. The RIIO-ED2 CG suggested a more appropriate approach would be for Ofgem to publish annual comparative data, in the form of RAG ratings or league tables, to enhance the impact of the reputational incentive of the AERs.
- 3.139 There were three additional concerns which were raised on the AER which we will consider when developing the environmental reporting guidance:
  - the need to determine a common report format.
  - the difficulty in comparing EAPs across the sector.
  - stakeholders such as the DNO CEGs have neither the resources nor the expertise to provide challenge on technically complex issues such as  $SF_6$  and losses or carry out comparative reporting.
- 3.140 We disagree that the AER is unlikely to meet the stated objective if DNOs are left to self-report on their own performance. We are confident the AER will help to increase transparency and awareness of the impact the DNOs' activities will have on the environment and wider decarbonisation targets.
- 3.141 We agree that common formats can lead to increased transparency across the sector, as well as making it easier for stakeholders to understand the issues and compare DNO performance (where it is appropriate to do so). We will continue to work with stakeholders throughout the development of the environmental reporting guidance and template to ensure targets such as BCF reduction are clearly set out in the AERs. DNOs will be required to list all their EAP commitments in their AER including any relevant bespoke proposals. We aim to consult on the AER template and reporting guidance in early 2023 so that it can be implemented in time for the start of RIIO-ED2.

#### Mid period review

3.142 We received twelve responses on the mid-period review. Six responses agreed with the need for a mid-period review, with many stakeholders wanting to hold the companies to account for their environmental commitments to provide comparative information and be able to scrutinise the evidence provided. ENWL's CEG strongly supported the use of a mid-term review and stated that it will cover, as a minimum, the full scope of the EAP that will show customers and stakeholders what measures and resources will be deployed to mitigate the underperformance. The RIIO-ED2 CG stated that a mid-period review could play a particularly useful role in providing a focus for development of targets and progress in those areas where DNOs will not have set targets before the start of the price control, notably reducing embedded carbon.

- 3.143 ENWL disagreed with the need for a mid-period review, stating that they do not feel a mid-period review is necessary as the intent of this review should be covered by the yearly review. They also said it could be affected by short-term issues outside their control, such as supply chain issues seen during the COVID-19 pandemic or Ukraine conflict. They raised concerns regarding several activities still being in their infancy and stated that initial years will be spent increasing understanding and baselining associated metrics, so a mid-period review may not fully reflect this.
- 3.144 NPg do not agree that a mid-period review on environmental performance and progress to targets is necessary. They believe annual reviews are sufficient and the proposal for an ODI-R allows for increased transparency and awareness of the impact their activities have on the environment and their actions and plans to manage risks, improve performance and decarbonise.
- 3.145 NGED advised that in their opinion, the requirement of a mid-period review would provide no greater detail on performance and progress against targets than what would already be provided for in the AER. They further stated that it was unclear how mid-period targets would be established as progress against commitments may differ throughout RIIO-ED2.
- 3.146 Following consideration of the consultation responses, we have decided to implement a mid-period review that will give more exposure to the AER ODI-R performance. A review of the progress made will illustrate if DNOs are on track to meet their targets or where performance may be lacking. We will also use this to assess progress made in measuring and reporting upon SF<sub>6</sub> and losses and set out any further changes we think may be required (this is discussed further in paragraphs 3.160-3.170). We believe that the design of such a review can include sufficient narrative to highlight where external factors may have impacted a DNO's performance and therefore disagree that issues such as COVID-19 are sufficient reason to not proceed with such a proposal. We note the concerns raised regarding a lack of resource and expertise by stakeholders, such as CEGs, to provide challenge on technically complex issues. As part of the mid period review, we will look at the performance of all DNOs to date on a comparative basis, where possible. We will continue to engage with stakeholders on the details of the review.

#### **Environmental Action Plan commitments and targets**

Purpose

The purpose of the EAP is to ensure network companies take responsibility for their impacts on the environment,

	contribute to decarbonising the energy system and support GB's environmental objectives.
Benefits	The reduction of adverse environmental impacts of operating electrical networks, and protection and enhancement of the natural environment for existing and future consumers.

#### **Background**

- 3.147 In our RIIO-ED2 SSMD, we decided to adopt the common environmental framework, as applied in the RIIO-2 price controls for other sectors. This required DNOs to outline the activities they will undertake to work towards the realisation of an environmentally sustainable network in their RIIO-ED2 Business Plans in the form of an EAP.
- 3.148 In our RIIO-ED2 Draft Determinations, we proposed to accept the majority of DNOs' EAP commitments, subject to certain conditions or amendments in specific areas. This was because we considered that the EAP commitments should lead to a significant improvement in the environmental performance of the distribution networks by the end of RIIO-ED2.

#### Final Determination summary

Output Parameter	Final Determination	Draft Determination	
Business Carbon Footprint (BCF)	We accept all the DNOs' proposals submitted through their respective Business Plans.	We proposed to accept all DNOs proposals subject to further information on:	
		Science based targets	
		Reducing building energy usage	
		EVs and charging infrastructure	
		Carbon offsetting or removal	
Sulphur hexafluoride (SF <sub>6</sub> )	We accept the DNOs' proposals for activities regarding $SF_6$ without amendment.	Same as FD except for SSEN's bespoke PCD proposal.	
	Our decision on SSEN's bespoke PCD proposal for SF <sub>6</sub> asset replacement is set out in the SSEN Annex.		

3.149 The table below provides a summary of our Final Determination position.

Output Parameter	Final Determination	Draft Determination
Electricity distribution losses	We accept the DNOs' proposals without amendment.	Same as FD
Embodied carbon	We accept the DNOs' proposals without amendment.	Same as FD
Supply chain management	We accept the DNOs' proposals without amendment.	Same as FD
Resource use and waste	We accept the DNOs' proposals without amendment.	Same as FD
Biodiversity and/or natural capital	We accept the proposals submitted by ENWL, UKPN, NGED, and NPg without amendment.	Same as FD
	Our decisions on SPEN's and SSEN's bespoke outputs are set out in the respective Company Annexes.	
Fluid-filled cables (FFC)	We accept the DNOs proposals for activities regarding FFCs without amendment.	Same as FD except for SSEN's bespoke PCD proposal.
	Our decision on SSEN's bespoke PCD proposal for FFC asset replacement is set out in the SSEN Annex.	
Noise pollution	We accept the DNOs proposals without amendment.	Same as FD
PCBs	We will implement a common volume driver to address the uncertainty around PMTs so that DNOs can meet their compliance obligations while protecting consumers.	Same as FD

Final Determination rationale and Draft Determination responses

3.150 We have decided to accept all DNO's EAP commitments on BCF, losses, embodied carbon, supply chain management, resource use and waste, and noise pollution without amendment. Where DNOs proposed plans for SF<sub>6</sub>, biodiversity and/or natural capital, and FFC in their EAPs, we have decided to accept these proposals. Where SPEN and SSEN put forward a bespoke proposal in these areas, these are discussed in the relevant Company Annexes. Our decision to introduce a volume driver for the removal of PMTs in order to comply with PCB regulations is described in paragraphs 3.216 to 3.232 of this document.

- 3.151 We received thirteen responses on EAP commitments and targets.
- 3.152 Responses generally agreed with our approach to adopt the common environmental framework as an effective and transparent way for DNOs to improve and protect the environment. The RIIO-ED2 CG supported our position on the EAPs as they reinforce the challenge of making sensible comparisons between plans and targets and increasing standard expression of targets. However, several concerns were raised by ENWL's CEG stating that there has been limited critical challenge across multiple areas within DNOs' EAPs with no identification of current or proposed best practice.
- 3.153 We remain confident that the EAP commitments should lead to a significant improvement in the environmental performance of the distribution networks and the AER will allow us to track DNO's performance against their commitments.
- 3.154 Although there was general agreement with the adoption of the common environmental framework, nine responses had concerns with our position on specific commitments within the EAPs. We have provided more detail on these below and included the rationale for our decisions.

## Business Carbon Footprint (BCF)

- 3.155 As per our Draft Determination position, we have decided to accept the science-based targets presented by NPg, SSEN, SPEN and NGED to reduce their scope 1 and 2 emissions, as they are, in our view, robust and validated by the science-based target (SBT) initiative. Prior to the submission of the RIIO-ED2 Business Plan, UKPN had its SBT of below 2 degrees validated by the SBT, however it has not provided any further evidence to validate their commitment of a 1.5 degree pathway. ENWL submitted its SBT application for validation by the SBTi, committing to the 1.5 degree pathway. This validation is due to start on 16 January 2023 and will take at least 30 days to complete. This application was delayed due to the SBT not accepting new applications for part of 2022.
- 3.156 In terms of reducing emissions from building energy use, we proposed at Draft Determinations to approve the ex ante funding requests for renewable generation at DNO sites provided the companies submitted evidence that they satisfy the requirements set forth in SLC 43B (Prohibition of Generation) and the supporting guidance document.<sup>30</sup> We have received adequate information from all DNOs except for UKPN who did not comment on this point. However, on balance, as energy used to control the building environment in substations contributes to overall emissions, we have decided to approve all proposals for substation and building refurbishment aimed at reducing energy consumption. We remind all licensees though that they must adhere to the requirements set in the licence.

<sup>&</sup>lt;sup>30</sup> Prohibition on Generating Guidance (POGG): decision | Ofgem

- 3.157 With regards to the reduction of emissions from operational and business transport, as per our Draft Determination position, we accept the EAP commitments for fleet replacement activities made by ENWL, NPg, SSEN, SPEN and UKPN. We have set out our decision for NGED's bespoke PCD in its company-specific annex.
- 3.158 In respect to carbon offsetting or removal, SPEN, UKPN and NGED all provided the required information that was requested at Draft Determinations. We therefore accept their proposals. ENWL and NPg will not use carbon offsetting to achieve their targets in the 2023-28 period. We have set our decision for SSEN's proposed bespoke PCD for naturebased carbon removal in its company-specific annex.
- 3.159 In terms of reducing emissions from temporary generation, we have decided to accept, without amendment, the DNOs commitments to reduce the environmental impact and carbon emissions associated with their mobile generator fleet as it will reduce noise, greenhouse gas emissions, and contribute to their commitment to net zero. In addition, replacing generators with low carbon fuel alternatives will have reduced running costs compared to diesel generators.

## Sulphur Hexafluoride (SF<sub>6</sub>)

- 3.160 We have accepted all DNOs' proposals on  $SF_6$ , but we expect DNOs to implement our recommendations set out in paragraphs 3.162 and 3.163.
- 3.161 We received six responses in relation to SF<sub>6</sub>. NGED stated in its consultation response that it agreed with our Draft Determination position on SF<sub>6</sub> but recommended that a collaborative common methodology on SF<sub>6</sub> reporting should be established to ensure comparability and transparency amongst all DNOs. One industry stakeholder raised concerns that a failure by Ofgem to properly incentivise the network companies to plan long-term, including active engagement with the supply chain, will only increase costs for future consumers when environmental regulations require phase-out and ultimately prohibit use of SF<sub>6</sub> equipment. A further response from an industry stakeholder recommended that SF<sub>6</sub> targets and baselines are standardised to identify and incentivise best practice, compare proposals, and facilitate reporting. They further suggest that SF<sub>6</sub> be subject to a financial incentive regime to encourage appropriate behaviours.
- 3.162 We are satisfied that by setting their respective targets and implementing strategies to achieve these, DNOs will make a positive contribution to the reduction of SF<sub>6</sub> leakage rates in RIIO-ED2. In our view, this would lead to a reduction in SF<sub>6</sub> emissions which is in the interest of current and future consumers. However, we have further considered the feedback on sufficiently incentivising the DNOs to do more. We encourage all network companies to propose a methodology for measuring and reporting the inventory and leakage of SF<sub>6</sub> on their networks, with a view to potentially incentivising its removal in the

future price controls or sooner. We think that the AER would appear to be the logical place to report this information but acknowledge that any methodology may take some time to develop. DNOs should therefore consider what can be reported from 1 April 2023, but also consider how this can evolve over time to enhance visibility of this issue. While not introducing any further licence conditions on DNOs in this area at this stage, we will keep this under review if we consider that a more explicit obligation is required.

3.163 We have decided not to financially incentivise the removal of  $SF_6$  without a better understanding of the extent of SF<sub>6</sub> on the DNOs' networks, and due to concerns we have with like-for-like replacements. We consider that it is neither economic nor efficient if DNOs simply replace SF<sub>6</sub>contanimated assets on a like-for-like basis, especially as these may need to be replaced before the end of their asset life should legislation around the removal of SF<sub>6</sub> be introduced in the future. DNOs have committed to exploring SF<sub>6</sub> alternatives and procuring non- SF<sub>6</sub> emitting alternatives where commercially available. All DNOs have committed to working with suppliers and manufacturers to develop and deploy alternatives to SF<sub>6</sub> where possible. We note that commercial SF<sub>6</sub> alternatives are available at higher voltages but there are differing levels of readiness at lower voltages. We encourage DNOs to continue their collaborative work on the development of alternative approaches to replace SF<sub>6</sub> assets with alternative equipment that is free of greenhouse gases and environmentally sustainable. This includes reporting on progress in terms of removing SF<sub>6</sub> inventory and reducing leakage as described above.

## Electricity distribution losses

- 3.164 As per our Draft Determination position, we have decided to accept all DNOs' proposals on electricity distribution losses. All DNOs indicated in their losses strategy that despite efforts to reduce losses, total losses on their networks are expected to increase during RIIO-ED2, primarily due to the growth in distributed generation. However, we still aim to target losses in an effective way to make a positive contribution to an efficient level of distribution losses, especially at a time when there is a rise in energy bills and the cost-of-living crisis that consumers are currently experiencing.
- 3.165 We received six responses on network losses as part of our consultation response. Three industry stakeholders raised concerns with our Draft Determination position with one stating that DNOs are not empowered or challenged sufficiently through financial incentives or in the face of a tougher regulatory regime to take stronger action to reduce losses.
- 3.166 A second industry stakeholder stated that relying on reputational regulation for this key area fails to give appropriate weight within Ofgem's principal objective to the requirement to protect the interests of consumers and future consumers, including their interest in the reduction of greenhouse gas emissions. The response also states that

the lack of any financial incentive in this area represents a backward step compared to RIIO-ED1 at a time when more focus is needed on the issue. They continue by saying that with distribution losses at 7% and projected to rise over RIIO-ED2, this represents significant additional network and generation capacity needed on the system to meet net zero.

- 3.167 SSEN's CEG voiced concerns about the apparently very low level of spend on addressing losses and that in part this was because some of the spend was included where investment was primarily driven by other factors. They highlighted the importance of much clearer reporting of losses and the impacts of different actions that companies are taking.
- 3.168 We disagree with the suggestion to introduce a financial incentive on losses. We decided to remove the Losses Discretionary Reward for RIIO-ED2 in Annex 1 paragraph 9.88 of our SSMD as we considered effective losses management would be more appropriately driven by embedding the management of losses within the overarching environmental framework.
- 3.169 We acknowledge that this is a complex area with strong stakeholder support for action. Losses cannot be fully eradicated from the network and it is therefore very difficult to set an accurate baseline to implement a financial incentive. Measuring losses realistically without intervention is an extremely difficult task. Whilst we agree that any reduction in energy wasted will have positive economic and environmental benefits, it would be hugely expensive to mitigate the losses that DNOs are in direct control of. We note that losses are transient in nature which limits our ability to predict where and when losses occur at present. We recognise in our Final Determinations that licensees have proposed investments to minimise losses where practicable and we have determined these works to be justified. However, as we move to a scenario with more flexible resources connecting to the network, losses are likely to increase as a by-product. We think though that this is offset by the benefits flexible resources provide in deferring traditional reinforcement.
- 3.170 We expect DNOs to act and continue to improve upon their distribution Losses Strategies to increase transparency to stakeholders on their direct actions to manage distribution losses. We therefore:
  - Encourage DNOs to share best practice across the DNOs to establish and develop an improved framework for assessing and reporting losses during RIIO-ED2
  - Encourage DNOs to consider losses when replacing assets (ie with the use of low loss equipment for example or considering larger cables where the incremental cost is small relative to the long term saving in losses).

Embodied carbon

3.171 We received three consultation responses on embodied carbon, all in agreement that this is an essential step for DNOs to manage their emissions. As we have not identified any reason to depart from our Draft Determination position we have decided to accept, without amendment, the DNOs' commitments to baseline, measure and report on embodied carbon of new projects. Physical infrastructure assets are a significant source of the UKs' carbon emissions and if the UK is to achieve its net zero ambition, it is critical that the carbon lifecycle of infrastructure assets, including construction, maintenance, decommissioning and disposal, is significantly decarbonised. We welcome ENWL's and NPg's proposals to establish baseline for embodied carbon in the first year of RIIO-ED2 and encourage all DNOs to collaborate and share best practice across the sector when measuring embodied carbon.

#### Supply chain management

3.172 We received three consultation responses on supply chain management. While they agreed with our approach, one industry stakeholder recommended that best practice is identified by Ofgem to ensure that all DNOs are brought up to the highest standards in this field. We have not identified any reason to depart from our Draft Determination position and therefore have decided to accept, without amendment, the DNOs' proposals on supply chain management. While we do not consider it appropriate to apply a uniform approach in this area, the DNOs should ensure they are transparently reporting on actions taken and how they benefit the consumer.

#### Sustainable resource use and waste

3.173 We received three consultation responses on resource use and waste. NGED and SSEN agreed with our approach and one industry stakeholder raised concerns that the DNOs had differing targets and deadlines. They recommend that it would be better to have comparable proposals and to set targets using those proposals which represent best practice to bring all DNOs up to the highest standard. We have decided to accept, without amendment, the EAP commitments made by the DNOs. However, while we agree that there are different targets for DNOs, we believe that all of these activities should reduce the environmental impact of network company activities at minimal additional cost to consumers.

## Biodiversity and/or natural capital

3.174 We received four consultation responses in relation to biodiversity and/or natural capital. One industry stakeholder recognises that biodiversity efforts by companies will be different in their respective areas due to geographical and environmental differences. They stated they would encourage Ofgem to ensure that the learnings from these consumerfunded activities are communicated widely to ensure that DNOs and other bodies can benefit from this information and make relevant changes. NGED agreed with our consultation position but stated a common methodology should be established to ensure comparability and transparency. We have not identified any reason to depart from our Draft Determination position and have decided to accept the DNOs' proposals submitted by ENWL, UKPN, NGED, and NPg without amendment as there is strong evidence that stakeholders and consumers strongly support these. Our decisions on SPEN's and SSEN's bespoke outputs are set out in the respective Company Annexes.

## Fluid filled cables (FFC)

3.175 As part of the consultation responses, all DNOs provided a leakage reduction target (in both percentage and litres) and the number of km of cable expected to be replaced during RIIO-ED2. We remain supportive of DNOs reducing leakage from FFCs where there is clear value for money and environmental benefits. Following detailed analysis of the information provided to us as part of the consultation response, we have decided to accept the DNOs' proposals for activities regarding FFCs. Our decision on SSEN's bespoke PCD proposal for FFC asset replacement is set out in the company-specific Annex.

## Noise Pollution

3.176 We received three consultation responses in relation to noise pollution, all in agreement with our Draft Determination position. We have therefore not identified any reason to depart from our Draft Determination position and have decided to accept the DNOs' proposals without amendment.

## Polychlorinated Biphenyls

3.177 We received seven consultation responses in relation to the PCB volume driver, all in support of using a common approach to address the uncertainty in the volume of PCB contaminated PMTs on the network. Consistent with our Draft Determination position, we have decided to implement a common volume driver to address the uncertainty around PMTs so that DNOs can meet their compliance obligations while protecting consumers. For further details on the PCB volume driver, see paragraphs 3.220 to 3.232.

#### **Environmental Re-opener**

Purpose	To accommodate environmental legislative changes within
	period that require a material change in the approach to
	DNOs' EAPs.
Benefits	To ensure the environmental framework retains flexibility
	to respond to legislative changes to support the timely
	compliance of the electricity distribution sector.

## <u>Background</u>

- 3.178 In our RIIO-ED2 SSMD we decided to introduce a re-opener to ensure the framework retains flexibility to respond to legislative change, such as changes regarding the use of  $SF_6$  in switchgear. The Environmental Reopener is intended to cater for distinct changes in environment legislation that require DNOs to take specific material action to ensure compliance. This is in addition to the Net Zero Re-opener, which focusses on net zero developments such as changes in Government policy.
- 3.179 Our Draft Determinations proposed that we should have the sole ability to initiate the Environmental Re-opener because we considered that additional flexibility may be required to decide when a significant issue needs to be addressed.

## Final Determination summary

Output Parameter	Final Determination	Draft Determination	
UM type	Re-opener	Same as FD	
Re-opener Window	January 2024 January 2025 January 2026 January 2027	Any time during RIIO- ED2.	
Trigger	DNO trigger only.	Authority trigger only.	
Materiality threshold	Zero materiality threshold.	RIIO-ED2 common materiality threshold of 1%.	
Scope	The scope of the reopener has been updated to be used where the licensee has incurred or expects to incur costs caused by new or amended legislative requirements that relate to the licensee's impact on the environment that are contained within or could have been contained within the licensee's EAP.	Updated at FDs The scope of the Environmental Re- opener captures changes to legislation which impact the baseline expectations undertaken by DNOs as part of their EAPs.	
Licence condition	Special Condition 3.2, Part E	N/A	

3.180 The table below provides a summary of our Final Determination position.

#### Final Determination rationale and Draft Determination responses

- 3.181 In a change from our Draft Determination position, we have decided that the DNOs should have the sole ability to trigger the Environmental Reopener by applying to the Authority during the annual re-opener window.
- 3.182 In terms of the materiality threshold, we have decided to change from a common materiality threshold that was set at 1% at Draft Determination and move to a zero materiality threshold.
- 3.183 We have decided to adjust the scope of the Environmental Re-opener to include circumstances where the DNO has incurred or expects to incur costs caused by new or amended legislative requirements that relate to the DNO's impact on the environment that are contained within or could have been contained within its EAP.
- 3.184 We received 13 responses to our consultation on the Environmental Reopener. Four industry stakeholders agreed with the proposed approach to all aspects of the re-opener. All six DNOs agreed with the need for an Environmental Re-opener but strongly disagreed with our proposals on certain aspects of it. A small number of industry stakeholders had mixed views believing that DNOs should have the ability to trigger the Reopener and a right to appeal if one is not granted.

#### Trigger

- 3.185 In response to our Draft Determinations, all six DNOs disagreed with the Authority-only trigger. DNOs felt that only they would be able to assess this impact to the required level of detail to determine if a re-opener will need to be triggered. ENWL stated that as DNOs regularly work with the Environment Agency and other enforcement bodies, they will almost always be aware of such new changes before Ofgem is. NPg proposed that Ofgem consider that the trigger mechanism is extended from Authority triggered only to DNO and Authority triggered. They stated this is to account for any material changes that may occur within a DNO's specific region or changes the DNOs consider to be material and significant.
- 3.186 Having considered the consultation responses, we have decided to remove the Authority trigger and provide DNOs with the sole ability to trigger the Environmental Re-opener. We believe this approach is most prudent as we agree DNOs are better positioned to carry out impact assessments to the required level of detail to determine if the re-opener will need to be triggered. We will assess and approve applications if we are satisfied that there is a sufficient level of certainty over the request and the required level of information has been provided on the impact the activity will have on the decarbonisation of the networks as well as the impact of DNOs' activities on the environment.

#### Re-opener window

3.187 We did not receive any feedback from the consultation responses on the re-opener window. However, we have decided to change our Draft

Determination position by applying an annual interval in which applications can be submitted. This will enable expectations to be managed as well as reducing administrative burdens for both Ofgem and the Licensee.

#### Materiality Threshold

- 3.188 In terms of the materiality threshold, the RIIO-ED2 CG stated they supported the design of the environment re-opener including the materiality threshold. Four DNOs disagreed with the materiality threshold with ENWL claiming that mandated compliance related activities should have a zero-materiality threshold, in line with the equivalent arrangements for Cyber and Physical Site Security. NGED specified that the materiality threshold of 1% above base revenue post the application of the TIM is a variation from the materiality threshold level of 0.5% post TIM for the GD&T price control. SPEN believe that the materiality threshold be removed from the environment reopener in line with other compliance related reopeners. SSEN state that Ofgem should revise the materiality threshold to ensure that this reopener is able to respond to any developments in RIIO-ED2.
- 3.189 Following consideration of the consultation responses, we have decided to move to a zero materiality threshold for the Environmental Re-opener. This aligns with other compliance-based UMs where revenues required to fund these activities are associated with a change to legislation or compliance-based circumstances. We do, however, require that costs being sought cannot and have not already been addressed in ex ante allowances and do not fall within the scope of any other UM.

#### Scope

- 3.190 We received three responses from industry stakeholders who agreed with our position on the scope of the Environmental Re-opener, with one respondent claiming it would provide an opportunity for DNOs to receive additional funding for policy-driven environmental impact changes. Furthermore, the RIIO-ED2 CG stated they supported the proposed design of the Environmental Re-opener, including its broad scope.
- 3.191 We received four responses from DNOs in relation to the scope of the reopener. NPG agreed with the scope of the Environmental Re-opener and would emphasise that it should only be instigated to accommodate legislative changes that require a material change in their EAP.
- 3.192 ENWL disagreed with our proposal and claimed this re-opener should cover changes to enforcement practices, removal of derogations, and changes which are imposed by other external bodies. They state that the requirement to remove PCB contaminated equipment, and the possible introduction of a change to  $SF_6$  legislation are just two examples that have reiterated the need for such a re-opener, neither of which are new legislation. ENWL further state that if the re-opener was limited to only consider EAPs, it would preclude any new requirement that is not already in place and therefore not in the current scope of the EAP. For example,

there were concerns that if there were a ban on the use of creosote on wood poles in the way there has been for PCBs in transformers, then this would be a brand new activity that is outside of the current EAP scope.

- 3.193 SPEN state that changes relating to EAPs is too narrow for the scope of the re-opener as new requirements may be unrelated to current EAP commitments. They further advise that as the content of each EAP is DNO specific, the current proposal would mean that the eligibility to use this reopener would vary across DNOs, even when they are required to comply with the same legislation. NGED state that environmental and biodiversity legislation is changing and evolving rapidly and by broadening the scope of the re-opener to incorporate legislative changes in all areas of baseline requirements allows DNOs to address changes in environmental legislation that would require specific material action to ensure compliance.
- 3.194 We have decided to amend the wording of the scope to better capture the areas that the companies could request funding for. The Environmental Re-opener may be used where the DNO has incurred or expects to incur costs caused by new or amended legislative requirements that relate to the licensee's impact on the environment that are contained within or could have been contained within its EAP. We do not agree that the scope needs to cover changes to enforcement practices or removal of derogations as these are not sufficiently clear and would widen the scope much more than its intended use.

## **Visual Amenity**

Purpose	To fund projects that mitigate the impact of existing infrastructure on visual amenity in National Parks, Areas of Outstanding Natural Beauty and National Scenic Areas.
Benefits	To protect 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.

#### **Background**

- 3.195 The RIIO-ED1 visual amenity scheme allows for the undergrounding of existing overhead lines in Areas of Outstanding Natural Beauty (AONBs) and National Parks (NPs). The primary objective is the protection of visual amenity in line with specific statutory requirements.
- 3.196 In our SSMD we decided to retain the undergrounding scheme and maintain the RIIO-ED1 methodology for calculating the funding pot. Regarding the Willingness-to-Pay (WTP) value used to set the funding pot, we decided to uplift the WTP value to consider inflation to £3.14 per customer over RIIO-ED2. We also decided to allow DNOs to spend up to

10% of their allowance on undergrounding overhead lines that are located outside the boundaries of designated areas.

3.197 Our Draft Determinations proposed to set the cap at £46.8m following the WTP value and using updated customer numbers and adjusted for a 5-year price control. Due to the inclusion of Visual Amenity in both our totex and disaggregated assessments and our method of disaggregating allowances, this number was lower than that produced by the visual amenity disaggregated model but is in line with the costs DNOs submitted in their business plans.

Output Parameter	Final Determination	Draft Determination
UM type	UIOLI	Same as FD
Value of UIOLI allowance	Total value of the funding pot is £68.0m in 2020-21 prices.	Same as FD
	To retain methodology from RIIO-ED1 for calculating the funding pot for RIIO-ED2 through a UIOLI and allow for no ex ante funding for RIIO- ED2 projects.	
Licence condition	SpC 3.4	N/A

Final Determination summary

3.198 The table below provides a summary of our Final Determination position.

Final Determination rationale and Draft Determination responses

- 3.199 Our Final Determination position is to maintain our Draft Determination position for visual amenity. Five stakeholders provided feedback on our Draft Determination position.
- 3.200 These stakeholders were pleased we have uplifted the WTP value to consider inflation and glad that we continue to allow DNOs to spend up to 10% of their allowance on undergrounding OHLs located outside the boundaries of designated areas.
- 3.201 However, they did not support our decision on the size of the allowance stating that there was limited justification due to the WTP data being derived from a methodology that already includes a number of measures to avoid overstating the amount people are prepared to pay for visual amenity improvements. They also state additional reasons to keep the allowance at its current level such as maintaining momentum, increased demand for the allowance, supporting post-Covid green recovery and increasing resilience.
- 3.202 We set out the rationale for maintaining the RIIO-ED1 methodology for calculating the funding pot for RIIO-ED in our Annex 1, paragraph 9.73 of our RIIO-ED2 SSMD. We considered Willingness to Accept (WTA) as an alternative to the WTP methodology but ruled this out as it may suffer

from an upward bias where people are asked to state the amount of compensation they would require to accept permanent loss of visual amenity without considering who bears the direct financial consequence of any such compensation. Mindful of the increasing pressures on household budgets, we maintain that the value of the expenditure cap for mitigation projects should be informed by the ability and inclination of customers to pay. We have not seen evidence that convinces us of a more appropriate alternative at this time.

- 3.203 One non-DNO respondent requested clarity that these funds can be used for project development and delivery costs, including survey work to assess the impact of lines and inform the priority of projects taken forward.
- 3.204 We will set the UIOLI cap at £68.0m following the WTP value and using updated customer numbers and adjusted for a 5-year price control. We calculate individual DNO allowances by dividing the total pot between DNOs first by number of customers and second by the length of lines to be undergrounded in each licensed region. The undergrounding allowance for each DNO is the average of these two values. Our Visual Amenity allowance does not include ongoing efficiency given the cost activity is subject to UIOLI funding.
- 3.205 We agree that an increase in the number and size of designated landscapes during RIIO-ED1, while building upon the progress already made, could lead to an increase in the demand for this allowance in RIIO-ED2. Our Final Determinations are an increase from the £47m proposed at Draft Determinations and 28% more than the £53m submitted by DNOs in their business plans. We consider that this is consistent with our expectations that DNOs adapt to the increased risks from climate change, minimise the impact their activities have on the environment, while also recognising the likely increased demand for the allowance.
- 3.206 Individual DNO allowances are listed in the table below. The change in modelled costs from Draft Determinations is as a result of a change in our method of disaggregating allowances, not due to any amendment to the calculation of the funding pot. For information on the disaggregation of allowances, please see Chapter 7.

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
	£m	£m	£m	£m	%
ENWL	6	5	7	0	5%
NPgN	5	4	5	0	0%
NPgY	5	5	5	0	-10%

Table 4: Visual Amenity modelled costs (£m, 2020/21 prices)

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
WMID	2	2	5	3	127%
EMID	1	1	3	2	136%
SWALES	1	1	2	1	126%
SWEST	2	2	5	3	114%
LPN	-	-	-	0	0%
SPN	7	7	8	1	10%
EPN	7	6	7	0	4%
SPD	2	2	3	1	40%
SPMW	3	3	4	1	36%
SSEH	4	3	4	1	13%
SSES	7	6	11	4	51%
Total	53	47	68	15	28%

# **Environmental Financial Incentive (ODI-F)**

# Background

- 3.207 In our SSMD, we decided to develop a financial incentive for areas of the EAP which were controllable and measurable and where there is sufficient data to enable robust targets to be set. This was to take the shape of an Environmental Scorecard, as included in RIIO-ET2.
- 3.208 In our Draft Determinations, we proposed to withdraw the Environmental Scorecard for RIIO-ED2 as we considered that a reputational incentive, the AER, was a better means of encouraging environmental ambition and action in RIIO-ED2.

# Final Determination summary

3.209 The table below provides a summary of our Final Determination position.

Output Parameter	Final Determination	Draft Determination
Financial ODI	Withdraw the Environmental Scorecard and incentivise improvements in environmental impacts through the Annual Environmental Report (AER) and a mid-period review.	Same as FD

Final Determination rationale and Draft Determination responses

3.210 In line with our Draft Determination position, we have decided to withdraw the Environmental Scorecard for RIIO-ED2. The AER, with a

mid-period review, is best positioned to support greater environmental ambition and action in RIIO-ED2.

- 3.211 We received ten responses to our Draft Determination proposal on the Environmental Scorecard (ODI-F), six in agreement and four who disagreed with our proposals. The RIIO-ED2 CG support the decision to withdraw the balanced scorecard for RIIO-ED2, given the concerns about relatively small materiality, perverse incentives and risk of undue reward or penalty. Similarly, ENWL agree with the proposal to withdraw the Environmental Scorecard and its associated ODI-F for RIIO-ED2, stating that some of the potential items for inclusion will be in their infancy in terms of reporting metrics.
- 3.212 SSEN state that the removal of the Environmental ODI-F erodes environmental incentives as the ODI-F has not been replaced with additional incentives. UKPN state that they are disappointed with Ofgem's reversal from its SSMD position of the introduction of an environmental scorecard with financial incentives. An industry stakeholder was of the view that reputational incentives are weaker than financial incentives and removing this leaves environment as the one key output area of the Business Plan which is not subject to financial incentivisation. Two additional responses express a similar concern that this undermines environment as a critical area of focus and is counter intuitive to Ofgem's public commitments to deliver on the environment.
- 3.213 Having considered the consultation responses, we have decided to withdraw the Environmental Scorecard. This is in the best interest of consumers as the EAP areas considered for inclusion in the scorecard carry a small materiality meaning that a reward or penalty are not proportionate to drive performance over and above the ODI-R. We believe that the obligations under the AER are the appropriate driver for activities to reduce the environmental impacts arising from the networks as well as to deliver on wider decarbonisation objectives. The AER will encourage transparent reporting of activities to hold DNOs to account while also supporting enhanced data quality, information-sharing, and comparability. Further details on the AER can be found earlier in this section.
- 3.214 We disagree that reputational incentives are weaker than financial incentives in all cases. While there is an obvious difference in terms of financial impact, we think that the reputational impact of failing to act amongst a DNO's stakeholders is sufficient to compel them to act. This is particularly so in high-profile areas such as environment. We do think that there may be scope for strengthening them further though. To help achieve this, we set out proposals earlier for a "mid-period review". We will develop this ahead of the start of RIIO-ED2, but we think this (in the form of an Ofgem-led report or something similar) can help draw further attention to this area, identify best practice and hold DNOs to account for their commitments.

3.215 Finally, we note that the additional reasons as such set out in paragraph 3.153 of the RIIO-ED2 Draft Determinations Core Methodology Document are still relevant to our final decision. Ensuring that DNOs decarbonise their own networks and mitigate the wider environmental impact of network activity continues to be a priority for Ofgem and to ensure that DNOs deliver against these key objectives, we will pursue transparent and robust environmental reporting.

## Polychlorinated biphenyl (PCB) volume driver

Purpose	To provide flexibility to accommodate uncertain volumes		
	of replacements of PMTs, associated poles and pole-		
	mounted switchgear so that DNOs can meet their		
	compliance obligations under the PCB Regulations.		
Benefits	To provide flexible funding for DNOs to replace PMT		
Benefits	To provide flexible funding for DNOs to replace PMT replacements, associated poles and pole-mounted		
Benefits	To provide flexible funding for DNOs to replace PMT replacements, associated poles and pole-mounted switchgear in response to uncertainty while protecting		

## **Background**

- 3.216 DNOs must comply with the PCB Regulations.<sup>31</sup> As such, DNOs may have transformers on their network that contain PCBs until the end of 31 December 2025 and must then remove any transformer from service as soon as possible, if it is confirmed or can be reasonably assumed that the volume of PCBs surpasses specified thresholds. This applies both to GMTs and PMTs.
- 3.217 There is considerable uncertainty over the volumes of PMTs which need replacing, predominantly due to the lack of visibility into PCB crosscontamination in transformers manufactured and installed prior to 1987. As such, the DNOs utilised a statistical modelling approach to demonstrate the PMTs statistically likely to be contaminated with PCBs.
- 3.218 At Draft Determinations we proposed to implement a volume driver for PMTs which are confirmed to be or are statistically likely to be PCB contaminated. Presently, GMTs can be tested for PCB concentration levels and, where possible, be decontaminated so that they can remain in service until their end of life.

<sup>&</sup>lt;sup>31</sup> In the case of England and Wales, the Environmental Protection (Disposal of Polychlorinated Biphenyls and other Dangerous Substances) (England and Wales) Regulations 2000, and any amendment to it. In the case of Scotland, the Environmental Protection (Disposal of Polychlorinated Biphenyls and other Dangerous Substances) (Scotland) Regulations 2000, and any amendment to it.

## Final Determination summary

Output Parameter	Final Determination	Draft Determination
UM type	Volume Driver	Same as FD
Scope	We will implement a volume driver to fund the replacement of PMT replacements, associated poles and pole-mounted switchgear.	Updated at FD We proposed to set a volume driver to fund the replacement of PCB-contaminated pole mounted transformers (PMTs).
Methodology	The volume driver will run for the duration of the RIIO-ED2.	We proposed to include a sunset clause where the volume driver is no longer in effect after 31/12/2025.
Unit cost	The volume driver will be based on a single unit cost for all DNOs.	We proposed to calculate licensee specific unit costs for PMTs and to include tiered unit rates to accommodate upsizing, where appropriate and justified.
Licence condition	Special Condition 3.5	New to FD

3.219 The table below provides a summary of our Final Determination position.

Final Determination rationale and Draft Determination responses

- 3.220 In a change from our Draft Determination position, we have decided that the scope of this volume driver should extend to include associated asset replacements such as poles and pole-mounted switchgear. In addition, in the instances where the forecast load growth exceeds the capacity for a PMT replacement, then it may be necessary to replace a PMT with a GMT.
- 3.221 Due to the degree of uncertainty around the testing of PMTs for PCB contamination, we have decided to remove the sunset clause that was proposed at Draft Determinations and allow the mechanism to run for the duration of RIIO-ED2.
- 3.222 Following further analysis and consideration, we have decided to base the volume driver on a single unit cost for all DNOs in line with our expert view of replacement of 6.6/11kV PMTs.
- 3.223 We received eight responses on the PCB volume driver. Overall, stakeholders tended to agree with our proposal for addressing PMTs with five supporting the approach proposed in our RIIO-ED2 Draft Determination and three strongly disagreeing.

Scope

- 3.224 SPEN challenged the replacement of PMTs only as in some cases the replacement of a PMT will require the replacement of the associated High Voltage (HV) pole or protection upgrades. They stated that as these assets are replaced consequentially to the PMT, a volume driver should also include provision for associated asset upgrades. It was also raised, that in some cases, DNOs may be required to replace a PMT with a GMT if the forecast load growth exceeds the capacity that can be supplied by a PMT.
- 3.225 Although this mechanism is for the replacement of PMTs that are statistically likely to contain PCBs, we agree that, where appropriate and justified, there may be a need for additional assets to be replaced because of the PMT being replaced. We have decided that the volume driver should cover PCB Interventions that relate to any work undertaken by the licensee on pole-mounted transformers, associated poles and pole-mounted switchgear to comply with PCB Regulations and such work that may involve the installation of a ground-mounted transformer in circumstances where the forecast load growth exceeds the capacity that can be supplied by a pole-mounted transformer. We request that PCB Interventions are also reported through the annual regulatory reporting pack.

## Methodology

- 3.226 We received three consultation responses disagreeing with the need for a sunset clause. NPg advised this was due to global uncertainties on equipment provision and possible future changes in the interpretation of the requirement by the Environment Agency. SPEN highlighted their concerns about the level of uncertainty due to the ongoing replacement and disposal testing of PMTs that will take place throughout RIIO-ED2. ENWL stated that Ofgem setting the sunset clause overlaps with the legislation which comes from DEFRA and is enforced by the EA. They argued that this would cause extra regulatory complexity due to overlapping.
- 3.227 After further consideration, we have decided to remove the sunset clause and allow this mechanism to run for the duration of RIIO-ED2.
- 3.228 The ENA statistical model of PCB contamination is informed by the ongoing replacement and disposal testing of PMTs. Due to the sheer volume of PMTs that are potentially contaminated with PCBs (ie, approximately 36,830 identified across GB), the assets identified for replacement are therefore likely to be refined throughout the RIIO-ED2 period. PMTs can only be tested for PCB contamination after the asset has been removed from the network which means a PMT that is deemed to be statistically negative in the modelling tool may turn out to be contaminated when it is removed from the network and tested. There is therefore a degree of uncertainty around the testing of PMTs so we consider it is appropriate for the PCB volume driver to run throughout the entire ED2 price control.

3.229 We do, however, note that the 31 December 2025 deadline, as described in the PCB Regulations 2000 as amended, is in keeping with international obligations on PCB removal. DNOs are legally bound to comply with this deadline. We thus urge DNOs to continue testing their PMTs for PCBs and remove their contaminated equipment from the network. Finally, we expect that any uncertainties or change in the guidance and interpretation of the requirements will be dealt with by the relevant environmental authorities.

#### Unit Cost

- 3.230 SPEN support licensee-specific unit costs for PMTs and the inclusion of tiered unit rates to accommodate upsizing, where appropriate and justified. They advise this is critical to avoid customers paying twice for early asset upgrades on the journey to net zero and to ensure DNOs are sufficiently funded to deliver the required works within their areas. NPg asked us to consider the possibility of upsizing transformers if the DNOs provide sufficient evidence to justify the incremental costs to consumers as this would reduce network losses and enable low-cost capacity for the net zero transition.
- 3.231 Following detailed analysis of DNOs' unit costs, we have decided to use a single unit rate. We believe this to be in the best longer-term interest of consumers, when considering wider decarbonisation objectives. We have decided that this should be set at £4k/unit in line with our modelled RIIO-ED2 expert asset replacement unit cost for 6.6/11kV PMTs. We consider that the unit cost of PMT replacements should be consistent across the RIIO-ED2 package to drive the most efficient behaviour. We will review the unit cost of PMT ratings before 2025.
- 3.232 We have decided not to include tiered unit rates. Having analysed the data provided by DNOs, we do not consider the range of unit costs across different PMT ratings to be sufficiently material to merit a tiered approach. While associated asset replacements are now in the scope of the volume driver, from the data provided by DNOs on these assets we do not consider that the unit rates of such assets should be significantly higher than that for PMT replacement.

# 4. Supporting a smarter, more flexible, digitally enabled energy system

## Section summary

In this chapter we set out our decisions that will support the transition to a smarter, more flexible and digitally enabled local energy system. These include new LOs, an ODI, and other arrangements for Data and Digitalisation and the regulation of Distribution System Operation (DSO) functions.

We also set out our decisions and new arrangements that will enable changes to roles and responsibilities, if required, and drive and enable Smart Optimisation.

- 4.1 A smarter, more flexible and digitally enabled local energy system will require more active management of the flows of energy across the networks. The interconnected nature of the electricity networks, and the wide variety of resources that are now connected at different voltage levels, requires DNOs to maximise efficiencies across the whole energy system. New technologies and resources can help to smooth out peaks and minimise the need for investment in traditional network infrastructure. All of this will require better and more easily accessible data than is currently available.
- 4.2 We have decided to introduce the new arrangements that are set out in this chapter to enable the transition to a smarter, more flexible and digitally enabled local energy system. Smart Optimisation, as set out in Chapter 7 of the Overview Document, will be delivered by investments in network monitoring, Data and Digitalisation processes and new DSO functionalities. Through the installation of physical monitoring and advanced analytics, DNOs will acquire a fuller understanding of their LV networks and be subject to an incentive on the speed and penetration of this rollout.
- 4.3 Our decisions in this chapter cover five strands of activity:
  - We have decided to introduce a LO to consult stakeholders and publish Digitalisation Strategy and Action Plans, and comply with Data Best Practice, as well as a Digitalisation re-opener to increase adaptability relating to Data and Digitalisation roles and responsibilities
  - We have decided to introduce a DSO incentive to drive DNOs to more efficiently develop and use their network, taking into account flexible alternatives to network reinforcement
  - We recognise there is scope for DSO roles to evolve, and there are open questions about enduring institutional arrangements, and as such we have decided to implement a DSO re-opener to reassign costs and outputs if needed within the RIIO-ED2 period
  - We have introduced a new LO, the Smart Optimisation Output (SOO), which requires DNOs to deliver a forward-looking system visualisation

platform that will enable more effective collaboration with local and regional stakeholders and support whole system and net zero planning; across the power, heat and transport sectors.<sup>32</sup>

• Arrangements to ensure that DNOs take into account impacts across the whole system in the operation of distribution networks.

Figure 4: An overview of Chapter 4



# **Data and Digitalisation**

## **Digitalisation Licence Obligation**

Purpose	This LO imposes a requirement for DNOs to consult	
	stakeholders and publish Digitalisation Strategy and	
	Action Plans, and to comply with Data Best Practice.	
Benefits	Enhanced transparency to stakeholders, and the ability	
	for stakeholders to influence DNO plans. Increased	
	consistency between DNOs with regards to data sharing	
	and utilisation.	

<sup>&</sup>lt;sup>32</sup> Previously named Whole System Planning Licence Obligation in our Draft Determinations

## <u>Background</u>

- 4.4 All DNOs are currently voluntarily adopting the Digitalisation LO that applies to transmission, gas distribution, and ESO companies regulated by the RIIO-2 price controls. This LO requires DNOs to produce Digitalisation Strategies and Action Plans (DSAPs) and operate using Data Best Practice (DBP) principles. There are two guidance documents associated with the RIIO-2 price controls that outline how to produce DSAPs and how to comply with DBP<sup>33</sup>.
- 4.5 In our Draft Determinations, we proposed to apply the cross-sector policy position we adopted for the other sectors' RIIO-2 price controls.

#### Final Determination summary

4.6	The table below	provides a summary	v of our Final	Determination	position.
		provideo a samma	, or our rinur	Determination	posicioni

Parameter	Final Determination	Draft Determination
LO	Implement the Digitalisation Licence Obligation, with consultation on the relevant guidance documents in February 2023.	Same as FD

Final Determination rationale and Draft Determination responses

## Digitalisation LO

- 4.7 We have decided to implement the Digitalisation LO into the Electricity Distribution Licence, as set out in Draft Determinations. We have decided to consult on the wording of the DSAP Guidance and DBP Guidance documents before the start of the price control. We have decided not to align publications between the other RIIO-2 sectors and RIIO-ED2 companies, as proposed at Draft Determinations.
- 4.8 We received 11 responses, related to the implementation of the Digitalisation LO. All respondents agreed that the Digitalisation LO is necessary and should be included in the electricity distribution licences.
- 4.9 Three respondents suggested that Ofgem should consult on the proposed wording of the DSAP Guidance and DBP Guidance documents before the start of the price control to ensure they are fit for purpose.
- 4.10 At Draft Determinations, we proposed to update these guidance documents to point towards the RIIO-ED2 price control. This requires Ofgem to hold a public consultation on the proposed changes to the guidance documents. We intend to use this consultation to assess whether the wording of the guidance documents continues to be fit for purpose. This consultation will be held before the start of the RIIO-ED2 price control, in February 2023.

<sup>&</sup>lt;sup>33</sup> <u>https://www.ofgem.gov.uk/publications/decision-data-best-practice-guidance-and-digitalisation-strategy-and-action-plan-guidance</u>

- 4.11 Alongside development of this price control, we have been undertaking a review of the DBP Guidance document. In September 2022, we published a Call for Input regarding DBP guidance<sup>34</sup>. We will utilise the findings from this Call for Input to assist us in making our consultation proposals for changes to the DBP Guidance document.
- 4.12 Most respondents also agreed with our Draft Determinations position that there is the need for staggered publications of DSAPs between the other RIIO-2 sectors and RIIO-ED2 companies. SPEN noted that it would be more convenient to align publications for companies that held both electricity transmission and electricity distribution licences. We have decided not to align publications between the other RIIO-2 sectors and RIIO-ED2 companies, as set out at Draft Determinations. We are cognisant of the edge cases where companies hold both electricity transmission and electricity distribution licences. However, we consider it more appropriate to have all electricity transmission companies publish their DSAPs at the same time, and all electricity distribution companies publish their DSAPs at the same time.
- 4.13 Our decision is to introduce the Digitalisation LO, and to hold a consultation on the proposed wording of the DBP Guidance and DSAP Guidance documents before the start of the price control.

Purpose	This Digitalisation Re-opener enables DNOs' to apply for		
	additional funding where a change in their roles and		
	responsibilities requires them to establish new or		
	improved digital services.		
Benefits	An increased level of adaptability in RIIO-ED2 by		
	providing a means to amend the price control in response		
	to changes relating to Data and Digitalisation roles and		

## **Digitalisation Re-opener**

## <u>Background</u>

4.14 Digitalisation is a fast-moving policy area. This requires government and Ofgem to act flexibly in their policy development, potentially resulting in the need for companies to provide additional digital products or services, or to enhance their existing services. We consider it likely that policy development around smart devices, the functions of an FSO, and the retendering of the smart metering system amongst other policy areas, will create the need for additional digital products or services from the DNOs.

<sup>&</sup>lt;sup>34</sup> <u>https://www.ofgem.gov.uk/publications/call-input-data-best-practice</u>
These uncertainties led us to propose the Digitalisation Re-opener in our Draft Determinations.

4.15 In our Draft Determinations, we proposed to introduce the Digitalisation Re-opener with a materiality threshold of 1%, a single-window company trigger in 2026, and the ability for the Authority to trigger the re-opener at any time.

Final Determination summary

Output Parameter	Final Determination	Draft Determination
UM type	Re-opener	Same as FD
Re-opener Window	January 2026	Same as FD
Trigger	Licensee and authority triggered	Same as FD
Materiality threshold	RIIO-ED2 common materiality threshold of 0.5%.	RIIO-ED2 common materiality threshold of 1%.
Licence condition	Special Condition 3.2, Part I	Same as FD

4.16 The table below provides a summary of our Final Determination position.

Final Determination rationale and Draft Determination responses

- 4.17 Our decision is to introduce the Digitalisation Re-opener, which is both Authority and company triggered, and has a materiality threshold of 0.5%. The Authority may trigger the re-opener at any time during the price control, whereas the company may only trigger the re-opener in a single window in January 2026.
- 4.18 We received 10 responses related to our proposal to introduce a Digitalisation Re-opener. All respondents agreed that a re-opener in the digitalisation policy area was necessary due to the pace of change experienced in the sector over the previous five years.
- 4.19 Some respondents noted concerns with the proposed 1% materiality threshold across several different re-openers. Our decision is to change the Digitalisation Re-opener materiality threshold to 0.5% from 1%, in line with our change to the RIIO-ED2 common parameters for re-openers.
- 4.20 Some respondents noted that policy relating to the Energy Digitalisation Taskforce recommendations<sup>35</sup> and other possible policy developments, may take place well in advance of the 2026 re-opener window. These respondents suggested implementing a multi-window re-opener rather than a single-window re-opener. Our decision is to have a single-window re-opener because we consider that the Authority's ability to trigger the

<sup>&</sup>lt;sup>35</sup> <u>https://es.catapult.org.uk/news/energy-digitalisation-taskforce-publishes-</u>recommendations-for-a-digitalised-net-zero-energy-system/

re-opener at any time during the price control gives sufficient flexibility for us to utilise the re-opener earlier than the 2026 window if necessary.

#### IT/OT/Data and Digitalisation Cost Taxonomy

Purpose	This aims to introduce an agreed independent framework		
	to monitor IT/OT/Data and Digitalisation spend on DSAP		
	investment projects.		
Benefits	The implementation of a taxonomy would increase		
Benefits	The implementation of a taxonomy would increase transparency in IT spend and comparability between		
Benefits	The implementation of a taxonomy would increase transparency in IT spend and comparability between DNOs and cross sector organisations.		

#### Background

- 4.21 During our assessment of the DNOs' business plans, we noted that it was a challenge for the DNOs to separate IT/OT spend from Data and Digitalisation spend. This challenge was similarly encountered by the ESO in its RIIO-2 Business Plan 1 process<sup>36</sup>.
- 4.22 The ESO, for its second business plan cycle submission, is required to submit information to the Authority on IT investments in accordance with Ofgem guidance<sup>37</sup>. This guidance requires the ESO to comply with the Technology Business Management (TBM) taxonomy<sup>38</sup>. We see an opportunity to utilise the TBM taxonomy to classify IT spend by the Electricity Distribution companies.
- 4.23 At Draft Determinations we proposed that the DNOs adopt the TBM taxonomy when describing their IT, OT, and Data and Digitalisation spend.

#### Final Determination summary

Parameter	Final Determination	Draft Determination
ODI-R	DNOs, and all cross-sector network companies, to adopt the TBM taxonomy when describing their IT, OT, and Data and Digitalisation spend.	Same as FD
	We will establish a cross-sector project team to determine the optimal implementation of the TBM taxonomy,	

4.24 The table below provides a summary of our Final Determination position.

<sup>&</sup>lt;sup>36</sup> <u>https://www.nationalgrideso.com/document/215876/download</u>

<sup>&</sup>lt;sup>37</sup> <u>https://www.ofgem.gov.uk/sites/default/files/2021-</u>

<sup>11/</sup>ESO%20Business%20Plan%20IT%20Investment%20Plan%20Guidance.pdf

<sup>&</sup>lt;sup>38</sup> The TBM Council publish the TBM taxonomy. At the time of writing, version 4.0 is the latest version of the TBM taxonomy: <u>https://www.tbmcouncil.org/learn-tbm/tbm-taxonomy/</u>

Parameter	Final Determination	Draft Determination
	to be used for RIGs, RRP, re-opener submissions, and future business plan submissions.	

Final Determination rationale and Draft Determination responses

- 4.25 Our decision is for the DNOs, and all cross-sector network companies, to adopt the TBM taxonomy when describing their IT, OT, and Data and Digitalisation spend. We will establish a cross-sector project team to determine the optimal implementation of the TBM taxonomy, to be used for annual Regulatory Instructions and Guidance (RIGs) and RRPs, reopener submissions, and future business plan submissions.
- 4.26 We received nine responses on our proposal to enhance the reporting framework associated with IT spend and DSAP investment proposals. These responses were broadly supportive of our intent to enhance the reporting framework. Some respondents questioned the use of the TBM taxonomy due to this not being an open standard, and all DNOs wanted the opportunity to help shape the implementation of a reporting framework to ensure the framework is used effectively across their organisation.
- 4.27 Whilst we note that the TBM taxonomy is not an open standard, we have decided that it is the most appropriate choice of reporting framework for our needs. We are unaware of an open standard that would be more suitable, and no further options were identified by respondents. We also consider that there is merit in having consistency in the reporting framework between all network companies. Our decision is to make the adoption of the TBM taxonomy a cross-sector position, not just limited to DNOs.
- 4.28 We consider it appropriate to work with DNOs to design an optimal implementation of the TBM taxonomy. We also consider it appropriate to consider implementation of the TBM taxonomy across all network operators. Our decision is to establish a project team, utilising expertise from across the network sectors to work with us to determine the implementation of the TBM taxonomy. This project team will utilise the ESO IT investment guidance as a reference point<sup>39</sup>. The project output will be a guidance document setting out how network operators should utilise TBM for RIGs and RRP processes, re-opener submissions, and future business plan submissions.

<sup>&</sup>lt;sup>39</sup> <u>https://www.ofgem.gov.uk/publications/decision-it-guidance-eso-business-plan-guidance</u>

Purpose	To leverage DNO investments in IT, OT, Data and		
	Digitalisation to design a new cost-effective regulatory		
	reporting process between DNOs and Ofgem.		
Benefits	Reduces the regulatory reporting burden of the		
	submission process. Provides Ofgem with information in a		
	timely manner and in a stable format with which to make		
	regulatory decisions.		

## Modernisation of the Regulatory Reporting Process

## **Background**

- 4.29 The regulatory reporting process is a legacy of an era where simple data sharing utilising Microsoft Excel templates was sufficient. As network price controls have become more complex, the associated regulatory reporting information has become more complex. This requires a modernisation of the existing form of submissions, to continue to provide an effective way of reporting.
- 4.30 During RIIO-ED2, DNOs will develop enhanced digital tools and capabilities that allow them to share information with the Authority in a more appropriate format. Ofgem, through our Data and Digital Strategic Change program should have the necessary digital capabilities to implement these changes<sup>40</sup>.
- 4.31 At Draft Determinations, we proposed to run a project to determine the scope of a modern regulatory reporting process, with implementation of a new methodology in year three of the RIIO-ED2 price control.

Final Determination summary

Parameter	Final Determination	Draft Determination
ODI-R	Run a multi-stage project to develop a modern regulatory reporting process, with discovery phase finishing by the start of the price control and full implementation of the new methodology during Year 3.	Same as FD

4.32 The table below provides a summary of our Final Determination position.

Final Determination rationale and Draft Determination responses

4.33 Our decision is to proceed with the modernisation of regulatory reporting, by running a multi-stage project to determine a new regulatory reporting

<sup>&</sup>lt;sup>40</sup> <u>https://www.ofgem.gov.uk/publications/202223-ofgem-forward-work-programme#data%20and%20digitalisation</u>

methodology that utilises the newly developed digital capabilities of Ofgem and all cross-sector network companies.

- 4.34 We received nine responses on our proposal to develop a modernised regulatory reporting methodology for all network operators. These responses were broadly supportive of our intent to modernise the regulatory reporting methodology, including all DNOs echoing Ofgem's aim to improve the effectiveness of the regulatory reporting process.
- 4.35 Some DNOs raised concerns over the proposed implementation timeline and the specifics of their required contribution. We have subsequently engaged with the DNOs, through the ENA's Data and Digitalisation Steering Group (DDSG), and established a cross-licence project team to deliver a discovery phase project to modernise the regulatory reporting methodology.
- 4.36 We have decided that this project will adopt an agile process, and we will complete a discovery phase as defined by Government Agile Service manual and utilised in the Strategic Innovation Fund<sup>41</sup>. In the discovery phase we will determine if:
  - there's a viable service we could build that would make it easier for users and improve regulatory reporting; and
  - proposed improvements are cost effective.
- 4.37 This discovery phase project will develop a project initiation document, for an Alpha phase. This project initiation document will set out a plan to deliver a new regulatory reporting methodology for network licensees to use when submitting regulatory reporting information to the Authority. The Alpha phase will prototype the proposed services identified by the discovery phase, and the project initiation document will set out costs, timelines and budgets for this work.
- 4.38 The discovery phase will take the form of a number of workshops to assess key elements of the project initiation document, before full drafting of the document takes place. The results of the discovery phase and the project initiation document for the alpha phase will then be presented to the ENA's DDSG, and Ofgem for approval.

# **Regulating Distribution System Operation functions**

<sup>&</sup>lt;sup>41</sup> <u>How the alpha phase works - Service Manual - GOV.UK (www.gov.uk)</u>

Purpose	To ensure that DNOs provide the appropriate DSO
	functions and services to customers in RIIO-ED2.
Benefits	Avoided or deferred network reinforcement resulting in
	lower bills for customers.

## **DSO strategies and baseline expectations**

## Final Determination

4.39	The table below	provides a	summary o	of our Fina	I Determination	position.
------	-----------------	------------	-----------	-------------	-----------------	-----------

Output Parameter	Final Determination	Draft Determination
Ex ante funding for DSO activities	We have decided to accept the majority of the DNOs' DSO strategy proposals without amendment, except for investments where we have found a weak justification in the associated Engineering Justification Paper (EJP).	Same as FD

Final Determination rationale and Draft Determination responses

- 4.40 We have decided to implement our Draft Determination proposal to accept the majority of the DNOs' DSO strategy proposals without amendment. We received four responses on this area.
- 4.41 One stakeholder raised concerns on the level of scrutiny that was applied to the DSO strategies, requesting that Ofgem provide further detail on its rationale for funding these.
- 4.42 We assessed each DSO strategy as part of Stage 1 of the Business Plan Incentive (BPI) (see Chapter 9 in the Overview Document) and against the 23 baseline expectations for DSO on a fails / meets / exceeds basis.<sup>42</sup> In the round, we concluded that each DSO strategy had put forward a sufficient set of proposals to address the DSO transition issues prevalent in the DNO's region in RIIO-ED2. Where we continued to have concerns with the EJP for major DSO related investments, we have decided to implement bespoke outputs to provide greater control within the price control period (see Chapter 2 in the company specific annexes).
- 4.43 Concerns were also expressed by a number of stakeholders around our proposal to allow companies to pursue different approaches to DSO within RIIO-ED2, including:

<sup>&</sup>lt;sup>42</sup> RIIO-ED2 Business Plan Guidance, Appendix 4 <u>RIIO-ED2 Business Plan Guidance</u> <u>Ofgem</u>

- A risk that there will be regional variation in DSO functions and services, and potentially differing levels of ambition, across the licence areas.
- A lack of standardisation may lead to uncoordinated DSO activities and operational inefficiencies as network users have to interact with six different sets of processes and systems.
- One stakeholder also pointed to the need to ensure DSO investments are separable from the rest of a DNO's IT estate in the event of greater DNO/DSO separation.
- 4.44 While we recognise the benefits that greater standardisation could bring, we are also mindful that there is value in giving DNOs the space to innovate and tailor their approaches to reflect the DSO transition issues prevalent in their regions. We are confident that our regulatory and incentive framework will instil a level of consistency and ambition as all DNOs will be held to account for delivery against the same set of baseline expectations for DSO. This incentive will help to ensure that comparable consumer outcomes are realised in each licence area, even if approaches may differ, and companies will receive feedback from stakeholders and the performance panel on best practice that in turn could lead to greater standardisation.
- 4.45 We are also aware that the DNOs will be making substantial IT investments in RIIO-ED2. It is important to ensure these investments are future-proofed and do not become a barrier in the event of any future decision on greater separation of DSO functions from the DNOs. We have been clear in our baseline expectations for DSO that, for example, capabilities in network operations must not be hard coded to the DNO, and instead developed so that they can be cost effectively assigned to another party in the future if this is needed.<sup>43</sup>

Purpose	To drive DNOs to more efficiently develop and use their		
	network, taking into account flexible alternatives to		
	network reinforcement.		
Benefits	Avoided or deferred network reinforcement resulting in		
	lower bills for customers.		

## **DSO incentive (ODI-F)**

#### Background

4.46 In our SSMD and Draft Determinations, we set out our proposal to introduce a new financial DSO incentive. We considered that this would be

<sup>&</sup>lt;sup>43</sup> RIIO-ED2 Business Plan Guidance, Appendix 4 <u>RIIO-ED2 Business Plan Guidance</u> <u>Ofgem</u>

based on an ex post review of a DNO's delivery of its DSO activities in line with three evaluation criteria (stakeholder survey, performance panel assessment and outturn performance metrics).

#### Final Determination summary

Parameter	Final Determination	Draft Determination
ODI type	Financial	Same as FD
Financial incentive framework	Ex post review of DNOs' delivery of their DSO activities through three evaluation criteria	Same as FD
Incentive value	Year 1: + 0.32 % / - 0.16% of Return on Regulatory Equity (RoRE) <sup>44</sup> Years 2-5: + 0.4 % / - 0.2% of RoRE per year	+/- 0.2% of RoRE per year
Incentive weightings	Stakeholder survey: 40% Performance panel assessment: 40% Outturn performance metrics: 20% (excluding year 1) <sup>45</sup>	Stakeholder survey: 40% Performance panel assessment: 40% Outturn performance metrics: 20%
Frequency of assessment	Annual	Same as FD
Reporting requirements	Annual stakeholder survey Annual DSO performance panel assessment report Outturn performance metrics Regularly reported evidence (RRE)	Same as FD
Evaluation criteria	The reward/penalty for each evaluation criterion is calculated individually: • Stakeholder survey: stakeholder satisfaction is measured against a common ex ante target	Same as FD

4.47	The table below	provides a summa	rv of our Final	Determination	position.
1.17		provides a summe	i y or our i mu	Determination	posicioni

 $<sup>^{44}</sup>$  In year 1 of RIIO-ED2, the DSO incentive value will be + 0.32% / - 0.16% of RoRE as the incentive value that is apportioned to the outturn performance metrics will be set at zero.

<sup>&</sup>lt;sup>45</sup> In year 1 of RIIO-ED2, the incentive weighting that is applied to the outturn performance metrics will be set at zero.

Parameter	Final Determination	Draft Determination
	• Performance panel assessment: a performance panel undertakes an evaluative assessment of company performance	
	<ul> <li>Outturn performance metrics: outturn performance is measured against ex ante company specific targets</li> </ul>	

Final Determination rationale and Draft Determination responses

4.48 We have decided to implement our proposal for a new financial DSO incentive, but with a revised incentive value of + 0.4 % / - 0.2% of RoRE per year. We have also decided to implement the outturn performance metrics on a trial basis in Year 1 of RIIO-ED2, before applying financial reward/penalty to performance from Year 2 onwards subject to company specific targets being set. We received 27 responses on this area.

## Financial incentive framework

- 4.49 The vast majority of respondents agreed with our proposal to introduce a new financial DSO incentive, recognising that it should drive greater ambition and delivery of the DSO transition. There was also strong support for using three evaluation criteria as part of the assessment, with respondents often citing the relative novelty of DSO as motivation for drawing on different sources of evidence.
- 4.50 The RIIO-ED2 CG proposed that the TIM could apply only to LRE if it was demonstrated that a flexibility solution had been used. However, we had concerns that this complex approach would create a perverse incentive to deliver ex ante LRE volumes when the need does not materialise, and that it would also fail to drive improvements against other key outcomes for DSO beyond flexibility procurement.
- 4.51 We have decided to implement a financial DSO incentive that is comprised of three evaluation criteria - stakeholder survey, performance panel assessment and outturn performance metrics - as we proposed in our Draft Determinations. We maintain our view that the design strikes the right balance between mechanistic and evaluative means of assessment, while recognising the challenges associated with limited historical data on DSO performance.

# Incentive value

4.52 Some respondents (including UKPN, NGED and seven other stakeholders) argued the incentive value was insufficient to drive the DSO transition at the required pace. Stakeholders proposed alternative incentive values ranging from +/- 1% of RoRE, +/- 2% of RoRE and +0.7 / -0.2 % of

RoRE. However, other stakeholders thought the incentive value we proposed was appropriate. NPg argued that it should be reduced.

- 4.53 UKPN proposed that Ofgem consider a "zero sum incentive pot". In this scenario, the total incentive value would be fixed, eg at £50m. DNOs would then be ranked, based on performance against the evaluation criteria, with the top 3 ranking DNOs sharing in a reward of £50m and the bottom 3 in a penalty of £50m. UKPN argued that this would enable a higher upside for the incentive, which would drive greater improvement. However, we had concerns that under such a mechanism a DNO could earn a reward if it failed to meet our baseline expectations for DSO but was deemed to have performed relatively well in comparison with the rest of the DNOs. In addition, it would create added complexity in ensuring the cost to customers was distributed fairly across GB and could reduce collaboration between DNOs on issues that cut across regional boundaries.
- 4.54 Having considered the consultation responses in detail, we have decided to implement an incentive value of + 0.4 % / 0.2% of RoRE per year. We believe this is better aligned with the substantial customer benefits that DSO can unlock, which include the use of flexibility as a lower cost alternative to reinforcement and reduced costs for connecting distributed generation. We also consider that a relatively stronger upside will motivate outperformance and mitigate the risk that the DNOs do not stretch themselves in this more novel area due to loss aversion bias.

## Incentive weightings

- 4.55 All the DNOs, and some other respondents, argued that greater weight should be placed on the outturn performance metrics, with proposals ranging from 30% to 60%. These stakeholders thought that this would sharpen the incentive and drive greater improvement in outcomes for customers than more qualitative measures of assessment. However, a number of other stakeholders supported the weightings that were set out in our Draft Determinations.
- 4.56 We have decided to implement the incentive weightings that we proposed in our Draft Determinations. We do not believe that it would be appropriate to apportion a greater share of the incentive value to the outturn performance metrics. Their scope is narrower and the challenges associated with setting ambitious targets for areas with limited historical performance data engender greater risk for consumers. We consider this risk to be more acute in the case of specific metrics than, for example, a stakeholder satisfaction survey that provides a more holistic measure of performance.

## Frequency of assessment and reporting

4.57 Stakeholders generally agreed with our proposals for annual reporting and assessment under the DSO incentive, although SSEN proposed the incentive should be trialled in Year 1 such that it was reputational only. SPEN also questioned the reporting burden, arguing that it was comparable to the ESO incentive which it considered to be excessive. It

proposed that, if the framework remained unchanged, the assessment should only be undertaken at the mid and end points of RIIO-ED2 to minimise the reporting burden and acknowledge that there may be only incremental annual progress.

- 4.58 We have decided to implement our Draft Determination proposals. DNOs will be required to report annually on the stakeholder survey, outturn performance metrics and regularly reported evidence (RRE). They will also need to submit an annual DSO performance panel assessment report.
- 4.59 We believe that if DNOs receive more regular feedback on performance throughout the price control, they will be able to "course correct" and that this should drive up performance. We also think that the reporting requirements are modest when set against the benefits that DSO can unlock, and more streamlined than the ESO incentive which includes five evaluation criteria, biennial review points and monthly reporting against 18 metrics and RRE.<sup>46</sup> Further information on reporting requirements will be set out in the RIIO-ED2 RIGs and RRPs.

#### Evaluation criteria: stakeholder survey

- 4.60 Most stakeholders supported the principle of the stakeholder survey, but raised specific points, including on the design of questions and the weight that would be accorded to each of them. ENWL proposed that individual questions should be excluded from the incentive if a minimum response rate threshold was not met. However, we had concerns regarding how we would set such a threshold and if it could mean that stakeholder views received differing treatment.
- 4.61 We had two responses on the proposed target parameters, with ENWL questioning the use of a target defined by proxy from the ESO and another stakeholder considering that performance of ~ 8/10 should not merit a financial reward. Several other stakeholders supported Ofgem retaining the discretion to adjust targets in-period should the results point to systematic over (or under) performance across all DNOs. In response to our consultation on the DSO Incentive Governance Document,<sup>47</sup> SPEN also proposed that the survey should be based on a relative measure where stakeholders benchmark DNOs against one another, while UKPN proposed a lower target based on its interpretation of recent ESO survey results which asked respondents to state whether the ESO is below, meeting or exceeding expectations.
- 4.62 We have decided to implement our Draft Determinations proposal, in line with the table below. We believe that using the average (mean) ESO survey scores as a proxy should be reflective of a level of satisfaction expected by stakeholders involved in similar activities. We also had concerns that asking stakeholders to rank DNO performance could lead to

<sup>&</sup>lt;sup>46</sup> Decisions on the ESO guidance documents for 2021-23 | Ofgem

<sup>&</sup>lt;sup>47</sup> <u>RIIO-ED2 DSO Incentive Governance Document Consultation | Ofgem</u>

companies earning a reward while failing to meet our baseline expectations for DSO.

- 4.63 Each DNO will be required to commission a single survey that will measure stakeholder satisfaction on a scale of 1-10 across five common questions designed to capture significant points of interaction between DSO and stakeholders. Given the level of uncertainty, we will retain the discretion to adjust targets in-period via the statutory modification process.
- 4.64 We acknowledge stakeholder views on the survey design, methods and response rates, which we will be considering further in line with responses to our consultation on the DSO Incentive Governance Document.

Stakeholder Survey Parameter	Final Determination
Target	7.7/10
Deadband	+/- 0.2
Сар	9/10
Collar	6.4/10

Table 5: DSO stakeholder survey target and parameters

Evaluation criteria: performance panel assessment

- 4.65 Most stakeholders supported the inclusion of a performance panel and its high-level design. ENWL and SPEN pointed to potential concerns that the performance panel assessment could cross over with other evaluation criteria in the incentive, such as the stakeholder survey, and requested further guidance on how scores would be calculated and potential conflicts of interest managed. Conversely, other stakeholders pointed to a desire for the views of network users, perhaps via the stakeholder survey, to be included as part of the performance panel assessment process. UKPN, in its response to our consultation on the DSO Incentive Governance Document, proposed to shift the deadband score range to 4-5.
- 4.66 We have decided to implement our Draft Determinations proposal and include an evaluative performance panel assessment as part of the DSO incentive. Each of the DNOs' scores from 1-10 will be calculated as a weighted average (mean) of each panel member's score. Having reviewed historical performance under the Electricity Distribution Stakeholder Engagement and Consumer Vulnerability Incentive, which is also a panel assessment based incentive, we would expect that performance of the average DNO group would fall within the deadband and see no strong rationale for reducing this range. However, based on the same analysis, we have decided to amend our maximum penalty score to 3 and maximum reward score to 8 to sharpen the incentive under this evaluation criterion.

Score	1-2	3-4	5-6	7-8	9-10
Description	Poor	Weak	Average	Good	Excellent
Penalty/reward implication Final Determination	Maximum penalty at a score of 3	Penalty for scores below 5	No reward or penalty	Reward for scores above 6	Maximum reward at a score of 8

Table 6: DSO performance panel scoring reference points

4.67 In addition, we have decided to amend the weightings of the five performance panel evaluation criteria (set out in the table below) in favour of DSO benefits. This reflects feedback from various stakeholders in working group discussions and DSO Incentive Governance Document consultation responses that the panel should be more focused on DSO outcomes.

Table 7: DSO performance panel assessment criteria weighting

Performance Panel assessment criterion	Weighting
Delivery of DSO benefits	30%
Data and information provision	20%
Flexibility market development	20%
Options assessment and conflict of interest mitigation	20%
Distributed Energy Resources dispatch decision making framework	10%

4.68 We also acknowledge stakeholder views on the need for clear ex ante expectations on scoring and the opportunity for stakeholders to provide insights that inform the assessment process. We will be considering these further in line with responses to our consultation on the DSO Incentive Governance Document.

Evaluation criteria: outturn performance metrics

- 4.69 Stakeholders had mixed views on our proposed outturn performance metrics:
  - Only a minority of stakeholders supported the flexibility market testing metric, with detractors often arguing that we should instead incentivise the volumes or outcomes associated with flexibility procurement. UKPN proposed an alternative metric that would measure the MVA of assets that would have been reinforced in the absence of flexibility services.
  - Stakeholders offered some support to the network visibility metric, but many stressed that it needed to be more focused on outcomes

(such as forecasting accuracy) and not input based measures like the roll out of monitoring.

- The vast majority of stakeholders expressed support for the curtailment efficiency metric, but one argued that our Access SCR decision may mean there are relatively few customers on non-firm connections such that the metric is no longer needed.
- 4.70 SPEN and SSEN proposed that the outturn performance metrics should be piloted initially before targets are then calibrated for subsequent years. One stakeholder pointed to the uncertainty associated with the implementation of the Access SCR decision as a factor that would complicate target setting for Year 1 of the price control.
- 4.71 We developed the outturn performance metrics further through working groups. Stakeholders provided additional feedback on our proposals, and we further iterated the development of the metrics and RRE in Chapter 5 of our consultation on the DSO Incentive Governance Document. In response to that consultation, there was general support for our proposed metrics, but a consensus that any metric on flexibility needed to do more to incorporate activity on the secondary network and incentivise the positive customer outcomes that flexibility can unlock.
- 4.72 We have decided to implement three outturn performance metrics as part of the DSO incentive framework. These are:
  - Flexibility reinforcement deferral, which will drive DNOs to use flexibility to address network constraints when it is the most economic solution. This is an evolution of the flexibility market testing metric we proposed in our Draft Determinations as few non-DNO stakeholders thought this metric would prove effective and its penalty only design was deemed to be inappropriate for incentivising the option value and whole systems benefits associated with flexibility services.
  - Secondary network visibility, which will promote visibility and accuracy of utilisation of PMTs and GMTs. We have amended the formula we proposed in our Draft Determinations to ensure a greater focus on the quality of data, as this was a consistent theme in stakeholder feedback.
  - Curtailment efficiency, which will incentivise DNOs to limit curtailment
    of users on curtailable connections resulting from actions taken to
    restrict the conditions of a connection (import and / or export
    capacity) in response to a constraint on the distribution system. We
    have amended the formula we proposed in our Draft Determinations
    as we consider that the definition of curtailment, and the methodology
    for calculating it, should be consistent with our Access SCR decision.
- 4.73 Further details for each of the outturn performance metrics are set out in the table below.
- 4.74 We have decided not to implement targets for the outturn performance metrics in Year 1 of RIIO-ED2 and, as such, there will be no financial

reward / penalty associated with performance against them in Year 1. Instead, we will require the DNOs to gather performance data on the metrics before applying a financial reward / penalty to performance from Year 2 onwards subject to licence area specific targets being set. We intend to set targets and specific formulae for the outturn performance metrics within the licence condition via the statutory modification process.

4.75 We agree with stakeholders that a delayed implementation will better allow us to baseline performance and calibrate fair targets that appropriately incentivise DNOs. This decision was postponed until our Final Determinations to afford us the best opportunity of reaching an agreement on targets for the metrics. We acknowledge the risk that this decision will create a perverse incentive for DNOs to underperform during the pilot in Year 1 in order to achieve a lower baseline for years 2-5 of RIIO-ED2. However, we believe this is mitigated by gaining access to historical data to better inform target setting for future years.

Metric	Definition	Parameters	
Flexibility reinforcement	$=\frac{\sum D_i}{\sum D_i + R_i} * 100$	Penalty / reward	
deferral	Where:	Deadband	
	$\ensuremath{\mathtt{D}}_i$ is the MVA capacity of reinforcement under deferral at site i; and		
	$\ensuremath{\mathtt{R}}_i$ is the MVA capacity of reinforcement at site i.		
Secondary network	$=\frac{\sum V_i W_i}{\sum W_i} * 100$	Penalty / reward	
visibility	Where:	Deadband	
	$V_i$ is the accuracy score in transformer utilisation band $i$ ; and		
	$W_i$ is the weight applied to utilisation band $i$ .		
	In turn, V <sub>i</sub> will be calculated as 1 – Mean Absolute Percentage Error (MAPE):		
	$V_i = 1 - \left[\frac{1}{n} \sum_{i=1}^n \frac{A_i - F_i}{A_i}\right]$		
	Where:		
	n is the number of sites in utilisation band $i$ ;		
	$A_i$ is the in-period utilisation at site $i$ ; and		
	$F_i$ is the forecast utilisation of site <i>i</i> .		

Table 8: DSO outturn performance metrics

Metric	Definition	Parameters
Curtailment efficiency	$= \sum_{i=1}^{n} (de_i \times civ_i) \div (cec \times h_i)$ Where:	Reward only Deadband
	de is the duration of each period of curtailment (in hours) determined from the time the user is instructed by the DNO to curtail its maximum export capacity to the time it is notified that there is no longer a requirement to curtail;	
	n is the number of curtailment instructions in the previous 12 months;	
	<i>civ</i> is the curtailment instruction value (ie value by which the DNO instructs the user to limit its maximum export capacity);	
	<i>cec</i> is curtailable export capacity (ie the maximum export capacity less the non-curtailable export capacity); and	
	$h_i$ is the number of hours the user was connected to the distribution system in the previous 12 months.	

- 4.76 We have also decided to implement four RRE from the long list we had proposed in our Draft Determinations. These are:
  - Primary network forecasting accuracy, which will compare the accuracy of the forecast maximum demand MW in the Long Term Development Statement (LTDS) with the outturn reported in the Load Index (LI) reporting pack for each primary substation.
  - Transformer utilisation, which will measure the extent to which reinforcement is occurring within areas of projected 'high' utilisation (ie 100% year-ahead forecast utilisation).<sup>48</sup>
  - Network Options Assessment outcomes, which will report the outcomes from the Network Options Assessment for each scheme as a % of the total against standardised categories (eg flexibility, reinforcement + flexibility, reinforcement, no action).
  - Curtailable connections, which will report the number and capacity (MW) of users on non-firm connections.
- 4.77 We believe that these RRE had strong support among stakeholders and will help to inform future development of outturn performance metrics for DSO as we gather more evidence on performance in RIIO-ED2.

<sup>&</sup>lt;sup>48</sup> This is the same as the transformer utilisation metric under the Secondary Reinforcement Volume Driver.

#### Next steps

- 4.78 We plan to hold a working group with stakeholders prior to the publication of the final DSO Incentive Governance Document in early 2023.
- 4.79 We will also engage with the DNOs, and other stakeholders, in the summer of 2023 to set company specific targets for the three outturn performance metrics. Following these working groups, we will then consult on the proposed targets with a view to implementing these from Year 2 of RIIO-ED2 via the statutory modification process.

# Changing roles and responsibilities

#### **DSO Re-opener**

Purpose	To introduce an increased level of adaptability by		
	providing a means to amend the RIIO-ED2 price control		
	in response to changes to the roles, responsibilities and		
	governance arrangements for DSO functions, which could		
	have an effect on the costs and outputs of licensees.		
Benefits	To allow for necessary amendments within the RIIO-ED2		
	period, as opposed to waiting until the settlement of the		
	subsequent price control.		

## <u>Background</u>

4.80 In our SSMD, we set out the need for a DSO re-opener that would allow us to implement changes associated with any future decision on DSO governance arrangements.

#### Final Determination summary

4.81 The table below provides a summary of our Final Determination position.

UM Parameter	Final Determination	Draft Determination
Scope	To capture any changes to costs, outputs and incentives associated with any future decision on further separation of DSO functions from DNOs	Same as FD
Re-opener window	Authority triggered at any time during the RIIO-ED2 period	Same as FD
Funding approach	Adjustments could include increasing or reducing cost allowances, and recalibrating specified outputs and incentives	Same as FD

UM Parameter	Final Determination	Draft Determination
Materiality threshold	Adjust allowances if the changes to allowances resulting from our assessment, multiplied by the TIM incentive rate applicable to that licensee, exceeds a threshold of 0.5% of annual average base revenues	Threshold of 1% of annual average base revenues

Final Determination rationale and Draft Determination responses

- 4.82 We have decided to implement the DSO Re-opener.
- 4.83 We received 15 responses on this area. The majority of stakeholders supported the inclusion of a DSO Re-opener, recognising the need to keep the RIIO-ED2 price control adaptable to changes in the roles, responsibilities and governance arrangements for DSO functions.
- 4.84 Most DNOs supported the principle of the DSO Re-opener, but raised specific concerns on how it would work in practice. These included:
  - A risk that the scope was too broad, and it would be better limited to amending only DSO costs, obligations and incentives.
  - A proposal that it should also be used to fund increased DSO ambition and demand from customers for DSO services in period, rather than only to implement governance changes.
  - A need for more clarity on the threshold for triggering the re-opener, eg whether Ofgem would undertake an Impact Assessment before proposing any changes, and whether DNOs could also trigger the reopener.
  - UKPN raised concerns around the clawback of investments DNOs have made to implement their DSO strategies.
  - NGED and SSEN argued that the materiality threshold should be 0.5% of annual base revenues, while ENWL proposed a zero-materiality threshold.
- 4.85 We recognise these general concerns and we have decided to change the materiality threshold. However, we still consider a broadly scoped DSO Re-opener is most appropriate given the review of institutional and governance arrangements at a subnational level is still ongoing.
- 4.86 We do not consider that a narrowly scoped DSO Re-opener in RIIO-ED2 is appropriate in this case. While this could outline how cost allowances would be increased or decreased if we decided on, for example, legal or full ownership separation of DSO functions and services, it would not allow us to implement changes to other outputs and incentives.
- 4.87 For these reasons, we have decided to establish a DSO Re-opener with the scope and other parameters that are set out in the above table. This

re-opener will be subject to the statutory licence modification process.<sup>49</sup> This will allow us to consult on broad changes to LOs, cost allowances, outputs and incentives to implement any decision within the period of RIIO-ED2 that has implications for DSO governance arrangements.

- 4.88 Should we decide to trigger the DSO Re-opener during RIIO-ED2, the statutory consultation would focus on:
  - Amendments to existing DNO licence conditions where they relate to DSO roles, and the creation of any new ones as may be required.
  - The determination of any one-off costs relating to governance changes, where relevant, as well as potential changes to RIIO-ED2 costs allowances associated with DSO roles.
  - The recalibration of any outputs and incentives relating to DSO roles, such as the DSO incentive.
- 4.89 Alongside the statutory consultation mentioned above, we will undertake an Impact Assessment if we consider that our final decision on DSO governance is "important" within the meaning of Section 5A of the Utilities Act 2000.

# **Smart Optimisation Output**

Purpose	To support meaningful collaboration with stakeholders,
	particularly those with a local or regional interest, by
	ensuring a more holistic approach to the open and
	transparent sharing of network data and strategies.
Benefits	To provide an integrated and collaborative approach to
	DNO network planning, support innovation and facilitate
	the development of regional and local net zero plans.

## Background

- 4.90 Achieving net zero at least cost will require a highly integrated energy system with a greater number of market participants communicating digitally to determine the optimal dispatch of assets on the system.
- 4.91 The DNOs have a fundamental role to play in enabling this future. Firstly by sharing data about their existing networks and presenting a vision of how they see these networks evolving in the future. Secondly, by collaborating with stakeholders, to both inform the DNO's own strategic planning activities and to support the creation of least cost

<sup>&</sup>lt;sup>49</sup> The DSO re-opener does not have a corresponding licence condition, any changes will be made by the statutory modification process.

decarbonisation pathways for electricity, heat and transport in partnership with regional and local stakeholders.

- 4.92 The DNOs have developed several digital tools and programmes that should support more effective collaboration with local and regional stakeholders, such as Heat Maps and Long-Term Development Statements (LTDS). In addition, the publication of biennial Network Development Plans (NDPs) and ongoing cross-sector work, for example to align on use of a Common Information Model (CIM), mean that DNOs will continue to develop their data and digital capabilities through RIIO-ED2. These capabilities and tools should be used as a vehicle for collaboration with local and regional stakeholders.
- 4.93 We consulted on our proposed introduction of a 'Whole system strategic planning LO' at Draft Determinations, recognising the need to bring together several parts of RIIO-ED2, namely the LRE strategy, the DSO strategy and the DSAP.

## **Final Determination summary**

4.94	The table below	provides a	summary	of our Fina	al Determination	position.
------	-----------------	------------	---------	-------------	------------------	-----------

Parameter	Final Determination	Draft Determination
LO	Publication of the Smart Optimisation Output	Whole system strategic planning licence obligation

## **Final Determination rationale and Draft Determination responses**

- 4.95 We have decided to introduce the Smart Optimisation Output (SOO) LO for RIIO-ED2.
- 4.96 Since Draft Determinations, we have considered the consultation responses and have held multiple working groups with DNOs and wider stakeholders. Whilst the core purpose of the LO remains the same as that proposed at Draft Determinations, the scope has been refined and the function of this obligation has developed. These changes have been made to take into account the views of stakeholders and to better serve the intended purpose of the obligation. We have also decided to change the name of this LO to better reflect the refined scope. We received 17 responses on this area.
- 4.97 Ten respondents agreed with our proposal to introduce a LO facilitating whole system strategic planning. These respondents agreed that a future system planning function that is interoperable and accessible through a whole system lens is key to enabling net zero. Of these respondents, the following suggestions and views were provided:
  - That the obligation designed should be a standardised mechanism across the DNOs to enable constructive engagement.
  - That the plans should be live and digital.

- That the plans should reflect a regional level as well as a national level.
- That the plans should reflect flexibility, network capacity constraints and long-term development of network investment.
- That the LO should uphold the practice in the most recent Energy Systems Catapult guidance<sup>50</sup> on creating a local area energy plan (LAEPs).
- That the effectiveness of the output would be better incentivised and delivered through inclusion of this as a metric within the DSO incentive.

## Purpose and scope

- 4.98 NPg and ENWL expressed that the LO is disproportionate and duplicates existing activities, noting that introducing additional reporting obligations could risk creating further inaccessibility of information and further costs to be borne by stakeholders. NPg and ENWL also considered that the electricity distribution sector alone should not have obligations where other licensees need to participate, and there should be a comparable duty to co-operate placed upon other utilities and relevant public sector bodies (eg local authorities) to enable whole system outcomes.
- 4.99 SSEN and SPEN agreed with our proposal, but noted that it has similarities to outputs provided in the business plans including the Whole System Register (SPEN) and Whole System Support CVP (SSEN).
- 4.100 The DNOs agree that digital tools are a key enabler of whole system planning. DNOs pointed to existing outputs within their business plans and data and digitalisation strategies.
- 4.101 Twelve respondents provided comment on the digital tools that could be used to support this output. These included five energy industry bodies who all agreed that data sharing digital infrastructures are key and suggested that these systems should be common amongst DNOs to enable accessibility and comparability.
- 4.102 Overall, the responses highlighted the need for us to provide a clearer definition of the scope of this LO, and to explain how it is linked to, but different from, the LRE strategy, the DSO strategy and the DSAP. We also recognised from the responses, the need to be clearer about the DNOs role in supporting wider whole system activities and engaging with regional and local stakeholder groups through the SOO LO.
- 4.103 As we described at Draft Determinations, DNOs have traditionally engaged with third parties that are most closely connected to the day-to-day operation of their networks. However, there is significant potential for much greater coherence in forward planning and targeted investment through improved collaboration with wider stakeholders and across energy

<sup>&</sup>lt;sup>50</sup> <u>https://es.catapult.org.uk/guide/guidance-on-creating-a-local-area-energy-plan/</u>

networks. This must include regional and local stakeholders, as the contributions of these parties will be critical in supporting the creation of least cost decarbonisation pathways for electricity, heat and transport, in part through the development of ambitious LAEPs.

- 4.104 We have decided that the purpose of the SOO remains as the proposed 'whole system strategic planning' was described at Draft Determinations. This to facilitate meaningful collaboration between DNOs and their local stakeholders by structuring and packaging DNO network and strategic development data in a more accessible, transparent and interoperable way. If, in the process of collaborating with local stakeholders, DNOs decide that there is the need for additional digital products or services, these should be incorporated into the SOO outputs.
- 4.105 Given the Draft Determinations responses and our subsequent stakeholder engagement, we have decided that the SOO LO will involve the development and publication of a strategy that will be formed of two parts:
  - Part 1: Collaboration Plan; A plan describing how the DNO will collaborate with stakeholders through a more transparent and usercentric approach to the sharing of data and how the DNO will work in partnership with stakeholders to support the development of local and regional net zero strategies. This will be published no later than 1 May 2024, to align with the publication of the DNO's NDP.
  - Part 2: System Visualisation Interface; A section of the DNOs website and open data portal (once this portal is operational) that provides access to a package of forward-looking, open and accessible, digital network tools. These tools should provide detailed asset and spatial information about the DNO's network, eg the type, capacity and condition of assets and details of any specific system constraints. The System Visualisation Interface will also include details of future network developments, including when and where network upgrades are likely to occur. The SOO does not require the development of a new digital map or platform. We consider that, as a minimum, the digital tools contained within the System Visualisation Interface should include, but are not limited to:
    - A representation of the DNO's existing network assets and associated constraints – both heat maps and raw data made available through an Application Programming Interface (API) that is common across all DNOs.
    - A representation of the DNO's network in the future, including expected constraints – in a format and time horizon to be determined collectively by DNOs and their stakeholders
- 4.106 The System Visualisation Interface should be accessible to stakeholders no later than 1 October 2023. It is not necessary for all of the digital tools noted above to be included in the System Visualisation Interface from 1

October 2023 however, we do expect, as a minimum, the digital tools above to be accessible by 1 May 2024.

- 4.107 We consider that this strategy will be beneficial, by delivering against several important principles shown below.
  - Transparency and accessibility of network data: Bringing together detailed information about operational network assets, constraints, and future plans, through a single digital platform, making it easier for local stakeholders to access and extract data that can be integrated and overlaid with gas, transport, land registry, urban and other plans, to form cohesive, granular local cross-vector, whole systems plans.
  - Collaboration: Ensuring DNOs participate fully in cross-utility planning and the development of local and regional net zero plans, led by local and regional authorities but supported by the communities they serve, that will enable least cost decarbonisation pathways for power, heat and transport.
  - DNOs as enablers of net zero: The SOO will enable DNOs to gather insightful data from stakeholders about the likely location and nature of future load on their networks, leading to more optimal decision making and ensuring networks are enablers of net zero at least cost.
- 4.108 As we proposed at Draft Determinations, we consider that this approach will help ensure that whole system thinking is reflected in a practical way in the day-to-day decisions of the DNOs. For wider stakeholders, access to these plans will help support more integrated local planning, for example by considering the need for EV charging alongside wider requirements for housing, transport, waste and planning. This will enable a faster, more cost-effective transition to a net zero future.

#### Format and interoperability

- 4.109 We agree with the views of stakeholders that consider the plans should be live, digital and at a level of locational specificity to ensure they are useful for all stakeholders. We also agree that the plans should provide data about network constraints, show the DNO's long term development plans and signpost situations where flexibility services are likely to be procured. We consider that the scope and requirements of both parts 1 and 2 provide for this level of detail.
- 4.110 We recognise the views from stakeholders that this LO should be standardised across DNOs and should apply to all licensees and relevant public bodies. However, it is important to ensure that the SOO can be implemented as quickly as possible. Therefore, as a first step towards longer term aims in this area, at this stage we will not be requiring a standard format for the System Visualisation Interface, and nor will we be introducing this obligation to other RIIO licensees. We will instead give DNOs the flexibility to respond to the needs of local stakeholders. It is not within Ofgem's powers to apply a similar obligation on public bodies.

- 4.111 Whilst we have decided not to require a specific format for the System Visualisation Interface, we are specific about the type and detail of data that we expect to be packaged and presented, and the minimum content of the Collaboration Plan. DNOs should work with their stakeholders to develop an overall SOO and form of System Visualisation Interface that achieves the SOO objectives (transparency, collaboration, accessibility and interoperability) and draws on data sets, digital tools, strategies and processes that exist under their respective DSO, LRE and D&D strategies, including the LTDS, Heat Maps and the NDP.
- 4.112 On interoperability of System Visualisation Interfaces across DNOs, we expect this to be achieved through DBP. The DNOs' compliance with DBP will standardise the format of any common data assets shared and make the same data assets easily shareable and accessible across all DNOs. We also expect network assets to be described using the CIM data standard, as developed through the LTDS working group.<sup>51</sup>
- 4.113 We will review the outputs of the SOO LO and we may look to roll this output across to other licensees or to require consistency in the approach, should we see value in doing so.

#### Monitoring impact and interactions with other parts of RIIO-ED2

- 4.114 We have acknowledged the concerns raised in the Draft Determination responses, that this overlaps with existing LOs or best practices, and have responded to this by deciding to refine and clarify the scope of the SOO. In summary, the SOO does not duplicate any of the existing or proposed digital tools or initiatives and does not require the creation of a single new platform. Rather the SOO requires the structuring, packaging and presentation of these existing and developing initiatives in a way that makes them easier to find and use and makes the underlying data more accessible to local stakeholders.
- 4.115 We disagree that this output is required for inclusion as a separate metric within the DSO ODI-F or as a standalone incentive. The SOO requires the DNOs to present the outputs, data and information from the initiatives within their DSO, LRE and D&D strategies in a structured and accessible format. These areas are already funded and incentivised through other mechanisms, including the DSO ODI-F, and therefore we do not consider that further incentivisation is necessary. Furthermore, as we noted at Draft Determinations, we consider that engaging with local authorities on future investment and planning options is part of the core business of DNOs, and consumers should not pay for additional incentives in this area.
- 4.116 We have decided that the effectiveness of the SOO should be monitored by the DNOs and reported transparently in the Collaboration Plan. DNOs will need to demonstrate how they have engaged with stakeholders in the development of the SOO and show how, on an ongoing basis, they are

<sup>&</sup>lt;sup>51</sup> <u>https://www.ofgem.gov.uk/publications/common-information-model-cim-regulatory-approach-and-long-term-development-statement</u>

using stakeholder feedback to improve their Collaboration Plan and System Visualisation Interface to maximise the value of the SOO for stakeholders. The DNOs must evidence this engagement and subsequent action through engagement logs and change logs.

4.117 We will consult on the SOO Guidance document alongside the RIIO-ED2 Statutory licence consultation.

Whole	System
-------	--------

Purpose	To encourage greater coherence in cross-sector planning and targeted investment through increased collaboration.
Benefits	To bring down costs for consumers, reduce overlap of activities, and identify new synergies across the energy
	network.

## Background

- 4.118 DNO investments and activities both affect, and are affected by, decisions and activities in other energy and social systems. There is significant potential for much greater efficiencies to be found within the whole energy network via increased collaboration on joint planning and investment. Such activities are particularly vital in cases of joint investment across energy networks such as the development of heat networks and wider regional planning.
- 4.119 In our SSMD and Draft Determinations we said we would introduce three whole system elements to the price control process and settlement:
  - whole system minimum requirements as part of Stage 1 of the BPI
  - an increased focus on the whole system in the innovation stimulus
  - a whole system re-opener called the Coordinated Adjustment Mechanism (CAM).
- 4.120 We specifically acknowledged the intent to align these cross-sector items with the new policy frameworks introduced for the electricity transmission, gas distribution, and gas transmission price controls, in order to facilitate cooperation across the regulated sectors.

## **Final Determination summary**

Parameter	Final Determination	Draft Determination
Whole system minimum requirements as part of Stage 1 of the BPI	All DNOs passed the whole system minimum requirements for BPI Stage 1	Same as FD

4.121 The table below provides a summary of our Final Determination position.

Parameter	Final Determination	Draft Determination
Increased focus on the whole system in the innovation stimulus	We will retain the focus on whole system solutions in our innovation stimulus, requiring DNOs to consider whole system approaches when formulating their innovation proposals.	Same as FD
CAM Re-opener	We will introduce this re- opener into the RIIO-ED2 price control for all DNOs.	Same as FD

#### **Final Determination rationale and Draft Determination responses**

4.122 Six stakeholders provided additional comments on our whole system policy in general.

#### Whole system approaches, and Stage 1 of the BPI

- 4.123 One consumer group, one local authority, and the RIIO-ED2 CG made similar points about the variability in DNOs' approaches to whole systems and the variation in approaches in working with and supporting Local Authorities. The consumer group recommended that Ofgem identified best practice on whole systems thinking from the DNOs' plans and that this best practice is implemented by all DNOs in RIIO-ED2, including by following the most recent Energy Systems Catapult 'Guidance on creating a Local Area Energy Plan'.
- 4.124 We agree that DNOs are at different stages of development in their whole systems thinking; the purpose of including whole system minimum requirements as part of the BPI was to encourage more systemic thinking to be embedded into corporate planning and investment decisions.
- 4.125 Whilst we have not seen comparability in all areas whole systems thinking is a new requirement for RIIO-ED2 planning and so in relatively early and varied stages - we do agree that the information submitted will give Ofgem and the DNOs the opportunity to begin establishing baseline expectations of activity. As we see which activities are most effective as RIIO-ED2 unfolds, we will be able to make more informed decisions about where those baselines lie.
- 4.126 In some areas, such as local area energy planning engagement with local authorities, we also agree that there is much more history and evidence emerging, and this will be addressed as part of the System Optimisation Output (see section above).
- 4.127 UKPN's CEG stated that there were no meaningful incentives for whole system initiatives. We disagree, as the BPI is a strong financial incentive to engage in whole system thinking and identification of activities at the business planning stage.

4.128 We have assessed that all DNOs have passed Stage 1 of the whole system minimum requirements for the BPI.

#### Whole system focus on the innovation stimulus

4.129 We received no comments in the consultation responses with regards to the innovation stimulus element. We maintain our Draft Determination position to introduce this.

#### CAM Re-opener

- 4.130 UKPN responded with a specific point about the CAM Re-opener, questioning whether it should be linked to opportunities to receive additional funding.
- 4.131 The CAM was designed to ensure that the most efficient solution to a network issue could be implemented, no matter where in the regulated sectors the funding was originally allocated. The re-opener allows that funding to be moved from any regulated sector within gas and electricity, to any other regulated gas and electricity sector.
- 4.132 Where the benefits of any proposed activity are uncertain across sectors, including the wider categories of heat, or transport, we encourage all DNOs to make greater use of the Whole System CBA developed jointly by gas and electricity licensees via the ENA, which addresses precisely these issues of attributing cost, foregone revenue, and benefit.
- 4.133 Where funding does not already exist for an un-anticipated issue arising, we would expect licensees to utilise one of the other existing re-openers.

# 5. Meeting the needs of consumers and network users

#### Section summary

In this chapter, we set out our final decisions on the outputs and incentive arrangements that we will implement in RIIO-ED2, to ensure that DNOs respond to the needs of their customers. These arrangements cover three key service areas: customer service, consumer vulnerability and connections.

#### **Overview**

- 5.1 We expect DNOs to deliver high quality services that meet the needs of consumers and network users and enable the transition to net zero. For RIIO-ED2, we expect DNOs to deliver this by continuing to improve the level of service that customers receive when they require a new or modified connection, experience a supply interruption, or have a general enquiry. We also expect DNOs to ensure that complaints are dealt with quickly and effectively.
- 5.2 Additionally, while the transition to a lower carbon, lower cost energy system is expected to bring a range of benefits overall, some consumers, especially those in vulnerable situations, may be at risk of being excluded. Therefore, in RIIO-ED2 we also expect DNOs to provide appropriate support and services to consumers in vulnerable situations that address their key priorities.
- 5.3 In our Draft Determinations, we set out our proposed outputs and incentive arrangements for RIIO-ED2, that we considered would encourage DNOs to meet these expectations. We said that we would:
  - retain the Customer Satisfaction Survey and Complaints Metric elements of the Broad Measure of Customer Service (BMCS) Incentive in RIIO-ED2, to drive improvements in the quality of service provided to customers. We set out our proposals for applying rewards or penalties to DNOs within period, based on the level of their performance
  - apply a strong package of consumer vulnerability measures which will hold DNOs accountable for providing a minimum level of service and for delivering their vulnerability strategies. We set out our proposals for introducing a Consumer Vulnerability Incentive and a requirement for DNOs to submit an annual vulnerability report
  - retain the Time to Connect Incentive for connections in RIIO-ED2 to deliver improvements in the time it takes to connect minor connection customers. We set out our proposals for applying rewards or penalties to DNOs within period, based on the level of their performance
  - introduce a new incentive to improve the service delivery for major connections customers to enable a flexible low carbon transition.
- 5.4 Since the publication of Draft Determinations, we have:

- updated the scores that DNOs must achieve across the BMCS and Time to Connect incentives to earn rewards or incur penalties. These scores were updated to incorporate the latest DNO performance from 2021/22
- lowered the score at which the maximum penalty cap is applied under the Complaints Metric
- introduced new reporting metrics for customer service following lessons learned from the Storm Arwen review
- recalibrated the weightings of the consumer vulnerability incentive to place more importance on the value of services delivered to consumers
- continued to work with DNOs and stakeholders on the major connections incentive to update the target score and implement measures that mitigate the risk of unintended consequences.

#### Figure 5: An overview of Chapter 5



## Deliver high quality customer service

- 5.5 We expect DNOs to deliver high quality services that meet customers' needs. For RIIO-ED2, we expect DNOs to continue to improve the quality of service provided to customers that require a new connection, seek information from the network in the event of a supply interruption or have made a general enquiry. We also expect DNOs take the necessary steps to ensure that complaints are dealt with quickly and effectively.
- 5.6 The BMCS Incentive consists of the Customer Satisfaction Survey (CSS) and the Complaints Metric (CM). These measures aim to drive the DNOs to deliver good customer service by replicating the sorts of measures typically used by consumer-facing businesses in a competitive environment.

Purpose	To encourage DNOs to continue to improve the quality of	
	their customer service	
Benefits	Rewards will encourage DNOs to deliver exceptional	
	customer service while penalties will ensure performance	
	does not deteriorate	

# **Customer Satisfaction Survey**

## Final Determination summary

Parameter	Final Determination	Draft Determination		
ODI type	Financial	Same as FD		
Incentive type	Reward and Penalty	Same as FD		
Incentive value	+/- 0.4% of RoRE	Same as FD		
Performance measurement	Scores based on three weighted surveys: general enquiries survey (20%), connections survey (50%) and supply interruptions survey (30%)	Same as FD		
Baseline setting methodology	Target based on average performance over the last 4 years Deadband set at 0.5 standard deviations around the target Cap and collar set at 2 standard deviations around the target	Target - same as FD Deadband - updated at FDs In our Draft Determination we proposed using a deadband set at one standard deviation around the target score Cap and collar - same as FD		
Performance target	Target of 9.01 for the supply interruptions, connections, and general enquiries surveys	Updated at FDs In our Draft Determination we proposed a target score of 8.90. This was based on average DNO performance over		

5.7 The table below provides a summary of our final determination position.

Parameter	Final Determination	Draft Determination
Deadband Scores greater than 9.12 will receive a reward Scores less than 8.90 will receive a penalty	Scores greater than	Updated at FDs
	In our Draft Determination we proposed that scores greater than 9.2 should receive a reward and scores less than 8.6 should receive a penalty; this was based on the deadband being set at one standard deviation around the target score	
		In our Final Determination we have decided to set the deadband at 0.5 standard deviations around the target score and we have also updated these scores to incorporate the latest DNO performance from 2021/22
Cap and collar	Rewards will be capped	Updated at FDs
	for scores above 9.46 Penalties will be capped for scores below 8.57	In our Draft Determination we proposed that rewards should be capped for scores above 9.4 and penalties should be capped for scores below 8.4; this was based on the deadband being set at 2 standard deviations around the target
		have updated these scores to incorporate the latest DNO performance from 2021/22
Applied to	All DNOs	Same as FD
Reporting Method	Annual RRP reporting	Same as FD
Licence Condition	SpC 4.3	N/A

Final Determination and consultation responses

- 5.8 We received 10 responses to our consultation. In response to stakeholder feedback, we have decided to implement this ODI-F with some changes to our proposed incentive structure.
- 5.9 We summarise the responses received and set out our decisions and reasons for each of these aspects below.

Target

- 5.10 We have decided to implement our Draft Determination position to use the average of DNO performance from the last four financial years, to set a fixed target for RIIO-ED2.
- 5.11 Seven stakeholders including five DNOs, one CEG and one supplier, supported this approach, recognising that it embeds the improved performance that has been delivered over RIIO-ED1.
- 5.12 We have updated the target score that we proposed in our Draft Determination, to incorporate the latest DNO performance from 2021/22 as this data was not available when we published our Draft Determinations. We have therefore decided to implement an updated target score of 9.01.
- 5.13 ENWL suggested that we should remove data from 2019/20 and 2020/21 from the target setting methodology, stating that the higher scores over this period could in part be attributed to the COVID-19 pandemic and customer sentiment to key workers over this period.
- 5.14 We disagree with this view, noting that some DNOs managed to continue improving their scores in 2021/22, after the pandemic. We also think this approach would set a low target, that would reward the majority of companies for maintaining their current performance and fail to incentivise further improvement.
- 5.15 ENWL also suggested that we should consider setting three separate targets for the general enquiries, connections, and supply interruptions surveys, due to the differing levels of performance in each category.
- 5.16 Our analysis suggests that this approach would result in more DNOs earning rewards for maintaining their service levels across the connections and supply interruptions elements of the customer satisfaction survey. This is because DNOs performance across these elements has generally been poorer in RIIO-ED1, which would result in lower targets being set for RIIO-ED2. Additionally, improvements in DNO performance has slowed in the latter half of RIIO-ED1<sup>52</sup> and DNO scores have also converged.<sup>53</sup> This means that minor performance improvements could result in the majority of DNOs earning rewards.
- 5.17 On balance, we think that our target setting methodology should minimise the number of DNOs that start the price control in reward for maintaining their current service levels, especially across the higher weighted survey

<sup>&</sup>lt;sup>52</sup> DNO performance in the connections element of the customer satisfaction survey improved by 4.5% between 2015/16 and 2018/19 and by 2.9% between 2018/19 and 2021/22. For the supply interruptions element, DNO performance improved by 2.6% between 2015/16 and 2018/19 but declined by 0.3% between 2018/19 and 2021/22. <sup>53</sup> The standard deviation of DNO scores for the connections element of the customer satisfaction survey was 0.28 between 2015/16 and 2018/19, and 0.25 between 2018/19 and 2021/22. For the supply interruptions element, the standard deviation was 0.23 between 2015/16 and 2018/19, and 0.19 between 2018/19 and 2021/22.

categories.<sup>54</sup> Therefore, we have decided against setting separate targets for the three elements of the customer satisfaction survey.

- 5.18 A consumer body said that the use of a 4-year average to set the target score gives undue weighting to outliers. They provided several alternatives to our proposed target setting approach and suggested using the average 90th percentile of DNO performance, the use of rolling targets or applying an annual improvement factor to set the target score. They stated that these approaches reflect the fact that DNO performance is likely to improve.
- 5.19 We note these concerns to our target setting approach. In relation to the use of the 90th percentile to set the target, we think that this approach will not incentivise lower performing companies to improve their performance. This is because the threshold to start earning rewards will be too high. We think that this could lead to a widening performance gap that could result in customers in different regions experiencing different levels of customer service.<sup>55</sup>
- 5.20 In relation to the use of rolling targets or annual improvement factors, we think that setting the target using the most recent available RIIO-ED1 performance data, together with the implementation of a deadband, will embed the performance improvements gained to date and require the majority of DNOs to make further improvements to meet the threshold to start earning rewards
- 5.21 Finally, we do not think that the suggested approach would give DNOs the latitude to deal with changing customer behaviours or the increase in scale of some services, in particular connection services, that the DNOs are forecast to deliver in RIIO-ED2.
- 5.22 The consumer body also said that we should also use DNO performance data from 2022/23 to set the target score. We note that this approach would delay us from establishing the target, deadband and cap and collar scores until midway through the first year of the price control. We think it is important that we set out our expectations in relation to incentives ahead of the price control coming into force. This will provide DNOs and other industry stakeholders with certainty and allow them to plan their operations accordingly.

<sup>&</sup>lt;sup>54</sup> The general enquiries element of the customer satisfaction survey has the lowest weighting of all survey categories (20%) whereas the connections and supply interruptions surveys, collectively have a much larger weighting (50% and 30% respectively).

<sup>&</sup>lt;sup>55</sup> DNOs overall customer satisfaction survey scores improved by 5.1% between 2015/16 and 2021/22. If we assume that a similar level of improvement occurs in RIIO-ED2, in the proposed scenario the lowest 4 performing DNOs would not reach the threshold for earning rewards. In this instance, these DNOs may decide against investing in improving their customer service, which would lead to a widening performance gap between high and low performing companies.

- 5.23 The consumer body also said that we should consider setting target scores for LCT and Priority Services Register (PSR) customers. We note that DNOs will start reporting their customer satisfaction scores for these customer groups in RIIO-ED2. We think that it would be prudent to review this data before making any decisions on whether setting target scores for these groups would provide any real benefits.
- 5.24 UKPN's CEG asked us to set out how the higher target and the introduction of a deadband that we proposed in our Draft Determination, have been justified by reference to consumers' concerns and preferences.
- 5.25 We reviewed the findings from the DNO's customer engagement summaries, which were submitted as part of their RIIO-ED2 business plans. Customers expressed differing levels of satisfaction with the level of service being delivered by their DNOs as well as areas for improvement. We think this supports the case for setting the target at the level that we have.

#### Deadband

- 5.26 We have decided to implement a symmetric deadband for each survey that is  $\pm 0.5$  standard deviations from the target score. We have updated the deadband scores we proposed in our Draft Determination, to incorporate the latest DNO performance from 2021/22. This means that scores greater than 9.12 will receive a reward and scores less than 8.90 will receive a penalty.
- 5.27 This is a change from our Draft Determinations position of setting a deadband that is  $\pm 1$  standard deviation from the target. We have taken this decision in response to the evidence provided by stakeholders in consultation responses.
- 5.28 One supplier agreed with the deadband proposed in our Draft Determination, stating that this was reasonable given the level of performance achieved in RIIO-ED1. However, all six DNOs said that the proposed deadband was too large and that this would lead to stagnating performance in RIIO-ED2. The rationale provided for this statement was that low or middling performing companies would deem that they have a low likelihood of reaching the threshold to start earning rewards and not invest in the additional capabilities required to improve their scores.
- 5.29 UKPN also highlighted that the large deadband results in a narrow reward / penalty range and consequently, a high incentive rate. They noted that there is limited evidence to support such a significant increase in incentive rate in RIIO-ED2.
- 5.30 We agree with these comments, noting that a smaller deadband should incentivise middling and poor performing companies to improve their performance to avoid penalty or earn rewards, and minimise the gap with higher performing companies. Therefore, we have reduced the size of the deadband as noted in paragraph 5.26.

5.31 ENWL also suggested that an asymmetric deadband approach should be considered to avoid a situation where DNOs could be in penalty for what would be considered excellent levels of customer service in any other sector. We note that the smaller deadband will not penalise companies for scoring above the maximum reward score for RIIO-ED1 (8.9).

# Cap and Collar

- 5.32 We have decided to implement a symmetric cap and collar for each survey that is  $\pm 2$  standard deviations from the target score. We have updated the target score we proposed in our Draft Determination, to incorporate the latest DNO performance from 2021/22. This means that rewards will be capped for scores above 9.46 and penalties will be capped for scores below 8.57.
- 5.33 5 out of 6 stakeholders, including three DNOs, one CEG and one supplier, agreed with this approach stating that this proposal was reasonable given the levels of performance seen in RIIO-ED1. NGED disagreed, stating that we should cap rewards for scores above 9.3 and penalties for scores below 8.5, however no justification was given for this position.

## **Implementation**

- 5.34 In our Draft Determination, we said that we did not intend to make any changes to the survey channel used to undertake customer satisfaction surveys.<sup>56</sup> This was based on the results from a trial that DNOs undertook to assess how changes to the survey channel affect the survey scores given by customers.<sup>57</sup>
- 5.35 Though we did not have any consultation questions relating to the communication channels used to conduct the customer satisfaction survey, two stakeholders (a consumer body and SSEN's CEG) noted that the survey channel should be broadened to reflect consumers' communication needs.
- 5.36 We have decided to maintain our DD position and not make any changes to the survey channel. This is based on the fact that most DNOs said in their Business Plans, that they will work towards to capturing their customers' preferred communication channel, in RIIO-ED2. Noting the low uptake of new survey channels during the trial, we think that it may be more appropriate to broaden the survey channel in RIIO-ED3.

<sup>&</sup>lt;sup>56</sup> In RIIO-ED1, customer satisfaction surveys have been conducted by telephone.
<sup>57</sup> The trial widened the survey channel to include SMS and email in addition to the current telephone interview. The results showed that very few customers are choosing to use these new channels to submit their survey results and in cases where they do, the scores provided are more likely to be skewed to the extreme ends of the score range.

Purpose	To ensure DNOs maintain good performance in their	
	handling of complaints	
Benefits	Having a penalty-only incentive to monitor complaints	
	resolution will ensure consumers' complaints are dealt	
	with quickly and effectively	

# **Complaints Metric**

# Final determination summary

5.37	The table below	provides a	summary	of our	final	determination	position.
------	-----------------	------------	---------	--------	-------	---------------	-----------

Parameter	Final Determination	Draft Determination		
ODI type	Financial	Same as FD		
Incentive type	Penalty	Same as FD		
Incentive value	-0.2% of RoRE	Same as FD		
Performance measurement	Score based on four weighted indicators:	Same as FD		
	complaints unresolved after one day (10%)			
	complaints unresolved in 31 days (30%)			
	repeat complaints (50%)			
	the number of Energy Ombudsman decisions that go against the DNO (as a percentage of total complaints) (10%)			
Baseline setting	Target based on average	Target - updated at FDs		
methodology	performance over the last 7 years	In our Draft Determination		
	Maximum penalty set at 2 standard deviations above the target	by target based on average DNO performance over the last 6 years		
		Maximum Penalty - updated at FDs		
		In our Draft Determination we proposed setting the maximum penalty at the maximum score attained over the last 6 years		
Performance target	Target of 2.80	Same as FD		
Parameter	Final Determination	Draft Determination		
-------------------	--	--		
	Companies have a penalty for scores above the target			
Maximum penalty	Penalties will be capped for scores above 5.95	Updated at FDs In our Draft Determination, we proposed that penalties would be capped for scores above 8.0		
Applied to	All DNOs	Same as FD		
Reporting method	Annual RRP reporting	Same as FD		
Licence Condition	SpC 4.3	N/A		

Final Determination rationale and Draft Determination responses

- 5.38 We received 11 responses to our consultation. In response to stakeholder feedback, we have decided to implement this ODI-F with some changes to our proposed incentive structure.
- 5.39 We summarise the responses received and set out our decisions and reasons for each of these aspects below.

## Target

- 5.40 We have decided to implement our Draft Determinations position, to set a fixed target of 2.80. We think that this is appropriate for RIIO-ED2 as it embeds the improved DNO performance that has been delivered in RIIO-ED1. We have updated the target score to incorporate the latest DNO performance from 2021/22, as this was not available when we published our Draft Determinations.
- 5.41 A consumer body and a supplier both noted that the proposed target was not representative of DNO's most recent performance and therefore unlikely to drive performance improvements.
- 5.42 In response to this feedback, we explored the impact of implementing two options which set target scores that are tougher than the target we proposed at Draft Determinations:
  - target set at 1.93 (90th percentile of data from the last seven years)
  - target set at 2.13 (average DNO performance from the last four years).
- 5.43 We noted that DNOs have accrued no penalties from the repeat complaints and Energy Ombudsman decision categories of the Complaints Metric over RIIO-ED1. If we assume that this will continue in RIIO-ED2, DNOs would have to resolve approximately the level of complaints shown in Table 9, to achieve the target score set out in the far-left column.

Table 9 Estimated percentage of complaints that must be resolved to meet the target score

Target Score	% complaints resolved within 24 hours	% complaints resolved within 31 days
1.93	90%	98%
2.13	85%	97%
2.80	80%	95%

- 5.44 We think that DNOs should focus on providing comprehensive and quality responses to complaints. Setting a low target could result in perverse behaviours such as DNOs prioritising speed of response over quality of response. Therefore, in this specific instance, we consider that it is appropriate to incorporate data from earlier within the price control, in our target setting methodology. We consider that our proposed target will encourage the appropriate DNO behaviours, embed the DNO improvements seen in RIIO-ED1 and prevent DNO performance from significantly deteriorating.
- 5.45 The supplier also noted that the proposed target will allow DNOs to reduce their performance relative to their most recent four-year average without incurring penalties.
- 5.46 We note these concerns but do not agree. This is because in RIIO-ED1, DNOs made significant performance improvements despite consistently out-performing the target score of 8.<sup>58</sup> Based on this performance we do not think that there is sufficient evidence to substantiate the stakeholder's concern.

## Maximum Penalty

- 5.47 We have decided to implement a maximum penalty that is 2 standard deviations above the target. This means that penalties will be capped for scores above 5.95. This is a change from our Draft Determination position of setting the maximum penalty at the highest score seen in RIIO-ED1, which was 8.0. We have taken this decision after considering the evidence provided by stakeholders in their consultation responses and 2020/21 data.
- 5.48 A consumer body and a supplier both noted that the proposed maximum penalty was not representative of DNO's performance in RIIO-ED1 due to being a single data point that was an outlier that was achieved in the first year of RIIO-ED1.

<sup>&</sup>lt;sup>58</sup> DNOs achieved an average complaints metric score of 4.61 in 2015/16 and reduced this to an average score of 2.54 in 2021/22.

- 5.49 We agree with these comments, noting that a smaller penalty range will result in a higher incentive rate which should encourage poor performers to improve their performance to avoid penalty.
- 5.50 We have decided to set the maximum penalty at 2 standard deviations above the target. This is consistent with the approach taken to set the cap and collar of the customer satisfaction survey and excludes statistical outliers from our methodology.

#### Storm Arwen customer service recommendations

#### **Background**

- 5.51 Ofgem published its final report on the network operators' response to Storm Arwen on 9 June 2022.<sup>59</sup> The report identified lessons to be learned and recommendations to be taken forward.
- 5.52 The review found that during the storm, customers received poor service when attempting to contact their DNO. In our Draft Determinations document we proposed to:
  - work with DNOs to develop additional reporting metrics for communication channels such as websites, applications and social media
  - consider how these new reporting metrics should fit into the RIIO-ED2 price control
  - review the incentive framework for customer service, in relation to call-backs, to ensure that it drives overall benefits for consumers.
- 5.53 Following the publication of our Draft Determinations we have worked with stakeholders through the Connections and Customer Service Working Group (C&CSWG) to deliver these actions.

## Final Determination and consultation responses

- 5.54 All respondents agreed with our approach to work with stakeholders between the publication of our Draft Determinations and Final Determinations to develop communication channel metrics and review the incentive framework for customer service, in relation to call-backs.
- 5.55 We summarise the outcome of these actions, set out our decisions and reasons for each of these aspects below.

#### Communication channel metrics

5.56 We have decided to implement the following new metrics for RIIO-ED2:

<sup>&</sup>lt;sup>59</sup> Further information on our Storm Arwen report is available at the Ofgem website: <u>https://www.ofgem.gov.uk/publications/storm-arwen-report</u>

- number of inbound communications<sup>60</sup> that are received by the DNO's public contact channels, recorded by channel type<sup>61</sup>:
- number of visits<sup>62</sup> to DNO's website<sup>63</sup>
- number of unique visitors<sup>64</sup> to DNO's website
- maximum concurrent visitors to DNO's website
- average and maximum load time for the DNO's website
- percentage of website load times that exceed 5 seconds
- number of inbound communications that are received by the DNO's social media channels that are responded to by an automated message and an agent
- percentage of inbound queries or complaints that are received by the DNO's social media channels, that are responded to
- average and maximum response time for inbound communications that are received from the DNO's social media channels.
- 5.57 We have decided to implement metrics for DNO websites and social media channels because data from the DNO's showed that the majority of DNOs use these channels and they have a higher usage during storm events.
- 5.58 We consider metrics related to DNO websites are appropriate for inclusion because they show the scale of each DNO's website audience and provide an indication of how resilient the DNO's website is to high stress events such as storms, where large volumes of customers will try to access information via this channel. Similarly, we consider the metrics related to social media appropriate for inclusion because they will help us to monitor whether communications received via these channels are responded to in a timely manner.
- 5.59 We have decided that data for these metrics should be aggregated on a monthly basis and submitted to Ofgem annually, through the RRPs. This is consistent with our approach for collating existing telephony metrics.

## Call-backs

5.60 Call-backs can provide support to customers, especially during storm events where large volumes of customers are trying to contact their DNO,

<sup>&</sup>lt;sup>60</sup> This includes queries or complaints that are related to supply interruptions, connections, or general enquiries.

<sup>&</sup>lt;sup>61</sup> This includes the DNO's published telephone number, SMS text-based system, webbased text system (WhatsApp, DNO mobile app), web-based electronic mail (e-mail, online form), web-based instant messaging platforms (web chat, chat bot), social media platforms (Instagram, Facebook, Twitter).

<sup>&</sup>lt;sup>62</sup> the number of users that visit the DNO website.

<sup>&</sup>lt;sup>63</sup> These metrics apply to the DNO's whole website.

<sup>&</sup>lt;sup>64</sup> The number of users that have visited the DNO's website at least once in the reporting period.

by letting customers avoid waiting on hold for long periods of time and calling customers back once an agent is available to speak with them.

- 5.61 Under the interruption element of the customer satisfaction survey in RIIO-ED1, DNOs are penalised 0.02% of annual base revenue for each 1% of calls to the DNO that are unsuccessful. Calls where a customer opts to be called back by a DNO agent and where the time taken for the agent to make that call-back is greater than 60 minutes, contribute to the total number of unsuccessful calls.
- 5.62 We have worked with the C&CSWG to review the current customer service incentive framework. As part of the review we assessed whether the current framework discourages DNOs from having a call back function or encourages them to switch-off their call-back function during emergency incidents, to avoid penalties.
- 5.63 We reviewed the DNO's unsuccessful calls data and found that the percentage of callers who opt for a call-back is relatively small (4% in 2021/22). We also found that the number of call-backs where an agent does not return the customer's call within 60 minutes, has a minor impact on the unsuccessful calls penalty (between 2% and 7% of total unsuccessful calls between 2018/19 and 2021/22<sup>65</sup>).
- 5.64 We also observed that two out of the six DNOs do not currently operate a call-back function and explored the option of introducing a new obligation that would require all DNOs to provide a call-back function to customers on an 24/7 basis. This would ensure that the service is available to all customers, regardless of licence area.
- 5.65 We looked at the specific case study of Storm Arwen and noted that of the two DNOs (NGED and NPg), NGED's licence areas had call abandonment rates in line with DNOs that do operate a call-back function<sup>66</sup> (7% for NGED and 6% for other DNOs). We also noted that NGED's mean call response time was faster than these DNOs (20s compared to 90s). This suggests that customers in NGED's licence areas were not adversely affected by the DNO not operating a call-back function. We were unable to provide a similar assessment of NPg's licence areas due to the wider telecoms issues they experienced during Storm Arwen.<sup>67</sup> Additionally, all

<sup>&</sup>lt;sup>65</sup> Data relating to the total number of calls where a customer opted to be called back and the time taken to make that call back was greater than 60 minutes, has only been reported through regulatory reporting packs over this period.

<sup>&</sup>lt;sup>66</sup> This includes ENWL, SPEN and SSEN. Data from UKPN was excluded as these licence areas were not significantly affected.

<sup>&</sup>lt;sup>67</sup> NPg advised that their high call abandonment rate during Storm Arwen was caused by a combination of factors. Their website was unavailable for approximately 15 hours which led to customers contacting NPg by telephone to report a power cut or receive information on their restoration time, instead of keeping up to date via their website. NPg advised that the local telephony network was unable to deal with the additional volume of calls which resulted in 4,322 customer calls being terminated.

DNOs confirmed that they have systems or processes in place to prioritise PSR customers and place them at the front of any agent queue.

5.66 Based on these findings, we do not think that it is proportionate to require DNOs to provide a call-back function that is always available. In this instance, we think that DNOs are best placed to decide which telephony functions and services they should implement which will best serve the needs of their customers.

# Removal of stakeholder engagement and consumer vulnerability incentive

## <u>Background</u>

5.67 In our Draft Determination we said that we would remove the Stakeholder Engagement and Consumer Vulnerability (SECV) incentive for RIIO-ED2, as these areas are being considered through other incentives in the price control.<sup>68</sup>

#### Final Determination summary

5.68	The table below	provides a	summary	/ of	our final	determination	position.
		p			••••••		p • • • • • • • •

Parameter	Final Determination	Draft Determination
SECV incentive	Removal of SECV incentive for RIIO-ED2	Same as FD

Final Determination rationale and Draft Determination responses

5.69 We did not consult on the removal of the SECV at Draft Determinations. This is because this was consulted on as part of our SSMC and confirmed in our SSMD in 2020. We did not receive any further feedback as part of our Draft Determinations consultation. As such, we have decided to remove the SECV from the customer service incentive structure.

## Support for consumers in vulnerable situations

- 5.70 Ensuring energy companies support and protect consumers in vulnerable situations is a priority for Ofgem. Our vulnerability package for RIIO-ED2 will ensure DNOs provide appropriate support and services to consumers in vulnerable situations and address the key vulnerability priorities for those:
  - most at risk during a loss of supply
  - in, or at risk of, fuel poverty

<sup>&</sup>lt;sup>68</sup> Our assessment of Business Plans through the BPI takes account of the quality of engagement carried out by DNOs in developing their plans. With regards to consumer vulnerability, we are proposing a package of measures to ensure DNOs embed the progress they have made in the current price control in RIIO-ED2. More detail on this can be found in the next section of this chapter.

- most at risk of being left behind in the energy system transition towards net zero.
- 5.71 We introduced these three priorities in Annex 1 of our SSMD document and said that they should be addressed by DNOs through their RIIO-ED2 Vulnerability Strategies.
- 5.72 In our Draft Determination, we set out a package of outputs to support consumers in vulnerable situations in RIIO-ED2. This included minimum standards and new incentives to hold companies to account within period and encourage best practice initiatives, which exceed the levels of service expected from a DNO. We also built-in sufficient flexibility within the package to ensure DNOs consider how their role in protecting the interests of consumers may change.
- 5.73 We recognise that the consumer landscape has changed since the publication of our Draft Determinations and that the impact of the cost-of-living is being felt most by those in vulnerable situations, particularly those who are fuel poor. In response, we have reviewed our vulnerability proposals to ensure they go far enough to enable valuable support to be delivered and have flexibility for DNOs to target their support to those who need it most. The key changes since our Draft Determinations are:
  - updating the weighting given to individual metrics to place more emphasis on the value of services delivered to customers
  - updating target scores to reflect the most up to date information available to us
  - reassessing our position on some bespoke proposals aimed at supporting vulnerable customers (our assessment of bespoke proposals is set out in more detail in the Company Annexes).

## **Treating Domestic Customers Fairly (LO)**

Purpose	To place an obligation on licensees to treat all domestic customers fairly and have the measures in place that deliver positive outcomes for such customers
Benefits	Licensees have the measures in place to develop positive outcomes for domestic consumers, including identifying such customers in an effective and appropriate manner and interacting with these consumers in a way that takes into account any vulnerability.

## <u>Background</u>

5.74 In Annex 1 of our SSMD document, we proposed to introduce a new LO on DNOs to treat their customers, including those in vulnerable situations, fairly (referred to as the Treating Domestic Customers Fairly licence

condition). This followed the introduction of a similar condition in 2017 to the gas and electricity supply licences, and for the Gas Distribution Networks (GDNs) in RIIO-GD2.

- 5.75 We said that the proposed licence condition would underpin our approach to protecting consumers in RIIO-ED2. This licence condition, combined with the funding provided to DNOs through their ex ante allowances, should enable companies to fulfil their role in supporting consumers in vulnerable situations.
- 5.76 We also noted that by adopting a comparable licence condition to suppliers and GDNs, we can drive greater consistency in the support vulnerable consumers receive across the sector.

Final Determination summary

Parameter	Final Determination	Draft Determination
Output type	LO	Same as FD
Licence condition	Standard Licence Condition 10AA	N/A
Associated Document	RIIO-ED2 Fair Treatment Guidance	N/A

5.77 The table below provides a summary of our Final Determination position.

Final Determination rationale and Draft Determination responses

- 5.78 We have decided to introduce a new obligation on licensees to treat their customers fairly, including those in vulnerable situations.
- 5.79 We did not consult on the proposed licence condition at Draft Determinations. DNOs did however raise overarching concerns as part of the recent informal RIIO-ED2 licence consultation. Given the licence condition's importance in protecting the interests of consumers (particularly those in vulnerable situations), we have decided to address those overarching concerns here. We will consider more detailed feedback on the licence drafting as part of our statutory licence consultation in December 2022.
- 5.80 Since the publication of our SSMD, we have worked extensively with DNOs to find a workable solution that protects consumers and addresses the overarching concerns that DNOs have raised about the proposal.
- 5.81 All DNOs supported the intent of the licence condition, however they were concerned that the LO could leave them exposed to unwarranted risks, including potential enforcement action. The overarching concern raised was that this could result in activities that DNOs routinely undertake being in breach of "the letter" of the licence condition. DNOs suggested a "reasonable endeavours" obligation on the licensee as an alternative.
- 5.82 DNOs also commented on the Fair Treatment Guidance document which will be published alongside the final licence condition. DNOs noted this

document introduces a "fairness test" and "compliance threshold" which would need to be clearly defined.

- 5.83 We will consider how potential compliance issues should be handled on a case-by-case basis. Any decisions on enforcement action are generally taken in line with our Enforcement Guidelines and associated prioritisation criteria.<sup>69</sup> Furthermore, we note that an equivalent licence condition is already in place for the GDNs. We have not seen any compelling evidence that demonstrates why electricity distribution companies are materially different to the gas network equivalents in their ability to comply with this obligation.
- 5.84 We will continue to develop the licence condition and guidance document considering the feedback received to the informal licence consultation and reflect on where further clarification and definition is required. We will publish an updated version of the licence condition guidance as part of the statutory licence consultation in December.

## Vulnerability Strategies, associated principles and baseline expectations

Purpose	To ensure that DNOs provide the appropriate support and services to customers in vulnerable situations in RIIO- ED2
Benefits	To support the delivery of services by the companies, which build on the extent and quality of service delivered in RIIO-ED1 where the DNOs' competence and opportunity for customer interaction puts them in the best position to deliver support

## <u>Background</u>

5.85 In our Draft Determinations document, we proposed to fund DNOs to deliver their Vulnerability Strategies through ex ante allowances, where the activities are well justified. We also proposed to remove funding for activities which were poorly justified and/or extended the scope of the DNOs' role into areas where they are not best placed to act.

#### Final Determination summary

5.86 The table below provides a summary of our Final Determination position.

<sup>&</sup>lt;sup>69</sup> Please refer to the Ofgem website for our Enforcement Guidelines: <u>https://www.ofgem.gov.uk/publications/enforcement-guidelines</u>

Parameter	Final Determination	Draft Determination
Funding mechanism	Ex ante allowances for the delivery of DNO vulnerability strategies, with the exception of:	Same as FD
	<ul> <li>the repair and replacement of gas boilers</li> </ul>	
	<ul> <li>the installation of energy efficiency measures</li> </ul>	
	<ul> <li>the training of in-house employees in delivering advice through workshops</li> </ul>	

Final Determination rationale and Draft Determination responses

- 5.87 We received 11 responses to our consultation position. In response to stakeholder feedback, we have decided to accept all of the DNOs' vulnerability strategy proposals with the following exceptions:
  - the repair and replacement of gas boilers
  - the training of in-house employees to deliver advice through workshops, specifically on energy efficiency, low carbon technology and digital skills
  - the installation of energy efficiency measures.

We maintain our Draft Determination position that these three areas of activity are currently outside the scope of a DNO's role.

- 5.88 Four respondents stated that they agreed with our Draft Determination position, two DNOs disagreed, and the remaining five responses were mixed.
- 5.89 We summarise the responses received and set out our decisions, with reasons, below.
- 5.90 SPEN and SSEN both disagreed with our proposal to remove activities relating to the installation of energy efficiency measures and highlighted the importance of these activities during the current cost-of-living crisis and the benefits it would deliver for customers.
- 5.91 This view was also supported by SSEN's CEG who noted that DNOs have a role to play in the installation of energy efficiency measures, especially in the context of whole system planning. All three stakeholders recommended including the installation of energy efficiency measures, within the scope of DNOs' activities in RIIO-ED2.
- 5.92 We recognise that energy efficiency is an important enabler in the energy system's transition towards net zero, in whole system planning and a means of reducing pressures on consumer bills in the current cost-of-living crisis. However, we consider that funding DNOs to directly install energy efficiency measures in customer homes goes beyond their role and

any activity undertaken in RIIO-ED1. We therefore disagree that this activity should be in scope for DNOs to deliver over RIIO-ED2.

- 5.93 The primary reason for this is that there are existing avenues which support customers in accessing energy efficiency measures. We note that Government funding is available through various schemes. We also remain concerned that allowing DNOs to operate in this space may impact a competitive market and consumer's choice in deciding a preferred thirdparty company to install energy efficiency measures.
- 5.94 An environmental representative group acknowledged our Draft Determinations proposal on the installation of energy efficiency measures but stated that some level of targeted energy efficiency support can be justified.
- 5.95 We agree with the view that some targeted energy efficiency support can be justified. However, we think that this should be limited to:
  - DNOs making use of referral channels to signpost customers to existing energy efficiency support available to customers eg Government grant schemes
  - DNOs utilising their network of partnerships to enable referrals where energy efficiency advice can be provided to customers. We note that consumer bodies, charities and local organisations provide advice and in-depth energy efficiency support and consider that DNOs should be supporting these companies in the work they do and the benefits that can be provided for their customers.
- 5.96 SSEN stated that the repair and replacement of gas boilers and the inhouse training of employees in delivering advice through workshops should be funded ex ante. It noted that the removal of these activities would compromise the delivery of its vulnerability strategy.
- 5.97 We maintain our position that DNOs do not have an emergency role in gas safety or in isolating or condemning unsafe boilers. We do not consider it appropriate for electricity customers to fund this activity and we note the RIIO-GD2 Vulnerability and Carbon Monoxide Allowance which enables GDNs to support customers in vulnerable situations, including the repair and replacement of gas boilers so that those most in need are not without heating.
- 5.98 We maintain our position that DNOs should not be provided with allowances to train in-house employees to deliver advice through workshops on energy efficiency, low carbon technology and basic digital skills. We have not seen compelling evidence which justifies why a DNO should train its own employees rather than utilising partnership networks (eg expert charities and local organisations) to deliver the same advice and teaching.
- 5.99 Following the publication of our Draft Determinations, we held bilateral meetings with each of the DNOs. Through this engagement we found that only SSEN, was planning to deliver the activities we proposed to exclude.

As no other DNOs have planned to deliver these activities, we therefore consider SSEN to be an outlier in how it has determined the scope of its role in supporting customers in vulnerable situations.

- 5.100 We have considered the impact of removing costs associated with delivering the three excluded activities from the SSEN's ex ante allowances. We consider that removing these costs would have a disproportionate impact on SSEN's vulnerability strategy costs and that removing these allowances will impact SSEN's ability to deliver other elements of its strategy. We also note that removal of these costs impacts SSEN's package of support for customers in fuel poverty.
- 5.101 Therefore, whilst we maintain our Draft Determination position that these activities should not be undertaken by the DNOs and funded by customers, we have decided to allow the costs for SSEN (subject to our cost assessment) given the development of the cost-of-living crisis since Draft Determinations and increasing pressures on household budgets. We encourage SSEN to consider how best they can use this funding to further enhance the support available to fuel poor customers.

Purpose	To ensure DNOs are held accountable for delivering their	
	vulnerability strategies and the baseline expectations. To	
	incentivise DNOs to develop ambitious and best practice	
	initiatives	
Benefits	To support DNOs' provision of the appropriate support	
Benefits	To support DNOs' provision of the appropriate support and services for consumers in vulnerable situations and	
Benefits	To support DNOs' provision of the appropriate support and services for consumers in vulnerable situations and develop their role in response to emerging risks and	

## **Consumer Vulnerability Incentive (ODI-F)**

#### <u>Background</u>

- 5.102 In our SSMD, we said that we would introduce an ODI-F in the form of an ex-post evaluation, to assess companies' performance against our key principles and baseline expectations<sup>70</sup> for consumers in vulnerable situations, and the delivery of their vulnerability strategies.
- 5.103 In our Draft Determinations, we set out our proposals in relation to how the incentive should operate. This included using the following five metrics to measure DNO performance:

<sup>&</sup>lt;sup>70</sup> These are set out in Appendix 3 of RIIO-ED2 SSMD Annex 1, <u>https://www.ofgem.gov.uk/publications/riio-ed2-sector-specific-methodology-decision</u>

- the proportion of customers registered on a DNO's PSR out of the total eligible customers in its region(s), which we refer to as PSR Reach
- the value delivered as a result of DNOs providing fuel poverty support services
- the value delivered as a result of DNOs supporting customers at risk of being left behind in the energy system transition
- the customer satisfaction of customers who have received fuel poverty support services
- the customer satisfaction of customers who have received support to ensure no one is left behind in the energy system transition.
- 5.104 We also proposed to introduce an independent assurance process to underpin the ODI-F, providing assurance to Ofgem and wider stakeholders that DNOs' performance against the above metrics are comparable and reliable. This assurance was proposed in order to act as a gateway, requiring DNOs to pass a minimum criteria relevant to the metric before being eligible to earn any reward associated with the metric.
- 5.105 We also set out further detail on the incentive value and the frequency of performance measurement. Please see the table below for more detail on each of the incentive parameters.

Final	Determination	summary

Parameter	Final Determination	Draft Determination
ODI Type	Financial	Same as FD
Incentive type	Reward and penalty	Same as FD
Incentive value	+/- 0.2% of RoRE	Same as FD
Performance measure	Scores based on performance against five metrics:	Same as FD
	PSR Reach (40%)	
	Value of fuel poverty services delivered (20%)	
	Value of low carbon transition services delivered (20%)	
	Average customer satisfaction for customers who receive fuel poverty services (10%)	
	Average customer satisfaction for customers who receive low carbon transition support services (10%)	

5.106 The table below provides a summary of our Final Determination position.

Parameter	Final Determination	Draft Determination
Performance target	PSR Reach - DNO forecasted targets Value of services delivered metrics - DNO forecasted targets Average customer satisfaction	PSR Reach - same as FD Value of services delivered metrics - same as FD Average customer satisfaction surveys - same as FD
Deadbands	PSR Reach - DNOs that achieve a PSR reach between 60% and 75% will not be rewarded or penalised Value of services delivered metrics - DNOs that achieve between 10% above and below the baseline target will not be rewarded or penalised Average customer satisfaction surveys - N/A	PSR Reach - updated at FDs. In our Draft Determinations we said that DNOs that achieve a PSR reach between 50% and 70% should not be rewarded or penalised Value of services delivered metrics - same as FD Average customer satisfaction surveys -
Caps and collars	PSR Reach - rewards will be capped for DNOs that achieve a PSR reach greater than 90% and penalties will be collared for DNOs that achieve PSR reach less 45% Value of services delivered metrics - rewards will be capped for DNOs that achieve 20% above baseline target and penalties will be collared for DNOs that achieve 20% below the baseline target Average customer satisfaction surveys - rewards will be capped for DNOs that score above 9.5/10 and penalties will be collared for DNOs that score below 8.5/10	same as FD PSR Reach - updated at FDs. In our Draft Determinations we said that rewards should be capped for DNOs that achieve a PSR reach greater than 90% and penalties should be collared for DNOs that achieve PSR reach less than 35% Value of services delivered metrics - same as FD Average customer satisfaction surveys - same as FD
Minimum requirements	PSR Reach - reported in line with the common methodology and confirmation that the DNO has attempted to cleanse PSR customer data at least every 24 months	

Parameter	Final Determination	Draft Determination
	Value of services delivered metrics - Net Present Value (NPV) reported using the common Social Value Framework	
	Average customer satisfaction surveys - N/A	
Applied to	All DNOs	Same as FD
Reporting method	RRP reporting in years 2 and 5 and independent assurance report on minimum requirements	Same as FD
Licence condition	SpC 4.6	N/A
Associated Document	Consumer Vulnerability Incentive Guidance Document	N/A

Final Determination rationale and Draft Determination responses

- 5.107 We received 14 responses to our consultation. In response to stakeholder feedback, we have decided to implement this ODI-F with some changes to our positions on metric weightings and parameters for reward and penalty.
- 5.108 We summarise the responses received and set out our decisions and reasons for each aspect of the ODI-F below.

## Incentive framework

- 5.109 We received seven responses to our consultation, which related to the consumer vulnerability incentive framework. In response to stakeholder feedback, we have decided to maintain our Draft Determination position and introduce an ex post assessment of DNOs' performance against the five metrics described in the table above.
- 5.110 DNOs will be required to report on their performance against the metrics in Year 2 and Year 5 of the price control. This reporting will be independently assured to confirm its robustness against a set of minimum requirements. Furthermore, the incentive value will be set at +/- 0.2% of RoRE and the reward or penalty for each licensee will be based on their performance against ex ante targets for each of the metrics.
- 5.111 Four respondents agreed with our proposals, whilst three disagreed with aspects of our proposals.
- 5.112 UKPN and SSEN disagreed with the frequency of the assessment. SSEN stated that it was unclear whether the Year 2 assessment would be based on an average of Year 1 and Year 2 performance, and if the Year 5

assessment would be based on an average performance across Year 3 to Year 5.

- 5.113 Since our Draft Determinations, we have set out further detail on how each metric will be assessed in Years 2 and 5 of the price control as part of the Consumer Vulnerability Incentive Guidance Document. This document was consulted on as part of the informal licence consultation and will be part of the statutory licence consultation in December 2022.
- 5.114 The mid-period assessment will assess:
  - the total proportion of customers on each company's PSR out of the total number of customers eligible in its region(s), measured and reported as of 31st March 2025
  - the value of services (measured in NPV) delivered to support those in fuel poverty and, separately, those at risk of being left behind by the energy system transition, from 1st April 2023 to 31st March 2025
  - the average satisfaction of customers who have received fuel poverty support and separately, low carbon transition support between 1st April 2023 and 31st March 2025, measured on a scale of 0 to 10.
- 5.115 The end of period assessment will assess:
  - the total proportion of customers on each company's PSR out of the total number of customers eligible in its region(s), measured and reported as of 31st March 2028
  - the value of services (measured in NPV) delivered to support those in fuel poverty and, separately those at risk of being left behind by the energy system transition from 1st April 2023 to 31st March 2028
  - the average satisfaction of customers who have received fuel poverty support and, separately, low carbon transition support between 1st April 2025 and 31st March 2028.
- 5.116 UKPN stated that if the Year 5 assessment does not take performance across Years 1 and 2 into account, the reward or penalty that a DNO receives at Year 5 does not reflect the DNO's performance over the whole period. UKPN noted that this could lead to perverse incentives.
- 5.117 We recognise that situations may arise where a DNO's performance results in reward following the mid-period assessment, but not following the end-of-period assessment. This could lead to a DNO receiving a reward for delivering baseline performance by the end of the period. However, we do not consider that this approach introduces risk of perverse incentives. Our intention is to drive DNOs to deliver support for vulnerable customers early in the price control, and every year after. This is achieved by incentivising DNOs to go further to earn rewards mid-period and further again to obtain rewards at the end of the period.
- 5.118 A consumer body agreed with our proposal to introduce minimum requirements that DNOs must demonstrate to be eligible for incentive

rewards, however they also recommended the introduction of a penalty where minimum requirements have not been met.

- 5.119 We consider that the minimum requirement process will incentivise the desired improvements in DNO behaviour, and that a penalty related to failings under minimum requirements is not required to achieve this. We consider that applying a penalty for a failure to meet a minimum requirement would not be appropriate as the minimum requirements act as a failsafe to ensure DNOs are not rewarded if there is no assurance that a DNOs' reported performance is accurate and comparable.
- 5.120 A consumer body stated that the incentive value was too high and instead should be 0.1% of RoRE.
- 5.121 We think that the financial exposure to companies should remain similar to the SECV incentive within the RIIO-ED1 period. We consider that this represents a proportionate level of risk and reward based on our confidence in assessing DNO performance in a consistent and comparable way. We also consider that a maximum reward with the value of 0.2% of RoRE will drive DNOs to go further to identify how they can support vulnerable customers and establish solutions should they be well placed to do so. We have therefore decided to maintain our Draft Determination position and introduce a financial incentive for consumer vulnerability with a value of +/- 0.2% of RoRE.

## PSR Reach metric

- 5.122 At Draft Determinations, we proposed to introduce a metric within the Consumer Vulnerability incentive to measure DNO performance in registering eligible customers to its PSR (PSR Reach).<sup>71</sup> We consulted on the following aspects:
  - this metric should have a 40% weighting
  - this metric should have two minimum requirements that DNOs must pass to achieve any reward: Assurance that DNOs have followed the common methodology for calculating and reporting PSR Reach; and the DNO has cleansed PSR customer data at least every 24 months
  - the introduction of a performance deadband between 50% and 75% PSR Reach
  - a cap on rewards for DNOs that achieve a PSR Reach above 90%
  - a collar on penalties for DNOs that achieve a PSR Reach of less than 35%
- 5.123 We received 10 responses to our consultation positions on the PSR Reach metric. In response to stakeholder feedback, we have decided to

<sup>&</sup>lt;sup>71</sup> PSR Reach measures the total percentage of households registered on its PSR out of the total number of households eligible to be registered in its region(s).

implement the PSR Reach metric with some changes to our proposed deadband and performance collar. These are:

- the introduction of a performance deadband between 60% and 75% PSR Reach
- a collar on penalties for DNOs that achieve a PSR reach of less than 45%.
- 5.124 We summarise the responses received and set out our rationale for our decision below.
- 5.125 All 10 respondents agreed with our Draft Determination proposal to include a PSR Reach metric and establish the associated minimum requirements.
- 5.126 An important aspect of introducing this metric has been determining the common methodology for DNOs to calculate and report their PSR Reach. Since our Draft Determinations, it became clear that two DNOs' calculations of PSR Reach targets did not align with the common methodology. These targets were recalculated and submitted to us to inform our final positions for this metric.
- 5.127 We received mixed responses on the application of a common deadband, and performance cap and collar for the PSR Reach metric. NPg, SSEN and SPEN agreed with our proposals whereas ENWL, UKPN and a consumer body did not agree with specific aspects.
- 5.128 ENWL said that individual bespoke targets, deadbands, caps and collars should be set for each DNO, based on their performance ambitions for RIIO-ED2, rather than the common application proposed. Similarly, a consumer body respondent stated that we should reject the targets proposed by DNOs where we consider these to be either too low or high, and set bespoke targets instead.
- 5.129 We recognise that there is no common PSR Reach starting point across the DNOs; this is reflected in the varying levels of ambition and targets the DNOs proposed. We also recognise that each of the DNO's targets are supported by extensive customer and stakeholder engagement. We have considered these factors in weighing up the benefits of applying bespoke targets versus driving the desired DNO improvements through a common approach.
- 5.130 In relation to our proposed deadband, UKPN disagreed with the use of deadbands entirely across all incentives. ENWL also stated that the use of a deadband is not appropriate given that Ofgem's cost benchmarking has resulted in DNOs not receiving all of the ex ante allowances requested in their business plans.
- 5.131 We consider that a common deadband will help standardise DNO performance in this area as well as help to achieve a minimum level of performance across DNOs by the end of RIIO-ED2. We also consider that the common deadband will drive all DNOs to deliver additional value to customers and avoid rewarding companies for average performance.

- 5.132 In relation to our proposal for the upper limit of the deadband (75%), ENWL stated that this is too challenging to achieve.
- 5.133 We do not agree that the upper deadband limit is too challenging for DNOs to achieve. We note that many DNOs' forecasted targets are near the reward range by the price control mid-point which means there is an incentive to improve on their forecasted targets to obtain rewards. Additionally, by the end of the price control, four DNOs are forecast to achieve performance above the deadband and will receive rewards for this level of performance. Taking this into consideration, we view this as a fair and proportionate level of performance for DNOs to achieve over RIIO-ED2.
- 5.134 In relation to our proposal for the lower deadband limit, a consumer body recommended raising this from the proposed 50% to either 60% or 65%. This is because they assessed the proposed deadband to be too wide and thought this provided DNOs with insufficient incentive to deliver any convergence of good performance. They also noted it could result in varying levels of PSR Reach across different regions and risked embedding a postcode lottery in the support provided to customers by different companies. The consumer body also suggested increasing the penalty collar to 50% to provide a strong incentive to prevent declining performance.
- 5.135 We note that absolute convergence in DNO performance by the end of RIIO-ED2 is highly unlikely due to the range of starting points. However, we consider that implementing common parameters will be a more effective means of achieving increased convergence than setting bespoke parameters which may exacerbate any differences in performance.
- 5.136 In response to feedback on our proposed lower deadband limit we have reviewed our position to set it at 50%. We have considered DNOs' ambitions for RIIO-ED2 and their resubmitted targets. We noted an uplift in some DNOs' targets under the common methodology for calculating PSR Reach and therefore we consider it appropriate to raise the lower deadband limit to 60% PSR Reach. We think it's unlikely that any DNOs' outturn performance will be less than this level at the point it is assessed mid-period. We think this because all DNO's are forecast to reach a minimum of 60% PSR Reach by the end of the 2024/25 regulatory year based on successful rollout of the PSR recruitment plans outlined in DNOs' Vulnerability Strategies.
- 5.137 We have therefore decided to implement a deadband from 75% to 60% PSR Reach. We consider this range to be fair and appropriate as it is based on DNOs forecasted performance for RIIO-ED2 and maintains the symmetrical opportunity for rewards and risk of penalty within this metric. We consider it unlikely that DNOs' performance will deteriorate over RIIO-ED2.
- 5.138 We have also decided to retain the proposed 90% cap on maximum rewards as we consider that this is an ambitious but achievable level that

we think some DNOs could reach. We recognise that achieving 100% PSR Reach is practically impossible.

- 5.139 We have also decided to maintain a collar on the maximum penalty that can be applied to protect against excessive underperformance. However, taking into the account the views of the consumer body and the DNOs' resubmitted targets, we have decided to raise this to 45% PSR Reach. This maintains a symmetrical application of opportunity for penalties and rewards above and below the deadband.
- 5.140 UKPN disagreed with our proposal and stated that the assessment at the mid-period point and the assessment in year five should have separate deadbands, caps and collars.
- 5.141 We have reviewed whether a single PSR Reach deadband, cap and collar over the whole RIIO-ED2 period drives each company to improve. We consider that a single deadband, cap and collar will drive all DNOs to improve their performance over RIIO-ED2 as:
  - higher performing companies are incentivised to drive performance improvements in the early years of RIIO-ED2 to obtain rewards at the mid-period assessment point and incentivised to continue to improve over the later years of the price control to maximise their rewards up to the 90% performance cap at the end-of-period assessment point.
  - poorer performing DNOs are incentivised to drive performance improvements in the early years of RIIO-ED2 to avoid penalty at the mid-period assessment point and incentivised to continue to improve over the later years of the price control to achieve performance above the level of the deadband and earn a reward at the end-of-period assessment point.
- 5.142 DNO targets presented alongside our Draft Determination and Final Determination position are shown in Figure 6 and 7 below.





## Figure 7: Final Determination position with updated DNO targets



Final Determinations position with updated DNO targets

5.143 In relation to the weighting of the PSR Reach metric, NGED considered our proposed weighting of 40% disproportionate and favoured a lower weighting instead. This is because the metric does not measure the

quality of a DNO's support for vulnerable customers. ENWL's CEG agreed with this view, also noting that it could be viewed as carrying too much weight within the incentive.

- 5.144 We have decided to maintain our Draft Determination position that PSR Reach should carry the greatest weight in this incentive for two reasons:
  - we have confidence that the methodology that supports DNOs' calculating and reporting against this metric allows for comparisons in performance across all DNOs
  - maintaining a PSR and registering eligible customers is a fundamental aspect of the DNOs' support for customers in vulnerable situations. It represents a DNO's ability to provide effective support to customers during a loss of supply, in line with Principle 1 of the vulnerability baseline expectations.
- 5.145 Additionally, Storm Arwen and subsequent winter storms in the past 12 months have highlighted the importance of the information, advice and welfare support that DNOs' (and their partners) provide to customers during supply interruptions.
- 5.146 The PSR enables DNOs to identify vulnerable customers during these events, prioritise those who are medically dependent on electricity and contact these customers. In conjunction with the DNOs' obligations under Standard Licence Condition 10 (Special Services), driving an increase in the number of eligible customers registered on the PSR equates to more customers receiving support (through information, advice and other help) during outages.

#### Value of Services delivered metrics

- 5.147 At Draft Determinations, we proposed to introduce two metrics within the incentive to measure the value of the services delivered by DNOs to customers in vulnerable situations:
  - the value of services delivered to support those in, or at risk of, fuel poverty
  - the value of services delivered to support those at risk of being left behind by the energy system transition (low carbon transition services).
- 5.148 We received nine responses to our consultation positions on the 'value of services delivered' metrics. In response to stakeholder feedback, we have decided to implement these metrics largely in line with our Draft Determination position, with some changes to DNO baseline targets (which have been updated based on the latest available data) and the weighting of these metrics.
- 5.149 We summarise our Draft Determinations position, the responses received and set out the rationale for our decisions, below.
- 5.150 In our Draft Determinations we proposed:

- that each metric should have a 15% weighting
- that the metrics should be measured using a common social value framework, with the value calculated and reported as NPV
- that DNOs must pass a minimum requirement to be eligible to earn rewards associated with this metric. This would require DNOs to confirm to us and wider stakeholders, that the common methodology for measuring and reporting the value of the services delivered, has been followed
- to set bespoke targets for each company which are in line with the targets proposed in their individual vulnerability strategies and/or submitted as part of the resubmission of targets in line with the common definition/calculation bespoke targets
- to introduce a symmetric deadband applied 10% above and below each DNOs' bespoke baseline target; and
- to apply a symmetric performance cap and collar, set a further 10% above the deadband (20% above the baseline target) and 10% below the deadband (20% below the baseline target).
- 5.151 All nine respondents generally agreed with our Draft Determination proposal to include these two metrics within the incentive, as well as what they measure and our proposed minimum requirement.
- 5.152 In our Draft Determinations, we recognised that further work was needed to ensure that DNOs' targets can be compared on a like-for-like basis. This was acknowledged by many respondents and several DNOs noted their support for the ongoing work required to ensure consistency and comparability.
- 5.153 A consumer body urged Ofgem to undertake further analysis of the targets proposed by DNOs, to ensure they are comparable. The respondent also noted that it does not think that the different NPV targets across companies can be explained by geographical differences and suggested that bespoke targets do not go far enough to close the gap between companies delivering the most value and those delivering the least.
- 5.154 The consumer body further recommended that rewards should not be permitted for companies where NPV values are negative, indicating that the value delivered to customers from DNO initiatives does not outweigh the cost to deliver such initiatives.
- 5.155 A large amount of work has been undertaken since the publication of our Draft Determinations to investigate the differences in how DNOs were using the Social Value Framework to calculate NPV targets and the reasons for the wide unexplained variation in the targets proposed at Draft Determinations. With the support of Sia Partners, DNOs have recalculated their targets using more in-depth guidance to ensure the same methodology was followed by each DNO company. The NPV targets produced have been independently assured and audited twice by Sia

Partners, with bespoke feedback provided to each company, to ensure as much consistency and comparability as possible.

- 5.156 We recognise that the Social Value Framework is a new method of quantifying benefits delivered to customers and we want to understand more about how it works by trialling this metric over RIIO-ED2.
- 5.157 We consider introducing bespoke targets will hold each DNO to account for delivering at a minimum, the benefit attributed to their Vulnerability Strategy and offer scope for reward where a DNO goes further to deliver additional value, for example by responding to emerging issues.
- 5.158 We recognise that absolute convergence in performance is unlikely to be possible considering the differences which exist across DNO regions and the stakeholder preferences and priorities which have driven DNOs' ambitions in this area. We disagree that regional differences cannot explain the differences in targets but note that this is only one factor which contributes to DNOs forecasted performance for the price control.
- 5.159 We note that one DNO has a negative NPV target associated with its delivery of low carbon transition support for the RIIO-ED2 period, where the value delivered to customers is outweighed by the cost to customers of the delivery of the services.
- 5.160 Whilst we recognise that a negative NPV can look unfavourable, the reason for applying a negative value is because the services being delivered have a longer lead time in accruing benefit compared to other DNOs' initiatives (eg supporting customers in obtaining low carbon technology rather than providing advice on participation in a low carbon energy transition which can accrue more immediate benefits). We are clear that these activities will result in a positive NPV over a longer timeframe and therefore consider that the same methodology should apply for calculating a reward and penalty. This is because the DNO can still make efficiencies in the cost to deliver low carbon transition support and or reallocate allowances where alternative support provides greater benefits to customers. Therefore, we intend to apply the same metric parameters (deadband, cap and collar) to DNOs with negative NPV value will demonstrate an improvement in the DNOs' performance.
- 5.161 Respondents generally did not comment on the proposed deadband, reward cap and penalty collar for these metrics. However, ENWL commented that consideration is needed on how the metric calibrates rewards thresholds between DNOs, in particular the level of ambition shown and the connection between costs and quality of service. NGED highlighted that it would have to deliver its own target, as well as the value associated with another DNO's target, to qualify for reward.
- 5.162 We acknowledge that the application of bespoke targets will result in some DNOs needing to deliver significantly more benefit to its customers over RIIO-ED2 than other DNOs. However, we consider that this is appropriate given the socio-geographical differences across DNO regions

and the stakeholder preferences and priorities which have driven DNOs' ambitions in this area. As in other incentives, eg IIS, DNOs will be rewarded or penalised relative to their own performance, which is appropriate because it is reflective of the factors which feed into the target setting process (ie regional differences, customer priorities, costs associated with delivery).

- 5.163 Although we did not receive any responses which proposed specific changes to the deadband, cap or collar, we reviewed our position taking into account our confidence in the comparability of DNO targets, the variation across DNO targets and the risk on both DNOs and customers of excessive outperformance or underperformance over RIIO-ED2.
- 5.164 Considering these points, we have decided to introduce bespoke DNO targets based on the independently audited and assured forecasts and maintain our position to introduce a 10% deadband above and below each DNO's target, as well as a reward cap 20% above the baseline targets and a symmetric penalty collar 20% below the baseline targets.
- 5.165 We recognise that the DNOs who aim to deliver more benefit to customers will have to do more to earn rewards and conversely the DNOs who aim to deliver less benefit will be more exposed to the risk of penalty. We therefore consider that these parameters deliver a proportionate level of risk and opportunity for DNOs relative to their current levels of performance.
- 5.166 Therefore, we have decided to retain our Draft Determination position on the deadband, reward cap and penalty collar for the 'value of services delivered' metrics. However, the DNO specific baseline targets have been altered to reflect the latest available data. These targets are set out in each of the Company Annexes.
- 5.167 The strongest views in relation to these two metrics set out in consultation responses were in relation to their weightings within the incentive.
- 5.168 The respondents that provided views on this aspect of the metric, broadly agreed with our proposed weightings for the metrics, however, NPg suggested alternative, higher values.
- 5.169 NPg proposed 35% and 25% weightings for the 'value of fuel poverty services delivered' and the 'value of LCT services delivered' metrics respectively. It considered that the current proposals do not recognise the fact that LCT services for vulnerable customers are largely untested, whereas fuel poverty services have been undertaken by DNOs over the course of RIIO-ED1.
- 5.170 NGED viewed that both the proposed deadbands and reduced weightings perform the same function of protecting consumers and DNOs from excessive under or over delivery, so the weightings should be reconsidered and adjusted upwards.
- 5.171 NGED also disagreed with our rationale for proposing the same weightings for the 'value of services delivered' metrics and customer satisfaction

metrics because it did not consider there to be equal risk associated with the delivery of services to customers who either do not want them, or where the services are light touch, in relation to the 'value of services delivered' metrics in comparison to the customer satisfaction survey metrics. This is due to the Social Value Framework already mitigating against this as it is not possible to deliver large amounts of benefit for customers that do not want or require the support, due to the level of customer interaction required to achieve this value.

- 5.172 We have reconsidered the proposed weightings of these metrics within the incentive in light of the concerns raised. We agree that the application of the deadbands mitigate against excessive out or underperformance so applying an additional mitigation through lower weightings is less critical, however, given that this is a new form of measurement within the price control operations and reporting, we maintain the view that their impact within the overall incentive should be limited.
- 5.173 However, the premise of these metrics drive at ensuring DNOs consider how they can best support vulnerable customers by targeting services at areas which deliver more value. In the wider context of the ongoing costof-living crisis, we consider that these metrics represent an additional lever to drive DNOs to support more customers in fuel poverty with services which deliver more value.
- 5.174 We also consider that these two metrics should be weighted equally. We note that in general, DNOs are aiming to deliver higher values of benefit through fuel poverty support services compared to supporting customers in the lower carbon transition. While we consider fuel poverty support more important due to the current pressures on customers' bills, we consider that this balance is already taken into account and reflected in DNOs' ambition in this area. We consider that applying a higher weighting to fuel poverty services would risk DNOs placing further additional focus on this metric at the expense of LCT services.
- 5.175 Taking the rationale set out above into account, we have decided to adjust the weightings of these metrics within the incentive from 15% each, as proposed in our Draft Determinations, to 20% each.

#### Customer Satisfaction survey (CSAT) metrics

- 5.176 At Draft Determinations, we proposed to introduce two metrics within the incentive to measure the satisfaction of customers who have received a service from their DNO or its representative, that supports:
  - those in, or at risk of, fuel poverty; and
  - those at risk of being left behind by the energy system transition, through low carbon transition services.
- 5.177 We received nine responses to our consultation on the customer satisfaction survey metrics. In response to stakeholder feedback, we have decided to implement these metrics largely in line with our Draft

Determination position and introduce ambitious and achievable survey parameters where:

- the baseline targets for both CSAT metrics are set at 9/10
- the reward cap for both CSAT metrics is set at 9.5/10
- the penalty collar for both CSAT metrics is set at 8.5/10
- the total weighting of both metrics is 20% and this is split evenly between the metrics.
- 5.178 We summarise our Draft Determinations position, consultation responses received and the rationale for our decisions below.
- 5.179 In our Draft Determinations we consulted on our proposed weighting for these metrics (15% each) and also our proposals on common metric parameters for all DNOs. This included a common baseline target of 9/10; a common reward cap of 9.5/10 and a common penalty collar of 8.5/10. We also said that the customer satisfaction surveys should be independently administered and that the CSAT scores should be calculated using a 'killer question'.<sup>72</sup>
- 5.180 SSEN said that including the CSAT metrics within the incentive is not appropriate as referral services being offered may not provide sufficient support for customers to fully alleviate fuel poverty and the difficulties that fuel poor customers face in the context of the cost-of-living crisis. The DNO raised concerns that this could result in lower satisfaction scores.
- 5.181 ENWL agreed with this view and stated that we should not include the customer satisfaction metrics within the incentive, but instead retain them as regularly reported evidence with no financial incentive attached. It suggested that instead, the weighting value associated with these metrics should be redistributed and applied to the 'value of services delivered' metrics.
- 5.182 One consumer body similarly noted that these metrics should be reputational only, or at a minimum, a deadband should be introduced around the target to provide protection to customers and DNOs.
- 5.183 We do not agree with the concerns raised around the inclusion of these metrics within the incentive. We consider that both CSAT surveys are important measures for understanding and capturing customer views on the support they receive from their DNO (or its representative). Additionally, we consider that including these metrics within the incentive will help ensure DNOs put customers' needs at the heart of what they do and mitigate against the risk that DNOs could attempt to deliver supplier services where they are not wanted, or deliver services which are light-touch and do not deliver enough additional benefit to customers.

 $<sup>^{72}</sup>$  The 'killer question' is the question within the surveys which asks the consumer how satisfied they are with the DNOs' service. The scores (/10) for this question are measured for the purpose of this incentive.

- 5.184 In relation to the baseline target, reward cap and penalty collar for both CSAT surveys, all six DNOs disagreed with our proposed targets of 9/10 for both surveys and ENWL, NPg and SPEN disagreed with our proposals for the reward cap or penalty collar. In their view these parameters were disproportionately high given that this is a new incentive with no prior historical data. DNOs provided alternative suggestions of:
  - piloting the metrics for the first year of the price control
  - including the metrics as reputational measures only; or
  - aligning the baseline target with that of the BMCS target.
- 5.185 We do not consider that the surveys should be piloted during the first year of RIIO-ED2 for the following reasons:
  - there would be potential for DNOs to game the pilot year to secure lower targets for the proceeding years of the price control
  - the survey would only be piloted for a limited time prior to analysing the survey results and making the necessary changes within DNOs' licences
  - DNOs would only be assessed on a single year's performance at the mid-period assessment, giving significantly more weight to each survey respondents satisfaction score
  - we consider it important that consumers have high quality support delivered from the start of RIIO-ED2, and any pilot would delay this.
- 5.186 In response to stakeholder feedback, we have also considered aligning the DNOs' target and associated reward cap and penalty collar with the BMCS to ensure consistency across survey areas. However, the BMCS baseline target has been set at 9.01/10 across its three surveys. Given the strong views from DNOs that a target of 9/10 is too high, we do not consider it appropriate for the baseline targets, reward caps and penalty collars for CSAT surveys within the vulnerability incentive to be increased to 9.01, 9.51 and 8.51 respectively.
- 5.187 We maintain our view, as noted in our Draft Determinations, that the target should reflect the consistently high standard of service that customers in vulnerable situations should receive across GB. While we recognise that not all customers in receipt of these services will be PSR customers, we consider that many will be as DNOs are likely to use the PSR to help identify customers eligible for receiving these services so considerable overlap is expected. All DNOs are seeking satisfaction scores of between 9.3 and 9.5/10 from PSR customers who experience power cuts over RIIO-ED2, we therefore do not expect that customers receiving fuel poverty or low carbon transition support, particularly given the value forecasted for customers in receipt of these services, to experience a lower level of service. We therefore consider it appropriate to maintain the 9/10 target proposed in our Draft Determinations.

- 5.188 We have also considered the introduction of a deadband to protect both customers and DNOs from any outperformance or underperformance. However, as this is a new incentive, there is no historical data to inform the appropriate level of a deadband. Any deadband application would be introduced arbitrarily and would risk not sufficiently protecting either DNOs or customers. In relation to our proposed weightings of the CSAT survey metrics, the majority of DNO respondents disagreed with our proposals, noting that it carries too much weight. Conversely, one consumer body commented that it agreed with the weightings.
- 5.189 Upon further reflection, we do not believe that our Draft Determinations proposal of a combined 30% weighting, split evenly between both CSAT survey metrics, goes far enough in recognising that this is a new metric with some uncertainty as to how customers may perceive the support they receive. Therefore, we have decided to reduce the total weighting of both metrics from 30% to 20%. The 20% will be split evenly between both CSAT survey metrics.

Purpose	To ensure companies are held accountable for delivering	
	their strategies and the baseline expectations within-	
	period through transparent means	
Benefits	To support greater ambition and drive DNOs to evolve	
Benefits	To support greater ambition and drive DNOs to evolve their role in response to emerging vulnerability issues	
Benefits	To support greater ambition and drive DNOs to evolve their role in response to emerging vulnerability issues within period	

## Annual Vulnerability Report (ODI-R)

## **Background**

- 5.190 In Annex 1 of our SSMD document, we stated that annual reporting is an important facet to ensuring DNOs are both accountable and ambitious in the delivery of their vulnerability strategies and the baseline expectations.
- 5.191 In our Draft Determinations, we proposed that companies should submit an Annual Vulnerability Report ('AVR') to Ofgem and publish that report on its website for interested stakeholders.
- 5.192 We have summarised our Draft Determinations proposals for what should be included within the AVR, in the table below. Please see Chapter 5 of our Draft Determinations Core Methodology Document for more detail.

#### Final Determination

5.193 The table below provides a summary of our Final Determination position.

Output Parameter	Final Determination	Draft Determination
ODI Type	Reputational	Same as FD

Output Parameter	Final Determination	Draft Determination
Measurement	Performance metrics	Same as FD
	Regularly Reported Evidence	
	Use of Social Value Framework	
	Strategy commitments delivery progress update	
	Winter preparedness to support those vulnerable during a loss of supply	
Reporting method	Annual Vulnerability Report	Same as FD
Licence condition	Special Condition 4.6	N/A
Associated Document	Consumer Vulnerability Incentive Guidance Document	N/A

Final Determination rationale and Draft Determination responses

- 5.194 We received nine responses on the introduction of an AVR, underpinned by a reputational incentive. In response to stakeholder feedback, we have decided to implement the AVR in line with our Draft Determinations proposal.
- 5.195 We summarise the responses received and set out our decisions and reasons for each of these aspects below.
- 5.196 All respondents that commented agreed with our Draft Determinations proposals to introduce the AVR. Most stakeholders also agreed with the five key areas that we proposed the AVR should cover:
  - progress against incentive metric targets
  - regularly reported evidence (RRE)
    - frequency of DNOs' PSR data cleanse
    - $\circ$   $\,$  the CSS score for PSR customers who have experienced a power  $\,$  cut  $\,$
    - the volume of services delivered which support those in, or at risk of, fuel poverty and those at risk of being left behind in the energy transition
  - how the Social Value Framework is used within the DNO's business in relation to decision making and prioritisation
  - progress in delivering vulnerability strategy commitments
  - DNOs' plans for supporting customers over the winter period.

- 5.197 The comments that were raised in relation to the AVR primarily sought clarification over some of the reporting requirements. In Draft Determinations, we noted that we would consult on the full structure and scope of the AVR as part of the Consumer Vulnerability Incentive Guidance Document. This information was included within the RIIO-ED2 informal licence consultation and will be further consulted upon in the statutory licence consultation in December 2022.
- 5.198 ENWL questioned the value of the requirement to outline how the Social Value Framework is used within the DNO business in relation to decision making and prioritisation as it is open to DNO interpretation.
- 5.199 One consumer body recommended that the AVR also requires a narrative to be provided to complement NPV values and explain any differences in outturn performance.
- 5.200 As the Social Value Framework is a new concept and tool for deriving consumer benefit in RIIO-ED2, we want to understand more about how it works. This includes understanding how the tool has an impact within DNO businesses and adds benefit through informing prioritisation and decision-making.
- 5.201 We have considered whether DNOs should provide additional narrative to explain any differences in outturn NPV values compared to targets in the AVR. However, as DNOs have targets for the mid-point (year two) and end-point (year five) of the price control, and not specific annual targets, it would not be possible for DNOs to explain any annual differences in performance within the annual report.
- 5.202 Two DNO CEGs (SSEN and ENWL) put forward suggestions on other sections that we could look to incorporate into the AVR. SSEN's CEG suggested a 'year in review' section highlighting examples of best practice or areas of concern (and measures taken to address). ENWL's CEG suggested including an element that highlights and rewards cooperation between DNOs. It was also suggested that we could include input from an independent stakeholder for views on performance, for example, from the enduring CEG.
- 5.203 We note that within the AVR, there is opportunity for DNOs to provide a short introduction which presents an overview of their vulnerability strategy, summarises how they are protecting and supporting customers in vulnerable situations, and highlights any key issues. We think that DNOs can highlight any examples of best practice within this section.
- 5.204 We consider that the introduction of additional elements which highlight and reward cooperation across companies or outline the views of independent stakeholders, introduce additional complexity to the AVR and are not justified by the benefits provided to customers, DNOs, stakeholders or Ofgem.
- 5.205 SSEN, ENWL and a consumer body commented on the AVR section which relates to DNOs' plans for supporting customers over the winter period.

SSEN and ENWL noted that the timing of the proposed AVR submission and publication (June) would interfere with the normal cycle of DNOs winter preparedness planning which occurs later in the year.

- 5.206 The consumer body recommended that this section of the AVR should also include a forward view of how DNOs will better prepare customers for interruptions as a result of severe weather over winter periods, as well as a backward-looking review of how successful plans were in mitigating issues in the previous year, including how learnings have informed plans for the coming winter.
- 5.207 With consideration to these two points, we have decided to maintain our position on the July timing of the AVR submission. We consider this appropriate as we have decided to implement the recommendation of the consumer body on the scope of the winter preparedness reporting. Therefore, each DNO will be required to:
  - set out its review of how successful its plans were in supporting customers in vulnerable situations over the previous winter, including:
    - how effective its plans were in supporting customers in vulnerable situations
    - the learnings can be taken on how support might be improved in future
  - set out its forward view of how it will better support and prepare customers for interruptions over winter periods (noting that the DNO's plans may not be fully decided at this point)
    - how the learnings from the previous winter will be embedded within the plans for the upcoming winter.
- 5.208 We note that DNOs' plans for supporting customers in vulnerable situations over the upcoming winter may not be fully developed and able to feed into the report at that stage, however we consider that a review of the previous winter and a focus on how the lessons learned will be taken forward and embedded in a DNO's development of its plan for the next winter period should be set out.
- 5.209 Our decision is to implement the AVR in line with the scope proposed in our Draft Determination. We have provided detail on the scope of the section on supporting customers over winter, in paragraph 5.207. The full structure and scope of the AVR will be set out in the Consumer Vulnerability Incentive Guidance Document which we will consult on as part of the statutory licence consultation in December.

## Providing a quality service to consumers seeking a connection

5.210 Enabling the transition to net zero will require a rapid increase in connections to the electricity distribution network. This will include meeting the expected increase in electricity demand from LCTs, such as EVs and HPs, as well connecting more battery storage and distributed

generation like solar panels as we transition away from our high dependence on imported fossil fuels towards homegrown, cleaner, cheaper, and more secure sources of energy. Accordingly, we need to ensure that appropriate obligations and incentives are in place before LCT deployment significantly ramps up in scale.

- 5.211 For connections at the lower voltages (also known as "minor connections"), the connections process can be reasonably straightforward. For these customers, we think the most important areas to incentivise are customer satisfaction and the time it takes to connect to the electricity distribution network.
- 5.212 For connections at higher voltages, generation customers and other unmetered connections (also known as "major connections"), customers' requirements can be different and more bespoke to individual projects. We also note that some larger customers, depending on their location, may be able to choose between using a DNO or an alternative connections provider. We have therefore considered the type of services that customers require, and the presence (or otherwise) of competition, when setting price control outputs and incentives.

Purpose	The connections element of the customer satisfaction survey helps to drive improvements in the quality of	
	service that DNOs provide to customers seeking a minor	
	connection	
Benefits	Rewards will encourage DNOs to deliver exceptional	
	customer service while penalties protect consumers	
	against poor performance	

## **Connections element of the customer satisfaction survey**

5.213 Our Final Determinations on this aspect of the customer satisfaction survey is discussed earlier at paragraphs 5.7 - 5.36.

#### Time to Connect Incentive (minor connection customers)

Purpose	To incentivise DNOs to reduce the average connection	
	time for customers seeking a minor connection to the	
	distribution network.	
Benefits	Rewards and penalties will help reduce the time it takes	
	to connect customers seeking a minor connection to the	
	distribution network.	

## <u>Background</u>

- 5.214 The Time to Connect Incentive was introduced in RIIO-ED1 to speed up the connection of smaller, or minor, customers (connections at the lower voltages) to the network. Under the incentive, connection time is measured in two ways:
  - the "Time to Quote" (TTQ) is the time from the DNO receiving the initial application to issuing a quotation
  - the "Time to Connect" (TTC) is the time from the customer accepting the quotation to the connection being completed.
- 5.215 In our Draft Determination, we proposed a symmetrical financial exposure of +/-0.15% RoRE and said that we would set final targets at Final Determinations, using the latest four years of data. We also consulted on the limits for maximum reward and penalty, and the introduction of a deadband.

## Final Determination

5.216 The table below provides a summary of our Final Determination position.

Parameter	Final Determination	Draft Determination
ODI type	ODI-F	Same as FD
Incentive type	Financial	Same as FD
Baseline target methodology	A common target based on the most recent four-year average and applicable to all DNOs	Same as FD
Targets	LVSSA TTQ - 4.07 working days LVSSB TTQ - 6.84 working days LVSSA TTC - 35.67 working days LVSSB TTC - 44.30 working days	Updated at FDs LVSSA TTQ - 4.38 working days LVSSB TTQ - 7.32 working days LVSSA TTC - 36.38 working days LVSSB TTC - 45.65 working days
Incentive value	Symmetrical financial exposure of +/-0.15% RoRE	Same as FD
Reward and penalty limits	+/-50% of target value	Same as FD
Deadband	+/-20% of target value	Same as FD

## Final Determination rationale and Draft Determination responses

5.217 We received eight responses to our consultation. We summarise the responses received and set out our decisions and reasons for each of these aspects below.

## Baseline target methodology

- 5.218 We have decided to implement the methodology that we proposed in our Draft Determinations, and set a common target based on average performance over the last four years. This target is applicable to all DNOs.
- 5.219 One consumer body recommended setting sharper targets based on a different methodology, which they considered would provide an even stronger incentive to improve performance. The consumer body also recommended that we explore the use of company-specific targets.
- 5.220 We think that the use of targets based on average performance from the last four years, embeds the significant performance improvements delivered in RIIO-ED1. This, when coupled with the introduction of penalties and an increase of the level at which maximum reward can be earned (from +30% to +50%), creates sufficient incentive for both poor performing and frontier DNOs to improve.
- 5.221 We think that the target setting proposal put forward by the consumer body is too stringent. Our analysis indicates that the use of targets based on four-year averages, could result in about one fifth of DNOs being in the penalty zone and another fifth in the reward zone at the start of RIIO-ED2. This assessment is based on their average performance over the last four years. Under the approach proposed by the consumer body, the number of DNOs in the penalty zone would significantly increase, whilst almost the same number of DNOs would stay within the reward zone. Thus, this approach may risk pushing the laggard DNOs too deep in the penalty zone and as a result, disincentivise them from improving their performance.
- 5.222 We also consider a common target more appropriate than bespoke targets for different DNOs. This is because we do not consider there to be sufficiently justifiable reasons for why consumers should receive a significantly different TTC depending on where they live.

#### Target setting

- 5.223 We have decided to implement the targets that we have set out in our Final Determination summary table above. These targets are based on the last 4 years of performance data, up to 2021/22.
- 5.224 We received recommendations from one consumer body to use the most up to date performance data to set targets, and to use improvement factors to build in assumptions for performance improvement in 2022/23 if scores from this year cannot be used.

5.225 We consider data up to 2021/22 is sufficiently current to reflect DNOs average performance over a recent four-year period and further improvement factors are not necessary.

## Reward and penalty limits

- 5.226 We have decided to implement the limits for reward and penalty that we proposed in our Draft Determination. This will set the level at which maximum reward or penalty can be earned, at +/-50% of the target, noting our SSMD position to set financial exposure symmetrically.
- 5.227 Three DNO respondents agreed that the limits were reasonable. SSEN and NGED preferred narrower limits of +/-30% and +/-40% respectively, stating that +/-50% would be too difficult to achieve. ENWL preferred a reward only limit of -30% and different treatments for TTQ and TTC categories, as the latter is subject to influence outside of the DNO's control.
- 5.228 Recognising the differences in performance levels among DNOs, we do not consider the 50% reward limit to be unachievable when comparing it with performance of frontier DNOs. Lowering the limits to +/-30% and +/-40% may not provide the incentive to drive all the DNOs to continually improve.
- 5.229 While performance within the TTC category can be affected by factors outside the DNO's control, these uncertainties have been accounted for in the data used for target setting.

#### Deadband

- 5.230 We have decided to implement the deadband limits that we proposed in our Draft Determination and set the deadband at +/-20% around the target score. We think this will incentivise DNOs to do more for their customers to earn a reward while protecting them from unexpected behavioural changes, due to activities supporting the net zero transition which might materially alter connection activities.
- 5.231 NPg and SSEN agreed with the proposal. NGED preferred a narrower deadband of +/-10% as it considered that a 20% deadband may make it too difficult for DNOs to earn a reward, and as such disincentivise improvements. On the other hand, ENWL and SPEN believed an asymmetric deadband of -10% for reward and +20% for penalty, would be more appropriate. They said that this would balance the need for improvement and providing protection against factors outside the DNOs control. This is particularly relevant for TTC as DNOs will often be reliant on external parties, for example to provide the appropriate consents for work to proceed and/or customer readiness, whereas the time needed to issue a quotation is much more within the DNO's control.
- 5.232 We note that DNOs that met the RIIO-ED1 target have already received rewards for achieving that level. We think our proposed deadband embeds the level of performance achieved in RIIO-ED1, without continuing to reward DNOs for maintaining the status quo. We disagree that it weakens
the incentive by making it too difficult to earn rewards as DNOs are still rewarded for genuinely high performance.

5.233 We consider the +/-20% deadband strikes the right balance between setting challenging reward and penalty targets while addressing uncertainties such as the Access SCR or net zero. With a 10% deadband, it's projected that about half of the DNOs may be within or close to the reward zones in various incentive categories at the outset of RIIO-ED2 based on their 4-year average performance. We do not think this provides a strong enough incentive for further improvement.

## **Major Connections**

5.234 At Draft Determinations, we put forward proposals for a Major Connections Incentive (MCI). Our proposals included an ODI-F based on the outcome of the Major Connections Customer Satisfaction Survey (MCCSS) and an ODI-R where DNOs report on the timeliness of connections, and the delivery of their Major Connections Strategies.

Purpose	To ensure DNOs deliver quality service to customers
	seeking major connections in RIIO-ED2
Benefits	An improvement in major connection customers' overall
	satisfaction with DNOs in providing connections to their
	networks

#### Major Connections Incentive (ODI-F)

#### **Final Determination summary**

5.235 The table below provides a summary of our Final Determination position.

Parameter	Final Determination	Draft Determination
ODI Type	Financial	Same as FDs
Scope	All services in the Relevant Market Segment (RMS), where DNOs have not demonstrated evidence of effective competition	Updated at FDs At Draft Determinations, we said that the following services would be in scope of penalty:
		<ul> <li>all services in the RMS, where DNOs have not demonstrated evidence of effective competition</li> </ul>
		specific non-     contestable services

Parameter	Final Determination	Draft Determination
		to third parties in the RMS, where DNOs have demonstrated evidence of effective competition.
Incentive type	Penalty only	Same as FD
Incentive value	Up to -0.35% of RoRE	Same as FD
Performance measure	Major Connections Customer Satisfaction Survey	Same as FD
Performance target	Average customer satisfaction survey score Year 1 – 7.41/10 Year 2 onwards – the target will be informed by Year 1 performance and subject to further consultation	Updated at FD At Draft Determinations, we proposed a target of 8.9/10
Cap and collar	Year 1 - penalties will be capped at 6.91/10 Year 2 onwards – penalties will be capped at a score which is 0.5 below the target	Updated at FD At Draft Determinations, we proposed a collar set at an increasing target score in each successive year of RIIO-ED2 We also proposed that there would be no penalty until the collar is met. After this, the maximum penalty would be applied
Minimum survey sample size	Checks on the statistical robustness of the survey, with a process that the Authority will follow if the number of parties surveyed is below a threshold	New at FD
Associated Document	Major Connections Guidance Document	New at FD

Final Determination rationale and Draft Determination responses

5.236 We received 15 responses to our consultation on each of the key aspects of the incentive. We summarise the responses received and set out our decisions and reasons for each of these aspects below.

Scope of the MCI ODI-F

- 5.237 We have decided that the MCI ODI-F will apply to all services in the RMS, where DNOs have not demonstrated evidence of effective competition.
- 5.238 At Draft Determinations we said that the scope of the MCI would include:
  - all customers receiving services in RMS' where DNOs have not demonstrated evidence of effective competition
  - third parties receiving non-contestable services only in RMS' where DNOs have demonstrated evidence of effective competition.
- 5.239 ENWL, NGED, SSEN and SPEN highlighted concerns with the second part of the proposed scope. They noted that the third parties that would be included in this survey (eg Independent Connection Providers (ICPs) and Independent DNOs (IDNOs)) were competitors for contestable connection services, as well as being customers in some cases.
- 5.240 These four DNOs argued that including IDNOs and ICPs in the scope of the financial incentive, particularly in RMS' with effective competition, could distort competition because those parties could submit (or threaten to submit) an intentionally low score to negatively impact or influence the DNO. SPEN added that third parties should be excluded entirely from the scope of the MCI. SSEN stated that any decrease in the effectiveness of competition in the connections market would not be in the interest of existing and future consumers. As such, RMS' that have demonstrated evidence of effective competition should be excluded from the incentive or, the survey in those segments should be run on a reputational basis only.
- 5.241 Non-DNO respondents agreed with our proposal to introduce the MCI for non-contestable activities in RMS' where competition is effective, (as well all activities in those RMS' where competition is not effective).
- 5.242 We have decided that all customers in RMS' where DNOs have not demonstrated evidence of effective competition, will be included within the scope of the financial incentive.<sup>73</sup> We have not seen sufficient evidence to support a change to this position. Surveying third parties in RMS' where competition is not yet effective, may help identify any underlying reasons that may be preventing effective competition from developing. Identifying those reasons through survey results would therefore be in the interests of consumers and help to remove those barriers to effective competition in the future.
- 5.243 We have not seen evidence that third parties would submit intentionally low scores, as suggested by SPEN but have decided to not include RMS where competition is effective within the scope of the MCI. This is because

<sup>&</sup>lt;sup>73</sup> For the avoidance of doubt, the non-contestable activities that must be surveyed through the MCCSS are set out under Standard Licence Condition 15 (Standards for the provision of Non-Contestable Connection Services). These are providing quotations (including Point of Connection information) and completing Final Works and Phased Energisations as Non-Contestable Connection Services.

we consider effective competition is a better way of delivering improvements in customer service and efficiency, than direct regulation. We set this out further in our recent review of competition in the connections markets saying that we would only seek to apply price control incentives where effective competition has not been established.<sup>74</sup>

5.244 For the avoidance of doubt, we have decided that the MCCSS should be carried out on a reputational basis for non-contestable activities provided to third parties in RMS' where evidence of effective competition has been demonstrated. Please see the MCI ODI-R section below for full details of our decision on the annual reputational assessment.

## Incentive type

- 5.245 We have decided that the MCI will be penalty only. This confirms our Draft Determination view that permitting rewards could lead to a distortion of competition.
- 5.246 NGED stated that the MCI should be symmetrical, with potential for rewards as well as penalties. ENWL stated that we should explore permitting rewards for non-contestable activities in the RMS where effective competition has been demonstrated. SSEN stated that a potential reward in this area would re-balance the suite of connectionsrelated incentives to ensure that there is an appropriate reward available to DNOs who are driving improvements for customers.
- 5.247 We do not support a symmetrical reward and penalty incentive for the MCI. We believe that a symmetrical incentive would result in perverse outcomes. DNOs that have been successful in demonstrating evidence of effective competition in the most RMS' would face the lowest penalties, but under a symmetric incentive, also the lowest potential rewards. Conversely, DNOs with the highest number of RMS' where competition is not effective could earn the greatest rewards.
- 5.248 On the issue of distorting competition, we continue to believe this to be the case but note the change in scope has addressed this by no longer including those RMS where competition is already effective.

## Incentive value

- 5.249 We have decided to set the maximum penalty that DNOs will face under the financial incentive at -0.35% RoRE. The exact exposure each individual licensee will face will vary depending on the number of RMS' where effective competition has been demonstrated.
- 5.250 Five DNOs agreed with our proposal to base the penalty rate calculation on the number of RMS where effective competition had not been demonstrated. This was on the basis that it would encourage DNOs to

<sup>&</sup>lt;sup>74</sup> Please refer to paragraph 2.5 of our consultation on our review of competition in the electricity distribution connections market:

https://www.ofgem.gov.uk/publications/consultation-our-review-competition-electricitydistribution-connections-market

help facilitate effective competition in RMS where this wasn't the case today. However, NGED stated that the incentive penalty should include all RMS.

- 5.251 In relation to the maximum financial exposure of -0.35%, ENWL and NPg highlighted that DNOs with very few RMS' or RMS' with low activity could face a penalty for poor performance that is greater than the value or turnover associated with the RMS being assessed. NPg suggested that setting the penalty based on the value of the RMS under the scope of this incentive would be more reasonable.
- 5.252 ENWL proposed alternative ways in which disproportionate penalties could be avoided, such as applying a "turnover test", where RMS' with low annual turnovers are excluded from the financial incentive. An "in the round" assessment was also suggested, where we would review DNO performance with reference to how they had performed in all RMS, as well as in previous competition reviews, and decide whether to apply the penalty or not on that basis.
- 5.253 We think that calculating the penalty according to the value or turnover associated with the RMS would risk encouraging DNOs to favour highervalue RMS over others. We believe fixing the maximum financial exposure at the same level for all RMS will ensure that all customers are given equal priority and avoid incentivising performance in one RMS at the expense of another. We do not support an 'in-the-round' type assessment as this would involve a greater degree of subjectivity and move further away from our aim of a predominantly mechanistic assessment.

## Performance target and collar

- 5.254 We have decided to set the MCCSS target at 7.41/10 in Year 1 of RIIO-ED2. Penalties will increase as performance moves further away from the target, up to a maximum penalty at 6.91/10. We will review DNO performance in Year 1 and use this to set targets for the rest of the price control, as well as the corresponding level at which the maximum penalty applies. We will make this change within the licence condition via the statutory modification process.
- 5.255 Our Draft Determinations proposed a target setting approach that averaged the targets put forward by DNOs in their Major Connections Strategies. This resulted in a target of 8.9/10. We also proposed a gradually increasing collar over RIIO-ED2, to incentivise continuous improvement. These scores were 8.0, 8.1, 8.3, 8.5 and 8.7 out of 10 in years one to five of RIIO-ED2. DNOs scoring above the collar would face no penalty, while those below the collar would face the maximum penalty (referred to as a "cliff-edge").
- 5.256 All DNOs stated that it is inappropriate to use the Major Connections Strategy targets as these were submitted as aspirational or stretch targets given our approach to allowing rewards for this incentive was unclear at that time. All DNOs also said that an 8.9/10 target would be unfair, given that this is a new incentive with no historical data and the incentive is

penalty-only. UKPN and SPEN compared the incentive to the Broad Measure Customer Satisfaction (BMCS) survey for minor connections customers, stating that proposals for the MCI are more stretching than the BMCS, which is an established incentive, with several years of data. UKPN suggested aligning the MCI target to the BMCS target.

- 5.257 SPEN, SSEN and ENWL DNOs suggested that we consider a pilot year option. It was stated that this would allow us to calibrate the baseline level of performance, following which we could set targets for the remainder of the price control based on the first year's data.
- 5.258 All DNOs also disagreed with the cliff-edge penalty aspect of the incentive, stating that it would be overly harsh to apply this for a new incentive. It was stated that applying the penalty incrementally based on decreasing performance would be more appropriate and would incentivise DNOs to continually improve. It was also noted that the practical effect of the proposed collar was that it simply acted as a lower score given that there was no penalty until reaching that threshold.
- 5.259 One consumer body stated that the target should be set at 9/10, given that all but one of the Major Connections Strategies included a 9/10 target. One DNO's CEG also shared a concern that the target was not set high enough.
- 5.260 We have acknowledged the concerns raised by DNOs on the target setting approach and the difficulty in doing so for a new incentive where there is no robust historical data. We will therefore set the target score for Year 1 at the UK Customer Satisfaction Index (UKCSI) Utilities score of 7.41/10<sup>75</sup>. We consider this to be an independent, objective benchmark which is supported by historical evidence.
- 5.261 Following Year 1, we will review the data and consult on targets for the rest of RIIO-ED2. We consider that this is the most robust way in which we can address the concerns raised by DNOs about setting a target for the incentive with no historical data.
- 5.262 We do not agree with the use of a pilot year as this means that the MCI would work only on a reputational basis for Year 1. While we think reputational incentives can be an effective tool for improving service, the risk of a financial penalty provides additional protection for customers. We consider that the use of the UKCSI Utilities score allows us to set a fair and objective minimum standard of service that must be met in order to ensure that customers are protected from poor levels of service.
- 5.263 We agree that it is more appropriate to increase the penalty companies face as performance moves further away from the target, rather than a cliff-edge approach where the DNO is not penalised at all until they reach the collar, and then faces a maximum penalty immediately. The maximum

<sup>&</sup>lt;sup>75</sup> Please refer to the UK Customer Satisfaction Index (UKCSI) report for more information: <u>https://www.instituteofcustomerservice.com/research-insight/ukcsi/</u>

penalty will be capped at 6.91/10 in Year 1 of RIIO-ED2. We think this will incentivise companies to improve their performance, if they are between the collar and target, as it will help reduce their exposure. We will specify the level at which the maximum penalty applies in subsequent years when setting targets from Year 2 onwards.

#### Minimum survey sample size

- 5.264 We will introduce a check on the robustness of survey results. This will seek to mitigate any unintended consequences from small sample sizes and other concerns raised by DNOs.
- 5.265 At Draft Determinations we said we would explore ways to address concerns over low sample sizes. ENWL and NPg said that this would mean that that DNOs with very few RMS, or RMS with low activity, could face a penalty for poor performance based on a very small number of responses. ENWL suggested using the "central limit theorem" to ensure that the penalty would only be triggered on a statistically robust sample size, due to the potentially high penalties for small sample sizes.<sup>76</sup> SSEN and SPEN welcomed the development of an appeals mechanism.
- 5.266 We recognise that some RMS' will have smaller sample sizes. While we have not seen evidence to support concerns that third parties will submit intentionally low survey scores to influence the DNOs in this or other areas, were this to happen, we think it could risk penalising those DNOs unfairly. This is because the third parties in a small sample would have a greater influence over the average score. Having considered consultation responses, we have decided to introduce a check on the robustness of the survey sample.
- 5.267 The survey sample must be sufficient size to achieve a 5% margin of error and 95% confidence level. We have chosen these survey parameters because we consider that they are appropriate in ensuring that the sample accurately reflects the views of the overall population. We disagree with the proposal of the central limit theorem as this is a fixed value and would therefore not be appropriate for different RMS' with varying sample sizes.
- 5.268 Where a DNO's score is less than the annual target score and the sample size passes the threshold, the results of the MCI shall stand, and a penalty will be applied to the licensee. Where a DNO's score is less than the target score and the sample size is not above the threshold, we will consult on a proposed direction to apply an alternative penalty amount to the licensee. We believe this proposal provides protection to the DNOs against the risks identified.

<sup>&</sup>lt;sup>76</sup> The central limit theorem states that the distribution of sample means approximates a normal distribution as the sample size gets larger, regardless of the population's distribution. Sample sizes equal to or greater than 30 are often considered sufficient for the central limit theorem to hold.

## Major Connections Incentive (ODI-R)

Purpose	To ensure companies are held accountable for delivering
	their Major Connection Strategies within-period
Benefits	Better awareness of the overall timeliness of connections

## Final Determination summary

5 269	The table	helow	nrovides	a summar	v of	our Final	Determination	nosition
J.209	The lable	DEIOW	provides	a summar	y Ui		Determination	position.

Parameter	Final Determination	Draft Determination
Reporting on timeliness	Reporting on timeliness of major connections.	Same as FDs
Major Connections Annual Report	<ul> <li>An annual report detailing:</li> <li>Performance against the MCCSS in all RMS'</li> <li>Performance against the timeliness metrics</li> <li>Progress against delivery of Major Connections Strategies</li> </ul>	Same as FDs
Reputational assessment	A new section on major connections performance within the Networks Performance Summary report	New to FD

Final Determination rationale and Draft Determination responses

## Reporting on timeliness

- 5.270 We have decided to require DNOs to report against Major Connections Time to Quote (MCTTQ) and Major Connections Time to Connect (MCTTC) metrics for RIIO-ED2.
- 5.271 At Draft Determinations we proposed that DNOs should report on timeliness of quotations and connections. The majority of respondents agreed with our proposals, with SPEN and ENWL disagreeing.
- 5.272 SPEN stated that it does not agree with the current definitions of the metrics. ENWL also disagreed and stated that it was unclear what the reporting would entail and was concerned it would add an extra regulatory burden. They also stated that we should be cautious around incentivising the time to connect, as it could lead to perverse outcomes.
- 5.273 One industry stakeholder suggested we add a "responsiveness" metric. It stated that delays by DNOs pose a challenge to the development phase of projects, as connection procedures are often affected by the poor responsiveness of DNOs. This could be achieved by scoring DNOs on a scale of 1-10 to indicate how quickly they respond to e-mails and calls.

- 5.274 We believe that the timeliness in relation to the quotation and connection stages are key elements of the connections process and would benefit from reputational assessment. This will help incentivise DNOs to improve timeliness of connections and serve as an important data gathering tool for future price controls. Enhanced reporting will also give customers sight of DNO performance in relation to the timescales taken for the end-to-end connection process.
- 5.275 We have engaged with the DNOs to agree final definitions for the metrics. For MCTTQ, we will require DNOs to measure timeliness from the date when the formal application is received with minimum information, to the date that the quote is sent.
- 5.276 For MCTTC, we have changed from our Draft Determinations position of measuring timeliness between "site ready" and the connection date. The feedback we have received from DNOs indicates that "site ready" is subjective and would require new definitions, which would lead to additional regulatory and administrative burden. Therefore, in the interests of simplicity and a desire to measure timeliness from an end-to-end basis, we will measure MCTTC from the date of acceptance to the date of connection.

## Major Connections Annual Report

- 5.277 We have decided that DNOs should produce a Major Connections Annual Report (MCAR). The MCAR should include:
  - performance against the MCCSS in all RMS
  - performance against the MCTTQ and MCTTC
  - progress against milestones and metrics within the Major Connections Strategies.
- 5.278 No respondents raised any concerns or suggested alternatives to our proposal of an annual report. As we have not received any evidence or information to support a change to this position, we have decided to apply our DD position.

## Reputational assessment

5.279 We will introduce a section on major connections performance within the Network Performance Summary Report.<sup>77</sup> As stated at Draft Determinations and in the sections above, the overall major connection incentive package will have elements of reputational assessment such as:

<sup>&</sup>lt;sup>77</sup> RIIO-ED1 Network Performance Summary Report reviews the activities of the DNOs. It provides an overview of each DNO's performance against their agreed outputs and incentives, their innovative activities, and their overall financial performance. It also provides forecasts for the remainder of the price control.

- DNO performance in the MCCSS in relation to non-contestable activities in RMS' that have demonstrated evidence of effective competition
- reporting against MCTTQ and MCTTC in all RMS'
- assessment of the delivery of Major Connections Strategies.
- 5.280 We will require DNOs to highlight performance against the financially incentivised element of the MCCSS, which we believe places an additional reputational incentive on DNOs.
- 5.281 We will also include our reputational assessment of the Major Connections Strategies in the Network Performance Summary Report. We will review each DNO's MCAR, alongside their Major Connections Strategies, to ensure that delivery of the proposed milestones are achieved. We believe that this strengthens the overall incentive package.
- 5.282 The contents of the MCAR will be set out in more detail in the Major Connections Guidance Document which will be published alongside the licence condition.

Connections	Guaranteed	Standards	of	Performance	(GSoPs)	)
			_			

Purpose	The Connections GSoPs help protect customers against unacceptable levels of connections service
Benefits	Customers can have suitable expectations of minimum
	service levels that DNOs should deliver

## Background

- 5.283 Our SSMD confirmed that we intended to retain the existing Connections GSoPs for all connections customers in RIIO-ED2.<sup>78</sup> We also confirmed our intention to update the payment amounts to account for inflation to the start of the next price control.
- 5.284 Our Draft Determinations proposed to go further<sup>79</sup>. We said we would explore the potential for incorporating the Distribution Generation (DG) Standards Direction (currently set out SLC15A of the electricity distribution licence) into the connections GSoPs given they had the same intent. We also said we were considering whether to review the Connections GSoPs more broadly. The scope of the review of the Connections GSoPs could be widened to include, but not necessarily limited to, the prescribed periods, scope of activities and exemptions described in the Connections GSoPs.

<sup>&</sup>lt;sup>78</sup> RIIO-ED2 SSMD Annex 1, Chapter 5 <u>RIIO-ED2 Sector Specific Methodology Decision</u> <u>Ofgem</u>

<sup>&</sup>lt;sup>79</sup> RIIO-ED2 Draft Determinations, Core Methodology Document, paragraphs 5.178 to 5.197 <u>RIIO-ED2 Draft Determinations | Ofgem</u>

## Final Determination

Parameter	Final Determination	Draft Determination
Updating payments	We will update payments for inflation (CPIH).	Same as FD
Distribution Standards Direction (SLC15A)	We will retain the existing Standard Licence Condition 15A.	Same as FD
Connections GSoP review	No formal review of GSoPs at this time but keep this and scope for further work under review	Updated at FDs

5.285 The table below provides a summary of our Final Determination position.

Final Determination rationale and Draft Determination responses

5.286 We received 11 responses to our proposal to launch a wider review of the Connections GSoP (that is, beyond updating the payment amounts for inflation and incorporating standards for DG customers). We received 12 responses on what else could be done to help speed up connections to the distribution network and or develop a standard for the overall (ie end to end) time to connect.

## Updating payments

- 5.287 Two non-DNO respondents supported our SSMD decision to adjust payment amounts for inflation at the start of RIIO-ED2. No other comments were provided.
- 5.288 In line with our SSMD and the approach taken in the RIIO-GD2 price control, we will adjust the payment levels to account for inflation (using CPIH) at the start of RIIO-ED2. We will then index payments (and the associated caps) to inflation (CPIH) against a baseline of January 2023.
- 5.289 Once the index has moved sufficiently, DNOs should round the payment amounts to the nearest multiple of £5 and adjust the associated caps at a commensurate rate. The effect of this is that a revision to the payment levels will continue to take place once there has been sufficient inflation, and that the caps will be increased in line with this. This will ensure that they remain up to date, reflective of consumer expectations and remove the need to regularly update the relevant Statutory Instrument (the SI).
- 5.290 We will work with DNOs to establish the text that will form part of the Connections GSoPs for updating payment amounts and the associated caps, taking learnings from the equivalent process in RIIO-GD2. We are also mindful of ongoing work looking at the Electricity (Standards of

Performance) Regulations 2015 following the Storm Arwen review<sup>80</sup>. We will work with the relevant teams in Ofgem to identify any synergies across both areas of work in terms of approach and timelines.

5.291 Finally, our recent informal consultation on the RIIO-ED2 licence conditions proposed a change to the drafting of Special Condition 5.4 of the electricity distribution licence. The effect of this is that the maximum exposure licensees will face in respect of Connection GSoPs will change from a value covering the full price control period to an annual figure. We are continuing to assess responses to that consultation ahead of publishing our statutory consultation on the licence following Final Determinations.

#### DG Standards Direction

- 5.292 UKPN respondent questioned the power of the Authority to incorporate the DG Standards Direction within the Connections GSoPs. No other comments were provided.
- 5.293 We maintain that incorporating the DG Standards Direction within the Connections GSoPs is more desirable than the current arrangement where the provisions to protect generation and demand customers are set out in different places. Feedback received through the RIIO-ED2 working groups has also indicated support for this as a principle.
- 5.294 We have assessed that any change to the Connections GSoPs to incorporate the DG Standards Direction could require substantial work and resource to ensure the obligations remain fit for purpose. Therefore, while it would be desirable to incorporate the DG Standards Direction within the Connection GSoPs, we do not consider it is essential at this time and may delay updating the payment amounts as described above. This would not be in consumers' interests.
- 5.295 We will therefore keep the DG Standards Directions as part of SLC15A of the electricity distribution licence. We may revisit this should any future review of the Connections GSoPs provide an opportunity to make this change.
- Wider review and further work to speed up distribution connections
- 5.296 NPg, NGED and five non-DNO respondents supported the proposal to carry out a wider review of the Connections GSoPs. UKPN agreed on the condition that further clarity on scope and power were provided. ENWL, SPEN and SSEN disagreed due to unclear rationale and scope of review, as well as uncertainties from net zero and the Access SCR.
- 5.297 We are committed to making sure DNOs continually improve the service they provide to consumers seeking a connection to the distribution

<sup>&</sup>lt;sup>80</sup> Please refer to the government legislation for more detail: <u>https://www.legislation.gov.uk/uksi/2015/699/contents/made</u>

network. We think the package of incentives we are implementing for RIIO-ED2 helps achieve this aim.

- 5.298 We recognise however that this does not cover all parts of the connection process (eg, the availability and provision of "connection surgeries" prior to a formal connection request). This could be leading to delays which are not evident from our current reporting. We are also aware of inconsistencies between DNOs in how they undertake otherwise similar activities. We therefore think that there is more work that can be done to improve the service that consumers currently receive. This could in turn result in new minimum standards which are reflected in the Connections GSoPs.
- 5.299 We note however that the ENA has established a connections task force since the publication of our Draft Determinations. We are also mindful of issues outside of a DNO's control which can affect the connection process (such as the impact of upstream transmission constraints on distribution connections). We therefore agree with some of the comments that any further work in this area should be carefully scoped to avoid any duplication and identify any synergies with existing or planned programmes of work. We will continue to work with DNOs, the ENA and BEIS on these issues to seek further improvements that can be made over the course of RIIO-ED2.

## **Removal of the Incentive on Connections Engagement**

#### **Background**

5.300 At SSMD we stated that we would remove the Incentive on Connections Engagement (ICE) and replace this with the MCI for RIIO-ED2.

#### Final Determination summary

5.301 The table below provides a summary of our Final Determination position.

Parameter	Final Determination	Draft Determination
ICE	Removal of the ICE and replaced with the MCI	Not stated at Draft Determinations. Decision was made at SSMD

#### Final Determination rationale and Draft Determination responses

5.302 We did not consult on the removal of the ICE at Draft Determinations. This is because we consulted on it as part of our SSMC. Our decision to remove the ICE and our reasons for it are set out in Annex 1, paragraphs 5.87 to 5.98 of our SSMD.

# 6. Maintaining a safe, resilient and reliable network

## Section summary

In this chapter we describe our decisions to ensure that the DNOs continue to drive improvements in network reliability and that key network assets are maintained, repaired and replaced to ensure long-term safety and resilience, including in relation to severe weather.

## **Overview**

- 6.1 The most valuable service that DNOs provide to consumers is an uninterrupted supply of electricity. Ensuring high levels of network reliability has therefore been a key priority for Ofgem over recent price controls, which has included a range of measures to ensure DNOs continue to improve their performances.
- 6.2 Closely related to this, the actions network companies take in managing their networks must ultimately deliver safe and resilient network services to ensure the distribution networks can meet the needs of consumers, both now and in the future.
- 6.3 The resilience of the electricity networks has been in sharp focus over the past year, with a number of storm events bringing significant disruption to customers. In late November 2021, Storm Arwen resulted in over 1m customers losing power. Approximately 40,000 customers were without supply for more than three days, and nearly 4,000 customers were off supply for over a week. This was followed by a number of other severe weather events through the winter period, including Storm Eunice in February 2022, which resulted in over 1.7m households experiencing a disruption to their electricity supplies.
- 6.4 The networks need to remain resilient to a range of existing and emerging threats. This resilience encompasses the physical condition of the assets, as well as the capacity to withstand external threats such as severe weather events becoming more common as a consequence of climate change, including wind damage or flooding of key sites, or cyber-attack.
- 6.5 Our final decisions in this chapter build on the outputs that we set out in Annex 1 of our SSMD document. There are two strands to how we expect DNOs to ensure a safe, resilient and reliable network is maintained:
  - a package of measures to ensure DNOs continue to maintain world class levels of reliability through the Interruptions Incentive Scheme (IIS), the Guaranteed Standards of Performance (GSoPs), and how DNOs improve service provision to their 'worst served customers'
  - a series of measures to increase the long-term safety and resilience of the network in response to a range of existing and emerging risks and to help support the transition to net zero.

## Figure 8: An overview of Chapter 6

Maintain a sa	afe, resilient and reliable network
World class levels of reliability	Proposals for the IIS to deliver continued world class levels of reliability and funding for DNOs to improve service provision for their 'worst served customers'
Asset resilience	A Network Asset Risk Metric output to hold companies accountable for their investment decisions.
Environmental and information resilience	A package of measures, including new strategy requirements and uncertainty mechanisms to ensure DNOs improve resilience in key areas of their operations.

# Maintaining world class levels of reliability

- 6.6 The actions that network companies take in efficiently managing their networks in RIIO-ED2 should deliver reliable network services for existing consumers, as well as safeguarding the reliability of the network for the future. As noted above, the most valuable service a DNO provides to consumers is an uninterrupted supply of electricity. As electricity demand is expected to grow as a result of the transition to net zero, with new sectors such as transport and heating moving to electricity as a fuel source, the reliability of the electricity networks will continue to be critical for consumers.
- 6.7 There are three key components of our approach to ensuring DNOs maintain high levels of network reliability:
  - The IIS
  - The GSoPs
  - How DNOs can improve the service provided to their "worst served customers"
- 6.8 In this section we set our final decisions in respect of each of these component parts.

#### Interruptions incentive scheme (IIS)

Purpose	To drive DNOs to improve the overall reliability of their networks by setting target levels of performance for the price control.
Benefits	Consumers are better served in terms of reduced interruption frequency (measured by customer

interruptions (CIs)) and interruption duration (measured by customer minutes lost (CML)).

#### <u>Background</u>

- 6.9 The IIS seeks to incentivise the DNOs to improve network reliability beyond the level that is funded ex ante. There are three key elements of the IIS, namely value of lost load (VoLL), unplanned interruptions target setting and planned interruptions target setting.
- 6.10 Our Final Determinations on these three key elements are set out in the sections below.

#### Final Determination summary

Output Parameter	Final Determination	Draft Determination	
VoLL	Introduce a single figure for VoLL, updating the RIIO-ED1 figure in line with inflation	Same as FD	
	Update incentive rates to reflect VoLL and the latest view of average consumption and GB CMLs	Same as FD	
	Move to an incentive with a cap of 150BPs of RoRE and a collar of	New to FD	
	250BPs of RoRE	cap of 100BPs of RoRE and a collar of 250BPs of RoRE	
Unplanned interruptions target setting	Amend the CML target setting methodology to be consistent with the CI methodology and apply	Same as FD	
	Retain improvement factors to	Amended for FD	
	further reliability improvements, applying three levels set relative to DNO benchmarks (0.5%, 2% and 4%)	In DDs we proposed improvement factors of 0.5% and 1.5%	
	No allowance for Quality of Service (QoS) activities, except for WSC schemes	Same as FD	
Planned interruptions target setting	No change from SSMD position	Same as FD	

6.11 The table below provides a summary of our Final Determination position.

Purpose	VoLL is a representation of the value that customers place
	on security of supply. It feeds into many areas of the
	price control, including the IIS, Cost-Benefit Analysis and
	the Network Asset Risk Metric.
Benefits	Gives a consistent indication of how much customers
	value the services provided by the DNOs under the price
	control.

## Value of lost load (VoLL)

## <u>Background</u>

- 6.12 VoLL is a key input into several areas in the price control, including for the IIS calculations. In our SSMD, we said that we would introduce a single VoLL figure across GB for IIS by updating the RIIO-ED1 figure in line with inflation, and using the RIIO-ED1 calculation to translate VoLL into IIS incentive rates using the latest view of average consumption and GB CMLs.
- 6.13 We introduced a revenue cap in RIIO-ED1 to manage risk around the DNOs outperforming their targets because they were set at the Strategy Decision stage and to reflect the eight-year price control.<sup>81</sup> In our SSMD, we decided to retain the revenue cap as we considered it had worked well to protect customers from DNOs earning excessive rewards. We also said that the downside collar protects DNOs from excessive penalties.
- 6.14 In our Draft Determinations we explained that we had reviewed the proposed cap and collar for IIS and proposed to reduce the value of the cap from 250BPs to 100BPs but would retain the value of the collar at 250BPs.

#### Final Determination summary

Output Parameter	Final Determination	Draft Determination	
VoLL for IIS	No change to our SSMD position on having a single VoLL value across GB, which has been updated for inflation	Same as FD	
	Undertake a review of VoLL, in advance of RIIO-ED3 or equivalent so that it reflects changes in electricity usage		

6.15	The table below	provides a	summary of	of our	Final	Determination	۱.

<sup>&</sup>lt;sup>81</sup> The strategy decision for the RIIO-ED1 price control was published in 2013, two years prior to the start of RIIO-ED1.

Output Parameter	Final Determination	Draft Determination
Incentive rates	No change to our SSMD position	Same as FD
Financial	Move to an incentive with a cap of 150BPs of RoRE and a collar of 250BPs of RoRE	New to FD In DDs we proposed a cap of 100BPs of RoRE and a collar of 250BPs of RoRE

Final Determination rationale and Draft Determination responses

VoLL

- 6.16 We have decided to implement our Draft Determination and SSMD position to continue to use a GB-wide VoLL which has been updated for inflation for the IIS.
- 6.17 We received limited feedback on our proposal to have a single VoLL as we confirmed our decision on this in SSMD. However, our proposal received further comment in response to Draft Determinations. It was supported by UKPN who deemed inflating the values from the 2008/9 VoLL a logical approach. However, ENWL's CEG noted that based on the research carried out by ENWL to establish an updated view of VoLL, a single uniform VoLL may no longer be appropriate. The CEG suggested that a single VoLL value does not reflect the actual value individual customers place on lost load, which in turn distorts the impact of VoLL across a range of domestic and small and medium enterprises (SMEs), including those in fuel poverty. SPEN also raised the point that VoLL should more closely align with actual customer demand value.
- 6.18 One consumer body suggested that analysis should be undertaken into whether VoLL or customer views revealed through stakeholder engagement are the best method for understanding the reliability improvements that customers want and are willing to pay for.
- 6.19 As we proposed at Draft Determinations, we will work with network companies across all sectors and other stakeholders to undertake a review of VoLL, including whether there are benefits to regional VoLL figures and how this translates into customer willingness to pay (WTP). This review should consider customers' WTP in relation to the value placed on minimising interruptions. It should also take into account recent changes in working arrangements that started due to COVID measures and the electrification of heat and transport, alongside the marginal benefits of additional reliability improvements considering the world leading performance of some DNO regions.
- 6.20 We acknowledge that an in-depth review of VoLL will be a complex piece of work to undertake and was not possible to complete between Draft and Final Determinations. We will therefore undertake this research during the RIIO-ED2 period and update VoLL to reflect the outcome of the review in

advance of setting subsequent electricity distribution price controls (ie RIIO-ED3 or equivalent).

#### Incentive rates

- 6.21 We have decided to implement our Draft Determinations and SSMD position to continue to use the RIIO-ED1 calculation to translate VoLL into IIS incentive rates, using the latest view of average consumption and GB Customer Minutes Lost (CMLs).
- 6.22 UKPN expressed the view that the RIIO-ED1 incentive rates should be maintained but raised concerns regarding the use of average customer consumption in the incentive rate calculation. UKPN identified that the effect of declining consumption, due to increased focus on energy efficiency, infers that the loss of the same amount of electricity is worth less now than it was at the start of the previous price controls. It was argued by UKPN that this is not the case as its customer research indicates that network reliability is a priority and that customer's reliance on electricity is likely increasing due to homeworking and electrification of transport and heating.
- 6.23 Although we recognise that anticipated future changes in demand, generation and energy use mean that current consumption may not be representative of the future, we do not consider that alternatives to using the latest view of average consumption would provide a more accurate picture for RIIO-ED2.<sup>82</sup> We consider that the latest view of average demand means that IIS incentive rates are set at a level that is most representative of customers' latest experiences.
- 6.24 We note that customer research shows that reliability remains a priority for customers and that reliance on electricity could be increasing. However, the IIS has driven significant improvements in reliability, with some DNO regions now having world leading performance. We consider that customers are likely to place more value on avoiding deterioration in reliability than on an equal improvement, given the existing high levels of reliability in many regions and as customers' reliance upon their electricity supply increases with the electrification of heat and transport.
- 6.25 We invited evidence from the DNOs to show that customers were presented with and understood the cost implications of even fewer interruptions. Five DNOs sought to provide evidence that customers are willing to pay for further reliability improvements and the CEGs of ENWL and NPg acknowledged the research and findings of their DNOs respectively. The research presented to us reflected the engagement undertaken to inform proposals and ambitions set out in DNO Business Plans. We consider that the landscape has changed significantly in light of the pressures on the cost-of-living meaning customer priorities and WTP may have changed since the engagement was undertaken to inform DNO

<sup>&</sup>lt;sup>82</sup> RIIO-ED2 SSMD, paragraph 7.41 <u>https://www.ofgem.gov.uk/publications/riio-ed2-sector-specific-methodology-decision</u>

Business Plans. We note that no new evidence was presented on customer WTP in DNO consultation responses to account for this.

- 6.26 We agree with the view of one consumer body who cautioned that any such evidence on customer WTP should be based on customers having an understanding of the cost implications versus the benefits of additional reliability improvements. We did not find DNOs' engagement findings compelling in evidencing the value customers place on improvements in reliability.
- 6.27 While DNOs have informed us that customers are willing to pay for reliability improvements, we have not had visibility of how DNOs have framed these discussions with customers. It is not clear whether customers value improvements to the same extent, or more than they value any potentially harmful deterioration in reliability, and how this consumer value then translates into average Customer Interruptions (CIs) and CMLs.
- 6.28 We also maintain the view set out in our Draft Determinations that if we increase incentive rates alongside reducing the revenue cap (as discussed in the Financial section below), it would reduce the number of improvements that a DNO would be incentivised to make, as fewer improvements would fit under the cap.
- 6.29 Accordingly, we have decided to implement our SSMD and Draft Determinations position as per paragraph 6.21.

#### Financial

- 6.30 In our Draft Determinations, we proposed an upside revenue cap of 100BPs and a downside collar of 250BPs of RoRE. Following consideration of consultation responses and the changes we are making to unplanned interruptions target setting (as discussed in the unplanned interruptions target setting section below), we have decided to increase the revenue cap to 150BPs but will maintain the revenue collar at 250BPs.
- 6.31 We received 12 responses to our proposal on the financial parameters of the IIS.
- 6.32 The proposed cap and collar received support from SPEN, one consumer body and two CEGs, with reasoning grounded in support for a reduction in the revenue cap from 250BPs to 100BPs to mitigate against the risk of excessive rewards being earned in RIIO-ED2 on the scale seen so far in RIIO-ED1.

#### IIS revenue cap

6.33 Five DNOs disagreed with our proposal to lower the revenue cap and the overall asymmetry it would introduce to the incentive. While ENWL recommended removing the cap completely, other DNOs argued that the IIS should be balanced with equal opportunity for reward and penalty. DNOs raised the following points against our proposal to lower the cap:

- it restricts the amount of efficient investment that can be made and consequently reduces the ability of poorer performing DNOs to catch up with frontier DNOs
- it prevents DNOs from earning rewards to deliver additional improvements beyond the cap
- the Revenue Adjustment Mechanism (RAM) is a mechanism being put in place to prevent DNOs from earning excessive rewards, so there is no need to lower the revenue cap.
- 6.34 Two respondents proposed alternative options to reducing the revenue cap which they consider to better balance increases in reliability and the cost to consumers. These options were:
  - To set rolling targets for DNOs as it is likely that they will become more difficult for a DNO to significantly outperform because they are based on a DNOs own recent performance (industry body)
  - To explore removing the sharing factor from the IIS (UKPN)
- 6.35 We consider that a reduced revenue cap will help address concerns about the excessive rewards that could be earned, while still allowing for further improvements to be made by DNOs, before the cap is reached.
- 6.36 DNOs have argued that a 100BPs cap restricts the amount of efficient investment that can be made. As the incentive rates per CI and CML improvement are much lower than the reduced cap and we have not seen evidence that the cost of delivering improvements has exceeded the incentive rates, we expect that the IIS will still incentivise all DNOs to continue to make improvements.
- 6.37 We recognise that whilst the cap limits the cost to customers, we agree that it potentially restricts the amount of efficient investment that can be made by DNOs, and thus the number of improvements that can be made before the cap is reached. We also consider that poorer performing DNOs who drive significant performance improvements over RIIO-ED2 could reach the cap more quickly than they would under a larger revenue cap, which could prevent further performance improvements and the ability for these DNOs to catch up with the performance of frontier DNOs. We have therefore considered the trade-off of the benefit of additional reliability against the cost to customers to achieve it when making our decision on the revenue cap.
- 6.38 We consider that reducing the cap from the 250BPs will better balance the benefit of additional improvements and the costs associated with delivering them against the potential for DNOs to earn excessive rewards. We consider that this is particularly true in the context of the cost-of-living crisis and taking into account DNO performance over RIIO-ED1 so far, where the cost to customers for improvements in reliability has been significantly higher than the costs for DNOs to deliver such improvements.
- 6.39 In our Draft Determinations, we considered whether the cap needs to be increased, decreased or even removed. We maintain our view that an IIS

revenue cap works well to protect customers from DNOs earning excessive rewards. So far in RIIO-ED1, seven DNOs' rewards have been restricted by the revenue cap. We consider that this has resulted in positive outcomes for customers taking into account the data DNOs have reported to us that shows that the cost to achieve reductions in CIs and CMLs has been far lower than the rewards they have earned over RIIO-ED1.

Figure 9: RIIO-ED1 QoS expenditure and allowance to-date versus the rewards earned by  $DNOs^{83}$ 



- 6.40 In addition, although we proposed to set targets a year later than we did for RIIO-ED1 and apply improvement factors, we still consider that the potential for DNOs to earn rewards for improvements that have already been achieved remains. This is because:
  - DNOs can drive improvements over the final years of RIIO-ED1 and achieve performance that is better than the targets for 2022/23; and
  - the proposed change in CML target setting methodology reduces the potential step change in performance required for DNOs to meet, and outperform targets, between RIIO-ED1 and the beginning of RIIO-ED2. We discuss this in further detail in the section on CML target setting methodology.
- 6.41 We consider that an IIS revenue cap is needed in addition to the RAM mechanism. This is because they serve different purposes. The IIS revenue cap acts as a maximum limit on the rewards DNOs can earn under the IIS, while the RAM mechanism protects against performance within incentives and totex across all aspects of the price control.

<sup>&</sup>lt;sup>83</sup> SSEH's allowance is for addressing Worst Served Customers

- 6.42 We consider that without a specific revenue cap on IIS it would be possible for a DNO to target making improvements solely in reliability risking other important areas of quality of service for customers being neglected. The IIS revenue cap takes into account the bespoke aspects associated with driving reliability improvements, including historical performance data and allowances that are commensurate with the performance DNOs are expected to deliver under the IIS incentive mechanism, the RAM mechanism does not take these factors into account.
- 6.43 We agree with the industry body that rolling targets could reduce the risk of DNOs significantly outperforming targets over RIIO-ED2 and earning excessive rewards, as targets are based on rolling averages of DNOs performance. However, as noted in our Draft Determinations, we consider it likely that only sustained outperformance would make the targets change significantly over RIIO-ED2, which is unlikely due to historical volatility in DNO performance. We consider that rolling targets would introduce its own drawbacks, where performance across DNOs is less comparable and there is less drive towards increased convergence in DNO performance.
- 6.44 We disagree with UKPN that we should remove the sharing factor from the IIS. We decided to apply the efficiency incentive rate to incentive rates in RIIO-ED1 and we maintain this position.<sup>84</sup> Removing the sharing factor may result in total costs for reliability exceeding customers' willingness to pay once the totex incentive mechanism (TIM) is considered. This is because incentive rates are derived from a measure of VoLL and overspend (potentially used to fund reliability improvements) is shared via the TIM. Retaining the sharing factor within the IIS incentive rate avoids customers potentially paying for inefficient levels of improvement.
- 6.45 We ultimately recognise the trade-off in ensuring that all DNOs can continue to make performance improvements which are not restricted by an 'artificial cap' on investment, and the risk of shifting excessive costs to customers which are not commensurate with the cost of performance improvements. We have therefore decided not to increase the scope for rewards back to the RIIO-ED1 revenue cap level of 250BPs.
- 6.46 However, we consider that introducing an additional 50BPs to the proposed revenue cap is a fair and proportionate approach. Our decision to set the revenue cap at 150BPs takes into account our decisions on unplanned target setting discussed below, the current economic climate and the absence of compelling evidence which outlines the extent to which customers are willing to pay for additional reliability improvements (as discussed in the incentive rates section above).

<sup>&</sup>lt;sup>84</sup> <u>Strategy decision for RIIO-ED1 - Overview | Ofgem</u> Reliability and safety - page 9, paragraph 2.9.

## Revenue collar

- 6.47 On the incentive collar, one consumer body supported our position to retain a greater downside to prevent any worsening of the existing levels of reliability. However, three DNOs disagreed with our proposal to retain the downside collar of 250BPs. SPEN and SSEN proposed that it is reduced to 100BPs of RoRE to achieve symmetry with the proposed 100BPs revenue cap. NGED said that there is significant risk of underperformance, especially for frontier companies, which is exacerbated by the proposed target setting methodologies, the disallowance of separate QoS funding and the proposed change to eligible Exceptional Events.
- 6.48 In considering the concerns raised by DNOs, including the risk of underperformance over RIIO-ED2, we have reviewed our Draft Determination position to retain the RIIO-ED1 revenue collar of 250BPs.
- 6.49 We maintain our view at Draft Determinations that the risk of a DNO underperforming to the extent that they are at risk of reaching the collar is very low without a DNO's decision to reduce investment in the assets and operations associated with current levels of reliability. This is because:
  - only one penalty has been applied to one DNO so far in RIIO-ED1, whereas 83 rewards, out of a possible 84, have been applied totalling £981m
  - the changes we proposed to the CML target setting methodology further mitigates the risk of DNOs falling into penalty over the price control. We discuss this further in the CML target setting methodology section
  - the impact of the changes to Exceptional Events eligibility is very small based on historic DNO CI and CML performance, we therefore do not consider this as a substantial contributing factor which impact a DNO's ability to meet its IIS targets. We discuss this further in the Exceptional Events section
  - while we note that QoS funding to enable a DNO to meet its baseline target would remove the risk of DNOs starting RIIO-ED2 in penalty position, we consider that separate QoS funding in addition to a DNO's opportunity for reward under the IIS introduces a disproportionate level of risk that customers pay significantly more for improvements than the cost to deliver them. We discuss this further in the QoS funding section
  - we have not seen evidence that DNOs' will not be able to continue to make significant improvements in reliability over RIIO-ED2. We consider that RIIO-ED2 presents the opportunity for further investments in network monitoring, particularly at the LV level. We consider that this is likely to be a key driver of improved performance over RIIO-ED2.

- 6.50 On the other hand, while we consider reliability is unlikely to decline significantly for reasons outside a DNO's control, it is likely to decline for any DNO that chooses to reduce reliability related totex investments. We consider that deteriorations in reliability could be highly costly to consumers and therefore should be penalised appropriately. The primary objective of the collar is to ensure that DNOs do not have any perverse incentive to reduce the related overall totex expenditure, allowing deterioration in reliability performance, in order to receive rewards under the totex incentive mechanism. The risk of reducing the collar is therefore that the relative strengths of service quality (IIS) and cost of service (totex) incentives could change, which could create serious consumer harming distortions.
- 6.51 While we note that our proposed approach to CML target setting using individual DNO average performance and applying improvement factors continues to drive performance improvements for all companies, it results in a tightening of targets for frontier companies compared to the RIIO-ED1 CML target setting methodology.<sup>85 86</sup> We proposed that lower improvement factors are applied for frontier DNOs to acknowledge that these companies are performing at the frontier and the opportunities to make significantly more improvements may be tapering off. As a result, we do not consider that there is a particular risk of underperformance for frontier DNOs.
- 6.52 We maintain the view that where a DNO has met its targets in RIIO-ED1, it is reasonable that the DNO should face more challenging targets in RIIO-ED2 and that if the incentive is no longer sufficient to encourage DNOs to keep making large improvements, then it represents the incentive functioning as expected.
- 6.53 We considered the DNO responses that suggested that the level of the collar should be reduced, in order to be the same as the revenue cap. Given our decision to set the cap at 150BPs, this would be implemented by reducing the collar from 250BPs to 150BPs.
- 6.54 Some stakeholders characterised the higher collar as asymmetry. Whilst the collar is set at a higher level than the cap, we do not consider that it exposes DNOs to asymmetric risk, in the sense that we consider the evidence of past performance to show that DNOs will not incur penalties that exceed 150BPs without a failure by management to adequately invest in or prioritise reliability. We consider a strong disincentive to allow performance to deteriorate should exist, and we do not consider there to be any likely scenario of a DNO's performance deteriorating to the extent of reaching the downside collar without it acting inefficiently or failing to

<sup>&</sup>lt;sup>85</sup> In RIIO-ED1, CML targets are based on a combination of a DNO's own performance and the lower quartile performance set by frontier DNOs.

<sup>&</sup>lt;sup>86</sup> Improvement factors apply a percentage improvement to targets each year. They were introduced in RIIO-ED1 to ensure DNOs continue to make improvements and do not 'stay still'.

invest in reliability improvements during RIIO-ED2. Our reasoning for this is set out above.

- 6.55 In our view, it would be reasonable in this case for there to be penalties to compensate customers. We therefore do not consider it appropriate to change the level of the collar from the 250BPs applied in RIIO-ED1. On balance, we consider this is more appropriate than a collar of 150BPs. The higher collar will have no effect on companies who continue to invest in reliability improvements and will provide reasonable protection to customers of any DNOs considering actions or cost savings that could materially reduce reliability.
- 6.56 Accordingly, our decision is to implement a 250BPs of RoRE downside collar as per our SSMD and Draft Determinations.

## **Unplanned interruptions target setting**

Purpose	To set challenging targets that drive improved reliability across all DNOs for both CI and CML
Benefits	Incentive drives DNOs to invest to reduce the number and duration of outages on the network

## Final Determination summary

Output Parameter	Final Determination	Draft Determination	
Timing of setting final targets	No change to our SSMD position	Same as FD	
The ratchet	Do not apply a ratchet, due to introduction of additional complexity for marginal benefit	Same as FD	
CI target setting methodology	No change to our SSMD position	Same as FD	
CML target setting methodology	Move from RIIO-ED1 methodology of targets based on lower quartile performance to average individual DNO performance (consistent with the CI methodology)	Same as FD	
Improvement	Move to three tranches of	New to FD	
factors	improvement factors: 0.5% for frontier DNOs,	In DDs we proposed to retain the RIIO-ED1 CI	
	2% for DNOs 0<20% from benchmark,	improvement factors: 0.5% for frontier	

6.57 The table below provides a summary of our Final Determination.

Output Parameter	Final Determination	Draft Determination		
	4% for DNOs >20% from benchmark	DNOs and 1.5% for the others		
QoS funding	No allowance for QoS activities, except for those relating to Worst Served Customers	Same as FD		

Final Determination rationale and Draft Determination responses

6.58 We received 11 responses to our consultation on unplanned interruptions target setting.

## Timings of target setting

- 6.59 We have decided to implement our Draft Determinations and SSMD position to set targets using the latest available data up to 2021/22 and publish them around February 2023. Setting the targets at the latest opportunity will help mitigate the risk that DNOs may be able to deliver improvements between the setting of targets and the beginning of the price control which mean they easily outperform their targets and earn rewards without delivery of significant performance improvements in-period.
- 6.60 We received four responses on our proposed timing for target setting. SPEN and SSEN supported our proposal. However, NGED commented that targets should be published earlier at the same time as Final Determinations, as all required data for target settings should already be available. One consumer body recommended also including performance data for 2022/23 in setting the targets.
- 6.61 Setting targets in February 2023 will ensure that the latest available data for the 2021/22 regulatory year is included to help mitigate the risk that DNOs will be able to easily outperform their targets. This was a key conclusion of the January 2020 National Audit Office (NAO) review of electricity networks<sup>87</sup> which identified the outperformance risk from targets set too far in advance of the price control commencing, as seen in RIIO-ED1.
- 6.62 Additionally, it is not possible to publish the final targets as part of our Final Determinations as the 2021/22 data has not yet been adjusted for HV disaggregation. The targets in the Company Annexes are therefore based on the information we have at the time of the FD publication. The final numbers will be set out in SpC 4.4 of the licence.
- 6.63 It is also not possible to include 2022/23 data in the calculations of final targets as this performance data will not be finalised until Autumn 2023,

<sup>&</sup>lt;sup>87</sup> Electricity Networks report by the National Audit Office: <u>https://www.nao.org.uk/wp-content/uploads/2020/01/Electricity-networks.pdf</u>

half-way through the first year of RIIO-ED2. This would not provide sufficient time for DNOs to have sight of targets and make necessary improvements before the end of the first regulatory performance year.

## The ratchet

- 6.64 We received three responses from DNOs on our proposal, all of which supported the removal of the ratchet.
- 6.65 We have therefore decided to implement our Draft Determinations position not to apply a ratchet as the marginal benefits of very minor adjustments to targets do not justify the additional complexities of:
  - separately calculating each DNO's average CI and CML performance using the target setting models approach that is based solely on their own average performance; and
  - applying a final step in the target setting models to determine if the modelled targets or a DNO's own average performance is lower and substitute the average performance, if that is the case.

## CI target setting methodology

- 6.66 We have decided to implement our Draft Determinations and SSMD position to retain the RIIO-ED1 methodology, which is to set targets based on average individual DNO performance at the start of the price control, updated annually with improvement factors.
- 6.67 We received four responses from DNOs on our proposal.
- 6.68 Our proposal was supported by ENWL, SPEN and SSEN. However, UKPN disagreed with our proposal, stating that the methodology for both CI and CML target setting imposes unrealistic targets for high performing DNOs. UKPN recommended DNOs performing significantly ahead of the benchmark should have a blended target of their own average performance and the industry benchmark, and annual improvement factors should be removed for LPN in recognition of the high levels of performance it is delivering.<sup>88</sup>
- 6.69 We consider that the CI methodology achieves the intent of the incentive by driving DNOs to make improvements that exceed their average performance through the application of improvement factors and incentive rates. We do not consider it appropriate for frontier DNOs to have targets set which are a blend of their own performance with the industry benchmark. We consider that this would introduce additional risk of DNOs being rewarded again for a level of performance for which they have already received a reward during RIIO-ED1, meaning customers would

<sup>&</sup>lt;sup>88</sup> Paragraph A6.4 of the RIIO-ED2 SSMC states 'At a high level, CI targets are created by comparing a DNO's average performance over recent years to an industry-wide benchmark for each voltage level for the same period of time. This ultimately determines whether each DNO's target is subject to the 1.5% annual improvement factor (if they are performing behind the benchmarked value) or the 0.5% annual improvement factor (if / when they are performing ahead of the benchmarked value).

pay twice for the same level of service. If the incentive is no longer sufficient to encourage DNOs to keep making large improvements to meet their targets, then this represents the incentive functioning as expected.

6.70 We discuss the application of improvement factors in the section below.

## CML target setting methodology

- 6.71 As proposed in our Draft Determinations, we have decided to implement a move away from our RIIO-ED1 methodology of setting targets based on lower quartile performance to average individual DNO performance, which is consistent with the CI target setting methodology.
- 6.72 We received 11 responses to our proposal. Four DNOs, one CEG and one additional stakeholder agreed with our proposal.
- 6.73 Two DNOs, one CEG, one consumer body and one industry body disagreed with our proposal. UKPN and NGED disagreed with our proposed methodology because relying on average individual DNO performance would mean difficult to achieve targets for frontier performers, who have consistently performed strongly in RIIO-ED1. NGED also noted that the methodology imposes less challenging targets on poorer performing companies than the RIIO-ED1 CML target setting methodology. NGED suggested that DNOs outperforming their benchmark<sup>89</sup> should have targets based upon benchmarks rather than their own performance. UKPN also suggested an alternative option, which we discussed in paragraph 6.69 in relation to CI target setting.
- 6.74 One industry body commented that it cannot be reliably inferred that the ability of DNOs to consistently make improvements has begun to taper off. It argued that the change in proposed methodology results in DNOs that would have been required to deliver the biggest improvements to converge towards the benchmark under the previous methodology now being offered the greatest protection (i.e. less chance of facing penalty).
- 6.75 One consumer body also commented on the use of 4-year averages and the weight this gives to outlying performance, generating unnecessarily low targets. It instead recommended reverting back to the RIIO-ED1 methodology, using 4-year percentile targets (40th or 35th) or rolling targets to mitigate against this issue.
- 6.76 NPg's CEG said that the proposal places emphasis on avoiding DNOs outperforming financially rather than there being sufficient focus on improving service.
- 6.77 We acknowledge the concerns raised that poorer performing DNOs face less challenging CML targets under the proposed methodology than the RIIO-ED1 methodology. We recognise that this in turn reduces the

<sup>&</sup>lt;sup>89</sup> Paragraph A6.23 of the RIIO\_ED2 SSMC states 'As with CIs, we use historical performance to set a benchmarked view of where each DNO's CML per CI performance should be. This benchmarked view is built up from performance across the different voltage levels.'

likelihood of greater convergence in performance during RIIO-ED2 and increases the probability that poorer performing DNOs may outperform their targets more easily.

- 6.78 However, we do not consider it appropriate to revert to the RIIO-ED1 CML target setting methodology. Basing year one (2023/24) targets on average individual DNO performance removes the significant step change between RIIO-ED1 performance (4-year average) and the target for the first year of RIIO-ED2 for companies who have not improved their performance as much as other DNOs over RIIO-ED1. We consider that this is necessary to avoid setting unachievable targets for some DNOs.
- 6.79 We also recognise that not all DNOs are able to achieve improvements at the same rate and that absolute convergence in performance is unlikely to be achievable. We therefore consider it more appropriate to set ambitious and achievable targets based on DNOs' own average performance, with the application of improvement factors to drive continuous improvement.
- 6.80 We do not consider that rolling targets would be effective in continuing to drive improvements in performance to the same extent to which target setting based on average DNO performance with the application of improvement factors will. This is in part due to the volatility in DNO performance, which could result in a weakening of the improvement rate required where the DNO's own rolling performance is the driver.
- 6.81 While we do not know with certainty how many more CI and CML improvements each DNO is able to make, or the extent to which performance may taper off during RIIO-ED2, we maintain our position that the IIS should drive DNOs to deliver improvements until the cost of such improvements no longer outweighs their benefit. We consider that even the best performing companies throughout RIIO-ED1 should be incentivised to continue to improve reliability until the cost of such improvements do not outweigh the marginal benefit.
- 6.82 We do not consider it appropriate to apply a methodology in which some or all companies' targets are either capped at a benchmark level or a combination of the benchmark and average performance. It would likely introduce further risk that DNOs could be rewarded for a level of performance that has already been achieved and rewarded through the incentive and would not sufficiently drive further improvements at an efficient cost. We discuss our decision on target setting for frontier DNOs further in paragraph 6.92.
- 6.83 Having weighed up the options for target setting, including suggestions made through the consultation responses, we have decided to implement our Draft Determinations proposal to move to basing CML targets on DNO individual average performance.
- 6.84 Although the alignment of the CML target setting methodology with the RIIO-ED1 CI methodology removes the significant step change in performance needed to reach targets in the first year of the price control, we recognise that it also introduces the potential for DNOs performing

behind the benchmarks (i.e. those with poorer performance) to start the price control ahead of their targets and earn excessive rewards for performance that has already been achieved in RIIO-ED1.

- 6.85 Nevertheless, we consider that the risk of outperformance in implementing the CML target setting methodology based on DNOs' own average performance will be limited because:
  - We are setting targets later than we did for RIIO-ED1, which takes into account an additional year of DNOs' performance
  - We are applying improvement factors that will be higher for DNOs who are underperforming relative to the benchmark (as discussed in the improvement factors section below)
  - We are applying improvement factors for DNOs who are outperforming the benchmark as we think they should continue to improve reliability even if they are at the frontier
  - We are reducing the revenue cap which will limit the rewards a DNO can earn, whilst ensuring that there is significant incentive available to drive performance.

## Improvement factors

- 6.86 At Draft Determinations, we proposed to maintain the approach of applying improvement factors to targets based on DNOs' performance relative to its benchmark to ensure those performing worse than the benchmark are suitably incentivised to catch up with best practice and that those performing at benchmark level or ahead of benchmark still need to improve over time to remain on target. We proposed the same improvement factors used in RIIO-ED1 for CI targets (0.5% for frontier DNOs and 1.5% for the others) to apply to both CI and CML targets in RIIO-ED2. This represented a reduction from the CML improvement factors applied in RIIO-ED1.
- 6.87 We received eight responses to our Draft Determinations proposal. No respondents provided comments in relation to the benchmark methodology used to determine where DNOs' performance is expected to be. This is an established and sophisticated methodology used in RIIO-ED1, consulted upon in SSMC and decided upon in SSMD.
- 6.88 Four DNOs noted their support for our proposal on the application of improvement factors and no respondents disagreed with applying consistent improvement factors for CIs and CMLs.
- 6.89 We have therefore decided to retain consistency in the improvement factors applied to both CI and CML targets.
- 6.90 However, four of the responses disagreed with our proposed improvement factors (0.5% for frontier DNOs and 1.5% for the other DNOs). UKPN and NGED suggested that annual improvement factors should not be applied to frontier DNOs' CI and CML targets in recognition of the high levels of performance they are already delivering.

6.91 One consumer body and one industry body disagreed with the proposed improvement factors. The consumer body recommended they should be more ambitious, particularly for poorer performing DNOs to expedite greater convergence of performance among all DNOs.

#### Treatment of frontier DNOs

- 6.92 We have considered responses that our proposed approach imposes overly ambitious targets on frontier companies. However, we maintain our position that frontier DNOs should continue to be incentivised to improve reliability in their regions. By removing improvement factors and basing targets wholly on DNOs' individual average performance, a DNO would no longer have to continue making reliability improvements to avoid falling into penalty. As we have not seen evidence that improvements are no longer possible, nor that customers do not want reliability to improve in these regions, we do not consider this to be appropriate.
- 6.93 We therefore disagree that frontier DNOs should not have improvement factors applied. We have decided to maintain our Draft Determination position to apply the 0.5% improvement factor to DNOs that are outperforming the benchmark, which is a lower value than the improvement factors applied to other DNOs, in recognition of frontier performance.

# *Treatment of DNOs with average CI and CML performance behind the benchmark*

- 6.94 We have also reviewed the improvement factors applied to each DNO with consideration to feedback received that our proposed Draft Determinations approach would not sufficiently drive further reliability improvements or deliver greater convergence in performance. We have tested a more granular approach to applying improvement factors to address the concerns raised in relation to the improvement factors proposed for DNOs where performance is behind the benchmark level expected.
- 6.95 We consider that, due to the wide range in DNOs' performance behind the benchmark, it may not be appropriate to apply the same improvement factor to all DNOs where average performance is lagging behind the benchmark. This is because we consider it proportionate to require a higher rate of improvement from those furthest from the benchmark in comparison to DNOs that are close to delivering in line with, or ahead of their benchmark. While DNOs can deliver assets in similar ways, we accept there are a number of factors that impact the delivery of reliability improvements and that full convergence of performance over time is unlikely. However, we consider that setting these higher improvement rates better incentivises the poorest performing DNOs to improve their own performance within their control to catch up to the benchmark level of performance we expect them to deliver, while also delivering some convergence in average reliability performance for consumers across GB.

- 6.96 We modelled the impact of applying different improvement factors based on DNOs' distance from the benchmark and engaged AFRY to support us with this analysis.<sup>90</sup>
- 6.97 The analysis reviewed the percentage difference in a DNO's individual average performance against its benchmark. The results of this review are presented in the figure for CIs and CMLs below.

Figure 10: Percentage difference in DNOs' average performance versus the benchmark

CI				CML		
DNO	4/10 yr avg. vs. benchmark	Improvement factor		DNO	4/10 yr avg. vs. benchmark	Improvement factor
LPN	-37%			SWALES	-22%	
SPN	-15%			WMID	-16%	
SPMW	-7%			LPN	-15%	0.5%
SWALES	-6%	0.5%		EMID	-13%	
ENWL	-5%	2%		SWEST	-6%	
EPN	-5%			NPGY	8%	
SSEH	-4%			NPGN	13%	
SWEST	-1%			SPN	15%	20/
WMID	7%			EPN	15%	۷%
EMID	8%			SPD	16%	
SSES	10%			ENWL	19%	
SPD	13%			SSES	32%	
NPGN	19%			SSEH	34%	4%
NPGY	31%	4%		SPMW	39%	

- 6.98 We consider it appropriate to apply two 'tranches' of improvement factors for DNOs with average performance behind the benchmark. One for DNOs with average performance less than 20 percentage points from its benchmark, and a higher improvement factor to DNOs with average performance more than 20 percentage points from its benchmark. Across both CIs and CMLs, there is a clear gap in DNO performance which exists between those less than 20% and those more than 20% from the benchmark. DNOs more than 20% from the benchmark are, in all cases, more than 30% away from the benchmark, which highlights a substantial gap between the two tranches.
- 6.99 In considering the appropriate improvement factor to apply to each tranche, we took into account:
  - Historic performance, particularly testing whether targets have been achieved previously and how often;
  - the extent to which a step change in performance between RIIO-ED1 and the first year of RIIO-ED2 would be required;
  - the likelihood of significant outperformance in the early years of RIIO-ED2 by taking into account historic performance;

<sup>&</sup>lt;sup>90</sup> Please refer to the AFRY website for more information: <u>https://afry.com/en/about-us</u>

- the potential for DNOs to drive performance improvements during the final years of RIIO-ED1; and
- the extent to which it will drive greater convergence in DNO performance, whilst noting that total convergence is highly unlikely to be possible over RIIO-ED2.
- 6.100 We acknowledge that any uplift in the 1.5% improvement factor proposed in Draft Determinations would result in the potential for a greater step change in DNO performance between RIIO-ED1 target and the RIIO-ED2 year one (2023/24) target. Therefore, we need to trade off the benefit of driving additional improvements in reliability against the risk that DNOs' year one targets are disproportionately challenging to achieve. This is discussed below.

## 4% improvement factor for those furthest from the benchmark

- 6.101 We have decided to apply a 4% improvement factor to companies performing more than 20% behind the benchmark. We consider it proportionate to require a higher rate of improvement from the those furthest from the benchmark and that this approach will drive these DNOs to improve the speed at which they reach the level of performance expected. The impact of this decision drives:
  - a reduction of the potential range of GB CML performance from 33.1 in RIIO-ED1 to at least 25.5 CMLs by the end of RIIO-ED2 if all DNOs meet their targets. This is a reduction in 4 CMLs compared to our Draft Determination proposal (1.5% improvement factor).<sup>91</sup>
  - a reduction in the highest (ie poorest) CML performance to a level below 40 CMLs if all DNOs achieve performance at least in line with the end of price control targets. Applying a lower improvement factor such as the 1.5% proposed in our Draft Determination or the 3% applied for CMLs in RIIO-ED1 would not drive DNOs to deliver at least this level of performance.
  - a reduction in the potential range of GB CI performance from 46.5 in RIIO-ED1 to at least 44.7 by the end of RIIO-ED2.
- 6.102 Applying a 4% improvement factor also reduces the number of instances that end of RIIO-ED2 targets have been achieved previously in RIIO-ED1. We consider that this reflects the incentive genuinely driving continuous improvement to levels that have not already been achieved and paid for by customers.
- 6.103 We acknowledge that applying a 4% improvement factor introduces a marginally different year one target for these DNOs compared to the proposed year one targets under our Draft Determinations proposal. However, it does not reintroduce the significant step change that would

<sup>&</sup>lt;sup>91</sup> GB CML and CI performance in RIIO-ED1 reflects DNOs' average performance during RIIO-ED1 from 2015/16 to 2020/21.

exist for CML targets under the RIIO-ED1 CML target setting methodology. We consider that this is a proportionate approach to drive these DNOs to catch up with best practice while ensuring that targets are fair and achievable.

#### 2% improvement factor for those less than 20% from the benchmark

- 6.104 The decision to apply three tranches of improvement factor also applies marginally more ambitious targets for companies performing closer to, but not yet reaching, the benchmark that we had proposed at Draft Determinations (moving from a 1.5% to a 2% improvement factor).
- 6.105 We consider that all companies with an average performance that is behind the benchmark should have sufficient incentive to go further to make progress towards, or reach, the benchmark. In considering the appropriate improvement factor for the DNOs with performance less than 20% behind the benchmark, we took into account and acknowledged feedback that the 1.5% improvement factor proposed in our Draft Determinations does not go far enough to provide such incentive for all DNOs who are not performing at the frontier.
- 6.106 We tested the impact of applying RIIO-ED1 CML improvement factors (2%/3%) with support from AFRY as we considered that whilst 1.5% would not drive DNOs to deliver sufficient performance improvements over RIIO-ED2, an improvement factor of 4% would result in targets that are disproportionately challenging, driving these DNOs in many cases beyond the level of performance expected from them by the benchmark.
- 6.107 We reviewed how reasonable the application of a 2% improvement factor would be for the DNOs with average performance less than 20% from the benchmark and how much it drives performance closer to, or in line with, the benchmark. We consider that applying a 2% improvement factor will drive a level of improvement by the end of the price control, and therefore marginal benefit to customers, beyond which has been delivered by the majority of DNOs previously. Whilst we recognise that there has been volatility in performance, we consider the new targets for RIIO-ED2 achievable, taking into account DNOs' average performance over RIIO-ED1 and the minimal change to the year one targets which does not represent a significant step change from DNOs' RIIO-ED1 performance.
- 6.108 We set out in Figure 11 and Figure 12 below the impact of our decisions to apply a 0.5% improvement factor to DNOs' targets where average performance is ahead of the benchmark, a 2% improvement factor to DNOs' targets where average performance is within 20 percentage points from the benchmark and a 4% improvement factor to DNOs' targets where average performance is greater than 20 percentage points from the benchmark.



Figure 11: CI targets at Draft Determinations and Final Determinations, and the benchmark

Figure 12: CML targets Draft Determinations and Final Determinations and the benchmark; CML targets under RIIO-ED1 target setting methodology and the benchmark.


- 6.109 On balance, we consider that our decision to apply three tranches of improvement factors strikes the right balance in ensuring ambitious and fair targets for DNOs where average performance is behind the benchmark level expected and frontier companies where average performance is ahead of the benchmark level expected, ensuring that sufficient incentive is available for additional improvements to be delivered by all DNOs.
- 6.110 We consider our decision to be commensurate with the level of ex ante allowances provided to companies and with our approach for the level of rewards available. Our decisions on the revenue cap and collar are set out in the Financial section above.

### QoS funding

- 6.111 We received nine responses to our consultation position to disallow separate Quality of Service (QoS) funding, except for that separately identified as being in relation to Worst Served Customers, which we discuss in the Worst Served Customers section below.
- 6.112 UKPN, one consumer body and one industry body agreed with our proposal.
- 6.113 Three DNOs raised no objection to our proposal and did not provide evidence that any alternative approach would not result in double rewarding companies alongside the IIS. However, these DNOs did express some concerns. ENWL noted that the proposed IIS revenue cap level and incentive rates could result in no further reliability improvements. NPg similarly stated that adequate funding should be made available to enable the level of performance desired by customers. SSEN shared this view, noting that incentives gained through IIS are not sufficient to enable SSEN to meet its stakeholder's ambition for greater reliability performance. SSEN additionally raised the concern that the IIS is decoupled from reductions to wider investments proposed in Business Plans which impact ability to meet baseline targets.
- 6.114 Two DNOs and one stakeholder disagreed with our proposal.
- 6.115 NGED and SPEN disagreed with our proposal as the target setting methodology requires DNOs to invest to make performance improvements to meet baseline targets and avoid penalties. NGED suggested that QoS funding should be provided to ensure DNOs can meet their IIS targets.
- 6.116 The stakeholder disagreed because it considered that the interconnected impact of asset health, climate change and higher load levels on the network would require innovation and investment in both proven and new technologies and service to maintain the current level of quality of supply.
- 6.117 We maintain our view that in some cases, it appears DNOs' request for funding is to enable them to maximise their rewards, rather than to meet targets (ie avoid penalties). In this case, the provision of QoS funding would create the risk of double rewards as DNOs will also earn rewards under the IIS for outperforming targets.

- 6.118 Two DNOs set out that QoS funding should be provided to enable them to meet baseline targets and avoid starting the price control in penalty position. We note that QoS funding in these cases would not increase the risk of double rewards but highlight the change to the CML target setting methodology which reduces the extent of the risk that DNOs start RIIO-ED2 in a penalty position.
- 6.119 We consider it appropriate to analyse DNOs' performance over RIIO-ED1, including taking into account the DNOs' reporting over this period. The DNOs reporting from RIIO-ED1 shows that they have spent much less on reliability improvements than the rewards they can earn, which means customers have paid more for each improvement than the cost under the IIS. Although we have decided to lower the upside revenue cap from 250BPs to 150BPs (as discussed in the Financial section above), we expect that the IIS will still incentivise DNOs to continue making improvements.
- 6.120 We also maintain our view set out at Draft Determinations that providing QoS funding would undermine the rationale underpinning the IIS that when a DNO reaches the point that the cost of improvements is greater than the incentive rates, this is the level of reliability that customers are willing to pay for.
- 6.121 We have therefore decided to implement our Draft Determination position to disallow all separate QoS funding requests, except for those separately identified in relation to Worst Served Customers.

Purpose	The IIS drives DNOs to reduce the number and duration
	of interruptions to supply. Targets are set to ensure
	planned interruptions to supply are kept to a minimum
Benefits	DNOs are incentivised to plan more efficiently to minimise
	the number and duration of outages they need to operate
	and maintain their networks

### Planned interruptions target setting

#### <u>Background</u>

6.122 At Draft Determinations, we proposed to retain an ODI-F and continue with the RIIO-ED1 approach to setting targets and incentive rate weighting.

#### Final Determination summary

6.123 The table below provides a summary of our Final Determination.

Output Parameter	<b>Final Determination</b>	Draft Determination
Target setting methodology	No change from SSMD position	Same as FD

Incentive rate weighting	No change from SSMD position	Same as FD
--------------------------	------------------------------	------------

Final Determination rationale and Draft Determination responses

6.124 We have decided to implement our position at SSMD and Draft Determinations.

# Target setting methodology

- 6.125 The target will be set using the RIIO-ED1 approach, which is based on a rolling three-year average with a two-year lag, as per our SSMD position. We consider that this approach ensures that DNOs cannot allow their performance to deteriorate without facing a penalty and that it is sufficiently flexible to reflect changes in work programmes.
- 6.126 We received no further views from DNOs or other stakeholders as part of the consultation.

# Incentive rate weighting

- 6.127 We will retain the RIIO-ED1 weightings for planned interruptions, which is 50% of unplanned targets. We consider that this reflects the relative value of planned interruptions for customers and still incentivises DNOs to improve their performance.
- 6.128 We received no further views from DNOs or other stakeholders as part of the consultation.

# **Exceptional events**

Purpose	Some circumstances that are beyond a DNO's control can
	have significant impacts on the networks. Performance
	under the IIS in these circumstances is discounted to
	recognise the impact of these events.
Benefits	These adjustments to the IIS targets ensure the incentive
	is consistent with our expectations about the level of
	reliability that is funded under the price control.

#### Final Determination summary

5.129 The table below	provides a summary	of our Final	Determination.
-----------------------	--------------------	--------------	----------------

Output Parameter	Final Determination	Draft Determination
Severe Weather Exceptional Event (SWEE) threshold	Delay updating, until review of GSoPs is concluded	Same as FD
Other Exceptional Event (OEE) eligible events	Amend to limit the scope to events arising from	Same as FD

Output Parameter	Final Determination	Draft Determination
	third party actions or foreign objects interfering with the network	
OEE assessment process	No tiered assessment approach	Same as FD
OEE threshold	Retain consistent threshold, instead of moving to proportionate thresholds	Same as FD

Final Determination rationale and Draft Determination responses

- 6.130 We have decided to implement all our Draft Determinations proposals for Exceptional Events.
- 6.131 We received eight responses to our proposals in relation to Exceptional Events.
- SWEE threshold
- 6.132 We have decided to implement our Draft Determinations position to delay updating the SWEE thresholds, until we have finished our review of the GSoPs to avoid possible confusion and minimise the risk of errors that could be caused by different and changing thresholds.
- 6.133 We received no further views from DNOs as part of our consultation.
- 6.134 One consumer body noted its support for our Draft Determination proposal.

# OEE eligible events

- 6.135 At Draft Determinations, we proposed to remove the provision in the licence for the DNOs to raise claims for incidents that occur during the normal operation of their network and the ability for DNOs to raise weather related claims under the OEE, where they do not meet the SWEE thresholds.
- 6.136 Four DNOs disagreed with our proposal to remove the possibility to raise claims for incidents that occur during the normal operation of the network. These respondents provided the following examples of incidents they consider to be genuinely exceptional:
  - a double cable strike by a third party
  - a single or double circuit fault on systems with reduced security of supply due to a previous SWEE or planned works
  - faults due to a manufacturer defect of fleet 132kV current transformers.

- 6.137 UKPN said that requiring DNOs to face the impact of incidents during planned operation and maintenance would create an incentive for a DNO to build networks with a greater degree of redundancy in order to reduce such risk. UKPN also considered this would reduce the incentive power of the IIS because a single high-impact event that is beyond a DNO's control could offset all its achievements in improving CI and CML performance.
- 6.138 ENWL and NPg disagreed with our proposal to remove the ability to raise weather related claims under the OEE. They stated that localised lightning events, catastrophic flooding or sustained weather events can cause widespread fault disruption to the network but do not meet the threshold for SWEE.
- 6.139 We have considered the examples provided by DNOs regarding fault-related interruptions. We do not consider that they fall outside of the DNOs' day-to-day network operations and hence are not genuinely "exceptional", except for those faults that occur due to third party influence. We have decided to remove the provision in the licence for the DNOs to raise claims for incidents that occur during the normal operation of their network. This does not prevent the DNOs' ability to raise a claim for a non-weather event that occurs because of a cause external to the DNO.
- 6.140 We maintain our Draft Determinations position that DNOs should be responsible for managing the risks associated with building and operating their networks to a level which meets the obligations set out, for example, in the relevant legislation and industry codes.<sup>92</sup> We also do not consider that the changes would reduce the incentive power of IIS. Evidence from the historical data from 2016 to 2021, shows that their impact on IIS performance is extremely small.
- 6.141 For weather related claims, we maintain our Draft Determination position that OEE should not be a separate avenue for events that do not meet the SWEE thresholds. We consider that a weather event not meeting SWEE thresholds is by definition not an exceptional event. We have therefore decided to amend the licence condition so that OEE no longer applies to weather related events.

#### OEE assessment process

- 6.142 We have decided to implement our Draft Determination proposal to modify the definition of an OEE in the RIIO-ED2 licence to avoid the additional complexity of introducing a tiered assessment process.
- 6.143 We received no further views on this proposal from DNOs or other stakeholders in response to the consultation.

OEE threshold

<sup>&</sup>lt;sup>92</sup> These include the Electricity Safety, Quality and Continuity Regulations; Engineering Recommendation P2 and engineering technical reports.

- 6.144 We have decided to implement our Draft Determination proposal to retain a consistent OEE threshold for all DNOs.
- 6.145 Four DNOs agreed with our proposal. SPEN agreed that the common OEE threshold proposed means that DNOs have similar financial exposure, but it stated that this approach was inequitable compared to the proportionate thresholds proposed by Ofgem at SSMD. NGED disagreed with our proposal, stating that consistent OEE thresholds would disadvantage companies with fewer customers.
- 6.146 We have considered the consultation responses and do not agree with the comment that our proposed approach to thresholds was inequitable, nor that it would disadvantage companies with fewer customers. This is because the OEE mechanism is intended to protect the DNOs from the impact of risks that are genuinely unusual or rare occurrences (which we would not expect them to build their network to be fully resilient to). We hold the view that the thresholds should be based on the network security standards which all DNOs share. It is thus appropriate to set a common threshold for all DNOs.

Purpose	To ensure DNOs take action to minimise the frequency of
	interruptions to supply that last three minutes or less.
Benefits	DNOs would be encouraged to make improvements to
	their performance on interruptions below three minutes
	long, which are not captured under the IIS.

### Short interruptions (SIs)

#### <u>Background</u>

6.147 Since the publication of SSMD, we have worked with the QoS working group to identify a robust and comparable dataset to support the development of an SI minimum standard. However, as we noted in our Draft Determinations, this only resulted in one year of data, which we consider insufficient to develop a minimum standard.

#### Final Determination summary

6.148 The table below provides a summary of our Final Determination.

Output Parameter	Final Determination	Draft Determination
Minimum standard	Not to develop a minimum standard for RIIO-ED2	Same as FD
Annual reporting	DNOs to report agreed SI dataset annually as part of regulatory reporting process	Same as FD

### Final Determination rationale and Draft Determination responses

### Minimum standard

- 6.149 We have decided to implement our Draft Determinations position not to develop an SI minimum standard for RIIO-ED2.
- 6.150 One consumer body responded on our Draft Determinations on SI. They called for further work to be undertaken to understand the customer detriment associated with SIs and for in-period SI targets and compensation mechanisms to be introduced if there is evidence of significant customer detriment.
- 6.151 We maintain our view at Draft Determinations that the development of a minimum standard for SIs requires robust SI performance data from all DNOs. As we set out at Draft Determinations, whilst the DNOs have reported SI data to us covering 2018/19, 2019/20 and 2020/21, there are differences in the robustness and comparability of the data. This is because, the ability to produce SI data differs by DNO, which means that, even with significant effort, across all the DNOs they have only been able to produce a complete dataset for 2020/21. Although we could base thresholds for a minimum standard on this data, it is highly likely that it will be significantly higher or lower than the actual number of SIs occurring over RIIO-ED2, as we do not have sufficient information to smooth out the impact of exceptional events.
- 6.152 We recognise that reducing SIs is likely to become more important to customers over time, due to the increasing dependence on electricity as heat and transport are electrified, however we still do not consider that we should introduce measures, unless they are reflective of the cost or benefit to consumers. This will be part of the wider work to assess what further reliability improvements should look like, if they should still be driven by incentives, and the willingness customers have to pay for them. Given the significant amount of work involved in producing datasets and the years' data required to do so, it is more likely that the development of minimum standard or incentive for SIs will inform our RIIO-ED3 proposals, as opposed to introducing in-period targets or compensation mechanism in early RIIO-ED2.

#### Annual reporting

- 6.153 We received no consultation responses on our SI annual reporting proposal at Draft Determinations.
- 6.154 We have decided to implement our Draft Determination proposal for DNOs to report to Ofgem annually in their regulatory reporting packs on the dataset agreed with the QoS working group over RIIO-ED2. The dataset includes the breakdown of SIs by type of interruption and voltage level, total number of interruptions and their durations, the number of customers affected by multiple SIs from zero to more than 50 SIs, etc. This will provide transparency on how the DNOs are performing on SIs

and a robust basis for setting a minimum standard or an incentive for RIIO-ED3 (or equivalent).

### **Guaranteed standards of performance (GSoPs)**

Purpose	To ensure a set of common, minimum standards apply to
	DNOs with respect to interruptions, voltage quality and
	customer interactions
Benefits	Ensures consumers are compensated if minimum service
	levels are not met

#### **Background**

6.155 We have historically reviewed the GSoPs as part of each price control setting process to ensure they remain fit for purpose in requiring DNOs to deliver the minimum service levels. In Draft Determinations, we proposed to undertake a review of the GSoPs separately to RIIO-ED2 to incorporate recommendations from the Storm Arwen report.

Final Determination summary

Output Parameter	Final Determination	Draft Determination
ODI type	NA	NA
Output type	Licence obligation	Same as FD
Timing of GSoPs review	Undertake separately to the RIIO-ED2 price control setting process	Same as FD
Scope of GSoPs review	To improve transparency and clarity of the GSoPs	Same as FD
	Inflation rate adjustments	
	Severe weather categories	
	Timing, level and cap on payments	
Inflation adjustments	Not to adjust payment amounts to account for inflation from the start of RIIO-ED2 but to implement as part of the wider review of the GSoPs	Same as FD

6.156 The table below provides a summary of our Final Determination.

Final Determination rationale and Draft Determination responses

Timing of GSoPs review

6.157 At Draft Determinations, we proposed to carry out a GSoPs review separately to the RIIO-ED2 price control setting process.

- 6.158 NGED disagreed with our proposal and stated that if Ofgem's view was to align the SWEE definition with Category 1 severe weather definition, then the GSoPs should be revised on the same timescales as the RIIO-ED2 price control setting process, as there needs to be clarity on all IIS parameters in the Final Determinations.
- 6.159 We have decided to implement our Draft Determinations proposal.
- 6.160 As stated in the Draft Determinations, the GSoPs are set out in a separate Statutory Instrument rather than the special conditions of the RIIO-ED2 licence.<sup>93</sup> We retain our view that the level of interest in our review of the severe weather-related standards could be significant which could affect the timeframes within which any changes are delivered. As such, we consider that it is appropriate to carry out the GSoPs review separate to RIIO-ED2 and thereafter undertake a single set of changes, due to the interrelationship between the different elements and the process that needs to be followed to amend the Statutory Instrument.

#### Scope of GSoPs review

- 6.161 At Draft Determinations, we proposed that the scope of review should include the clarity and transparency of the GSoPs, the compensation cap, payment structure and the inflation adjustment mechanism, thresholds for storm categories and accuracy of customer data.
- 6.162 We have received no further response to our consultation.
- 6.163 We have decided to implement the proposal we put forward at Draft Determinations.

# Inflation adjustments

- 6.164 At Draft Determinations, we proposed to adopt the same approach to inflation adjustments that has been implemented for the GDNs as part of RIIO-GD2 and implement it as part of the wider review of the GSoPs.
- 6.165 We have received one response from one consumer body to uprate the GSoPs for inflation for the start of RIIO-ED2 and before the review is concluded.
- 6.166 We have decided to implement our proposal at Draft Determinations. The wider review of the GSoPs is expected to be completed in 2023, and we expect that it will result in changes to the payment levels associated with severe weather events. We consider it sensible to undertake a single set of changes to amend the Statutory Instrument once that review is complete.

<sup>&</sup>lt;sup>93</sup> Please refer to the government legislation website for more information: <u>https://www.legislation.gov.uk/uksi/2015/699/body/made</u>

Purpose	To reduce the number of interruptions experienced by
	those customers who experience an unusually poor
	service from their DNO
Benefits	Improves network reliability for customers who currently
	receive significantly below average levels of service

### Worst served customers (WSC)

### <u>Background</u>

6.167 In Draft Determinations, we proposed the funding for WSC should be delivered under an ex ante use-it-or-lose-it (UIOLI) allowance, supported by a governance and reporting framework that ensures the DNOs are delivering benefits to their WSC. The proposal was a change from our SSMD which said that we would move to ex ante funding for WSC, supported by a PCD.

6.168 We proposed to change from a PCD because:

- WSC are based on a rolling definition so the annual number of WSC can vary significantly, regardless of whether the DNO has carried out any investment to address WSC
- PCD outcomes would be set out in a Licence Condition so there is limited scope for them to flex upwards if a greater number of WSC or some in different locations are identified during the price control period
- Without a specific mechanism, there could be a barrier to WSC receiving service improvements as the cost of improvements can be greater than the rewards that could be earned under the IIS.
- 6.169 We proposed that a UIOLI allowance would provide sufficient funding to allow DNOs flexibility to make improvements for additional WSC identified during RIIO-ED2 without undue impact on customer bills. This is because if DNOs do not spend the UIOLI allowance on achieving specific outcomes related to delivering benefits to WSC, the remaining allowances are returned at the end of the price control, without a sharing factor applied.

Final Determination summary

6.170 The table below provides a summary of our Final Determination.

Output Parameter	Final Determination	Draft Determination
Output type	Ex ante UIOLI allowance	Same as FD
Totex ex ante allowances	Modelled WSC costs, as set out in Table 10	Same as FD
Reporting and monitoring framework	Common measures to be reported via RRP:	Amended for FD

Output Parameter	Final Determination	Draft Determination
	Annual WSC numbers Schemes identified during the year and connected WSC Progress with scheme underway (where these are multi-year) The number of WSC the scheme is intended to benefit Final cost upon project delivery	In DD we consulted on the common metrics: Annual WSC numbers Schemes identified during the year and connected WSC Progress with schemes underway (where these are multi-year) Final cost upon project delivery

Table 10 WSC modelled costs	(£m,	2020/21	prices)
-----------------------------	------	---------	---------

DNO	RIIO-ED2 submitted	DD modelled as published	FD modelled	Difference Submitted to FD	Difference Submitted to FD
	£m	£m	£m	£m	%
ENWL	21	18	21	0	-2%
NPgN	1	1	1	0	-5%
NPgY	3	3	3	0	-4%
WMID	2	1	1	0	-6%
EMID	0	0	0	0	-3%
SWALES	2	1	2	0	-5%
SWEST	1	1	1	0	-10%
LPN	-	-	-	0	0%
SPN	11	11	11	0	1%
EPN	17	15	17	0	-2%
SPD	6	5	6	0	-3%
SPMW	9	8	8	-1	-8%
SSEH	22	18	21	-1	-4%
SSES	3	3	3	0	-9%
Total	98	86	94	-3	-3%

### Final Determination rationale and Draft Determination responses

- 6.171 We received nine responses to our Draft Determination proposal to introduce an ex ante UIOLI allowance, supported by a governance and reporting framework to ensure DNOs are delivering benefits to their WSC.
- 6.172 We summarise and address these responses in relation to the uncertainty mechanism, ex ante allowances and governance document below.

### Uncertainty mechanism and ex ante allowances

- 6.173 We have received eight responses on our proposal to introduce a UIOLI allowance without an adjustment process to clawback allowances at the end of the price control that we assess as not being spent for the specified purpose.
- 6.174 Five DNOs noted general support for our proposal. SPEN and UKPN specifically noted their agreement with the proposal to provide allowances to DNOs upfront without an adjustment process for clawback. However, NGED requested a clearer description of the end of period adjustment.
- 6.175 A consumer body and an industry body disagreed with our proposal, both stating that there should be an end of period adjustment mechanism to ensure that any allowances not used correctly for the purpose provided are returned.
- 6.176 We acknowledge the views of the consumer body and industry body that a clawback mechanism should be introduced to ensure allowances are returned where they are not used for the purpose they are provided for (ie the schemes associated with the EJPs submitted as part of DNO Business Plans). However, we consider that flexibility is needed to allow DNOs to increase or decrease the work programmes defined in their Business Plans to adapt to changes in the number or location of WSC over RIIO-ED2.<sup>94</sup> We consider that introducing a governance framework that addresses the challenge of customers falling in and out of the definition of WSC while ensuring that DNOs invest in schemes that benefit customers who qualify (or qualified at the time the work was planned), requires a pragmatic approach. We discuss the governance framework in more detail in the section below.
- 6.177 We ultimately want to avoid DNOs being disincentivised from carrying out works for WSC. We consider that DNOs may be disincentivised if there is any uncertainty whether they will be able to keep their allowances.
- 6.178 Therefore, we have decided to introduce an ex ante UIOLI allowance without an adjust mechanism to clawback allowances. However, as proposed in Draft Determinations, any unspent allowances are to be

<sup>&</sup>lt;sup>94</sup> WSC are based on a rolling definition, which means the annual number of WSC can vary significantly, regardless of whether the DNO has carried out any investment to address their WSC. We recognise that even if a customer is not "worst served" in one year, they will still be "very badly" served due to their network assets, and may fall back into the definition in a future year, if not addressed.

returned to us at the end of the price control, without a sharing factor being applied.

- 6.179 SSEN and a consumer body both noted disagreement with SSEN's modelled WSC costs. SSEN disagreed with the proposed reduction in allowances and inconsistency this produced with our proposal to accept WSC costs as submitted.<sup>95</sup> SSEN therefore requested that WSC modelled costs are updated for Final Determinations in line with its submitted costs. The consumer body suggested that SSEN's costs are reviewed to allow for sufficient ambition in delivering greater WSC benefits.
- 6.180 We have decided to allow DNOs' modelled costs for WSC in line with our Draft Determination proposal. The change in modelled costs from Draft Determinations is a result of a change in our method of disaggregating allowances, not due to any amendment to the calculation of the ex ante UIOLI allowances. For more information on the disaggregation of allowances, see Chapter 7 of this document.
- 6.181 Therefore, total WSC ex ante UIOLI allowances have increased from £86m proposed in Draft Determinations to £94m for RIIO-ED2. The difference between individual DNOs' RIIO-ED2 submitted costs and the modelled costs for RIIO-ED2 are presented in Table 10 above.
- 6.182 We consider that based on the DNOs' updated EJPs, we are satisfied that each DNO has an appropriate methodology for identifying and costing projects for improving service for WSC. SSEN specifically has modelled ex ante allowances totalling £24m across its two regions for RIIO-ED2. We consider that these allowances provide SSEN with flexibility to increase or reduce its WSC work programme in response to changes in the number or location of WSC and deliver network reliability improvements for WSC who receive significantly below average levels of service.

#### Governance document

- 6.183 We received nine responses on our proposed governance framework for the WSC UIOLI mechanism, including on the common metrics we proposed DNOs report against as part of their RRP:
  - annual WSC numbers
  - schemes identified during the year and connected WSC
  - expected CI benefit of WSC schemes
  - progress of schemes underway
  - final cost upon project delivery.
- 6.184 All DNO respondents recognised and were supportive of the development of the WSC governance document through the Safety, Resilience and Reliability Working Group (SRRWG). Four DNOs noted general agreement

<sup>&</sup>lt;sup>95</sup> RIIO-ED2 Draft Determinations, Chapter 7, paragraph 7.303.

with our proposal for the governance framework set out within our Draft Determinations and within the draft governance document.<sup>96</sup>

- 6.185 SPEN, NGED, NPg's CEG, a consumer body and an industry body provided comments on the governance framework and common metrics.
  - SPEN suggested that customers who qualify as WSC in the final two years of RIIO-ED1 should be eligible for WSC schemes in RIIO-ED2. We agree with SPEN's suggestion to some extent but consider that WSC criteria relating to customers' network performance over a three regulatory year period goes far enough to incorporate the final years of RIIO-ED1 in the early years of DNO's WSC scheme planning in RIIO-ED2. We consider this appropriate to acknowledge the number and location of WSC changes year on year.
  - SPEN suggested that the 'forecast benefit' and 'actual benefit' metrics should be removed from DNOs' reporting requirements. NGED also suggested that we should consider removing the metric for reporting the expected CI benefit from WSC schemes as actual CI performance is likely to be different due to the nature of faults on the network (eg weather related) so this value is likely to be misleading.
- 6.186 We recognise that the inclusion of metrics to measure 'number of WSC the planned scheme is expected to benefit' (forecast benefit) and 'number of WSC that the delivered scheme is intended to benefit' (expected benefit') were not proposed as part of Draft Determinations (see paragraph 6.183). These metrics have been discussed in the development of the governance framework since our Draft Determinations and proposed within the governance document in the informal licence consultation.<sup>97</sup> We will reflect on SPEN's response in addition to responses to the informal licence consultation ahead of the statutory licence consultation in December 2022.
- 6.187 Similarly, we will reflect on NGED's suggestion to remove reporting on the expected CI benefit from WSC schemes. We did not propose the inclusion of this metric within the governance document in the informal licence consultation for the purpose outlined by NGED. However, we will reflect on responses made to the informal licence consultation and update the governance document in the statutory licence consultation in December accordingly.
- 6.188 A consumer body suggested that schemes described in DNO Business Plans should be directly referenced along with any newly identified schemes and costs, benefits and progress should be tracked against each scheme undertaken. We consider that introducing a requirement for a DNO to publish information on the schemes it is undertaking for its WSC on its website, in addition to reporting to Ofgem the information about

<sup>&</sup>lt;sup>96</sup> Some DNOs commented on the scope of the draft governance document which was shared through the SRRWG following the publication of our Draft Determinations in July.
<sup>97</sup> <u>https://www.ofgem.gov.uk/publications/riio-ed2-informal-licence-drafting-consultation</u>

each scheme (including the cost to deliver) through the RRP, represents a proportionate and transparent approach whereby wider stakeholders can understand the schemes undertaken by DNOs and the expected costs to deliver. The minimum information that DNOs will be required to publish on its website is being developed through the SRRWG and will be reflected in the statutory licence consultation.

- 6.189 An industry body stated that DNOs should have to provide evidence supporting decisions to incur expenditure. We consider that introducing the requirement for DNOs to publish information about the schemes it is undertaking (as discussed above in paragraph 6.187) will enable DNOs to evidence the decisions to incur expenditure.
- 6.190 One CEG noted that DNOs should report on the number of customers who experience the level of disruption set out in the WSC criteria, irrespective of the part of the network that causes the disruption (to include more reporting on outages on the LV network). However, we consider that the IIS provides the incentive for DNOs to carry out investment to improve reliability at lower voltages, where the cost of this work is often lower, and that the WSC mechanism should remain focused on higher voltages. We consider that maintaining boundaries between the IIS and the WSC mechanism. We consider that RIIO-ED2 presents the opportunity for further investments in network monitoring, particularly at LV level. We therefore expect that network reliability will improve over RIIO-ED2 which will reflect in DNOs' IIS outturn performance.
- 6.191 Taking into account the responses to our Draft Determination and informal licence consultation, we consider that the following metrics should be included to measure WSC outcomes through the RRP. However, our proposal for these metrics will be set out within the governance document which will be consulted on as part of our statutory licence consultation.
  - Annual WSC numbers the number of customers that qualify as WSC to understand the overall impact WSC schemes deliver
  - Schemes identified during the year and the number of WSC each scheme is expected to benefit at the time the scheme was planned
  - Progress of the schemes underway recognising that schemes may take more than one year to deliver. This reporting will enable us to track progress and costs of scheme delivery
  - The number of WSC the scheme is intended to benefit this enables us to understand any variance in the number of WSC the planned scheme was intended to benefit and the number of WSC that the scheme is intended to benefit once the scheme has been completed
  - Costs of scheme delivery to identify whether the DNOs have used their allowances to deliver benefits to WSC, we need to know how much they are spending each year. This is to be reported on per

project and on a cumulative basis. Ensure long-term safety and resilience.

#### Asset resilience: Network Asset Risk Metric

- 6.192 DNOs must deliver safe and resilient network services to ensure the distribution networks can meet the needs of consumers, both now and in the future.
- 6.193 There are three main strands to our approach to ensuring DNOs deliver safe and resilient networks: asset resilience (as measured through the Network Asset Risk Metric (NARM)); environmental resilience; and information and other resilience. In this chapter, we set out our decisions for each of these areas in turn.

Purpose	If a network company does not appropriately manage their assets, the risk of those assets failing will generally			
	increase over time. To keep the network asset risk, i.e.			
	the consequence of asset failure and the likelihood of a			
	failure occurring, within reasonable bounds, network			
	companies are funded to carry out asset managemer			
	activities such as replacement and refurbishment.			
Benefits	Helps to ensure that network companies appropriately			
	manage their existing networks assets and maintain the			
	risk of asset failure within acceptable bounds.			

#### <u>Background</u>

- 6.194 In RIIO-ED2, the NARM framework will be used as the output to hold companies accountable for their asset management investment decisions.
- 6.195 At Draft Determinations, we set out the decisions that we had made on NARM at the SSMD stage and set out our proposals on the following areas:
  - review of the specific Information Gathering Plan (IGP) arrangements around governance, revisions and reporting
  - consideration of uncertainty mechanisms to manage non-NARM related expenditure
  - consideration of specific incentive arrangements around the deadband, and the penalty for unjustified under-delivery against the NARM output
  - setting of baseline network risk outputs.
- 6.196 We have worked closely with stakeholders through the SRRWG as well as the ENA's Network Output Measures for Electricity Distribution Working

Group (NEDWG) on the development of the NARM framework for RIIO-ED2.

# Final Determination summary

6.197 The table below provides a summary of our Final Determination.

Output Parameter	Final Determination	Draft Determination
Reviewing IGP arrangements	To retain the RIIO-ED1 requirement for the DNOs to produce an IGP which sets out how they will gather and record the information required to implement the Common Network Asset Indices Methodology (CNAIM) <sup>98</sup> . This will be required to include the scope, form and frequency of the data that will be collected in accordance with the CNAIM and the RIGs. We have also decided to retain the ability to direct DNOs to modify their IGPs.	Same as FD
Consideration of uncertainty mechanism to manage non-NARM related expenditure	Not to introduce an uncertainty mechanism for non-NARM related expenditure.	Same as FD
Incentive arrangements	To set the deadband around the NARM output at +/-5% and to retain the RIIO-ED1 penalty rate at 2.5% of avoided costs associated with unjustified under-delivery against the NARM output.	Same as FD
Baseline Network Risk Outputs	To set the NARM output in line with the DNOs' submitted views of the monetised risk reduction they expect to deliver, and to ensure that the NARM output reflects the	Same as FD on setting the output in line with DNOs' submitted views of the monetised risk reduction they expect to deliver

<sup>&</sup>lt;sup>98</sup> CNAIM is the common methodology for assessing condition-based risk for electricity distribution assets, to meet the regulatory requirements for NARM.

Output Parameter	Final Determination	Draft Determination
	impact of any workload	
	adjustments.	

#### Final Determination rationale and Draft Determination responses

- 6.198 We have decided to maintain our Draft Determination position on IGPs, retaining the requirement that exists in RIIO-ED1 for DNOs to produce an IGP. We have also maintained our DD positions in respect of not introducing an additional uncertainty mechanism for non-NARM related expenditure, the deadband around the NARM output, and the penalty rate associated with unjustified under-delivery against the NARM output.
- 6.199 We have decided to set the baseline network risk output in line with DNOs' submitted views of the monetised risk reduction they expect to deliver, but unlike at Draft Determinations, we acknowledge that the impact of any workload adjustments should be reflected in the output that we set.

# Reviewing IGP arrangements

- 6.200 We received four DNO responses in relation to our position on IGP arrangements, with all in agreement with our proposal. Both NPg and UKPN supported our approach to retain requirements on network companies to produce an IGP. SPEN agreed with our position to retain IGPs stating that these documents set important parameters for ensuring the accuracy and validity of information used to derive asset risk within the CNAIM. SPEN also believed there was value in the IGPs being subject to DNO data-share to allow for exchange of best practice.
- 6.201 We recognise the important role that the IGPs play in supporting the NARM framework, and their use as a tool in measuring DNOs' performances on information gathering against what they have committed to. Noting that all DNOs support the arrangements around IGPs, we have decided to retain requirements on the DNOs to produce an IGP which sets out how they will gather and record the information required to implement the CNAIM. This will be required to include the scope, form and frequency of the data that will be collected in accordance with the CNAIM and the RIGs. We would also agree with SPEN in there being value in DNOs sharing their IGPs with one another.

# Uncertainty Mechanisms for non-NARM related expenditure

6.202 We received six responses in relation to uncertainty mechanisms for non-NARM related expenditure, with four DNOs in agreement with our approach. NPg and UKPN both agreed with the proposed approach not to introduce an uncertainty mechanism for non-NARM related expenditure. SPEN was of the view that the wider cost assessment methodology, and the over-arching TIM, are powerful regulatory tools for managing non-NARM related expenditure. SPEN also agree that this is an area with sufficient levels of certainty (drawing from companies' long-standing track records of delivering these activities) so as not to require an additional uncertainty mechanism. SPEN agreed with Ofgem's long-term approach for NARM, which is to continue to broaden and expand coverage of the NARM framework to non-NARM expenditure areas, for RIIO-ED3 and beyond.

- 6.203 SSEN also supported the exclusion of the other asset categories classified as non-NARM from any incentive mechanism at this time in RIIO-ED2. They would support the further development of introducing some, if not all, of these additional asset classifications into an incentive mechanism in the form of NARM during the early stages of RIIO-ED2 in preparation for being incorporated for RIIO-ED3. SSEN did, however, have concerns that our approach to cost assessment for these categories was flawed in a number of ways and resulted in a detrimental outcome for customers, by limiting its ability to deliver well-justified and efficient resilience improvements in line with customer expectations.
- 6.204 We received two responses from industry stakeholders. One response welcomed our position but did not believe that it went far enough, stating that thorough research should be carried out into the various ways to calculate the health of underground cables and their changing condition status through the period. The results of this research could determine if CNAIM is the appropriate framework for the judgement of condition of these assets. A further response stated they did not agree with the entirety of our proposed approach to non-NARM, arguing that they did not think it was appropriate to not set an output or to hold DNOs accountable for delivery of this activity.
- 6.205 We maintain our ambition to develop the NARM framework for RIIO-ED3 and beyond, and this includes identifying areas of non-NARM related expenditure suitable for future incorporation into the NARM framework. We agree that there is scope for improving the understanding of underground cable condition and health and recognise this as an area that should be developed ahead of RIIO-ED3. As some of the DNOs have highlighted in their responses to our Draft Determinations, and as we noted at SSMD, there are significant challenges and drawbacks associated with the uncertainty mechanisms that we had considered for non-NARM related expenditure. Consistent with the responses that we have received, we believe that for RIIO-ED2, we can best manage any uncertainty around this expenditure through our approach to our cost modelling, which we discuss in further detail in Chapter 7. As such, we have decided not to introduce any additional uncertainty mechanisms for non-NARM related expenditure. We will continue to work with stakeholders through the SRRWG over the course of RIIO-ED2 on developing NARM further and, where appropriate, expanding it to cover some non-NARM assets. We will also be considering introducing additional reporting requirements to ensure that we have sufficient information to monitor DNOs performance in-period.

#### Incentive arrangements

6.206 We received four responses from DNOs on our proposed incentive arrangements. NPg and UKPN both agreed with the approach to set the

deadband around the NARM output at +/-5% and to retain the RIIO-ED1 penalty rate of 2.5% of avoided costs associated with unjustified underdelivery against the NARM output. SPEN broadly agreed with our proposed approach but believed that we should ensure there is no excessive variation in delivery within specific asset categories. Where this is the case, SPEN argued that sufficient justification should be provided to avoid claw-back of allowances.

- 6.207 In addition, although SPEN agreed with retaining the proposed penalty rate of 2.5% of the funding adjustment for unjustified under-delivery, it stated that Ofgem should also clarify its position on Justified Over-Delivery to ensure they can proceed with confidence where justified work is identified in-period.
- 6.208 SSEN agreed with the proposed incentive arrangements, stating that the deadband of +/- 5% on the target outcome is a fair and proportionate measure assuming the targets are fairly set.
- 6.209 We have decided to maintain our Draft Determinations position on both the deadband around the NARM output and the penalty rate associated with unjustified under-delivery against the NARM output. We consider both to be consistent with regulatory precedent from RIIO-ED1 and RIIO-T2. We also note that they are broadly supported by stakeholders. We agree with SPEN that there should be sufficient justification provided by DNOs to avoid claw-back of allowances, should they unjustifiably underdeliver their targets. We will continue to work with stakeholders through the SRRWG on the specification of the RIIO-ED2 close out reporting for NARM.

# Baseline Network Risk Outputs

- 6.210 We received seven responses to our proposal on the setting of Baseline Network Risk Outputs. ENWL were pleased that we proposed to accept their proposed risk points target but stated it was essential that we ensured that the ex ante allowances we set at Final Determinations are consistent with the associated Baseline Network Risk Output as this will set the basis for NARM delivery and close out of RIIO-ED2.
- 6.211 SPEN agreed with the adoption of DNOs' Baseline Network Risk Outputs. However, they had concerns that as there was no direct relationship between our proposed workload adjustments and DNOs' asset management plans, it was not possible to modify Baseline Network Risk Outputs in a transparent and accurate way.
- 6.212 Four DNOs disagreed strongly with our approach. NPg argued that by not reflecting the impact of cost assessment and disallowed workload in the NARM output our approach was fundamentally flawed. It stated that our approach must be updated to either increase allowances or to reduce the NARM output.
- 6.213 SSEN fundamentally disagreed with our proposed approach and argued that the proposed funding (both in terms of unit cost and volumes) was

no longer sufficient to deliver the required volumes of asset interventions required to meet their NARM Output. They disagreed with our proposal to retain the Baseline Network Risk Outputs proposed by each DNO despite having rejected the volumes upon which these output targets were based.

- 6.214 SSEN's CEG were also concerned that we had not revised the Baseline Network Risk Outputs to align with the proposed RIIO-ED2 cost allowances. It believed that this may drive the wrong behaviours from DNOs in terms of cutting areas of expenditure not covered by the NARM to increase expenditure on NARM activities to meet outputs, rather than driving optimisation of the full range of asset replacement activities to meet customer requirements.
- 6.215 UKPN disagreed strongly with our proposal and noted that the volume cuts to their NARM-related work programme were so drastic that it would be unable to deliver it's NARM output and network risk would accordingly rise to unacceptable levels.
- 6.216 NGED said that by reducing allowances for asset replacement and not reflecting these reductions in lower NARM output targets, Ofgem was imposing a hidden additional efficiency expectation into the price control. The derivation of NARM risk improvements is directly linked to the volumes of activity carried out and reducing volumes of activity means that the consequential output delivery is lower.
- 6.217 We acknowledge the feedback to our Draft Determinations and have decided to update our approach for Final Determinations. We agree that the NARM output is linked directly to the volumes of activity that DNOs propose to deliver, and that any adjustment to DNOs' proposed workloads should be reflected in the Baseline Network Risk Outputs that we set. Similar to our Draft Determination, we have decided to set the NARM output in line with the DNOs' submitted views of the monetised risk reduction they expect to deliver. This decision has also been reflected in our cost assessment process, that we detail further in Chapter 7.
- 6.218 Table 11below summarises the Baseline Network Risk Output for each DNO.

DNO	DD Baseline Network Risk Output	FD Baseline Network Risk Output	
ENWL	416,645,265	416,645,265	
NPgN	391,091,627	391,091,627	
NPgY	393,647,413	393,647,413	
WMID	519,787,560	519,787,560	
EMID	404,654,338	404,654,338	

Table 11: Summary of Risk Movements (£R, 2020/21 prices)<sup>99</sup>

<sup>&</sup>lt;sup>99</sup> Note that there was an error in our equivalent table at Draft Determinations that accidentally swapped the Baseline Network Risk Output for EPN and SPN.

Decision -	RIIO-ED2 Final	Determinations	Core Methodology	Document
------------	----------------	----------------	------------------	----------

SWALES	362,711,582	362,711,582
SWEST	627,171,211	627,171,211
LPN	197,057,392	197,057,392
EPN	900,491,839	900,491,839
SPN	474,329,173	474,329,173
SPD	359,533,473	359,533,473
SPMW	454,515,554	454,515,554
SSEH	218,499,356	218,499,356
SSES	685,313,429	685,313,429

# **Environmental resilience**

# **Climate resilience**

- 6.219 Severe weather events have the potential to impact customers by interrupting their supply - sometimes for extended periods of time. Storms such as Storm Arwen and Eunice are also likely to become more common as the effects of climate change are felt. It is imperative that all DNOs are well prepared and that their networks remain resilient to a range of climate risks, both now and in the future.
- 6.220 We did not consult on any additional proposals relating to climate resilience. We did however provide an assessment of the climate resilience strategies submitted by the DNOs in chapter 6 of our Draft Determinations Core Methodology Document.
- 6.221 We expect all DNOs to implement their climate resilience strategies over the course of RIIO-ED2, being cognisant of the assessment we set out in our Draft Determinations. DNOs should continue to work with each other through the climate resilience working group to cooperate on research, scenario planning and sharing best practice.

Purpose	To allow for the recovery of efficient costs directly	
	incurred as a result of a storm event that meets severe	
	weather 1-in-20 thresholds.	
Benefits	To avoid including uncertain spend in ex ante allowances, and instead address additional costs if they eventuate	

# Severe weather 1-in-20

### <u>Background</u>

6.222 A severe weather ('SW') 1-in-20 event is classified as an event where a DNO experiences 42 times its mean daily faults across its high voltage network or above within a 24-hour period. Historically, we have provided

DNOs with a SW cost allowance to deal with storms that meet these thresholds<sup>100</sup>.

6.223 In chapter 6 of our Draft Determinations Core Methodology Document, we consulted on our proposal to treat SW 1-in-20 costs as a variant totex allowance rather than a fixed allowance in RIIO-ED2. We also said that we would work with DNOs through the relevant working group, to define the activities that DNOs can use this allowance for<sup>101</sup>.

#### Final Determination summary

Output parameter	Final Determination	Draft Determination
Funding mechanism	Pass-through totex allowance DNOs are provided with zero allowance for SW 1-in-20 activity.	Same as FD
	If a SW 1-in-20 event occurs, efficient costs associated with the following activities, can be passed through into totex allowances: restoring supplies <sup>102</sup> to affected customers; and supporting affected customers <sup>103</sup> .	
Trigger	DNO experiences a SW event that meets the 1-in-20 thresholds set out in Annex A of SpC 3.10.	Same as FD
Reporting	SW 1-in-20 costs can be reported through RRPs.	Same as FD

6.224 The table below provides a summary of our Final Determination position.

<sup>&</sup>lt;sup>100</sup> In DPCR4, Ofgem introduced a cost allowance for improvements in restoration times following severe weather events. This was to cover an efficient level of compensation payments and fault costs relating to these events. DNOs were able to use this allowance either to reduce the chance of such events occurring, to manage the impact of the events through faster customer restoration or to buy storm insurance cover. Please refer to our Final Proposals for Electricity Distribution Price Control Review 4 document which is available here: <a href="https://www.ofgem.gov.uk/publications/distribution-price-control-review-final-proposals-0">https://www.ofgem.gov.uk/publications/distribution-price-control-review-final-proposals-0</a>

<sup>&</sup>lt;sup>101</sup> Please refer to chapter 6 of our Draft Determinations Core Methodology Document for further information: <u>https://www.ofgem.gov.uk/publications/riio-ed2-draft-determinations</u>

<sup>&</sup>lt;sup>102</sup> This includes staff-related and contractor-related costs over and above those the DNO incurs in the normal course of its business, the carrying out of any necessary switching activity; the provision of temporary supplies such as mobile generation and undertaking work on faulted assets.

<sup>&</sup>lt;sup>103</sup> This includes the cost of payments for food, drink and/or temporary accommodation, in a hotel or otherwise, during a 1-in-20 Severe Weather Event. It also includes reimbursement to the customer for such costs incurred or payments made directly to the provider of such food, drink or temporary accommodation.

Output parameter	Final Determination	Draft Determination
	A true-up will be calculated by the Price Control Financial Model (PCFM) for the next charging period.	
Licence condition	SpC 3.10	N/A

Final Determination rationale and Draft Determinations responses

- 6.225 We have changed the terminology used to describe this mechanism from a variant totex allowance to a pass-through totex allowance. The reason for this change is to provide a more accurate descriptor and does not affect the properties of the mechanism.
- 6.226 We received seven responses to our consultation. Having considered all stakeholder feedback, we have decided to establish a pass-through totex allowance mechanism for SW 1-in-20 costs and not set an annual cap on the amount that DNOs can adjust their allowances by, in a regulatory year.
- 6.227 Seven stakeholders including six DNOs and one consumer body supported our Draft Determination position, however NPg disagreed with our proposed approach of defining activities that DNOs can use this allowance for.
- 6.228 NPg noted that the uncertainty around the cause and impact of severe weather events, makes it difficult to determine the type of activities the DNO is required to undertake to restore and repair the network. NPg suggested an alternative approach whereby following a SW 1-20 event, affected DNOs justify all relevant activities and submit the associated costs.
- 6.229 We note that following the publication of our Draft Determinations, we engaged with stakeholders through the SRRWG to define the activities that DNOs can use this allowance for. This group included NPg and provided stakeholders with the opportunity to provide feedback on our proposals. We believe that the activities that we have set out in our Final Determination Summary (above), are sufficiently broad to encompass DNO's core response activities during SW 1-in-20 events.
- 6.230 Both NPg and SPEN also highlighted some concerns around our approach for assessing cost efficiency for SW 1-in-20 events. In Chapter 6 of our Draft Determinations Core Methodology Document, we noted that expenditure that is consistent with the activities described above will be considered as efficient.
- 6.231 SSEN noted that they would like to see a clear statement on the proposed timeframe for when costs are submitted to and approved by Ofgem. SW 1-in-20 costs should be reported to us through DNO's RRPs and a true-up will be calculated by the PCFM for the next charging period.

6.232 SPEN noted that in cases where a DNO sends available staff over to another DNO licence area to assist in their response efforts, the DNO in question, should be afforded regulatory relief for outputs not delivered over this period, due to diversion of key resources. We note SPEN's concern but think this is out of scope of the consultation question.

# Information and other resilience

### **Workforce resilience**

To encourage DNOs to have a resilient workforce
Requiring each DNO to prepare and report their progress
against a workforce resilience strategy will ensure they
focus on important issues around diversity and inclusion,
workforce attraction and retention, staff wellbeing and
having a future focused workforce.

# **Background**

- 6.233 All DNOs submitted a workforce resilience strategy as part of their RIIO-ED2 Business Plans. This was in addition to working with the National Skills Academy for Power (NSAP) to develop common workforce metrics looking at workforce characteristics, resourcing, skills development and retention.
- 6.234 We did not propose any additional measures at Draft Determinations. We set out our review of the DNOs workforce resilience strategies noting that, although all the DNOs met the workforce resilience-related BPI Minimum Requirements, there was considerable variation in the extent each DNO considered all the issues we set out in the Business Plan Guidance. Additionally, none of the strategies provided much information on how the DNOs will achieve the changes they propose to implement.

Final Determination rationale and Draft Determinations responses

- 6.235 We are not introducing any further output measures or incentives for work resilience at Final Determinations. We continue to consider that these could constrain the DNOs in their efforts to develop the most effective resourcing strategies to meet their specific needs.
- 6.236 One non-DNO respondent commented extensively on the DNOs' workforce resilience with recommendations on workplace satisfaction, planning for workforce resilience, workforce development and renewal, diversity and equality, and health and safety.
- 6.237 DNOs are already developing common metrics to track progress on workforce characteristics which will help inform industry and us on where further action may be required. These metrics include:
  - workforce characteristics gender, ethnicity, disabilities, age ranges

- resourcing number of applicants, time to fill, percentage filled internally vs external hires
- skills development employee participation in upskilling, multiskilling or new skill training
- retention retirement age, voluntary staff turnover, length of service, reasons for leaving, redundancy, reasons for absenteeism.
- 6.238 NSAP have informed us that they will work with DNOs to develop the metrics further. Then, over the course of ED2, each DNO will work towards enabling their own data collection/reporting systems so that they are able to provide as much of the necessary data as possible to enable measurement against all of the metrics. We strongly encourage this work to continue. By developing and reporting on a common set of metrics, both them and stakeholders will be able to track progress with achieving the activities they have identified in their strategies.
- 6.239 Notwithstanding this, we are aware of the challenges the industry faces in playing its role in delivering net zero. A highly skilled, motivated and diverse workforce will be key to DNO delivering the reliable modern distribution network customers expect. We also recognise there is stakeholder interest in this area. We therefore strongly encourage DNOs to ensure they have the workforce plans, as well as the staff and skills, needed to manage the energy transition. This includes contingency plans if they are unable to recruit the estimated number of staff needed.

# **Physical Site Security Re-opener**

Purpose	To adjust revenues following changes to government recommendations on network site security
Benefits	DNOs are compliant with government security standards

#### **Background**

- 6.240 DNOs are responsible for a number of sites that are considered by the government as Critical National Infrastructure (CNI). DNOs work with the Department for Business, Energy and Industrial Strategy (BEIS) and the Centre for the Protection of National Infrastructure (CPNI) to identify CNI sites and implement measures that enhance their physical security.
- 6.241 In our Draft Determinations we consulted on our proposed scope for our re-opener, the trigger, dates for the re-opener windows and our proposal to have no materiality threshold.

#### Final Determination summary

6.242 The table below provides a summary of our Final Determination.

Output parameter	Final Determination	Draft Determination
UM type	Re-opener	Same as FD

Output parameter	Final Determination	Draft Determination
Re-opener Window	January 2024	New to FD
	January 2026	In our Draft Determinations we proposed two re- opener application windows in January 2026 and January 2028.
Trigger	Change to DNO's scope of work which is caused by a change in CNI status of a DNO site or a change in Government guidance relating to physical site security.	Same as FD
	DNO triggered by submission of an application during the re-opener window.	
	Authority triggered outside the re-opener window.	
Materiality Threshold	0% materiality threshold	Same as FDs
Licence condition	SpC 3.2 Part B	N/A

Final Determination rationale and Draft Determinations responses

- 6.243 We received six responses to our consultation. Having considered all of the stakeholder responses, we have decided to implement our Draft Determinations position to include a re-opener to adjust allowances where there has been a change to the CNI categorisation of a DNO site or a change to Government guidance in relation to physical site security.
- 6.244 We summarise the responses received and set out our decisions and reasons for each of these aspects below.

# Scope and Trigger

- 6.245 UKPN suggested that the scope for this re-opener could be broadened, to allow DNOs to apply for adjustments to their allowances where new sites or systems have been categorised as CNI.
- 6.246 We can confirm that the scope of this re-opener includes both existing and new sites that are categorised as CNI during the price-control period. We consider that the cyber resilience re-openers would be more appropriate should DNOs need to adjust their allowances in relation to CNI systems.
- 6.247 SSEN requested clarity on whether the Authority would be able to trigger the re-opener. We can confirm that Part B of SpC 3.2 enables the Authority to trigger the re-opener at any time.

#### Re-opener windows

- 6.248 All six DNOs agreed with our proposed re-opener windows, however we have decided to bring forward the re-opener windows that we proposed in our Draft Determinations, to earlier in the price control.
- 6.249 Following further engagement with BEIS, we understand that DNOs will be informed of the CNI categorisation of their sites by the end of RIIO-ED1. In line with this, we have decided to bring forward the first re-opener window to 2024 (from 2026), so that DNOs can identify and implement any physical security measures needed to comply with Government guidelines as quickly as possible. Consequently, we have also brought forward the second re-opener window to 2026, so that these are evenly spread across the price control.
- 6.250 SSEN highlighted that the proposed re-opener windows only include weekdays and that they should be extended to include the weekends. We have considered this and decided to extend the re-opener windows to each include one weekend, which is consistent with other re-openers.

Purpose	To adjust revenues following any changes to network
	requirements which relate to Electricity System
	Restoration
Benefits	DNOs have systems and processes in place to enable the
	restoration of power, following an event that results in
	the full/partial shutdown of the electricity system

#### **Electricity System Restoration Re-opener**

#### <u>Background</u>

- 6.251 Electricity System Restoration (ESR) is the process that would be implemented in the event of a full or partial shutdown of the national electricity transmission system.
- 6.252 In 2020, BEIS established a new Electricity System Restoration Standard (ESRS)<sup>104</sup>, which the ESO needs to comply with by no later than 31st December 2026. In our SSMD<sup>105</sup>, we said that we would include a reopener for ESR in RIIO-ED2 to allow DNOs' allowances to be adjusted where the ESO requires DNOs to undertake additional activities to ensure that the ESRS can be met.

<sup>&</sup>lt;sup>104</sup> The ESRS requires ESO to have sufficient capability and arrangements in place to restore 60% of regional demand within 24 hours and 100% of Great Britain's electricity demand within five days.

<sup>&</sup>lt;sup>105</sup> RIIO-ED2 SSMD Annex 1, Chapter 8, page 128,

https://www.ofgem.gov.uk/publications/riio-ed2-sector-specific-methodology-decision

6.253 In our Draft Determinations document we consulted on the scope, trigger, re-opener window dates and also our proposal to have no materiality threshold for the ESR re-opener.

Final Determination summary

6.254 The table below provides a summary of our Final Determination.

Output parameter	Final Determination	Draft Determination
UM type	Re-opener	Same as FD
Re-opener Window	June 2024	Same as FD
Trigger	A change to the DNO's scope of work in relation to ESR, which has been agreed with the ESO, in order to assist them to meet the ESRS.	Same as FD
	This can include, but is not limited to, changes to Distribution Code obligations which relate to the ESRS, or new obligations set out in distribution restoration contracts.	
	DNO triggered by submission of an application during the re-opener window.	
	Authority triggered outside the re-opener window.	
Materiality Threshold	0% materiality threshold	Same as FD
Licence condition	SpC 3.2 Part D	N/A

Final Determination rationale and Draft Determinations responses

- 6.255 We received eight responses to our consultation. We have decided to implement our Draft Determinations position to include a ESR re-opener which can adjust allowances where DNOs identify a change to their scope of work in relation to ESR in RIIO-ED2.
- 6.256 We summarise the responses received and set out our decisions and reasons for each of these aspects below.

Scope

6.257 We have decided to maintain the scope of the ESR re-opener. Seven stakeholders including five DNOs and the ESO supported our proposal, however ENWL suggested that the scope of the ESR re-opener could be broadened to include BAU activities such as undertaking feasibility studies, legal or procurement work, as well as producing re-opener submissions.

- 6.258 For the majority of BAU activities, we think that DNOs need to manage their ex ante allowances effectively to deal with minor changes that may occur within the price control. However, we also recognise that there may be certain activities that DNOs will not have accounted for in their business plans due to uncertainty around the ESO's requirements at the time, which may require significant resource. An example of this type of activity includes the undertaking of scoping or feasibility studies that will assist the ESO in its procurement of distribution restoration contracts. We think that these types of activities should be in scope of the re-opener and think that our drafting of the associated license condition is sufficiently broad to allow this. Therefore we have decided to not implement any changes in relation to the scope or trigger of the ESR re-opener.
- 6.259 ENWL also recommended that Ofgem should consider whether security of supply and resilience related work (such as ESR) should be either regionally funded by Distribution Use of System (DUoS) customers or, via the ESO's price control with funding being recovered nationally from Balancing Services Use of System (BSUoS) charges.
- 6.260 We do not agree with this approach. Whilst some security of supply and resilience outputs may be mandated by stakeholders such as the ESO or BEIS, we think that these outputs should be delivered as efficiently as possible, and that the RIIO-ED2 price control provides DNOs with the incentive to do this, through mechanisms such as the sharing factor.
- 6.261 The ESO highlighted that the scope of the ESR re-opener should allow DNOs to install Inter-Control Centre Communications Protocol (ICCP) data links that will enhance operational visibility of distributed energy resources (DER) during ESR. We do not think that this is necessary, as DNOs will be appropriately funded and incentivised through their DSO allowances to deliver this.

# Re-opener Window

- 6.262 There was mixed support for our proposed re-opener window with six DNOs of the view that a single / fixed re-opener window would be insufficient given uncertainty around the delivery of the ESO activities in this area.
- 6.263 DNOs recommended a number of different options to address this. ENWL recommended that the ESR re-opener window should have no fixed dates so that it can be triggered by DNOs at any time within the price control. SSEN said that the we should be able to trigger the re-opener and / or we should introduce an additional re-opener window in 2026.
- 6.264 Both UKPN and SPEN agreed with our proposed dates for the re-opener window and stressed the importance of the Authority having the ability to trigger the re-opener at any point of the price control, as and when new ESR requirements emerge. However SPEN also proposed introducing an additional re-opener window in 2025.

- 6.265 NGED did not agree with our proposed dates for the re-opener window and suggested that these should be moved to later in the financial year to avoid coinciding with the submission of regulatory reporting packs in June.
- 6.266 We have decided to implement the re-opener window proposed at Draft Determinations. We note DNO's concerns on the reliance of other parties such as the ESO and delays to their activity. However, we think that the ability for the Authority to trigger the re-opener outside of the application window, should provide sufficient flexibility if required. We have set out the process for the Authority triggering the re-opener in Appendix 6 of the re-opener guidance document.
- 6.267 We also note that in their response to the RIIO-ED2 informal licence drafting consultation<sup>106</sup> a number of DNOs requested clarity as to whether the Authority would direct or trigger any additional re-opener windows. We confirm that if required, and subject to the requirements set out in Appendix 6 of the re-opener guidance document being met, the Authority will trigger any additional re-opener windows for the ESR re-opener. We will update Appendix 6 of the re-opener guidance document accordingly.
- 6.268 We also note that NGED was the only DNO to raise concerns about the dates for the re-opener window coinciding with the regulatory reporting submissions in June. Given that the ESO has an obligation to meet the ESRS by December 2026, we think that there should be a re-opener window as early as possible within the price control and that DNOs have sufficient advanced notice of the re-opener window, to plan their resources accordingly.

#### **Telecommunications resilience**

Purpose	DNOs need to be able to appropriately communicate with their staff and control their assets to operate their	
	THE WOLKS.	
Benefits	Ensures security of supply is maintained, even during the	
	loss of the public telecommunications network.	

# Background

6.269 DNOs currently use a number of telephony technologies to control their assets and communicate with their staff. Some of these technologies are due to be replaced within the next ten years. An example of this is the public switched telephone network (PSTN) which is expected to be replaced by 2025.

<sup>&</sup>lt;sup>106</sup> Please refer to our RIIO-ED2 Informal Licence Drafting Consultation for further information: <u>https://www.ofgem.gov.uk/publications/riio-ed2-informal-licence-drafting-consultation</u>

- 6.270 In parallel, the energy sector is implementing a smart grid that will help facilitate Government's commitments to net zero. This will require increased levels of telemetry data and in order to manage this, DNOs will need to ensure that they have migrated or upgraded their telecoms technologies to alternative solutions.
- 6.271 DNOs are currently working with the Office of Communications (Ofcom) to explore a range of potential solutions. These options potentially include making additional suitable radio spectrum available to be used by DNOs and other utility companies, for operational purposes such as controlling their assets and communicating with their staff and customers.
- 6.272 In our Draft Determinations we explained that Ofcom had indicated to us that it is unlikely to make a decision on the allocation of radio spectrum during RIIO-ED2. Therefore, we consulted on our proposed approach to fund DNO telecoms resilience activities through ex ante allowances only.

Output parameter	Final Determination	Draft Determination
Funding Mechanism	To fund DNO telecoms resilience activities through ex ante allowances.	Same as FD

Final Determination summary

Final Determination rationale and Draft Determinations responses

- 6.273 We have decided to implement our Draft Determinations position to fund DNO telecoms resilience activities through ex ante allowances. All stakeholders including six DNOs and one industry party, agreed with our proposed approach.
- 6.274 Two stakeholders noted that since the publication of our Draft Determinations, Ofcom has indicated that it is working to provide an announcement of spectrum allocation within RIIO-ED2. Four stakeholders further added that should spectrum be made available within the price control, funding must be made available to allow DNOs to upgrade their telecoms capability accordingly.
- 6.275 Further to these Draft Determinations responses, we have engaged with Ofcom. Ofcom has indicated that it will provide an update on spectrum options, and that any decision on spectrum allocation will be within RIIO-ED2. We note Ofcom's position and should DNOs need to apply for any adjustments to their allowances in RIIO-ED2, we consider that the Digitalisation re-opener, Special Licence Condition 3.2 Part I, would be the most appropriate mechanism for this purpose.
- 6.276 One DNO and one consumer body highlighted the need for us to set out our expectations on DNOs, in relation to developing a solution that will allow DNOs to communicate with customers during power outages. We note that the Department for Culture Media and Sport (DCMS) and Ofcom

have established options to deliver this, and any implementation will be subject to approval by Government.

# Cyber Resilience Operational Technology (OT) and Cyber Resilience Information Technology (IT)

Purpose	To reduce risk, improve cyber resilience and response outcomes on the networks and comply with relevant regulations
Benefits	Ensure the DNOs are managing risks posed to the security of the network and information systems, and preventing and minimising the impact of incidents on these essential services to ensure a safe and resilient network

# **Background**

- 6.277 Cyber security and resilience are vital to the provision of energy in GB. There is a need for continued investment to manage the risks on networks and information systems, including the risk and the consequences of potential cyber-related incidents on consumers.
- 6.278 Due to national security concerns, we have set out our decision for cyber resilience OT and IT allowances and the associated PCDs in confidential annexes, which have been sent directly to the DNOs.
- Final Determination Summary Cyber Resilience OT
- 6.279 Our decision for cyber resilience OT is to provide UIOLI allowances subject to PCDs and a re-opener. All cyber resilience OT allowances are excluded from the TIM.

Output Parameter	Final Determination	Draft Determination
Туре	UIOLI (Use It or Lose It) mechanism with Price Control Deliverables (PCD).	Same as FD
Output	Specified PCDs to enhance cyber resilience in relation to OT, including measured risk reduction or improved CAF Outcomes on the licensee's network and information systems.	Same as FD
Delivery date	Specified in confidential Company Annexes.	Same as FD

Output Parameter	Final Determination	Draft Determination
Reporting Method	Annual Reporting (every July from 2024 onwards) using the PCD Reporting Guidance.	Change from Biannual reporting starting in January 2024
Adjustment Mechanism	Ex post assessment of PCDs.	Same as FD
Licence obligation	SpC 3.2, SpC 3.3 and SpC 9.4	SpC 3.2, SpC 3.3 and SpC 9.4
UM Туре	Reopener	Same as FD
Reopener Window	Year One: April 2023 Year Three: April 2025	Same as FD
Re-opener Materiality Threshold	No materiality threshold	Same as FD

Final Determination summary - Cyber Resilience IT

6.280 Our decision for cyber resilience IT is to provide allowances subject to PCDs and a re-opener.

Output Parameter	Final Determination	Draft Determination
Туре	Totex Incentive Mechanism (TIM) with Price Control Deliverables (PCDs).	Same as FD
Output	Specified PCDs to enhance cyber resilience in relation to IT, including measured risk reduction or improved CAF Outcomes on the licensee's network and information systems.	Same as FD
Delivery date	Specified in confidential Company Annexes.	Same as FD
Reporting Method	Annual Reporting (every July from 2024 onwards) using the PCD Reporting Guidance.	Change from Biannual reporting starting in January 2024
Adjustment Mechanism	Ex post assessment of PCDs	Same as FD
Licence obligation	SpC 3.2, SpC 3.3 and SpC 9.4	SpC 3.2, SpC 3.3 and SpC 9.4
ИМ Туре	Reopener	Same as FD
Reopener Window	Year One: April 2023	Same as FD

Output Parameter	Final Determination	Draft Determination
	Year Three: April 2025	
Reopener Materiality Threshold	No materiality threshold	Same as FD

Final Determination rationale and Draft Determination responses

6.281 We received responses from all six DNOs to our Draft Determinations. No other stakeholders submitted consultation responses on Cyber Resilience.

# Assessment of the cyber resilience IT and OT plans

- 6.282 Five out of the six DNOs supported the assessment of the business plans against the BPG and RIIO-2 re-opener guidance.
- 6.283 We engaged with all DNOs following their responses to our Draft Determinations and requested additional evidence from them to support their IT and OT plans through bilaterals and Supplementary Questions (SQs). We have taken that additional information into consideration when reaching our Final Determinations. We have decided to:
  - Increase allowances where applicable to support recruitment of cyber professionals into the teams.
  - Increase allowances where applicable to support business as usual/run the business costs.
  - Increase allowances for projects where applicable for technology which is being procured or enhanced.
  - Increase allowances for projects where applicable for incident response and business continuity type projects.
  - For a majority of projects increase allowances provided from 1 year to a minimum of 2 years.
- 6.284 Our final decisions on our individual assessments for each DNO's IT and OT plans are confidential. They are set out in the confidential annexes which have been sent directly to each DNO.

# Reopener windows

- 6.285 NPg, SPEN and SSEN agreed with our proposal for re-opener windows in RIIO-ED2. ENWL proposed a change to the date for the re-opener windows, suggesting that the year one re-opener be moved to January 2024 and the year three re-opener to January 2026 to provide DNOs with more time to prepare a more robust re-opener application.
- 6.286 Prior to making our final decision we have engaged with the DNOs through bilaterals and SQs.

# 7. Delivering at lowest cost to energy consumers

### Section summary

In this chapter provide detail on our decisions in setting efficient RIIO-ED2 total expenditure (totex) allowances for all DNOs.

# Introduction

- 7.1 A key part of the RIIO-ED2 price control is setting totex allowances for DNOs. They represent a material component of customers' bills now and in the future, and it is important that they reflect efficient costs.
- 7.2 In their business plans, DNOs forecast totex for RIIO-ED2 of just over £25bn. To ensure DNOs carry out efficient investment decisions, we have applied a toolkit approach to our assessment of DNO's forecast totex. This has involved benchmarking costs at both a totex and activity level, setting stretching efficiency targets, and subjecting proposals to engineering review.
- 7.3 We have sought to ensure that our approach to cost assessment for RIIO-ED2 builds on regulatory precedent, is consistent with the wider GB energy networks sector, and where appropriate utilises cost assessment tools that have been used in other regulated utility sectors.
- 7.4 In this chapter we set out in detail the approach we have taken on normalisations and adjustments, totex and activity level benchmarking, combining the results of our modelling, application of the various efficiency challenges, and the changes that we have made since Draft Determinations and the rationale for those changes.

# Ex ante totex allowances

- 7.5 We have set DNOs ex ante totex allowances at £22.2bn, which is an increase of £1.3bn on the £20.9bn we proposed at Draft Determinations. This is based on adjustments that we have made to our cost assessment approach following consideration of additional information submitted by DNOs in their Draft Determination responses and wider stakeholders feedback.
- 7.6 The ex ante totex allowances comprise all controllable costs, including an ongoing efficiency challenge. Non-controllable costs, pass-through costs and Real Price Effects (RPEs), while included in overall allowed revenue recoverable by DNOs, are not included in ex ante totex allowances and are treated separately.
- 7.7 Our allowed totex for each DNO is presented below in Table 12, together with submitted totex, and the corresponding differences.
| DNO<br>Group | DNO    | Submitted<br>Totex | DD<br>Allowed<br>Totex | FD<br>Allowed<br>Totex | FD vs.<br>Submitted | Difference<br>(%) |
|--------------|--------|--------------------|------------------------|------------------------|---------------------|-------------------|
| ENWL         | ENWL   | 1,890              | 1,640                  | 1,722                  | -168                | -8.9%             |
| NPg          | NPgN   | 1,393              | 1,129                  | 1,186                  | -207                | -14.9%            |
|              | NPgY   | 1,838              | 1,521                  | 1,596                  | -242                | -13.2%            |
| NGED         | WMID   | 1,934              | 1,588                  | 1,679                  | -255                | -13.2%            |
|              | EMID   | 2,058              | 1,697                  | 1,838                  | -220                | -10.7%            |
|              | SWALES | 1,143              | 953                    | 1,015                  | -127                | -11.1%            |
|              | SWEST  | 1,758              | 1,343                  | 1,449                  | -309                | -17.6%            |
| UKPN         | LPN    | 1,499              | 1,323                  | 1,416                  | -83                 | -5.6%             |
|              | SPN    | 1,554              | 1,394                  | 1,476                  | -78                 | -5.0%             |
|              | EPN    | 2,470              | 2,137                  | 2,277                  | -192                | -7.8%             |
| SPEN         | SPD    | 1,676              | 1,451                  | 1,469                  | -207                | -12.4%            |
|              | SPMW   | 1,721              | 1,477                  | 1,476                  | -245                | -14.3%            |
| SSEN         | SSEH   | 1,406              | 1,087                  | 1,227                  | -179                | -12.7%            |
|              | SSES   | 2,835              | 2,199                  | 2,397                  | -439                | -15.5%            |
| Total        |        | 25,175             | 20,939                 | 22,224                 | -2,951              | -11.7%            |

Table 12 RIIO-ED2 submitted totex vs allowed totex (£m, 2020/21 prices)<sup>107</sup>

7.8 In summary:

- Total DNO submitted totex for RIIO-ED2, post normalisations and adjustments, and excluding RPEs, ongoing efficiency, non-controllable and pass-through costs, is £25.2bn. This represents a small reduction of c. £70m from Draft Determinations, as a result of some changes that we made on reallocations between ex ante costs and costs assumed under in-period UM, and the inclusion of some additional bespoke costs, as set out in Table 19.
- Our view of efficient modelled totex, post demand driven adjustment and catch-up efficiency, but before we apply ongoing efficiency, is £23.3bn. This represents an overall downwards adjustment of £1.8bn or 7.3% compared to DNOs' submitted totex. This is £1.1bn less than the downwards adjustment we proposed at Draft Determinations. The change from Draft Determinations is driven by changes to our calculation of the demand driven adjustment, our implementation of the catch-up efficiency challenge, and updates to our totex and activity level benchmarking.

<sup>&</sup>lt;sup>107</sup> Submitted totex is net costs, including our cost exclusions and reallocations and excluding RPEs, ongoing efficiency, non-controllable costs, and pass-through costs. FD Allowed totex as shown here is net costs, before non-price control allocations, before post-modelling adjustments for UMs, and excluding RPEs, non-controllable costs, pass-through costs, but including Ofgem's view of ongoing efficiency.

- Our ongoing efficiency challenge drives a final downwards adjustment of £1.1bn or 4.5% compared to DNOs' submitted totex. This is c. £160m less than at Draft Determinations as a result of changes to our ongoing efficiency challenge.
- The final allowed totex of £22.2bn represents an overall reduction of £2.9bn or 11.7% compared to DNOs' submitted totex. This represents a decrease on our overall reduction of £4.3bn or 17.1% at Draft Determinations.
- 7.9 Once we take into account non-price control allocations and postmodelling adjustments, and include allowances related to Access SCR, we are setting ex ante totex allowances at £21.4bn, which represents a 17% increase on the latest RIIO-ED1 outturn and forecast spend. This is detailed in Table 13 below.

Table 13: RIIO-ED2 Allowed totex before and after allocations, adjustments, and Access SCR ( $\pounds$ m, 2020/21 prices)<sup>108,109</sup>

DNO Group	DNO	FD Allowed Totex before adj.	Non-Price Control Allocations and post- modelling adj.	Access SCR	FD Allowed Totex after adj.
ENWL	ENWL	1,722	-68	13	1,667
NPg	NPgN	1,186	-73	17	1,130
	NPgY	1,596	-89	53	1,560
NGED	WMID	1,679	-127	37	1,589
	EMID	1,838	-164	42	1,716
	SWALES	1,015	-62	15	968
	SWEST	1,449	-81	25	1,393
UKPN	LPN	1,416	-171	25	1,270
	SPN	1,476	-112	12	1,377
	EPN	2,277	-239	114	2,152
SPEN	SPD	1,469	-71	9	1,407
	SPMW	1,476	-59	12	1,428
SSEN	SSEH	1,227	182	17	1,427
	SSES	2,397	-122	48	2,323
Total		22,224	-1,257	439	21,407

<sup>&</sup>lt;sup>108</sup> Non-price control allocations are adjustments to allowances to account for income that sits outside the price control.

<sup>&</sup>lt;sup>109</sup> Post-modelling adjustments for reversing of ongoing efficiency for Worst Served Customers, and Visual Amenity, adding cyber resilience OT allowances and the Shetland Link RAV transfer, and deducting related party margins, disposals, and other controllable opex. FD Allowed Totex after adjustments excludes RPEs.

7.10 Figure 13 below provides an overview of the step-by-step adjustments we have applied to DNOs' submitted totex to arrive at the allowed totex we describe above.



Figure 13: Adjustments to DNOs' Totex

- 7.11 All DNO groups have had an upward adjustment on ex ante totex allowances relative to Draft Determinations. This is a result of the following:
  - Updates we have made to our totex and activity level benchmarking, to improve the robustness of our overall modelling suite has increased modelled costs and provided DNOs' with additional allowances on average.
  - Updates to our review of DNOs' EJPs, in light of additional evidence and information received from DNOs in response to our Draft Determinations, have reversed some of the significant workload adjustments at Draft Determinations and resulted in an increase in modelled costs.
  - Reducing the ongoing efficiency challenge that we expect DNOs to deliver year on year from 1.2% pa to 1% pa, following further consideration of the evidence and information received from DNOs in response to our Draft Determinations, has reduced the overall downwards adjustments for all DNOs.
- 7.12 Our ex ante totex allowances represent a significant increase on the actual spend incurred by DNOs over DPCR5 and RIIO-ED1. The significant step change in forecast expenditure for RIIO-ED2 relative to RIIO-ED1 and DPCR5 has presented a challenge for our cost assessment, which we discussed in detail at Draft Determinations. We think our cost assessment approach for RIIO-ED2 ensures that DNOs are funded to support the unprecedented challenges associated with the transition to net zero and a smarter, more flexible energy system, while continuing to meet the needs of consumers and network users, and maintain safe and resilient

networks, in a cost-efficient manner which protects the interest of both existing and future consumers.

#### Details of our approach to cost assessment

- 7.13 In line with our proposals at Draft Determinations, we have undertaken a normalisation process aimed at making any necessary adjustments to DNOs' submitted data to ensure they are consistent.
- 7.14 We have implemented the Draft Determination proposals to use a combination of aggregated (totex) and disaggregated (activity level) benchmarking to assess DNOs' normalised submitted costs, supported by technical assessment where benchmarking is not suitable, such as where costs are company or project specific. We have considered and addressed modelling issues across our totex and disaggregated benchmarking, that were raised in response to Draft Determinations. This has improved the overall robustness of our approach relative to Draft Determinations. The changes that we have made to our modelling are explained further in the following sections.
- 7.15 As per Draft Determinations, our modelling suite consists of three totex benchmarking models, which are combined by assigning equal weight to our totex and disaggregated modelling streams ie 50% on each, with each of the three individual totex models receiving an equal share of the 50% weight assigned to totex.
- 7.16 The results of our totex and disaggregated benchmarking models are referred to as our "modelled costs". Our modelled costs comprise 98% of DNOs' submitted costs on average.
- 7.17 We then apply a demand driven adjustment to the modelled costs from our totex benchmarking models, unlike in our proposals at Draft Determinations where we applied the adjustment to all modelled costs. The rationale and approach that we have taken in applying this adjustment is explained further in the following sections.
- 7.18 Our modelled costs, with the demand driven adjustment applied, is then subject to a benchmarking (catch-up) efficiency adjustment based on DNOs' relative performance. As per Draft Determinations we have applied a catch-up efficiency challenge using the 75<sup>th</sup> percentile of the efficiency scores in the first year of RIIO-ED2 followed by a glide path to the 85<sup>th</sup> percentile, which will be the benchmark in the last two years of RIIO-ED2. However, we have updated our approach to implementing this efficiency challenge relative to Draft Determinations, which we explain further in the following sections.
- 7.19 Finally, we apply an ongoing efficiency challenge of 1% per annum for DNOs over the RIIO-ED2 period, which has been adjusted downwards from the level of productivity challenge proposed at Draft Determinations. We set out the rationale for this in the following sections.

7.20 Table 14 and Table 15 below provide a breakdown of our approach to cost assessment for each DNO.

DNO	Submitted Totex	Modelled Totex	Demand Driven Adj.	Modelled Efficient Totex	Ongoing Efficiency	Allowed Totex
ENWL	1,890	1,876	-32	1,810	-88	1,722
NPgN	1,393	1,304	-33	1,248	-62	1,186
NPgY	1,838	1,761	-51	1,680	-84	1,596
WMID	1,934	1,862	-64	1,765	-86	1,679
EMID	2,058	2,026	-58	1,932	-94	1,838
SWALES	1,143	1,126	-39	1,068	-52	1,015
SWEST	1,758	1,586	-34	1,524	-74	1,449
LPN	1,499	1,538	-23	1,487	-72	1,416
SPN	1,554	1,623	-10	1,552	-76	1,476
EPN	2,470	2,456	-18	2,394	-117	2,277
SPD	1,676	1,604	-32	1,544	-75	1,469
SPMW	1,721	1,612	-32	1,551	-75	1,476
SSEH	1,406	1,340	-27	1,289	-62	1,227
SSES	2,835	2,623	-56	2,520	-123	2,397
Total	25,175	24,336	-508	23,366	-1,141	22,224

Table 14: Breakdown of our proposed cost assessment approach by DNO (£m,  $2020/21 \text{ prices})^{110,111}$ 

Table 15: Breakdown of our proposed cost assessment approach by DNO group (£m, 2020/21 prices)<sup>112</sup>

DNO	Submitted Totex	Modelled Totex	Demand Driven Adj.	Modelled Efficient Totex	Ongoing Efficiency	Allowed Totex
ENWL	1,890	1,876	-32	1,810	-88	1,722
NPg	3,231	3,066	-84	2,928	-146	2,782
NGED	6,893	6,599	-195	6,289	-307	5,982
UKPN	5,523	5,616	-51	5,433	-264	5,169
SPEN	3,397	3,216	-63	3,096	-151	2,945
SSEN	4,241	3,963	-83	3,809	-186	3,624
Total	25,175	24,336	-508	23,366	-1,141	22,224

<sup>&</sup>lt;sup>110</sup> Submitted and Allowed Totex is as per Table 12.

<sup>&</sup>lt;sup>111</sup> Modelled Efficient Totex exclude Ongoing Efficiency adjustment but includes the catch-up efficiency challenge, and a ratchet where submitted costs are lower than modelled cost post catch-up efficiency challenge.

<sup>&</sup>lt;sup>112</sup> All costs and adjustments presented on the same basis as per Table 14.

# Normalisations and adjustments

## Overview

- 7.21 To ensure that our cost benchmarking is carried out on a comparable basis, company-submitted data may need to be adjusted to correct for inconsistencies and external effects. For example, to exclude costs that are unsuitable for comparative assessment, or to remove costs associated with work that we are either separately assessing or that have been rejected as part of our needs case assessment. These adjustments fall into the following categories:
  - Regional factors: applied when operating in certain regions attracts higher or lower costs than elsewhere
  - Company-specific factors: applied when the inherent characteristics of a particular network attract higher costs than others
  - Exclusions: applied when costs are inappropriate for comparative benchmarking because they are only incurred by a small number of DNOs, where costs are not explained by the cost drivers used in our cost models, or where there is a substantial change in the nature of costs between RIIO-ED1 and RIIO-ED2
  - Other adjustments: applied to costs that are reclassified from one activity to another, are reclassified from other reporting such as memo tables, have accepted updates, or relate to work that we have decided to separately assess.
- 7.22 Table 16 summarises or Final Determinations approach on normalisations and adjustments.

Normalisations and Adjustments	Final Determination	Draft Determination
Regional factors	Pre-modelling regional wage adjustment applied using a three- region approach (London, the South- East, and elsewhere) and industry average occupational weightings.	Same as FD
Company-specific factors	Five company-specific factor adjustments applied to three companies.	Same as FD
Exclusions	Excluded costs relating to transmission connection point charges, quality of service, physical security, rising and lateral mains, BT 21st Century (BT21CN) <sup>113</sup> , worst	Same as FD

Table 16: Final Determinations summary on normalisations and adjustments

<sup>&</sup>lt;sup>113</sup> The programme to rollout BT's next generation communications network which replaces Public Switched Telephone Network PSTN with a Digital Internet Protocol (IP).

Normalisations and Adjustments	Final Determination	Draft Determination
	served customers, streetworks, green recovery scheme, cyber security, and severe weather 1 in 20 events.	
Other adjustments	Pre-modelling adjustments made to reallocate costs between activities and (i) into submitted costs subject to benchmarking or (ii) technical assessment. This is for consistency and/or to reflect policy decisions to accept or reject bespoke cost treatment of particular items.	Same as FD

7.23 The responses to our Draft Determinations, and the changes that we have implemented on normalisations and adjustments are discussed further in the following sections.

## **Regional factors**

## **Background**

- 7.24 DNOs may incur additional efficient costs due to factors that are outside of their control and are either unique to, or disproportionately affect, the region in which they operate.
- 7.25 At Draft Determinations, we applied regional labour cost adjustments that normalised labour costs across all DNOs. We applied a three-region approach, with each DNO assigned to one of three regions: London, the South-East, and elsewhere. We used notional (ie industry average) occupational weightings when applying the regional labour adjustment to individual activity areas. We set forecast regional cost indices equal to their five-year historical average<sup>114</sup>. We made pre-modelling adjustments to the labour component of applicable DNOs costs, which was subsequently reversed following our benchmarking.

## Final Determination summary

7.26 We have decided to maintain our three-region approach to regional labour cost adjustments at Final Determinations. We have also decided to maintain the methodology for calculating the regional labour cost adjustments at Final Determinations (see Appendix 5 of the Core Methodology Document in Draft Determinations for further details).

## Final Determination rationale and Draft Determination responses

7.27 We received three responses from the DNOs and one response from the RIIO-ED2 CG.

<sup>&</sup>lt;sup>114</sup> See RIIO-ED2 Draft Determinations - Core Methodology Document - Appendix 5 for our full proposed methodology for calculating the regional labour cost adjustments at Draft Determinations.

- 7.28 The RIIO-ED2 CG agreed with our proposed approach to addressing regional factors.
- 7.29 NGED disagreed with our proposed three-region approach to applying regional labour cost adjustments at Draft Determinations, arguing that our approach lacked balance, by not accounting for factors that benefit DNOs operating in dense, higher wage regions, was not supported by econometric evidence, and overestimated the regional wage differentials in London. It suggested we should either remove the regional labour cost adjustment or move to a two-region approach (London, elsewhere).
- 7.30 SSEN and SPEN disagreed with our proposed three-region approach and argued for either a four-region approach (with Scotland included as a fourth region) or an 11-region approach (ie adjustments calculated individually for each of the 11 regions identified in the wage data). Both DNOs noted that Scotland appears to have higher than average regional wages. SSEN argued that regional labour mobility was relatively limited in practice and therefore, would not serve to equalise regional wage differentials over time.
- 7.31 We have decided to maintain the three-region approach to regional labour cost adjustments for Final Determinations. This approach has strong precedent, having been applied previously in RIIO-ED1 and RIIO-GD2, and we are not satisfied that wages in Scotland are notably above the industry average to warrant moving to a four-region or 11-region approach, with wages in the most recent years at or very close to the industry average. Conversely, we are satisfied that the higher cost of living in London and the South East supports making regional wage adjustments for these regions. The Office for National Statistics' (ONS) Annual Survey of Hourly Earnings (ASHE) dataset continues to provide the most robust measure of regional wages and therefore, we have continued to use it to calculate regional factor pre-modelling adjustments.
- 7.32 SSEN disagreed with our proposal to reject sparsity as a regional factor at Draft Determinations. It noted that the relative performance of its two DNOs is not relevant to arguments around sparsity, as common ownership does not imply common performance across DNO regions. It also suggested that the evidence on econometric modelling it provided showed that a sparsity/islands variable is both positive and significant, demonstrating higher costs for more geographically dispersed and thinly populated networks, such as the north of Scotland for SSEH.
- 7.33 We have decided to maintain our Draft Determinations position to not include sparsity as a regional adjustment. We were not persuaded that sparsity is unique to SSEH, and instead consider that it may impact other DNOs to some extent. We did not consider that SSEN had provided enough evidence on how sparsity impacted costs in RIIO-ED2, beyond those factors that are already captured in the company-specific factors and totex modelling. Our approach to company-specific factors (see next section) means that we have given specific consideration to material areas of costs associated with SSEH's subsea cables, which implicitly include

costs associated with operating in sparse areas (ie the North of Scotland and the Scottish islands). Furthermore, by deciding to include both MEAV and network length in each of the totex model cost drivers, there is a more implicit measure of sparsity captured within the totex modelling. More sparse networks will typically have more linear assets and greater network length, which will be reflected in the calculation of the cost driver for each of the totex models. Therefore, we were not satisfied that there is a need to apply an explicit and separate pre-modelling sparsity adjustment, as we consider that the impacts of sparsity are already sufficiently captured within our totex regression modelling. We discuss this further in the Totex Benchmarking section in this chapter.

## **Company-specific factors**

## **Background**

- 7.34 To ensure that our cost benchmarking is carried out on a comparable basis, we exclude some costs prior to benchmarking where DNOs have provided sufficient evidence that they incur higher efficient costs due to the inherent nature of their network(s). Where we have accepted a claim, either partially or fully, we have applied the adjustment to our totex and disaggregated benchmarking models.
- 7.35 At Draft Determinations, we allowed a total of five company-specific factor adjustments for three companies (comprising four networks). These related to the unique nature of the streets in London (LPN), the disproportionate costs associated with operating in and around London (LPN & SPN), the unique configuration of SPMWs' meshed network and the costs associated with operating and maintaining SSEH's subsea cable fleet. We rejected a further eight company-specific factors claims on the basis that they did not meet the materiality threshold or that they were not justified.

## Final Determination summary

7.36 We have decided to maintain our Draft Determinations proposal in allowing company-specific factors adjustments for three companies (comprising four networks). Table 17 summarises the company-specific factors that we have allowed at Final Determinations.

Table 17: Final Determinations summary of company-specific factor adjustments ( $\pounds$ m, 2020/21 prices)

DNO	Company-Specific Factor Claim	Submitted	Accepted DD	Accepted FD
ENWL	Additional efficient costs of a small company	115.0	0.0	0.0
EPN	Nature of streets	8.7	0.0	0.0
EPN	Network-Specific Factors	5.5	0.0	0.0

DNO	Company-Specific Factor Claim	Submitted	Accepted DD	Accepted FD
EPN	Permitting and Traffic Management	0.2	0.0	0.0
LPN	Nature of streets	39.5	32.3	32.3
LPN	Network-Specific Factors	53.6	44.2	44.2
LPN	Permitting and Traffic Management	16.0	0.0	0.0
SPMW	SP Manweb company- specific factor	116.8	116.8	116.8
SPN	Nature of streets	6.8	0.0	0.0
SPN	Network-Specific Factors	14.4	12.1	12.1
SPN	Permitting and Traffic Management	0.1	0.0	0.0
SSEH	Islands	159.1	<b>77.9</b> <sup>115</sup>	101.7
SSEH	Shetlands Related Costs	99.8	0.0	0.0
Total		635.4	283.3	290.6

Final Determination rationale and Draft Determination responses

- 7.37 The RIIO-ED2 CG agreed with our proposed Draft Determination approach to company-specific factors.
- 7.38 NGED did not make any company-specific factor claims for any of its networks, but encouraged us to ensure the results of the benchmarking, after the application of company-specific factor adjustments, were credible, particularly with regard to its SWEST region. We are satisfied that our approach to benchmarking at Final Determinations is robust and credible.
- 7.39 NPg identified an inconsistency with how the company-specific factors for SPMW had been applied at Draft Determinations, suggesting that a reduction to MEAV to exclude pilot wires should be applied to correspond with the company-specific factor adjustment. NPg also noted that this was the approach that was carried out in RIIO-ED1. We acknowledge this point, and have decided to exclude protection, which includes pilot wires, from MEAV at Final Determinations. We discuss this in further detail in the section on Totex Benchmarking within this chapter.
- 7.40 SSEN disagreed with our Draft Determinations to remove its companyspecific factor claim relating to the costs of serving islands. SSEN also disagreed with our proposal to disallow the Skye-Uist (South) project, and

<sup>&</sup>lt;sup>115</sup> This value was wrongly presented in Table 23 of the Draft Determinations Core Methodology Document, due to a transposition error. £77.9m is the correct value, reflecting our efficient view of the allowed costs for remote island generation and subsea cables at Draft Determinations.

in response, provided further evidence on these costs. In light of the additional information received, we have revised our assessment of SSEN's Scottish Islands company-specific factor. For the subsea cable asset replacement costs, we have accepted costs of £35.4m, based on our modelled view of SSEH's unit cost across the RIIO-ED1 and RIIO-ED2 periods. We have also accepted SSEH claims for inspections (£17.0m), and repairs and maintenance (£4.3m) of subsea cables in full.<sup>116</sup> As per Draft Determinations, we decided to reject the company-specific factor claim for costs associated with running a subsea cable team, transport to the islands and accommodation, helicopters, deploying staff prior to weather events, cable storage and Subsense<sup>117</sup> as we are satisfied that they are either already captured by the cost drivers in the benchmark modelling or are not sufficiently material. We have decided to move the Skye-Uist (South) project into the Hebrides & Orkney Whole Systems (HOWS) re-opener (see SSEN Annex Chapter 4 for further details).

- 7.41 SSEN also suggested that company-specific factor claims should be removed in full, with any efficiency assessment carried out separately with Ofgem's modelled costs added back in post modelling. We agree with SSEN's suggestion in the context of subsea cables, where the costs relate to a specific asset group (ie subsea cables), and have removed this company-specific factor claim in full prior to benchmarking, with our modelled view of these costs added back in after benchmarking. For other company-specific factors, where additional costs represent incremental increases on day-to-day activities that are incurred across a range of asset types, we have removed our modelled view of company-specific factor costs pre-modelling.
- 7.42 ENWL disagreed with our rejection of its 'singleton' company-specific factor claim at Draft Determinations. ENWL argue that as the only DNO group with a single network, they incur disproportionately higher costs relating to business support, as these costs cannot be spread across multiple networks. They suggested that by not taking group size into account, our modelling would result in cost bias. ENWL also argued that group size was not entirely endogenous, suggesting that regulatory considerations need to be taken into account when considering whether a DNO could merge with other licensees. Finally, ENWL suggested that the wide range of modelling estimates provided in support of their original claim represented an extensive evidence base, rather than reflecting the difficulty in modelling fixed costs.
- 7.43 We remain unconvinced by ENWL's company-specific factor claim and at Final Determinations are maintaining our Draft Determinations proposal to

<sup>&</sup>lt;sup>116</sup> Note that in our modelling suite these costs have been treated similar to those subject to separate assessment. This is only to ensure that they flow through our modelling suite as intended.

<sup>&</sup>lt;sup>117</sup> Subsense is the project name for Distributed Acoustic Sensing which is a technology that can be installed on submarine cables to provide real time monitoring.

reject it. Through acquisition or divestment, the number of DNOs within a group is a factor over which management has some control. Accordingly, if ENWL do incur higher costs by being the only DNO with a single network, then management has some options to control for them. We also had concerns over the econometric evidence ENWL provided to support their claim of group-level effects on costs in the totex models. In the DNO-level totex regressions provided, the expected group-level scale effects on costs were only evident once either four or five of the original sample of 14 DNOs were removed as being "outliers". Such a substantial reduction in sample size calls into question whether the DNOs removed from the sample can really be considered outliers and limits the value of drawing conclusions from the results. The group-level totex regressions provided by ENWL showed improved model fit but we do not think this necessarily provides strong evidence for group-level scale effects, and instead may indicate potential inconsistencies with the allocation of grouplevel costs across DNOs.

7.44 SPEN and UKPN did not provide specific feedback on our company-specific factors proposals at Draft Determinations.

# Exclusions

## **Background**

- 7.45 It is our view that costs should be included in our modelling whenever possible in order not to weaken the benefits of benchmarking, and that costs should only be excluded when there is a strong rationale for doing so, and when the issues cannot be addressed through other benchmarking choices.
- 7.46 At Draft Determinations, we proposed to exclude costs relating to transmission connection point charges, quality of service, physical security, rising and lateral mains, BT 21st Century (BT21CN)<sup>118</sup>, worst served customers, streetworks, green recovery, cyber security, and severe weather 1 in 20 events. Transmission connection point charges were identified as pass-through costs and were excluded from our benchmarking. For the avoidance of doubt New Transmission Connection Charges (NTCC) were not excluded at Draft Determinations.

## Final Determination summary

7.47 At Final Determinations, we have decided to exclude the following costs from the benchmarking assessment:

<sup>&</sup>lt;sup>118</sup> The programme to rollout BT's next generation communications network which replaces Public Switched Telephone Network PSTN with a Digital Internet Protocol (IP).

Cost area	Final Determinations	Draft Determination
Quality of Service (QoS)	Not adequately explained by cost driver. These costs were excluded at RIIO-ED1 as it was deemed not to be adequately explained by cost driver. Costs are well defined cost activities but are not incurred by all DNOs for RIIO-ED2.	Same as FD
Physical Security	Not explained by cost driver. The classification of sites as CNI is driven by the Government and is outside DNOs' control.	Same as FD
Rising and Lateral Mains (RLMs)	Not adequately explained by cost driver. There continues to be a significant discrepancy in reporting, and approach taken to RLMs by DNOs.	Same as FD
BT 21st Century (BT21CN)	Most DNOs have finished this programme of work and there are no costs forecast for RIIO-ED2.	Same as FD
Worst Served Customers	Not adequately explained by cost driver. Significant variance between DNOs and funded through a UIOLI.	Same as FD
Streetworks	Not adequately explained by cost driver. These costs were also excluded at RIIO- ED1 as it was deemed not to be adequately explained by cost driver. Different charging mechanisms in different areas and not fully within control of the company.	Same as FD
Green Recovery	Updates made to address different reporting by DNOs. RIIO-ED2 Green Recovery costs excluded.	Not properly excluded at DD. Corrected for FD.
Cyber Security	Significant change in the equivalent level of costsbetween the RIIO-ED1 and RIIO- ED2 periods.	Same as FD

Final Determination rationale and Draft Determination responses

- 7.48 SSEN accepted the exclusions we proposed at Draft Determinations, but also suggested we consider excluding environmental expenditure and IT and OT costs. NGED suggested that we should consider excluding DSO, LRE and remote generation opex costs at Final Determinations. We consider that both of these proposals would have resulted in excluding a big share of costs, in contrast with the nature of totex benchmarking and with the exclusion criteria set out at Draft Determinations.
- 7.49 NPg disagreed with our proposal to exclude RLMs from totex, noting that while we had excluded the costs from totex, we had not made a corresponding exclusion from the MEAV cost driver. It argued this created

an inconsistency, a point also raised by NGED, and overly weighted underground services within MEAV. We have decided to retain our Draft Determinations position and exclude RLM costs at Final Determinations, on the basis that there continues to be significant discrepancy in reporting of these assets between DNOs. We have decided to keep RLMs within MEAV, as the removal of LV services associated with these assets would have a significant and disproportionate impact on the consistency of the totex benchmarking (see the MEAV section below for further discussion).

NGED agreed with our proposal to exclude costs for streetworks but 7.50 disagreed with the values used. We continue to think that the values used at Draft Determinations ensure consistent treatment across DNOs (see further down this chapter for details on our approach to streetworks at Final Determinations). NGED agreed with our proposal to exclude green recovery costs but noted that they did not believe the adjustment had been correctly made in the totex models at Draft Determinations. We have engaged with the DNOs after Draft Determinations to ensure the adjustment was implemented correctly. NGED also noted concerns about potential inconsistency in the reporting of historical cyber costs between DNOs. We consider our Business Plan Guidance to be clear and we do not consider any potential inconsistency here to have a material impact. Finally, they disagreed with our proposal to disallow quality of service costs, arguing they should be excluded from the totex benchmarking and separately assessed. We have retained our Draft Determinations position and disallowed QoS costs (see Chapter 6 for further details on QoS).

## Other adjustments

#### **Background**

- 7.51 At Draft Determinations we applied two other types of normalisation adjustments to DNOs' submitted costs:
  - Reallocations between cost activities, where we view a cost to be reported in the incorrect activity and require it to be reallocated for consistency in benchmarking; and
  - Reallocations of costs that have been reported in the Business Plan Data Templates (BPDTs) memo tables instead of BPDT activity tables (tables C2 to CV39), where we view the costs to be part of the DNO's Business Plan scenario and require it to be reallocated for consistency in benchmarking.
- 7.52 We made a number of reallocations from memo tables M13 and M21 and reallocated SSEH's forecast costs for North of Scotland Resilience (NoSR) into the Worst Served Customers activity.
- 7.53 We classified accepted bespoke outputs and CVPs (including PCDs and UIOLI but excluding ODI-F and ODI-R) with project costs as technically assessed items and did not include these costs in the totex or disaggregated benchmarking. For accepted bespokes and CVPs where the costs were already included in a DNO's submitted costs (in BPDT tables C2

to CV39), we removed the project costs pre-modelling so that they were included in the non-modelled component of totex. Similarly, for cost activities that we identified for technical assessment, we removed costs pre-modelling so they were not included in benchmarking. At Draft Determinations we technically assessed Physical Security activity costs, SSEH's Shetland costs, Streetworks and Cyber security.

7.54 We have also excluded DNOs' submitted costs for the Quality of Service & NoSR, Severe Weather 1 in 20, and Diversions Rail Electrification activities due to our proposed funding approaches for these activities.

#### Final Determination summary

- 7.55 We have retained the cost treatment approach for accepted reallocations, technically assessed and excluded costs from Draft Determinations but have made updates to what normalisation adjustments are included based on further DNO submissions and our cost assessment. This section also covers some updates to submitted costs in the BPDTs that we have accepted (which would otherwise have been applied as normalisation adjustments).
- 7.56 Reallocation between cost activities:
  - We have decided to reallocate all DNOs' reactive service reinforcement costs reported in the Connections (C2) activity into the Secondary Reinforcement (CV2) activity to allow these costs to be assessed together with the proactive service reinforcement in CV2 and for alignment with the LV Services volume driver.
  - SSEH updated their BPDT to report their NoSR costs in the Worst Served Customers activity so a normalisation reallocation is no longer required.
- 7.57 Reallocations from memo tables and other cost updates:
  - ENWL reallocations from M13 for LRE, and diversions and tree cutting have been removed. The £25m reallocation for environmental reporting (PCBs) has been retained.
  - NPg and SSEN reallocations from M13 for LRE have been retained.
  - We have decided to retain the Draft Determinations approach of including costs for rejected bespokes in submitted costs for benchmarking. As a result, SPEN's 'Network Loss Reduction and Safety Enhancement' and 'Community Energy' projects continue to be reallocated from M21. Additionally £2.2m of community energy costs proposed by ENWL have been reallocated into submitted costs (see ENWL Annex). SSEN's 'Embedded whole systems support services for local authorities' project is now reallocated from M21 into the technically assessed category due to its updated assessment classification (see SSEN Annex).
  - At Draft Determinations we did not include SSEN's costs in the Overhead Line Clearance disaggregated assessment because we

expected to receive updated volumes from SSEN's latest Light Detecting and Ranging Surveys (LiDAR) flight data. SSEN have provided updated data for SSEH from the latest LiDAR (see Draft Determinations Core Methodology Document paragraph 7.273). We have accepted this as an update to SSEH's submitted Overhead Line Clearance (CV18) costs and volumes.

- 7.58 Technically assessed and excluded costs:
  - We have retained the Draft Determinations approach of removing accepted bespokes and CVPs and activities/projects identified for technical assessment from submitted costs pre-modelling so that they are not subject to benchmarking. Physical Security costs, Shetland, Streetworks and Cyber security continue to be treated as technically assessed, and we have decided to technically assess SSEN's fluid filled cables for Final Determinations, which SSEN have reported as part of their environmental reporting costs (see Chapter 3 and the SSEN Annex for more detail).
  - One new EJP was accepted post-Draft Determinations, LPN's West London project. The costs and volumes for this project have been added to LPN's total submitted totex but have been technically assessed.
  - Since Draft Determinations SSEN have provided additional supporting information for their proposed Distribution Control Room costs in Physical Security, including cost updates. As we have decided to allow the Distribution Control Room costs with a PCD (see SSEN Annex), they have been treated as technically assessed costs using the updated cost forecasts submitted.
  - We have retained the Draft Determinations approach of excluding DNOs' submitted costs for QoS & NoSR, Severe Weather 1 in 20, and Diversions Rail Electrification activities, except that we have decided not to exclude SSEH's Remote Location Generation costs reported in QoS. These Remote Location Generation costs are included in the totex and disaggregated benchmarking. SSEH's Skye-Uist project has also been excluded for Final Determinations as it now falls within the scope of the Hebrides & Orkney Whole Systems (HOWS) re-opener; and additional costs for HOWS development funding have been included in SSEH's submitted costs for Final Determinations and have been technically assessed. Refer to the SSEN Annex for further detail on the HOWS funding.

#### Final Determination rationale and Draft Determination responses

7.59 ENWL disagreed with the reallocation of their costs for LRE, diversions and tree cutting in M13 into baseline. They broadly agreed with the reallocation of their PCB costs in M13 in respect of the proposed ex ante funding approach for GMT assets.

- 7.60 UKPN disagreed with the reallocation of costs from M13 into baseline totex as they considered it unfair to do so for some DNOs but not UKPN. SSEN proposed that some of their non-LRE M13 costs should be reallocated into baseline given ENWL's reallocations.
- 7.61 We have retained the M13 LRE reallocations for NPg and SSEN. We continue to view these costs as part of NPg and SSEN's Business Plan scenario with submitted indirect costs and demand driver data in baseline related to both their baseline and M13 LRE forecasts. As such we do not view NPg and SSEN's baseline LRE forecasts as comparable to the rest of their business plan without these reallocations. In contrast we understand other DNOs' M13 LRE forecasts to be upper ranges, and hence it would not be comparable to reallocate these costs into baseline without associated changes across the rest of forecasts, for example to indirects and demand assumptions.
- 7.62 We have decided to remove the M13 reallocations for LRE, diversions and tree cutting for ENWL based on further clarification provided by ENWL in their consultation response. We also consider this to be consistent with ENWL's demand driver data, the position on Ash dieback funding and the introduction of a Wayleaves and Diversions re-opener in Final Determinations.
- 7.63 We have decided to retain the reallocation of ENWL's PCBs costs and volumes in M13 into baseline. We continue to view this reallocation as necessary for a complete picture of ENWL's forecast spend and for comparability of both GMT and PMT forecast spend across DNOs, noting that ENWL would otherwise have for no PCB costs in baseline (despite having volumes in baseline).
- 7.64 SSEN proposed that their M13 forecasts for GMT PCB costs should also be reallocated into baseline on the same basis as ENWL's reallocation. We have accepted SSEN's proposed reallocation. Based on the additional information provided on their PCB forecasts, we accept that SSEN reported some GMT PCB costs in M13 for their UM proposal but that the combination of SSEN's baseline and M13 GMT PCB costs represents their expected expenditure under their Business Plan scenario.
- 7.65 SSEN and UKPN both proposed that they should have additional uncertain diversions costs brought into baseline if no diversions UM is provided. We do not consider these costs part of SSEN or UKPN's Business Plan scenario baseline and given the introduction of the Wayleaves and Diversions re-opener, have not accepted these proposed reallocations.

## Summary of Normalisations and Adjustments

7.66 Table 18 summaries the normalisations and adjustments made to the totex and disaggregated models. Numbers are shown on a net basis for comparability, but as at Draft Determinations, the adjustments were applied to gross costs.

Table 18: Summary of Impact of Normalisations and Adjustments on Totex (£m, 2020/21 prices)  $^{\rm 119}$ 

DNO	Submit ted Net costs in BPDTs	Normal isations	Exclu sions	Techni cally assess ed in submit ted costs	Net normal ised (model led compo nent)	Total Techni cally assess ed	Normal ised Submit ted costs
ENWL	1,772	27	-22	-	1,778	113	1,890
NPgN	1,346	58	-12	-6	1,386	7	1,393
NPgY	1,761	135	-59	-8	1,829	9	1,838
WMID	1,953	-4	-14	-7	1,927	7	1,934
EMID	2,080	-5	-17	-7	2,050	7	2,058
SWALES	1,150	-2	-6	-4	1,139	4	1,143
SWEST	1,781	-4	-19	-28	1,730	28	1,758
LPN	1,497	-	-	-51	1,445	54	1,499
SPN	1,532	-	-3	-	1,529	25	1,554
EPN	2,419	-	-6	-	2,413	56	2,470
SPD	1,682	7	-18	-	1,670	6	1,676
SPMW	1,730	7	-23	-	1,714	7	1,721
SSEH	1,391	15	-16	-96	1,294	111	1,406
SSES	2,854	-6	-27	-62	2,759	77	2,835
Total	24,948	228	-243	-271	24,663	512	25,175

7.67 Table 19 provides a summary of the changes in normalised submitted totex at Final Determinations compared to Draft Determinations.

Table 19: Summary of changes in normalised submitted totex from Draft Determinations to Final Determinations (£m, 2020/21 prices)

DNO	Normalised submitted at DDs	Normalisation changes	Bespokes /CVPs and PCD changes	Cost and reporting updates	Normalised submitted at FDs
ENWL	2,015	-161	37	-	1,890
NPgN	1,392	-	1	-	1,393
NPgY	1,837	-	1	-	1,838
WMID	1,939	-4	-	-	1,934
EMID	2,062	-5	-	-	2,058
SWALES	1,144	-2	-	-	1,143
SWEST	1,762	-4	-	-	1,758
LPN	1,445	-	3	51	1,499

<sup>&</sup>lt;sup>119</sup> Submitted costs are net before non-price control allocations.

DNO	Normalised submitted at DDs	Normalisation changes	Bespokes /CVPs and PCD changes	Cost and reporting updates	Normalised submitted at FDs
SPN	1,551	-	3	-	1,554
EPN	2,466	-	4	-	2,470
SPD	1,676	-	-	-	1,676
SPMW	1,721	-	-	-	1,721
SSEH	1,406	-16	-0	16	1,406
SSES	2,826	-8	-0	18	2,835
Total	25,244	-201	47	85	25,175

# **Totex benchmarking**

## Overview

7.68 One of the key tools in our cost assessment toolkit is totex benchmarking. In this section we provide detail on our totex benchmarking, and the decisions we have made on the associated modelling choices.

# Model specification and selection of cost drivers

## <u>Background</u>

- 7.69 At Draft Determinations we acknowledged that there was no single, definitive approach for assessing comparative efficiency particularly given the changing environment facing DNOs in RIIO-ED2. Therefore we proposed the use of three totex regression models:
  - Model 1: a regression with a bottom-up Composite Scale Variable (CSV), a time trend for the whole period (RIIO-ED1 and RIIO-ED2) and a forecast time trend.
  - Model 2: a regression with a top-down CSV, capacity released, a time trend for the whole period (RIIO-ED1 and RIIO-ED2) and a forecast time trend.
  - Model 3: A regression with a top-down CSV and a composite LCT uptake variable based on an equal weighting of the cumulative number of HPs and the cumulative size of EV chargers.
- 7.70 For all three models we proposed the use of a pooled Ordinary Least Squares (OLS) estimator with clustered robust standard errors as our estimation technique.

## Model 1 – Bottom-up CSV

7.71 Our first totex model (Model 1) for Draft Determinations was similar to the RIIO-ED1 bottom-up totex model, in terms of model specification. It aggregated cost drivers used in the disaggregated benchmarking into a single composite driver.

- 7.72 The drivers used were similar to the RIIO-ED1 bottom-up CSV, providing a degree of consistency with the approach used at RIIO-ED1. Where no obvious activity level driver existed, we used the scale variable weighted MEAV (Modern Equivalent Asset Value) that captures the composition of the network asset base as the driver for the residual cost elements.
- 7.73 We used capacity released instead of units distributed as the driver for reinforcement spend, as we consider this better controlled for the step up in reinforcement activities the DNOs forecast and for differences in demand scenarios. We also used customer numbers for connections instead of units distributed.
- Model 2 and 3 Top-down CSV
- 7.74 At Draft Determinations, totex Model 2 and Model 3 used a top-down CSV, which was similar, in terms of model specification, to the top-down totex model used for RIIO-ED1.
- 7.75 Our top-down CSV for Draft Determinations used an expanded range of cost drivers, and the weights assigned were determined by assigning a cost driver to each high-level cost area and then calculating based on the industry average proportion of totex used in the totex regressions.

MEAV

- 7.76 All three of our totex models for Draft Determinations placed a large weight on MEAV as a cost driver to capture the relative network scale and complexity. The bottom-up CSV used MEAV as the cost driver for 18 out of 28 cost areas, while the top-down CSV placed 73% weight on MEAV.
- 7.77 An important aspect of MEAV relates to what should be included and excluded from it. This has been the topic of significant discussion and debate through the cost assessment working groups (CAWG). In RIIO-ED1, the following assets were excluded from the calculation of MEAV:
  - Rising and lateral Mains (RLM) and LV Services associated with RLM,
  - Batteries at ground mounted HV substations, 33kV substations, 66kV substations, and 132kV substations,
  - Pilot wire overhead, and pilot wire underground,
  - Cable tunnels (DNO owned), and cable bridges (DNO owned),
  - Electrical energy storage.
- 7.78 In RIIO-ED1, these costs were excluded from MEAV and our totex benchmarking because there was concern over the robustness and quality of data associated with these assets and the consistency with which this information was reported across DNOs.
- 7.79 At Draft Determinations we proposed to include all categories listed above in the calculation of MEAV for RIIO-ED2. It was our view that DNOs have had sufficient time since the start of RIIO-ED1 to improve the robustness and quality of the data they report against these asset categories, and the

same inconsistencies that we observed when setting RIIO-ED1 should no longer exist.

## Demand drivers

- 7.80 At Draft Determinations, totex Model 2 included a demand driver that reflected the average gross capacity released across each price control period from conventional and innovative reinforcement interventions. The input data for the variable is the total activity volumes (MVA) reported in CV1 and CV2 for capacity constraints affecting substations, substation groups, pole-mounted transformers, and ground-mounted transformers. The annual average was then calculated for each price control period.
- 7.81 In totex Model 3, we included a composite variable measuring LCT uptake, alongside the top-down CSV. The composite LCT uptake variable comprised the cumulative number of HP additions and cumulative size of EV charger additions for each DNO region, as HPs and EVs are expected to contribute to future electricity demand, and therefore reinforcement requirements on DNOs' networks.
- 7.82 We proposed to use the size of EV chargers (rather than the number of chargers or the number of EVs) as we considered:
  - It is the number of chargers which dictates the number of EVs that can be plugged in at a given time; and
  - the size of chargers captures the effect of both the number of chargers and the average size per charger.
- 7.83 We also proposed to combine the size of EV chargers with the number of HPs into a single composite variable, as regression analysis suggested the presence of multicollinearity between these two LCT cost drivers.<sup>120</sup>
- 7.84 We opted for equal weighting between the size of EV chargers and the number of HPs due to a lack of clear evidence for whether EVs or HPs could be expected to have a larger impact on DNOs' networks, and thus which cost driver should deserve a larger weighting.

## Time trends

- 7.85 For our Draft Determinations, we used a mixture of historical and forecast cost data to estimate the totex regression models.
- 7.86 For Model 1 and Model 2, we used six years of historical cost data (2016-2021) and seven years of forecast data (2022-2028) for estimating our cost models for RIIO-ED2. We included two time-trends in Model 1 and Model 2 to account for unobserved time effects. We considered a single

<sup>&</sup>lt;sup>120</sup> Multicollinearity refers to the phenomenon where explanatory variables can each be linearly predicted from the other(s) with a substantial degree of accuracy. Multicollinearity causes problem in regression analysis by making it difficult to isolate the individual impact of explanatory variables (in this case, LCT variables) on the dependent variable (in this case, totex), leading to increased uncertainty surrounding the coefficient estimates of the variables concerned (ie higher standard errors).

time trend not suitable as Ongoing Efficiency (OE) and RPEs are embedded in the historical data, but not in the forecast data. The two time trends also captured other potential exogenous factors such as changes in service quality.

7.87 For Model 3, we only used forecast data (2022-2028). We did not consider it appropriate to use historical data for the composite LCT variable due to the availability or robustness of EV and HP data. Additionally, we decided that when including LCT additions in the regression, using only forecast data would be more appropriate given the forecast level of growth in these technologies during RIIO-ED2 as set out in DNOs' Business Plans. In this model we did not use a time trend as ongoing efficiency and RPEs are not embedded in the forecast costs.

#### Final Determination summary

7.88 Table 20 below provides a summary of the key features and the changes that we have made to our three totex benchmarking models since Draft Determinations.

Modelling choices	Model 1	Model 2	Model 3	
Final Determinations				
Regression estimation method	Pooled OLS Cobb-Douglas	Pooled OLS Cobb-Douglas	Pooled OLS Cobb-Douglas	
Cost drivers used in CSV	MEAV; customer numbers; faults driver; peak demand; capacity released; length OHL; total network length; and spans affected ONI driver	MEAV (49%) Network length (24%) Customer numbers (10%) Total faults (9%) Peak demand (8%)	MEAV (49%) Network length (24%) Customer numbers (10%) Total faults (9%) Peak demand (8%)	
Activity/demand drivers	-	Capacity released	Cumulative number of HPs Cumulative number of EVs	
Sample period	2016-2028	2016-2028	2022-2028	
Time trend specification	RIIO-ED2 dummy variable	RIIO-ED2 dummy variable	-	
Draft Determinations				
Regression estimation method	Same as FD	Same as FD	Same as FD	

Table 20: Final Determinations summary on totex benchmarking model specifications

## **Decision** – RIIO-ED2 Final Determinations Core Methodology Document

Cost drivers used in CSV	Same as FD except Total Faults and Total ONIs were used instead of Faults driver and ONIs driver and for Tree Cutting, Spans Affected rather than Spans Cut	MEAV (73%) Customer numbers (11%) Total faults (9%) Peak demand (7%)	MEAV (73%) Customer numbers (11%) Total faults (9%) Peak demand (7%)
Activity/demand drivers	Same as FD	Same as FD	Same as FD except Cumulative size of EV chargers (MW) was used instead of number of EVs
Sample period	Same as FD	Same as FD	Same as FD
Time trend specification	Whole period time trend Forecast time trend	Whole period time trend Forecast time trend	Same as FD

Model 1 – Bottom-up CSV

- 7.89 For Final Determinations, we have decided to change the following cost drivers within the bottom-up CSV in Model 1:
  - Tree Cutting: changed from Spans Cut to Spans Affected.<sup>121</sup>
  - Faults: changed from Total Faults to an alternative faults driver, which is explained further in the Disaggregated Benchmarking section of this chapter.
  - ONIs: changed from Total ONIs to an alternative ONIs driver, which is explained further in the Disaggregated Benchmarking section of this chapter.

## Model 2 and 3 – Top-down CSV

7.90 For Final Determinations, we have decided to amend the top-down CSV to also include network length as a cost driver, with a 49% weight on MEAV, 24% weight on network length, 10% weight on customer numbers, 9% weight on total faults and 8% weight on peak demand.

MEAV

<sup>&</sup>lt;sup>121</sup> The driver for Tree Cutting was intended to be Spans Affected at Draft Determinations. Spans Cut were used in error.

- 7.91 As explained above, we have reduced the weight of MEAV in the top-down CSV to 49% due to the inclusion of total network length (see paragraph 7.110).
- 7.92 We have also excluded the following asset categories from MEAV:
  - Protection:
    - Batteries at ground mounted HV substations, 33kV substations, 66kV substations, and 132kV substations.
    - Pilot wire overhead, and pilot wire underground.
  - Subsea Cable:
    - HV, EHV, & 132kV subsea cable.
- 7.93 Unless stated otherwise our modelling uses the version of MEAV specified above.

#### Demand Drivers

- 7.94 We have retained the capacity released variable in our specification for totex model 2. The only modifications are the error corrections described in the next section (see 7.122).
- 7.95 On totex model 3, we have decided to amend the composite LCT uptake variable so that:
  - It uses the cumulative number of EVs (instead of the size of EV chargers) as a cost driver, alongside the cumulative number of HPs.
  - It uses the average of the cumulative number of EV additions and the average of the cumulative number of HP additions over each price control, rather than annually varying figures.
- 7.96 It applies equal weights on the cumulative number of EV additions and the cumulative number of HP additions within the CSV.

#### Time Trends

- 7.97 We have decided to maintain our Draft Determinations position with respect to time periods used in the totex models. We have used six years of historical cost data (2016-2021) and seven years of forecast data (2022-2028) for Model 1 and Model 2. We have changed the specification of the time trends to use an ED2 'dummy variable' which takes a value of 1 during the RIIO-ED2 period, and 0 otherwise instead of two linear time trends.
- 7.98 We have not changed our approach with respect to time periods and trends for Model 3.

#### Final Determination rationale and Draft Determination responses

- 7.99 There were eight respondents to our Draft Determinations position.
- 7.100 The majority of DNOs supported our approach on totex benchmarking, and the role it plays in our cost assessment.

#### Model 1 – Bottom-up CSV

- 7.101 ENWL expressed concern that some of the cost drivers in the bottom-up CSV were endogenous (in particular capacity released, total faults and total ONIs) and that this could lead to perverse incentives and biased and inconsistent parameter estimates.
- 7.102 NPg said that the inclusion of capacity released and peak demand in the bottom-up CSV was not effective at capturing differences in planning scenarios between DNOs. This was because these variables reflect other factors in addition to differences in planning scenarios. It also noted that the variables cannot have an independent impact on estimated costs under Model 1 because they only enter the model within the CSV (rather than as separate variables).
- 7.103 In line with our Draft Determinations, we sought to make the allocation of cost drivers to each cost area for the bottom-up CSV consistent with the cost drivers used in our disaggregated benchmarking, even if some of these cost drivers might be considered to be more endogenous (such as faults and ONIs). As we have changed the cost drivers used in our disaggregated models for Tree Cutting and Faults & ONIs since Draft Determinations, we have also made the same amendments in the bottom-up CSV, to maintain the underlying specification of the CSV as described above.
- 7.104 We recognise that capacity released and peak demand may not perfectly capture the differences in planning scenarios between DNOs, however given limitations in the available data, we considered it appropriate to include them within our modelling. There are a range of cost drivers which capture load growth (including capacity released, peak demand, LCT uptake, units distributed, etc) but no single driver can be said to fully capture the complexities of a DNO's planning scenario.
- 7.105 Our response to these limitations at Draft Determinations was to develop three different totex models, which use a range of approaches to capture variation in DNOs' planning scenarios:
  - Model 1 uses capacity released within the bottom-up CSV to capture the difference in DNOs' workload scenario in load related expenditure.
  - Model 2 also uses capacity released, but as a separate cost driver.
  - Model 3 uses LCT uptake as an external measure of the differences in DNOs' planning scenarios.

#### Model 2 and 3 - Top-down CSV

- 7.106 Several responses to the consultation expressed concern with the cost drivers and associated weights used in the construction of the top-down CSV.
- 7.107 NGED suggested that a lower weight should be assigned to MEAV in the top-down CSV as it does not consider it an appropriate measure of DNO scale. In particular, it noted that underground cables have a higher weight

in MEAV than overhead lines (due to their higher replacement cost), but that this higher weight does not reflect the higher totex associated with overhead lines (ie from inspection, maintenance and tree cutting), nor the fact that overhead lines need replacing more frequently than underground cables. It reasoned that, on an annualised basis, replacement costs for overhead lines are more similar to underground cables than implied by MEAV. To address this issue, NGED suggested that a higher weight be attached to alternative scale variables in the CSV, such as network length or customer numbers. It suggested that a 48% weight be allocated to network length within the CSV.

- 7.108 ENWL expressed concern about the inclusion of faults within the top-down CSV. It noted that it has little explanatory power (as most DNOs are forecasting flat fault volumes) and has a perverse effect of 'rewarding' DNOs that forecast rising volumes.
- 7.109 NPg suggested that peak demand should not be included in the top-down CSV as it is subject to measurement error and is therefore not a reliable variable.
- 7.110 We acknowledge the point made that the drivers used in the top-down CSV at Draft Determinations, including MEAV, may not capture the relative impact on totex of overhead lines versus underground cables. To address this point, we have chosen to include network length as an additional driver in the top-down CSV. We have decided not to adopt the approach proposed by some DNOs to adjust the unit costs used in MEAV to reflect the ongoing costs associated with overhead lines relative to underground cables. This would have represented a departure from the purpose of MEAV as a measure of the replacement cost, and thus a proxy for the size and complexity of the network.
- 7.111 We have chosen to apply a 24.1% weight on network length. This results in the weight on MEAV reducing to 49%. To determine the weight placed on network length, we have considered the following:
  - The weights proposed by DNOs in their Draft Determinations responses and subsequent meetings.
  - A mapping of cost drivers to high-level cost areas, following the approach used for Draft Determinations.
- 7.112 NGED proposed two alternative top-down CSVs with a weight on network length of 48.2% (and 25% weight on MEAV), and 60.3% weight on network length (and zero weight on MEAV) respectively. We considered both of these options, but decided it would not be appropriate to replace MEAV with network length as the main scale-based cost driver in the topdown CSV. We consider that MEAV is an important explanatory variable of DNO totex. It also performs well in econometric models and there is broad support from the industry for its use in econometric models. Compared to network length, we consider MEAV captures more comprehensively the impacts of relative network complexity and asset composition on DNOs' costs. When we tested a top-down CSV with 48.2% weight on network

length, which would assign greater weight to network length than MEAV in the top-down CSV, we observed significant shifts in DNOs' efficiency scores.

- 7.113 For the mapping of cost drivers, we considered assigning network length to cost areas where we expect most of the costs to be driven by activities related to overhead lines (eg overhead line clearance, tree cutting, diversions, refurbishment, inspections, and repair and maintenance). We considered that, for other cost areas, MEAV remained the most appropriate cost driver from the perspective of the top-down CSV. This approach of assigning one single cost driver to each cost area produced a weight on network length of around 13%. We considered that this approach ran the risk of underestimating the impact of network length on costs because it did not capture the portion of costs related to overhead lines in other cost areas such as Closely Associated Indirects and asset replacement. When assigning network length as a cost driver to a portion of these costs (with MEAV the cost driver for the remaining portion), we found that the overall weight on network length increased to up to 25%.
- 7.114 Overall, we have decided that a weight of 24.1%, representing the average between the zero weight assigned to network length at Draft Determinations, and the 48.2% weight proposed by one DNO provided the most appropriate balance based on our testing and high-level mapping of cost drivers to cost areas.
- 7.115 We agree that faults are an endogenous cost driver to an extent in that they are somewhat under DNOs' control. However, we note that the number of faults is the most operationally intuitive driver for fault-related costs, and can also provide useful information on the level of activity and external environment in which DNOs operate. Furthermore, given the relatively low weight applied to the number of faults in the top-down CSV, we consider that any perverse incentive effects are small. We have used faults as a cost driver in previous price controls, including RIIO-ED1, as well as in our disaggregated benchmarking, so we do not consider it inconsistent to do so here.
- 7.116 We disagree with the view that peak demand is not a reliable measure and that it should be removed from our modelling. We consider peak demand to be an important driver of costs, and we note that the reporting of this data is subject to the same data assurance as all the other information that we collect through the annual reporting and the DNOs' BPDTs.

#### MEAV

7.117 Four DNOs raised concerns with the treatment of MEAV as a cost driver within our totex models. NGED argued that a lower weight should be assigned to MEAV in the CSV as it is not an appropriate measure of DNO scale. Most DNOs raised the view that it is inconsistent to exclude RLM assets from costs but not MEAV. Some DNOs argued that the MEAV data was not comparable between DNOs as it has not been prepared on a consistent basis.

- 7.118 NPg highlighted what they believed to be an inconsistency with the application of the SPMW company-specific factor given that there was no associated reduction applied to MEAV. It argued that the inclusion of pilot wires raises SPMW's MEAV further relative to other DNOs. NGED argued that both Protection and Civil Works assets should be removed from MEAV due to high variation between companies and low confidence in data.
- 7.119 Despite the continued exclusion of the RLM cost activity from our totex benchmarking, we maintain it is correct to include the RLM asset categories in the MEAV cost driver to capture the impact of associated indirect costs. Other activities such as Operational IT&T, Closely Associated Indirects, and Business Support Costs that may contain associated RLM costs are not only included in our totex benchmarking. However, some of these activity areas also use MEAV as a cost driver in our disaggregated modelling. It is therefore important that MEAV, as a key cost driver, reflects the fact that not all costs associated with RLMs have been explicitly excluded from our cost assessment. Furthermore, the removal of LV services associated with RLM from MEAV would have a significant and disproportionate impact on the consistency of our totex benchmarking.
- 7.120 We have excluded the protection asset class in full (substation batteries and pilot wire) in response to concerns over data quality and robustness, and to ensure consistency with the cost reduction obtained by SPMW as a result of its company-specific factor.
- 7.121 We have retained our Draft Determination position of applying a company-specific factor for SSEH to account for the costs associated with operating and maintaining its subsea cable fleet. As such we consider it correct to exclude subsea cables from MEAV to ensure consistency of the totex benchmarking.

#### Demand Drivers

- 7.122 NPg highlighted that its capacity released volumes for CV1 and CV2 were not reported on a consistent basis with other DNOs, in that they had reported net instead of gross capacity released. SSEN highlighted an error in their CV2 capacity released data where their disposal volumes had been reported instead of the gross additions. As discussed in our section on Disaggregated Benchmarking, both of these errors have been corrected for Final Determinations.
- 7.123 NPg argued that the capacity released variable was only a partial reflection of their reinforcement activities. They stressed that circuit upgrades, an important driver of their reinforcement costs, should be included alongside transformer/substation capacity released. NPg proposed that values of 0.301 MVA per LV intervention and 3.38 MVA per HV intervention to consistently size the capacity released from circuit reinforcement for all DNOs. We have considered this proposal in detail and

tested its inclusion in totex Models 1 and 2. We also sought feedback from the other DNOs on this topic through discussion at several CAWGs.

- 7.124 We observe that NPg's proposal does marginally improve the R-squared<sup>122</sup> of totex Model 2. We also agree in principle that incorporating a reliable measure of circuit capacity released would contribute to improved data coverage and model quality, and we encourage further development of this proposal for RIIO-ED3 and beyond. However, for RIIO-ED2 we have not implemented this proposal for the following reasons:
  - NPg's proposal was based on its own view of the most common and cost-efficient intervention types – LV split circuits which release 0.301 MVA and HV Feeder overlay which release 3.38 MVA. Despite requesting additional information, we received no alternative mix of planned circuit intervention types and associated capacity released values from other DNOs. Instead, most DNOs argued that capacity released through circuit reinforcement was very difficult to accurately estimate and that this issue had already been debated and subsequently dropped at previous LRE working groups.
  - It was also highlighted by other DNOs that much of the capacity released through circuits is already captured in the capacity released volumes of the upstream substation reinforcement. As such, including estimated capacity released for circuit reinforcement in the variable would almost certainly lead to double counting. NPg provided evidence that suggested roughly 20% of their proposed circuit capacity released was likely already captured through the associated transformer reinforcement. However, other DNOs argued that the overlap was far higher than this, and that it would be challenging to accurately estimate it.
  - Finally, we have several concerns around data quality and inconsistency. The approach proposed by NPg requires the use of circuit interventions as opposed to the total km added (as used in the secondary reinforcement disaggregated model). Following consultation with DNOs, it appears that the number of circuit interventions is not reported consistently across the DNOs, with UKPN for example reporting interventions and km reinforced on a 1:1 basis in RIIO-ED2.
- 7.125 The consultation responses regarding the specification of Model 3 primarily related to our proposal to use the size of EV chargers (rather than the number of EV chargers or number of EVs) and the equal weighting between the size of EV chargers and the number of HPs within the composite LCT uptake variable.

<sup>&</sup>lt;sup>122</sup> R-squared is a key statistical measure that represents the explanatory power of a model, reflecting the proportion of the variation in costs that is predictable from the drivers in the model.

- 7.126 NGED and UKPN both argued that the number of EVs is a more suitable cost driver than the size of EV chargers, because:
  - Demand/loading on the network is fundamentally driven by the number of EVs. For example, if the number of EVs increases for a fixed number of chargers, demand on the network would increase as the chargers would be utilised more intensively. In contrast, if the number of chargers increases for a fixed number of EVs, there is no additional demand on the network.
  - The number of EVs is completely exogenous and beyond management control, whereas DNOs have at least some control over how many chargers are installed.
  - Using the number of EVs instead of the size of EV chargers in the model results in improved statistical performance.
- 7.127 Regarding the relative weights on EV chargers versus HPs within the composite LCT uptake variable, NGED set out that more weight should be placed on HPs than EV chargers, as the weights should be linked to the degree to which HPs and EVs drive costs, which, in turn, should be reflected by their contribution to peak demand. NGED provided analysis to support its view that HPs have a relatively larger impact on peak demand compared to EVs, which they said would support a weight of 30% for EV chargers and 70% for HPs.
- 7.128 SSEN took the opposite view and argued that greater weight should be placed on EVs. It said that EVs place greater demand on the network at an LV level and suggested that the relative weight placed on EVs versus HPs should be based on the relative volumes of EVs and HPs in each year.
- 7.129 We consider that the consultation responses provide sensible and logical reasons to consider using the number of EVs in Model 3 instead of the number or size of EV chargers. We acknowledge and agree with the arguments that the number of EVs is a more exogenous and fundamental cost driver than the number or size of EV chargers, so for Final Determinations we have decided to use the cumulative number of HP additions and the cumulative number of EV additions as the LCT drivers within Model 3.<sup>123</sup>
- 7.130 We decided to combine these two drivers into a composite LCT uptake variable in a similar fashion to Draft Determinations, due to multicollinearity between the two drivers. Regarding the choice of weights for the number of HPs and number of EVs within the composite variable, we make the following observations:
  - Using a composite LCT uptake variable necessarily involves imposing an assumption on the relative size of the elasticities of totex with

<sup>&</sup>lt;sup>123</sup> For the rest of this section, we refer to the cumulative number of HP additions and the cumulative number of EV additions as the number of HPs and number of EVs, for brevity.

respect to the drivers included in the composite variable.<sup>124</sup> The use of equal weights in the composite LCT uptake variable for Draft Determinations imposed the restriction that the elasticities of totex with respect to the number of HPs and to the size of EV chargers were equal.

- Using the algebraic definition of elasticities, it can be shown that the true relative size of the elasticities of totex with respect to any two drivers can be expressed in terms of (a) the relative marginal costs of the drivers, and (b) the relative volumes of the drivers.<sup>125</sup> Therefore, the appropriate weights to use within the composite variable need to be informed by both the relative marginal costs and the relative volumes of HPs and EVs.
- 7.131 We do not have direct information available on the relative marginal costs of HPs versus EVs. However, as noted in the responses above, the relative impact of HPs and EVs on peak demand could act as a proxy for relative marginal costs. We have assessed the evidence provided by DNOs on this point, including the values provided for the impact of an EV or a HP on peak demand, and the methodological approach used to derive these values. Overall, we consider that the most well-justified evidence suggests that the impact of a HP on peak demand is approximately twice that of an EV. In other words, the ratio between the impact of a HP and an EV on peak demand is approximately two.
- 7.132 As noted above, the appropriate weights need to be informed by both relative marginal costs and relative volumes of HPs and EVs. We have calculated the average relative volumes of HPs and EVs across DNOs over 2022 to 2028 are approximately 0.47.<sup>126</sup> Combining this figure with the ratio of the impact of HPs and EVs on peak demand (as a proxy for the relative marginal costs) implies that the ratio between the elasticity of totex with respect to HPs and the elasticity of totex with respect to EVs should be approximately 1.05.<sup>127</sup> This in turn implies relative weights of 51% and 49% between the number of HPs and number of EVs should be used within the composite variable. For simplicity we have applied equal weights within the composite variable.
- 7.133 In addition to the analysis set out above, we consider that an equal weighting approach, as we used at Draft Determinations, is appropriate in

<sup>&</sup>lt;sup>124</sup> Consider the regression  $\ln(totex) = a + b * LCT driver$  where  $LCT driver = (0.5 * \ln(EVs)) + (0.5 * \ln(HPs))$ . Substituting for the definition of the LCT driver in the regression shows that the specification forces the estimated elasticity on EVs and HPs to be equal to 0.5 \* b. <sup>125</sup> The elasticity of totex with respect to a driver *X* can be expressed in terms of the marginal cost of X (given by  $MC_X = \frac{\partial Totex}{\partial X}$ ), the volume of driver *X*, and totex itself:  $\varepsilon_X = MC_X \cdot \frac{X}{Totex}$ . Therefore, the ratio of two elasticities can be expressed as  $\frac{\varepsilon_X}{\varepsilon_Y} = \frac{MC_X}{MC_Y} \cdot \frac{X}{Y}$ . <sup>126</sup> Note the data used to calculate this ratio matches the EV and HP data used in the regression (ie the cumulative number of EV and HP additions from 2022 onwards). <sup>127</sup>  $\frac{\varepsilon_{HPs}}{\varepsilon_{EVs}} = \frac{MC_{HPs}}{MC_{EVs}} \cdot \frac{HPs}{EVs} = 2 * 0.5 = 1$ , so  $\varepsilon_{HPs} = \varepsilon_{EVs}$ .

the round, given that the evidence on the impact of EVs and HPs is still being developed as more of these technologies are added on the network, and the fact that there is currently no consensus among DNOs regarding whether more weight should be placed on HPs or EVs.

- 7.134 Having determined that the composite LCT uptake variable should comprise the number of HPs and number of EVs with equal weights, we then assessed the statistical robustness of the model. We found that the model failed the Chow test<sup>128</sup> for a structural break between the RIIO-ED1 and RIIO-ED2 periods included in the model sample. To address this issue, we adjusted the specification to use the average number of HPs and average number of EVs over each price control period (in a similar fashion to Model 2).<sup>129</sup>
- 7.135 We consider that this 'average' approach fits better with our prior expectations of how uptake of LCTs will impact DNO activities and expenditure. We would not necessarily expect expenditure in a given year to be directly linked to the number of LCT additions in that year. Instead, we consider it more likely that expenditure is linked to the broader expected increase in demand from LCTs over the entire RIIO-ED2 period, as DNOs take an anticipatory (rather than reactionary) approach to investment and network reinforcement.

## Time trends

- 7.136 Some responses to our Draft Determinations noted that Model 1 and Model 2 fail the Chow test for structural break between the RIIO-ED1 and RIIO-ED2 periods and suggested that this be addressed by replacing the two time trends with a RIIO-ED2 dummy variable. The responses noted that doing so results in a better statistical fit of the model.
- 7.137 We considered the inclusion of a RIIO-ED2 dummy variable prior to our Draft Determinations. However, while this improved the statistical performance of the model, we had some concerns regarding the regulatory implications of including a RIIO-ED2 dummy:
  - We considered that the two time trend specification was more consistent with our prior expectations for why we wanted to control for time effects within our totex models, as ongoing efficiency and RPEs are embedded in the historical BPDT data, but not the forecast data.
  - Including a dummy variable for the RIIO-ED2 period improved model performance in terms of R-squared and efficiency scores, but effectively resulted in an upward step-change in modelled totex for

<sup>&</sup>lt;sup>128</sup> The Chow test is a key statistical test that tests whether there is a structural break in some or all of the parameters of a model.

<sup>&</sup>lt;sup>129</sup> For the years 2022 and 2023, the composite LCT uptake variable is calculated using the average number of EVs and HPs in forecast for 2022 and 2023. For the RIIO-ED2 period (2024-2028), the composite LCT uptake variable is calculated using the average number of EVs and HPs over 2024-2028.

RIIO-ED2 relative to RIIO-ED1. The economic and regulatory justification for allowing this might be questioned as it essentially accepts the premise that RIIO-ED2 is different and a change for the electricity distribution sector from business-as-usual, when ideally this conclusion would be derived as an outcome from our modelling.

- 7.138 We have revisited this issue for Final Determinations, and have concluded that using a RIIO-ED2 dummy is more appropriate than two time trends, for the following reasons:
  - The increase in allowances from adopting a RIIO-ED2 dummy instead of two time trends is relatively immaterial.
  - The change in price control period and the transition to net zero are good reasons to have "prior expectations" of a step change in the modelled relationships between totex and drivers from the beginning of RIIO-ED2.
  - Using a RIIO-ED2 dummy improves the statistical robustness of our modelling suite, with both totex Models 1 and 2 now passing the Chow test and the adjusted R-squared measure improving relative to our models at Draft Determinations.
- 7.139 We did not receive any responses regarding the chosen sample period for Model 3.

## **Econometric model results**

- 7.140 The statistical performance and robustness of all three of our totex benchmarking models has improved since Draft Determinations. For example, the adjusted R-squared for our three totex models are now 0.88, 0.88 and 0.86 for Model 1, 2 and 3 respectively, compared to our Draft Determinations specifications, where the adjusted R-squared was 0.86, 0.84 and 0.80.
- 7.141 At Draft Determinations, we reported that totex Model 2 failed the RESET test. All models (Faults and ONIs, CAI and Core BS) of the regression analysis at the disaggregated level also failed the RESET test at Draft Determinations. However, we still considered that these models made a valuable contribution to the overall assessment of allowances. We stated that the RESET test is not a critical measure for complex regression models and in the context of other statistical measures of model performance, is not a reason in its own right to question the robustness of the modelling outcomes from an academic perspective.
- 7.142 UKPN noted in their response to Draft Determinations that we had incorrectly applied the Ramsey RESET test. We have acknowledged this and have corrected for it in our Final Determinations.
- 7.143 Several DNOs criticised our assessment and interpretation of the RESET test at Draft Determinations. NGED argued that we contradicted ourself by first emphasising the importance of the RESET test, but then arguing that the test is not critical when defending the inclusion of totex Model 2. UKPN

argued that the failure of the RESET test should be taken as a signal that important factors are missing.

- 7.144 We recognise the importance of the RESET test, and consider that:
  - Failure of the RESET test should not be ignored or dismissed as it is an indication of potential misspecification and could suggest missing non-linear explanatory variables in the model. The issue can be addressed by testing trans log functions that include square terms of the variables and interaction terms.
  - We had explored including a squared term of capacity released or CSV in totex Model 2. This allows the returns to scale to vary with firm size. However, the results show that both variables are not statistically significant, suggesting that a translog function was not an appropriate solution for the model failing the RESET test in this case.
  - If alternative specifications using non-linear terms in the model do not yield satisfactory results, then we consider that the failure of the RESET test on its own is not necessarily a valid justification to dismiss a model. This is particularly the case if it is considered that the model offers useful information from an economic or engineering perspective for cost assessment purposes.
- 7.145 We note that, after correcting the RESET test to control for cluster-robust standard errors, totex Model 2, as specified at Draft Determinations, passed the RESET test, suggesting no evidence of a functional form misspecification. This was also true for the Core Business Support disaggregated model specification used at Draft Determinations.
- 7.146 The changes we made to our totex and disaggregated regression models for Final Determinations, including the application of an ED2 dummy variable, mean that all our regression models pass the RESET test.
- 7.147 For more detail on our regression model estimation results please refer to Appendix 1.

## **Disaggregated benchmarking**

#### **Overview**

- 7.148 At Draft Determinations, activity-level assessment or disaggregated benchmarking was an essential tool in our cost assessment toolkit, and this remains the case for Final Determinations. In this section we provide detail on our disaggregated benchmarking, and the decisions we have made on the assessment of each cost activity or area. We have structured this section as follows:
  - A. LRE
  - B. Non-Load Related Expenditure (NLRE)
  - C. Non-Operational Capex
  - D. High Value Projects

- E. Network Operating Costs (NOCs)
- F. Closely Associated Indirects and Business Support Costs
- G. Streetworks
- H. Non-controllable costs
- 7.149 A key component of our activity-level assessment was the engineering review of DNOs' submitted EJPs. The purpose of the EJPs was to provide justifications for load related and non-load related investments and act as a tool to support decision making. Each of the 676 EJPs that were submitted were reviewed and where necessary cross referenced against other supporting documents. Our review of DNOs' EJPs, and associated supporting information, was one of several assessment tools that contributed to our overall activity-level assessment of the DNOs' business plan submissions.
- 7.150 Our engineering assessment at Draft Determinations provided a view on each EJP, which was aggregated across three broad outcomes:
  - Justified The needs case, optioneering and preferred solution was judged to be proportionate and deliverable.
  - Partially Justified The evidence presented only justifies a portion, but not all, of the proposed investment. Areas of concern may also be present in optioneering, proportionality and deliverability.
  - Unjustified There was insufficient evidence to suggest the proposal has a valid needs case. There was likely to be significant concerns around optioneering, the preferred solution, proportionality or deliverability.
- 7.151 Overall, the response to Draft Determinations suggests the use of EJPs to inform our assessment was supported. NGED and ENWL noted that the application of the RIIO-ED2 Engineering Justification Paper Guidance resulted in some inconsistency across DNOs in submitting EJPs. Specifically, there were common areas of activity or investment in which only some DNOs submitted EJPs. NGED argued that in these instances it would be unfair to penalise the DNOs who had submitted the EJP for the purposes of transparency, even if it was deemed Unjustified, and not penalise the DNOs who did not submit an EJP.
- 7.152 In response to our Draft Determinations, DNOs have provided significant additional supporting information to substantiate their EJPs where they deemed necessary. In light of this additional information, we were satisfied that there was scope to expand on the outcomes of our EJP assessment. In particular, where appropriate we have made a distinction between outcomes applied to Partially Justified papers where the DNO demonstrated that the proposed intervention is significantly in the interests of consumers if delivered as planned, as opposed to Partially Justified papers where evidence in this respect was limited.

- 7.153 As such, for Final Determinations we have included further clarification to our Partially Justified assessments. For example, in some instances we have concluded a limited investment confidence in optioneering, proportionality and deliverability where the evidence presented only justifies a portion, but not all of the proposed investment. In such instances we have assessed proposed volumes against RIIO-ED1 run rates or have introduced additional controls such as PCDs. In other instances, we have concluded that the benefits of the proposed investment by the licensee are in the interests of consumers, but we maintain that there is a risk in relation to the overall investment justification. In these instances, we have decided to accept the volumes submitted by the DNO.
- 7.154 For EJPs that we have concluded have deliverability risks, we intend to impose additional reporting requirements, where appropriate, in relation to these specific investments to monitor performance and delivery. We will engage with DNOs to ensure that this additional information is captured through the RIGs and RRPs. We continue to recognise the value to consumers, in giving DNOs sufficient flexibility to innovate, manage their assets appropriately and deliver their outputs. That said, where there is a sufficient risk to deliverability of proposed works it is in the interests of consumers that the DNOs are required to report on these specific investments over the operation of RIIO-ED2. We will review and seek justification from DNOs on material deviations from what they have been funded for, ensuring that they have been economic and efficient in the delivery of their outputs to the benefit of consumers, both in the short and long term.
- 7.155 In the following sections we provide more detail on how the engineering review has fed into our disaggregated modelling. For the review outcomes for specific EJPs, refer to the Company Annexes.

# A. Load Related Expenditure

- 7.156 LRE refers to the investment required to ensure the network has sufficient capacity to accommodate the load on it.
- 7.157 Below is a summary of the key features and the changes that we have made to our activity-level assessment of LRE since Draft Determinations.

Cost area	Final Determination	Draft Determination
Primary reinforcement	Substation reinforcement: industry median unit cost benchmark. Volume adjustment: 75% Capacity added industry median ratio benchmark, 25% EJP adjustment. ENWL cost discounts have been incorporated into the modelling.	Substation reinforcement: industry median unit cost benchmark. Volume adjustment: Capacity added industry median ratio benchmark.
Secondary reinforcement	Transformers: RIIO-ED2 industry median unit cost benchmark, volumes benchmarked to industry	Transformers: Industry median unit cost benchmark and
Cost area	Final Determination	Draft Determination
---------------	--	---
	average ratio of proposed net MVA capacity released relative to LCT demand growth. LCT demand growth calibrated to FES 2022 System Transformation view of LCT uptake. Separate adjustments for PMT and GMT reinforcement.	combined PMT + GMT volumes adjusted in line with industry average ratio of proposed gross MVA capacity released relative to the forecast size in MW of LCT additions.
	Circuits: RIIO-ED2 industry median unit cost benchmark, volumes benchmarked to industry average ratio of proposed km added relative to LCT demand growth. LCT demand growth calibrated to FES 2022 System Transformation view of LCT uptake. Separate adjustments for LV OHL, LV UG, HV OHL, and HV UG circuits.	Circuits: Industry median unit cost benchmark and combined LV + HV volumes adjusted in line with industry average ratio of proposed km added relative to the forecast number of LCT additions.
	LV service reinforcement (proactive and reactive): industry median unit cost benchmark by asset type using RIIO-ED1 data. Reactive volumes benchmarked against industry median ratio of property interventions to forecast EV uptake, with EV uptake calibrated to FES 2022 System Transformation view of EV uptake; Proactive volumes benchmarked against industry upper quartile ratio of forecast properties unlooped to looped property population. ENWL cost discounts have been	Proactive service reinforcement: Expert view of unit costs, volumes benchmarked against industry average ratio of LV service interventions to forecasted EV charger and HP additions. Reactive service reinforcement was included in the Connections modelling.
Fault level	incorporated into the modelling. Industry median unit cost by	Industry median unit
reinforcement	voltage and individual asset type, using RIIO-ED1 and RIIO-ED2 data weighted 50%; MEAV benchmarking using RIIO-ED1 and RIIO-ED2 data weighted 50%. ENWL cost discounts have been incorporated into the modelling.	cost by voltage individual asset type, using RIIO-ED1 and RIIO-ED2 data.
Connections	Industry median unit cost per connections activity voltage and connection type using RIIO-ED1 and RIIO-ED2 data and using the	Same as FD, except for treatment of two outlier categories.

Cost area	Final Determination	Draft Determination
	number of Meter Point Administration Numbers (MPANs) connected as the cost driver.	Reactive service reinforcement was included in the Connections modelling.
	For two categories, DNO's were given their RIIO-ED2 industry median unit cost.	
New Transmission Capacity Charges (NTCC)	Qualitative assessment.	Same as FD

## **Primary Reinforcement**

## <u>Background</u>

- 7.158 Primary reinforcement covers reinforcement activity undertaken to resolve capacity constraints on the Primary Network (33kV and above).
- 7.159 At Draft Determinations, we proposed a unit cost adjustment for DNOs that is calculated as the average percentage adjustment of the difference between:
  - DNO and industry median unit cost (£k/MVA) for all substation reinforcement costs (including N-1, N-2 reinforcement and flexibility) for the RIIO-ED2 period; and
  - DNO and industry median ratio of forecast cost per MVA of firm capacity added and historical cost per MVA of firm capacity added (Primary Network MEAV/total substation firm capacity).
- 7.160 We proposed to benchmark DNO ratios of forecast capacity added relative to the forecast increase in maximum demand above substation firm capacity and apply a volume adjustment to DNOs with a ratio higher than the industry upper quartile ratio.
- 7.161 We proposed to accept costs for Other Reinforcement Activities as submitted.

## Final Determination summary

- 7.162 We have decided to retain the Draft Determinations approach with the following updates:
  - ENWL's negative cost adjustments in the Other Reinforcement Activities category are now assessed in line with the benchmarked primary reinforcement costs; and
  - the volume adjustment to DNOs is calculated as a combination of the forecast capacity ratio benchmarking used at Draft Determinations and an EJP review adjustment that is based on an assessed proportion of unjustified expenditure. A 75% weighting is given to the

capacity added adjustment and 25% weighting given to the EJP review adjustment.

- 7.163 UKPN broadly agreed with the assessment approach and capacity added adjustment. NGED noted some limitations in the proposed approach and generally agreed with the capacity added adjustment but proposed that the adjustment should use total load growth to account for reinforcement required in RIIO-ED2 to address growth above capacity occurring in later years. NPg similarly considered the volume adjustment to penalise reinforcement for demand above capacity occurring late- or post-RIIO-ED2. SSEN agreed with the capacity added volume adjustment but noted it should be consistent with strategic investment.
- 7.164 NPg disagreed with a number of aspects of the unit cost adjustment. ENWL and SSEN disagreed with using £/MVA for the unit cost adjustment. SSEN did not see it as accounting for network length or existing capacity and propose using £/MVA/km or DNO £/MVA unit costs instead.
- 7.165 ENWL, NPg and SPEN disagreed with the assessment approach for not considering the bespoke nature of primary reinforcement works. SPEN and NPg strongly supported using the EJPs to assess costs and both ENWL and NGED highlighted the lack of direct impact of the primary reinforcement EJP assessments.
- 7.166 ENWL also proposed that their cost discounts should be adjusted in line with the unit cost modelling. As with other LRE cost areas, the RIIO-ED2 CG generally agreed with the assessment approach. BEAMA suggested higher volumes may be required based on their modelling.
- 7.167 Given DNOs feedback, we have considered options to incorporate EJP assessment into our view of modelled costs. We consider Primary Reinforcement to be a cost area where there is value in incorporating an EJP based qualitative assessment, given the high value, atypical and bespoke nature of the individual projects and schemes.
- 7.168 We have decided to incorporate an EJP review adjustment into the cost modelling by calculating the proportion of submitted EJP costs that the Engineering review assesses to be unjustified (assuming 25% for partially justified EJPs) and weighting this by the proportion of each DNOs' total primary reinforcement costs that have EJPs.
- 7.169 However, we consider more weight should be given to the capacity added adjustment as it provides comparative benchmarking of DNOs' workload efficiency, whereas the EJP adjustment is based on standalone EJP assessments.
- 7.170 We tested using a £k/MVA per km metric to address the concerns raised by SSEN that the unit cost benchmark for all substation reinforcement and flex procurement did not reflect the challenges encountered by SSEH due to network length. We divided the £k/MVA unit costs for all circuit constraint reinforcement by the total length of circuit being reinforced

(total km added from CV1 asset register). We found that this significantly increased the range of unit costs and their coefficient of variance. We also observed that for this sub-category, SSEH  $\pounds$ k/MVA unit cost did not appear to be the only outlier. Consequently, we decided not to proceed with this approach as it did not improve the benchmarking.

- 7.171 We have reviewed ENWL's cost discounts for flex and smart solutions and overlap with customer driven EHV Reinforcement. We have decided that including ENWL's negative cost adjustment for flex and smart solutions in the total substation reinforcement costs (covering N-1, N-2 reinforcement and flexibility) subject to unit cost benchmarking gives a fuller view of ENWL's expected substation reinforcement expenditure. ENWL's negative cost adjustment for overlap with customer driven EHV Reinforcement has been modelled to vary in line with the overall modelling adjustments made to their primary reinforcement forecasts.
- 7.172 Table 21 shows our view of modelled costs compared to DNOs' submitted costs. The fourteen DNOs have collectively forecast £835m. Our modelled view of costs is £721m, a reduction of £115m.

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference to submitted	Difference
	£m	£m	£m	£m	%
ENWL	41	16	39	-3	-7%
NPgN	22	18	14	-8	-36%
NPgY	43	36	34	-9	-21%
WMID	64	55	58	-6	-10%
EMID	55	47	48	-7	-13%
SWALES	59	49	52	-7	-12%
SWEST	75	60	64	-11	-15%
LPN	126	75	116	-9	-8%
SPN	25	22	22	-3	-11%
EPN	64	55	58	-6	-10%
SPD	56	49	44	-12	-21%
SPMW	51	44	44	-6	-13%
SSEH	41	32	32	-9	-22%
SSES	114	90	96	-18	-16%
Total	835	649	721	-115	-14%

Table 21: Primary Reinforcement modelled costs (£m, 2020/21 prices)<sup>130</sup>

<sup>&</sup>lt;sup>130</sup> Since Draft Determinations ENWL's Harker project has been reallocated from HVP into Primary Reinforcement and LPN's new EJP for West London has been submitted. The DD modelled costs shown are as published at Draft Determinations, before these changes.

### **Secondary Reinforcement**

### **Background**

- 7.173 Secondary reinforcement is work carried out on the secondary network (HV and LV) to enable new load growth.
- 7.174 At Draft Determinations, we proposed using a disaggregated unit cost assessment with benchmarked volumes for transformer, circuit, and proactive service reinforcement.
- 7.175 Unit costs were disaggregated by asset category (pole and ground mounted transformers; LV Service (UG), LV Service (OHL), and Metered Cut outs for proactive service reinforcement) or voltage (HV and LV circuits). We used the industry median for RIIO-ED2 for transformers and circuits and our expert view of unit costs for proactive service reinforcement.
- 7.176 We benchmarked volumes to LCT additions:
  - For transformer reinforcement we used the industry average ratio of proposed MVA capacity released relative to the forecast size in MW of LCT additions.
  - For circuit reinforcement we used the industry average ratio of proposed km added relative to the forecast number of LCT additions.
  - For proactive service reinforcement we used the industry average ratio of LV Service interventions relative to the forecast number of EV charger and HP additions. DNOs' volumes are adjusted if above the industry average ratio.
  - We proposed to use separate technical assessment for flexibility services and other reinforcement activities.

### Final Determination summary

- 7.177 We have decided to largely maintain the overall modelling approach from Draft Determinations. We have used a disaggregated unit cost assessment and performed ratio benchmarking of volumes via comparative analysis of DNOs reinforcement requirements against forecast LCT driven demand growth.
- 7.178 We consider LCTs to be the most suitable cost driver for this activity. We are satisfied the proposed disaggregated assessment method is the most appropriate for setting a consistent range of ex ante expenditure across industry that aligns with the intentions of the volume driver funding package in this area.
- 7.179 However, we have made several changes to elements of the model. This includes modifications to various parameters and calculations as well as the level of disaggregation used in certain sub-categories. We have reallocated reactive service reinforcement costs and volumes from the Connections category into Secondary Reinforcement to assess together with proactive service reinforcement.

- 7.180 We have used the RIIO-ED2 industry median unit costs for transformers, circuits, and LV Service reinforcement. Unit costs are disaggregated by asset category (and voltage where applicable):
  - Transformers (£k/gross MVA): pole and ground mounted,
  - Circuit (£k/km): LV OHL, LV UG, HV OHL, and HV UG,
  - LV Services (£k/each): LV Service (OHL), LV Service (UG), cut-out (metered), and fuse upgrades.
- 7.181 We have benchmarked reinforcement volumes to forecast LCT demand growth (EVs and HPs):
  - For transformer reinforcement we used the industry median ratio of DNO net capacity released (MVA) relative to the DNO forecast LCT demand growth (MW). The industry median ratio was applied to the FES 2022 System Transformation view of LCT uptake to calculate adjusted transformer reinforcement volumes. To estimate LCT demand growth, we used values for the contribution to peak demand of 1.3 kW per EV and 2.9 kW per HP respectively. To determine a separate adjustment for Pole Mounted Transformer (PMT) and Ground Mounted Transformer (GMT) reinforcement, LCT growth was split by the approximate share of customers served by PMTs and GMTs.
  - For circuit reinforcement we used the industry median ratio of DNO circuit added (km) relative to the DNO forecast LCT demand growth (MW). The industry median ratio was applied to the FES 2022 System Transformation view of LCT uptake to calculate adjusted circuit reinforcement volumes. To determine a separate adjustment for UG & OHL reinforcement, LCT growth was split by the approximate share of customers served by UG and OHL circuits.
  - For reactive service reinforcement we used the industry median ratio of DNO property interventions to the DNO forecast of EV uptake. The industry median ratio was applied to the FES 2022 System Transformation view of EV uptake to calculate adjusted reactive service reinforcement volumes.
  - For proactive service reinforcement we used the upper quartile ratio of DNO forecast properties unlooped relative to the DNOs total population of looped properties. DNOs' volumes were adjusted if above the upper quartile ratio.
- 7.182 We have retained our Draft Determinations approach of using separate technical assessment for flexibility services and other reinforcement activities.
- 7.183 ENWL's negative cost adjustments for flexibility and smart solutions and overlap with customer driven reinforcement have been modelled to vary in line with the overall modelling adjustments made to their secondary reinforcement forecasts.

- 7.184 SPEN and SSEN broadly agreed with the assessment approach set out at Draft Determinations for transformer and circuit reinforcement. While SPEN stated that the proposed modelling approach generalises the highly complex relationship between LCT volumes, demand growth and reinforcement requirements, it accepted that the risk of setting lower ex ante allowances is mitigated by the volume driver. SSEN welcomed the use of LCT volumes in the assessment but highlighted errors in its' LCT volumes and capacity released data. Both were corrected for Final Determinations.
- 7.185 ENWL and NGED agreed that the overall approach of linking the need for reinforcement to drivers based upon LCT growth is reasonable. However, both argued for more disaggregated benchmarking. They both proposed that the circuit unit cost and volume assessment should be split by OHL and UG assets - this view was also shared by NPg and UKPN. NGED suggested that the assessment of transformer reinforcement needs to be separate for PMTs and GMTs, and that the forecast LCT demand growth sized in MW should be compared with net capacity released not the gross capacity released. The argument here being that the additional load created by LCTs requires extra capacity - it is this extra capacity which is important, not the size of the equipment providing the extra capacity.
- 7.186 NPg partially disagreed with the approach and argued that it was overly simplistic. It argued that the relationship between secondary network demand growth and reinforcement expenditure is complex and consists of many factors - not just LCT growth. DNOs' differing assumptions on customer behaviour in using LCTs, peak loading impacts and network conditions (present network utilisation, asset ratings, network topology) are important and have not been considered. It also suggested that consideration needs to be given to the further use of qualitative adjustments from submitted EJP evidence. Regarding transformer reinforcement, NPg highlighted that its capacity released volumes were not reported on a consistent basis with other DNOs - it had reported net instead of gross capacity released. It also argued that generation LCTs should be removed from the calculations as these do not drive thermal reinforcement of transformers. UKPN also shared this view that only demand side LCTs, ie EVs and HPs, should be used in the volume adjustments for transformer and circuit reinforcement. NPg also proposed that the average benchmarks used for all the volume adjustments be replaced with weighted averages. UKPN argued that the industry median should be used as this was more reflective of the DNO average and did not allow for outliers to affect the outcome.
- 7.187 Regarding circuit reinforcement, NPg stressed that the relationship between reinforcement and LCTs is not one of circuit length, but of capacity released. Capacity released for HV circuits is ten times more than LV and thus using only circuit length does not capture this important distinction. NPg proposed values of 0.301 MVA per LV intervention and

3.38 MVA per HV intervention be used to consistently size the capacity released from circuit reinforcement for all DNOs (our response to this proposal is detailed in paragraph 7.124).

- 7.188 UKPN proposed several changes to the modelling approach. It argued that within the LCT calculations, forecasts of EVs should be used instead of EV chargers. It stated that EVs present a more consistent and exogenous dataset and that the loading on the network is fundamentally driven by the number of EVs, not by the number (or installed capacity) of chargers. This is a view shared by NGED who argued that if the number of EVs increases for a fixed number of chargers, the demand on the network would increase as the chargers will be utilised more with less room for diversification. UKPN also proposed the use of industry-based assumptions for the contribution to peak demand of a single EV or HP to estimate forecast LCT demand growth in MW. It asserted that the Draft Determinations methodology of using DNO assumptions of the installed capacity of a charger or HP does not sufficiently penalise unrealistic reinforcement volumes.
- 7.189 UKPN argued that the ratchet applied to volume adjustments disadvantages DNOs that have submitted efficient reinforcement volumes. It proposed that the volume adjustments be made symmetrical as is the case with unit cost adjustments.
- 7.190 UKPN disagreed with the use of DNO forecasts of LCTs. It argued that it was not at all likely that their share of LCTs in GB would fall to the level suggested by the combined DNO forecasts used at Draft Determinations. They proposed that a demand adjustment akin to that derived on totex Model 3 at Draft Determinations, be applied within modelling for the Secondary Reinforcement disaggregated assessment. This would adjust reinforcement volumes to match a FES System Transformation view of LCT uptake, with the regionalised future share of LCTs amongst DNOs in 2028 calibrated to match the current DNO share of LCTs as of 2021.
- 7.191 Four DNOs disagreed with the use of expert view unit costs for proactive service reinforcement to set ex ante allowances and the LV Services Volume Driver. At Draft Determinations, expert view unit costs determined in the Asset Replacement model were used for this activity for the relevant asset types of LV Service (OHL), LV Service (UG), and cutouts. ENWL suggested that more detailed unit costs needed to be derived while NGED and SSEN argued that the latest data should be used to set RIIO-ED2 industry median unit costs. SPEN proposed that the unit costs should be under review for the entirety of RIIO-ED2 and updated to remain cost reflective. SPEN presented evidence that, under current market conditions, their unlooping costs had increased by an average of 33% compared with their RIIO-ED2 Business Plan submission.
- 7.192 An energy industry body argued that modelling performed by the Energy Systems Catapult suggests higher secondary reinforcement volumes than those proposed by Ofgem. On the other hand, the RIIO-ED2 CG agreed that our approach was an appropriate way to determine costs and

volumes, but voiced concerns that the large increase above RIIO-ED1 spend for some companies was still disproportionate given the considerable uncertainty in this activity area.

- 7.193 For transformer reinforcement, we have decided to retain the use of gross capacity released for the calculation of £k/MVA unit costs. We are satisfied that gross MVA is the more cost reflective and suitable measure for this purpose. However, in the context of the volume adjustment, we agree with NGED that it is more appropriate to compare capacity released on a net basis with demand growth. We have therefore calculated the volume adjustment using net MVA for all DNOs, noting that there were some inconsistencies highlighted with the gross MVA data used at Draft Determinations NPg reported capacity released on a net basis, while SSEN had reported disposal volumes. This has been corrected to ensure that, whether gross or net capacity released is used, the volumes are on a consistent basis for all DNOs.
- 7.194 We have decided to change our approach to estimating LCT demand growth for Final Determinations. At Draft Determinations we used the DNO's forecast volumes and installed capacity of EV chargers and HPs, as reported in M20 and extended data submissions. We consider that the consultation responses provide sensible reasons to consider using the number of EVs instead of EV chargers. We agree with the arguments that the number of EVs is a more exogenous and fundamental cost driver.
- 7.195 We also agree that to benchmark LRE submissions fairly, when estimating demand growth, it is logical to apply consistent values for the assumed LCT contribution to peak demand instead of using the installed capacity. Several DNOs submitted evidence to support values proposed for the peak demand contributions.
  - UKPN stressed the need to consider diversity and the impact at different voltage levels. The impact of clustering and diversity is highly dependent on the number of EVs as well as availability of offstreet charge points. For the distribution level they presented an example that showed that the peak load impact of each EV is roughly 1.2 kW after diversity. Meanwhile at the primary network level, UKPN explained that with the combination of temporal and locational diversity, the average peak load contribution is much lower at 0.7 kW. Once the impact of smart charging is added, this takes the average down to 0.6 kW. For a HP UKPN suggested a peak load contribution of 0.8 kW at the network level.
  - NGED suggested higher values at the distribution level. It argued that EVs have a much smaller impact on peak demand on a per installation basis, despite HPs having a smaller installed capacity. This is due to diversity across HPs being less pronounced. NGED suggested EVs have a peak of 1.3kW while HPs have a peak of 2.9kW.
  - NPg argued that the relative impact of EVs and HPs is closer to 50:50. For a typical diverse case on the LV network, EVs have a peak

contribution of 1.25 kW and HPs have a peak of 1.22 kW. For a less diverse case, the impact of HPs may increase to 1.4 kW.

- Analysing data from the ESO's FES 2022, it suggests EVs do have a smaller impact, with average demand contributions of roughly 0.3 kW per EV and 0.6 kW per HP. These of course represent the impact at the transmission level. As ENWL have highlighted to us, it is important to consider higher values that reflect the impact at the HV/LV voltage levels, as well as those that are relevant for the primary network, GSP and transmission levels.
- Understandably there is uncertainty surrounding this topic and having considered the proposals in detail, it is difficult to ascertain how comparable the information is, given the various studies and trials cited and the different After Diversity Maximum Demand (ADMD) assumptions concerning different populations of LCTs and customers.
- What we consider to be important in the benchmarking process is the use of consistent values for all DNOs, and the relative impact of an EV versus a HP. It seems sensible that the LCT demand contribution at the distribution level should be higher than at the primary network level due to less diversity. There does appear to be some agreement suggesting values of 1.2 1.3 kW per EV for the impact at the distribution voltages. We therefore have decided to use 1.3 kW per EV for the secondary network. There is also some consensus between DNOs that HPs have a great impact on peak demand, so we have decided to use the larger value of 2.9 kW proposed by NGED. Whilst not relevant here, for the impact at the primary network we have decided to proceed with the values of 0.6 kW per EV and 0.8 kW per HP, proposed by UKPN (see section on post-modelling demand driven adjustment).
- 7.196 We agree with the proposal from several DNOs that the volume adjustment be calculated separately for PMTs and GMTs. We have therefore assigned a percentage of the LCT growth to each transformer type using the approximate share of customers served by PMT and GMTs. This was calculated using the number of PMTs and GMTs reported across the DNOs network at the start of RIIO-ED2, and the average gross capacity released per transformer. This was then used to estimate the % of total distribution transformer capacity that can be attributed to PMTs and GMTs for each DNO.
- 7.197 For circuit reinforcement, our analysis showed that unit costs were more consistent when split into UG and OHL asset categories, with a significant difference in the industry median unit costs between the two. We therefore accepted the proposal from four DNOs and have implemented a separate unit cost and volumes assessment for the four circuit reinforcement categories outlined above. To apply separate volume adjustments, we have split the forecast LCT demand growth by the percentage share of customers served by UG and OHL assets. For HV, this was calculated by summing the number of customers served by each

circuit type as recorded in the 2021 QoS HV Disaggregation Reporting Packs. For LV circuits we used the respective totals of UG and OHL LV Services from the 2021 asset register.

- 7.198 For LV Services, reactive and proactive costs were combined to derive a common set of RIIO-ED2 industry median unit costs for each asset category. The comparability of LV Service (OHL and UG) volumes and unit costs between DNOs proved difficult. The ratio of LV service interventions assumed relative to the number of properties unlooped differs between DNOs - some DNOs add one LV Service for every two properties unlooped (1:2) while others replace the existing cable and add another (1:1). To ensure the ratio of asset interventions to properties unlooped are on a consistent basis for all DNOs (ie 1:1) so that £/LV Service unit costs are comparable, we doubled the LV Service volumes reported by ENWL and NGED.<sup>131</sup> We used the adjusted volumes for the purpose of establishing the industry unit cost and calculating modelled costs. Assuming a typical unlooping involves the addition of 1 new LV Service (UG) and 1 cut out per property, the industry median unit costs suggest roughly £1,900 per property. Under the LV Services Volume Driver, these can be reviewed from October 2024 (or earlier if necessary) and updated if appropriate to reflect changing market conditions.
- 7.199 For reactive service reinforcement volumes, we linked all property interventions (unlooping and other constraints) to LCT uptake. We consider this to be the primary cost driver for the activity and ensures consistency with other areas of the secondary reinforcement disaggregated assessment. Given that using both EV and HP volumes could lead to double counting of properties requiring a service upgrade, we used only the forecast uptake of EVs (the larger of the two) in this benchmarking.
- 7.200 One further change from Draft Determinations relates to the application of the demand driven adjustment. For transformer, circuit, and reactive service reinforcement we have decided to implement an adjustment within the disaggregated model. During benchmarking, the modelled allowances for these categories are calibrated to a FES 2022 System Transformation view of LCT uptake. We consider this application correctly targets the demand adjustment at the most relevant LRE activities. We consider this approach sets a consistent level ex ante allowances across the DNOs and is aligned with the principles and metrics of the volume driver funding package. It also ensures consistency with the modified demand driven adjustment applied separately to the three totex models (refer to the section on the post-modelling demand driven adjustment).
- 7.201 In contrast to reactive service reinforcement work which will largely be funded through the volume driver and should be able to be minimised

 $<sup>^{131}</sup>$  This effectively means LV Service (OHL) and LV Service (UG) unit costs are equivalent to  $\pounds$  per property unlooped for all DNOs, once this adjustment has been applied.

given the provision of volume driver funding for proactive work, we consider it reasonable to set a higher level of industry efficiency for proactive unlooping. We do not consider it needs to be tied quite so closely to LCT uptake and we therefore consider instead the specific needs case for each DNO when benchmarking volumes. This is done by assessing the proposed unlooping intervention rate relative to the DNO's total population of looped properties. DNOs are benchmarked to the industry upper quartile intervention rate of 4.7%.

7.202 Table 22 shows our view of modelled costs compared to DNOs' submitted costs. The fourteen DNOs have collectively forecast £1,596m. Our modelled view of costs is £1,095m, a reduction of £501m.

DNO	RIIO-ED2 submitted	DD modelled	RIIO-ED2 modelled	Difference to submitted	Difference
	£m	£m	£m	£m	%
ENWL	140	192	120	-21	-15%
NPgN	145	87	82	-63	-43%
NPgY	305	206	164	-141	-46%
WMID	127	98	85	-43	-33%
EMID	109	83	79	-30	-28%
SWALES	72	58	46	-26	-36%
SWEST	87	63	55	-33	-37%
LPN	51	38	39	-12	-23%
SPN	93	74	80	-13	-14%
EPN	144	112	122	-22	-15%
SPD	132	114	88	-44	-33%
SPMW	88	76	55	-34	-38%
SSEH	31	12	22	-10	-31%
SSES	71	40	58	-13	-18%
Total	1,596	1,253	1,095	-501	-31%

Table 22: Secondary Reinforcement modelled costs (£m, 2020/21 prices)

# **Fault Level Reinforcement**

## **Background**

7.203 Fault Level reinforcement covers work carried out on the existing network where the primary objective is to alleviate fault level issues associated with switchgear or other equipment.

<sup>&</sup>lt;sup>132</sup> Since Draft Determinations reactive service reinforcement reported in Connections has been reallocated into Secondary Reinforcement for all DNOs. The reallocation of costs in M13 for ENWL has also been removed. The DD modelled costs shown are as published at Draft Determinations, before these changes.

- 7.204 At Draft Determinations we proposed to calculate an industry median unit cost by voltage and by individual asset type, using RIIO-ED1 and RIIO-ED2 data, and take the higher of the two unit cost-modelled approaches for each DNO. We proposed to exclude ENWL from this unit cost benchmarking and use their individual multi-year RIIO-ED1 and RIIO-ED2 unit cost for each category.
- 7.205 We proposed to accept the volumes as submitted by each DNO but apply qualitative adjustments to SSES for outlier volumes in RIIO-ED2 that we view as unjustified.

### Final Determination summary

- 7.206 We have decided to update the Fault Level Reinforcement approach to a combined unit cost modelling and MEAV benchmarking approach.
- 7.207 We retain the Draft Determinations approach for the unit cost modelling but with an update to ENWL's unit costs to incorporate its flexibility and smart solutions cost discounts in their unit cost modelling by voltage. As a result, we only model ENWL by voltage rather than taking a 'higher of' for the unit cost modelling. We apply a 50% weighting to the unit cost modelling for all DNOs.
- 7.208 For Final Determinations we also model costs using MEAV benchmarking, with a 50% weighting. We have determined that the most relevant subsets of MEAV to use for the benchmarking are:
  - HV Network MEAV excluding Subsea cable. We benchmark DNOs' HV reinforcement costs to this in the modelling.
  - Primary Network MEAV excluding Subsea cable. We benchmark DNOs' EHV and 132kV reinforcement costs to this in the modelling.
- 7.209 We assess costs using an industry median benchmark ratio for each subset based on RIIO-ED1 and RIIO-ED2 data.
- 7.210 Our updated EJP review no longer finds the two excluded projects at Draft Determinations to be unjustified, and the cost and volumes exclusions for these has been removed.

- 7.211 NGED, NPg and SPEN proposed that fault level reinforcement should be solely or primarily assessed using EJP assessments. NPg alternatively proposed further disaggregating primary and secondary network interventions and having DNOs resubmit data due potential volumes reporting differences they raised.
- 7.212 ENWL, SSEN and UKPN partly agreed with the proposed assessment approach. ENWL disagreed with the use of RIIO-ED1 data; UKPN disagreed with the adjustments to ENWL; and SSEN proposed that year 1 costs should be funded ex ante and the scope of the secondary reinforcement volume driver expanded to cover fault level reinforcement. For our decisions on LRE funding structure, see Chapter 3.

- 7.213 Having reviewed the fault level reinforcement unit cost analysis, we find that the data issues identified by DNOs would not explain all of the larger unit cost variances. We decided that a data request would likely only marginally improve the comparability of the unit cost benchmarking given the existing adjustments and exclusions and that a better approach would be to test an alternative modelling approach that wouldn't be impacted by any volumes reporting differences.
- 7.214 We consider MEAV to be a relevant cost driver for fault level reinforcement as we see network scale and complexity as impacting the amount of reinforcement that would be required over time. We assessed DNOs' volumes by asset class to determine which sub-sets of MEAV may be most relevant for fault level reinforcement. As also noted by NPg, we consider it appropriate to assess primary and secondary network fault level reinforcement separately given changes in the balance of costs and volumes between these for DNOs between RIOO-ED1 and RIIO-ED2. In the unit cost modelling this is captured through our use of benchmarking by voltage. We have similarly applied the MEAV benchmarking to primary and secondary network sub-sets.
- 7.215 From our volumes by asset class analysis we found a range of commonly reported asset classes at both HV, EHV and 132kV. As such we concluded that appropriate MEAV sub-sets to use would be HV MEAV excluding Subsea cable and Primary Network MEAV excluding Subsea cable.
- 7.216 We maintain our Draft Determinations position that both RIIO-ED1 and RIIO-ED2 data is reasonable to use for fault level reinforcement. We have not received sufficient evidence demonstrating a structural change between RIIO-ED1 and RIIO-ED1 that warrants use of RIIO-ED2 data only or is not accounted for by our disaggregated modelling approach.
- 7.217 ENWL have proposed that their cost discounts reported in other reinforcement across the LRE categories should be varied in line with modelling. Upon further review of ENWL's cost discounts for flex and smart solutions we consider it appropriate to include the cost discounts with the fault level reinforcement costs subject to benchmarking, to give a fuller view of ENWL's expected reinforcement expenditure. As the cost discounts are reported by voltage and not by individual asset category we cannot apply these adjustments to the asset category unit cost benchmarking. As a result, we only use the by voltage assessment for ENWL's unit cost modelled component.
- 7.218 Table 23 shows our view of modelled costs compared to DNOs' submitted costs. The fourteen DNOs have collectively forecast  $\pounds$ 251m. Our modelled view of costs is  $\pounds$ 190m, a reduction of  $\pounds$ 62m.

DNO	RIIO-ED2 submitted	DD modelled	RIIO-ED2 modelled	Difference to submitted	Difference
	£m	£m	£m	£m	%
ENWL	32	26	26	-6	-19%
NPgN	37	30	19	-17	-47%
NPgY	22	19	14	-8	-36%
WMID	10	8	9	-1	-11%
EMID	36	30	22	-14	-39%
SWALES	3	2	4	2	66%
SWEST	11	8	7	-3	-31%
LPN	1	1	4	3	301%
SPN	12	11	9	-4	-29%
EPN	5	5	10	4	77%
SPD	14	12	12	-2	-15%
SPMW	17	15	18	1	5%
SSEH	0	0	2	2	1820%
SSES	52	41	34	-18	-34%
Total	251	207	190	-62	-25%

Table 23: Fault Level Reinforcement modelled costs (£m, 2020/21 prices)

# Connections

## **Background**

- 7.219 Connections refers to the provision of new or upgraded network points of connection which can be metered or unmetered connections with the end customer. It includes reinforcement costs associated with the connections work.
- 7.220 At Draft Determinations, we proposed using an industry median unit cost per connections activity voltage and connection type using RIIO-ED1 and RIIO-ED2 data and using the number of MPANs connected as the cost driver. We proposed to accept the MPAN volumes as submitted by each DNO.

## Final Determination summary

- 7.221 We have decided to retain the Draft Determinations approach with the following updates:
  - We apply DNO RIIO-ED2 unit costs instead of an industry median unit cost for two categories Single Service LV connections, and LV end connections involving HV work.

## Final Determination rationale and Draft Determination responses

7.222 SPEN and SSEN both highlighted errors in their submitted MPANs volumes at Draft Determinations. These have been corrected for Final Determinations.

- 7.223 SSEN agreed with the proposed assessment approach for Connections, while UKPN partially disagreed. Four DNOs disagreed with the proposed assessment approach – particularly citing the level of disaggregation and the use of MPANs to define unit costs. Two DNOs suggest that the assessment should be based on the number of projects not MPANs.
- 7.224 We accept that there is high variability in unit costs particularly within some connections categories. However, this issue is present regardless of whether MPANs or number of projects is used as the cost driver. Furthermore, aggregating connections categories into groups based on voltage or whether they are demand or generation type, only exacerbates this issue.
- 7.225 We did explore different approaches for modelling connections following Draft Determinations. This included testing regression models with customer numbers, connections contribution to MEAV, and distributed generation volumes amongst the cost driver options trialled. However, the highest R-squared achieved was less than 0.7, and hence the results suffered from the same problems as the disaggregated unit cost approach with big swings in modelled costs.
- 7.226 We instead opted to use DNO unit costs to deal with two of the more troublesome categories - Single Service LV connections and LV end connections involving HV work. This has addressed some of the prior concerns with the modelled costs, and we consider our updated approach for Final Determinations to be reasonable.
- 7.227 Table 24 shows our view of modelled costs compared to DNOs' submitted costs. The fourteen DNOs have collectively forecast  $\pounds$ 609m. Our modelled view of costs is  $\pounds$ 555m, a reduction of  $\pounds$ 54m.

DNO	RIIO-ED2 submitted	DD modelled	RIIO-ED2 modelled	Difference to submitted	Difference
	£m	£m	£m	£m	%
ENWL	20	18	22	2	9%
NPgN	26	45	25	-1	-4%
NPgY	33	62	30	-3	-11%
WMID	34	36	32	-2	-5%
EMID	112	101	97	-15	-14%
SWALES	24	23	17	-7	-30%
SWEST	37	31	27	-9	-26%
LPN	42	47	38	-4	-8%

Table 24: Connections modelled costs (£m, 2020/21 prices)

<sup>&</sup>lt;sup>133</sup> Since Draft Determinations reactive service reinforcement reported in Connections has been reallocated into Secondary Reinforcement for all DNOs. The DD modelled costs shown are as published at Draft Determinations, before these changes.

DNO	RIIO-ED2 submitted	DD modelled	RIIO-ED2 modelled	Difference to submitted	Difference
SPN	21	28	24	3	15%
EPN	50	57	44	-6	-12%
SPD	35	30	27	-8	-22%
SPMW	18	15	18	0	1%
SSEH	31	37	36	5	18%
SSES	127	117	118	-9	-7%
Total	609	646	555	-54	-9%

# New Transmission Capacity Charges (NTCC)

## **Background**

- 7.228 Transmission Connection Point (TCP) charges are the charges payable for projects initiated by the DNO for increased capacity at existing transmission connection points or for new transmission connection points but carried out by transmission licensees. NTCC are TCP charges that are specifically related to a licensee requirement for new or reinforced TCPs that are energised after 1 April 2023.
- 7.229 At Draft Determinations we proposed to qualitatively assess NTCC costs for the disaggregated assessment. We proposed to fund NTCC in ex ante allowances.<sup>134</sup>

## Final Determination summary

7.230 We have decided to retain our Draft Determinations proposed assessment and funding approach for NTCC. We continue to view qualitative assessment as the appropriate assessment approach for NTCC. Most respondents were supportive of this approach, and we were not provided with sufficient additional evidence to justify a change in funding approach to pass-through. Moreover, we consider the provision of ex ante allowances for NTCC and a pass-through mechanism for existing TCPs to be consistent with RIIO-ED1.

# Final Determination rationale and Draft Determination responses

7.231 Four DNOs and the RIIO-ED2 CG agreed with the proposed assessment approach for NTCC. SSEN and UKPN disagreed with the proposed ex ante funding approach for NTCC and were of the view that it should be funded as a pass-through instead but did not comment on the assessment approach proposed for NTCC ex ante allowances. UKPN proposed to increase their requested NTCC costs if being funded ex ante based on updated information for their Little Horsted GSP project.

<sup>&</sup>lt;sup>134</sup> In the Draft Determinations document, we incorrectly said that we excluded NTCC from the totex benchmarking. TCP charges were excluded, but NTCC charges were not excluded.

- 7.232 We have decided not to allow UKPN's proposed update to NTCC costs for Little Horsted GSP. The update to UKPN's forecast costs for this project has arisen from updated information received from National Grid after the submission of final business plans. In general, while we have allowed updates to costs for error corrections and reporting consistency, we have not accepted proposals to update forecasted costs post-business plan submission (except where the submission met the criteria for new EJPs or where we requested a data update). UKPN's proposal for Little Horsted GSP did not meet this criteria.
- 7.233 Table 25 shows our view of modelled costs compared to DNOs' submitted costs. The fourteen DNOs have collectively forecast £85m. Our modelled view of costs is £78m, a reduction of £7m.

DNO	RIIO-ED2 submitte d	DD modelled	RIIO-ED2 modelled	Difference to submitted	Difference
	£m	£m	£m	£m	%
ENWL	-	-	-	0	0%
NPgN	4	3	4	0	-10%
NPgY	-	-	-	0	0%
WMID	3	2	3	0	-11%
EMID	6	5	6	-1	-8%
SWALES	5	4	4	-1	-11%
SWEST	4	3	3	-1	-17%
LPN	5	4	5	0	-4%
SPN	12	11	12	0	-4%
EPN	1	1	1	0	-8%
SPD	21	18	19	-2	-8%
SPMW	2	1	1	0	-12%
SSEH	22	17	20	-2	-9%
SSES	2	1	1	0	-14%
Total	85	71	78	-7	-8%

Table 25: NTCC modelled costs (£m, 2020/21 prices)

## **B. Non-Load Related Expenditure (NLRE)**

7.234 Table 26 provides a summary of the key features and the changes that we have made to our activity-level assessment of NLRE since Draft Determinations.

Table 26: Final Determinations summary for NLRE

Cost Area	Final Determination	Draft Determination
Asset	Industry median benchmark	RIIO-ED1 expert view
Replacement	across RIIO-ED1 and RIIO-ED2	unit cost used within

Cost Area	Final Determination	Draft Determination
	used predominately for unit cost assessment. Volume assessment utilises submitted, run-rate and qualitative review.	the unit cost assessment. Volume assessment also included survivor modelling.
Refurbishment	Industry median benchmark across RIIO-ED1 and RIIO-ED2 used predominately for unit cost assessment. Volumes accepted.	RIIo-ED1 expert view unit cost used within the unit cost assessment. Volume assessment carried out.
Civil Works - Asset Replacement Driven	Industry median benchmark using the ratio of total asset replacement driven civil works to total asset replacement expenditure and RIIO-ED1 and RIIO-ED2 data.	Same as FD
Civil Works - Condition Driven	Industry median benchmark per asset class using the ratio of annual average condition driven civil works volumes to their associated Total Asset Register asset volumes and RIIO-ED1 and RIIO-ED2 data.	Same as FD
Diversions	Industry median unit cost benchmark per diversion activity category and voltage using RIIO- ED2 data.	Same as FD
Rail Diversions	N/A	N/A
Operational, Non-Operational and Business Support Information Technologies and Telecommunicati ons (IT&T)	Industry median benchmark ratio using a subset of MEAV as a cost driver based on RIIO-ED2 data. Installation of monitoring equipment assessed separately using an industry median unit cost approach.	Industry median benchmark ratio using MEAV as a cost driver and RIIO-ED1 and RIIO-ED2 data.
Legal and Safety	Ratio benchmarking, using MEAV as the cost driver and an industry median benchmark ratio based on RIIO-ED1 and RIIO-ED2 data. Other costs assessed qualitatively.	Same as FD
Overhead Line Clearance	Industry median unit cost based on RIIO-ED1 and RIIO-ED2 data, complemented by engineering review to determine volume adjustments.	Same as FD

Cost Area	Final Determination	Draft Determination
Electricity System Restoration	Qualitative assessment, accepted costs as submitted.	Same as FD
QoS and NoSR	Disallowed all QoS costs. Accepted SSEN's remote generation capex expenditure as submitted.	Disallowed all QoS costs.
Physical Security	Qualitative assessment, accepted costs as submitted, with PCD for SSEN control rooms.	Same as FD, but no PCD for SSEN control rooms.
Flood Mitigation	Industry median unit cost based on RIIO-ED1 and RIIO-ED2 data, complemented by an engineering review to determine volume adjustments.	Same as FD
Rising and Lateral Mains	Accepted submitted costs and volumes.	DNOs' median unit cost based on RIIO- ED1 and RIIO-ED2 data, complemented by engineering review.
WSC	Ex ante UIOLI allowance set based on submitted costs.	Same as FD
Losses	Transformer replacement: RIIO- ED2 expert asset replacement industry median unit cost for the relevant asset type with engineering review to determine volume adjustments. Other costs: accepted in full	Same as FD
Environmental Reporting excluding PCBs	Either industry median or DNO own median unit cost benchmark depending on the cost category, based on RIIO-ED1 and RIIO-ED2 data. Some costs accepted as submitted or disallowed, following engineering review.	Same as FD
Polychlorinated Biphenyls (PCBs)	Assessed at an individual category level using either CV7 expert unit cost benchmark or industry median unit cost benchmark and RIIO-ED2 data. PMT replacement costs funded at ex ante and subject to a volume driver.	DNO median unit cost benchmark at total cost level using RIIO- ED1 and RIIO-ED2 data. PMT replacement costs subject to a volume driver.

### **Asset Replacement**

### **Background**

- 7.235 Asset replacement is an activity undertaken by DNOs to remove existing assets and install new assets. The primary driver for asset replacement is asset condition, but obsolescence, safety, and environmental factors are also considered.
- 7.236 Approximately 67% of RIIO-ED2 forecast asset replacement spend sits within the NARM. Asset replacement activity that does not sit within NARM is referred to as Non-NARM. Our approach on NARM is set out in Chapter 6.
- 7.237 At Draft Determinations, we applied a toolkit approach to assessing volumes, which consisted of age-based modelling (survivor model), run rate analysis and qualitative review. We used a combination of DNOs submitted view and our own expert view to set unit costs.

### Final Determination summary

7.238 We have decided to update our approach in the way we set unit costs for asset replacement activities at Final Determinations, and we have updated our view of allowed volumes for a significant number of asset categories. This is the product of extensive feedback on our Draft Determination proposals and significant engagement with the DNOs ahead of Final Determinations.

- 7.239 We received eight responses to our Draft Determination position on this. ENWL, SPEN, NGED and the RIIO-ED2 CG broadly agreed with our overall approach and NPg, SSEN and UKPN disagreed with our approach. Of the three DNOs that disagreed with our approach, all have presented concerns regarding cuts to volumes, specifically where we raised issues around deliverability. BEAMA did not agree or disagree with our approach, but noted concerns about potential underfunding of asset replacement activities, due to cuts to submitted unit costs across a range of assets.
- 7.240 ENWL agreed with our overall approach and suggested that we should use NARM risk point analysis as the primary method for assessing the DNOs asset management proposals, arguing that interventions should be considered on a collective basis. SPEN, while in agreement with our use of survivor modelling, suggested that this may not be appropriate for all asset categories. It also suggested that it may be more appropriate for us to use an alternative approach to setting volumes where an EJP has been deemed unjustified, rather than setting volumes to zero. NGED noted that our approach to setting volumes appeared to disregard DNO-specific information where EJP papers were classified as Partially Justified and suggested that the use of the 'lower of' approach at Draft Determinations should be supplemented with additional sense check to ensure workloads are sufficient to address the replacement needs of the network.

- 7.241 NPg disagreed with our approach to setting volumes for Partially Justified workloads, suggesting that the level of justification required around volumes was inconsistent with the generic EJP guidance that was provided. It also suggested that the DNO's workload volumes should align with the submitted NARM outputs, which were accepted by Ofgem. NPg also disagreed with our approach to setting unit costs at Draft Determinations, noting that no consideration was given to the incremental unit costs information provided by DNOs. They suggested that our approach did not give sufficient consideration to the types and sizes of equipment needed to meet net zero.
- 7.242 SSEN disagreed with our approach on the assessment of workloads at Draft Determinations. They suggested our assessment should give a heavier weighting to DNOs that propose to deliver a more efficient plan with respect to expenditure per NARM risk point. SSEN also did not agree with our use of survivor modelling, which they suggested was outdated, did not effectively incorporate information on asset condition, and had been applied inconsistently across asset categories. SSEN suggested that Ofgem had applied the use of the run rate volumes inconsistently for asset categories with Partially Justified EJPs, and disagreed with our proposed workload cuts on the basis of deliverability, arguing the proposed workloads for RIIO-ED2 were often lower than those delivered in RIIO-ED1.
- 7.243 On our approach to unit costs, SSEN agreed with our approach overall, but suggested that it should only be applied where there is no DNOspecific reason which explains the difference between the submitted and assessed unit rates. They argued that subsea cables should be removed from the standard asset replacement modelling and assessed separately.
- 7.244 UKPN disagreed with our approach to assessing workloads at Draft Determinations, noting a perceived disconnect between the EJPs assessment and cost allowances. It noted that volumes were set to zero where there were variances in actual and allowed expenditure in RIIO-ED1, but argued that divergence resulted from updating long-run forecasts and re-planning in response to RIIO-ED1 Final Determinations, rather than due to issues around deliverability.
- 7.245 We have updated our approach to assessing volumes at Final Determinations. We acknowledge the role of NARM as a tool in justifying interventions, and moreover the controls that the NARM framework provides in managing DNOs asset management expenditure and performance. As such we have accepted all submitted volumes for NARM related asset replacement. This is consistent with our decision to accept DNOs submitted Baseline Network Risk Outputs, and ensure alignment between workload that we fund and the outputs that we expect DNOs to deliver, as detailed in Chapter 6.
- 7.246 Acknowledging the strength of feedback to our Draft Determinations, and to ensure our approach is consistent and robust, where the EJP is assessed as Justified or Partially Justified – Accept Submitted Volumes, we

have accepted submitted workloads in full, moving away from the use of the survivor model or run rate assessment. Where the EJP is assessed as Partially Justified, we have accepted the lesser of the submitted volumes or the run rate assessment. As such we have removed the use of the survivor model from our assessment.

- 7.247 We have also decided to update our approach to setting unit cost by removing the role of the RIIO-ED1 expert view and using the industry median of submitted RIIO-ED1 and RIIO-ED2 costs, except for instances where we think there is a justified case for a DNO receiving a higher unit cost based on their incremental costs submission. We think this change simplifies the process and ensures consistency between DNOs and asset types, and is aligned with the recommendations made by DNOs in response to our Draft Determinations.
- 7.248 We have accepted some incremental costs in addition to the assessed unit cost for the replacement of some assets by some DNOs, based on our assessment of the incremental unit cost submissions in M26. Firstly, we assessed whether the incremental unit cost submission materially exceeded (ie by more than 10%) the industry median unit cost. We then assessed whether the total value of the incremental cost was material (ie greater than £0.5m) and whether the total value of the incremental costs was a significant part (ie greater than 5%) of the total costs for the asset type. Finally, we applied a qualitative assessment of whether the incremental costs were clearly explained, evidenced and justified in the DNO's Business Plan. We applied incremental unit costs for 8 DNOs across 14 asset classes. We think this approach ensures that incremental costs are applied in cases where there is a clear and justified difference between the industry average and the DNOs' submission, while maintaining the overall integrity of the unit cost benchmarking approach we have used to assess asset replacement activities.
- 7.249 Table 27 shows our view of modelled costs compared to DNOs' submitted costs. For NARM costs, the fourteen DNOs have collectively forecast £2,548m. Our modelled view of costs is £2,297m, a reduction of £251m. For Non-NARM costs, the fourteen DNOs have collectively forecast £910m. Our modelled view of costs is £824m, a reduction of £86m.

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
	£m	£m	£m	£m	%
ENWL	166	134	153	-12	-7%
NPgN	150	122	133	-17	-11%
NPgY	177	148	151	-26	-15%
WMID	220	180	192	-28	-13%
EMID	220	181	200	-20	-9%
SWALES	129	107	118	-11	-8%

Table 27: Asset Replacement NARM modelled costs (£m, 2020/21 prices)

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
SWEST	234	178	195	-38	-16%
LPN	177	162	169	-8	-5%
SPN	188	169	170	-18	-10%
EPN	252	218	226	-26	-10%
SPD	146	127	135	-11	-7%
SPMW	190	163	191	1	0%
SSEH	108	84	95	-12	-12%
SSES	192	151	167	-25	-13%
Total	2,548	2,124	2,297	-251	-10%

**Decision** – RIIO-ED2 Final Determinations Core Methodology Document

Table 28: Asset Replacement Non-NAR	1 modelled costs (£m, 2020/2	l prices)
-------------------------------------	------------------------------	-----------

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
	£m	£m	£m	£m	%
ENWL	68	55	60	-9	-13%
NPgN	88	72	85	-3	-3%
NPgY	86	72	83	-3	-4%
WMID	92	75	80	-11	-12%
EMID	70	58	64	-6	-9%
SWALES	37	31	35	-2	-6%
SWEST	78	59	67	-11	-14%
LPN	9	9	7	-2	-22%
SPN	13	12	13	-1	-4%
EPN	21	18	20	-1	-7%
SPD	73	63	69	-4	-5%
SPMW	83	71	78	-5	-5%
SSEH	60	47	56	-5	-8%
SSES	131	103	107	-24	-18%
Total	910	744	824	-86	-9%

# Refurbishment

**Background** 

- 7.250 Asset refurbishment is defined as a one-off activity undertaken on an asset that is deemed to be close to end of life or is otherwise not fit for purpose that extends the life of that asset or restores its functionality.
- 7.251 Similar to asset replacement, there is refurbishment activity that sits within NARM and refurbishment activity that does not, referred to as Non-NARM.
- 7.252 At Draft Determinations, we applied a toolkit approach to assessing volumes, which consisted of age-based modelling (survivor model), run

rate analysis and qualitative review. We used a combination of DNOs submitted view and our own expert view to set unit costs.

#### Final Determination summary

7.253 We have decided to change the methodology we use to set unit costs for refurbishment activities at Final Determinations, and we have updated our view of allowed volumes for a significant number of different asset types. This followed extensive feedback on our Draft Determination proposals and significant engagement with the DNOs ahead of Final Determinations.

- 7.254 We received eight responses to this question. SPEN, NGED, the RIIO-ED2 CG and an energy industry body agreed with our approach. UKPN disagreed, whilst NPg and SSEN partly agreed and ENWL neither agreed or disagreed.
- 7.255 NPg disagreed with our approach to unit cost assessment and suggested that we should considered using a more qualitative approach to the unit cost assessment.
- 7.256 SSEN and NGED disagreed with the use of survivor models, on the basis of it being outdated relative to other approaches, applied inconsistently and not applicable to asset refurbishment. SPEN suggested the survivor model may not be applicable in all cases. UKPN suggested asset refurbishment numbers should have been increased to reflect substitution for asset replacement where we disallowed asset replacement volumes at Draft Determinations.
- 7.257 In line with the changes we have made to our assessment of asset replacement expenditure, we have accepted all submitted volumes for NARM related refurbishment. To ensure our approach is consistent and robust where the EJP is assessed as Justified, or Partially Justified – Accept Submitted Volumes, we have accepted submitted workloads in full, changed our default position to allow submitted workloads in full, moving away from the use of the survivor model or run rate assessment. Again, similar to our approach on asset replacement, where the EJP is Partially Justified, we have accepted the lesser of the submitted volumes or the run rate assessment. It should be noted though that following the updated engineering review, all forecast refurbishment workload volumes were deemed as Justified.
- 7.258 In response to the feedback from our Draft Determinations, we have sought to simplify and improve the robustness of our refurbishment unit cost assessment. We have decided to set unit costs based on the industry median of submitted RIIO-ED1 and RIIO-ED2 costs. Moving to the default use of industry median unit costs to set allowances simplifies our approach and ensures consistency between DNOs and asset types. Where the assessed refurbishment unit cost is greater than the assessed asset replacement unit cost. We have set the unit cost equal to the asset

support this decision, in that if the cost of the refurbishment activity exceeds the cost to replace the asset, then the DNO should be replacing the asset.

7.259 Table 29 shows our view of modelled costs compared to DNOs' submitted costs. For NARM costs, the fourteen DNOs have collectively forecast £152m. Our modelled view of costs is £143m, a reduction of £9m. For Non-NARM costs, the fourteen DNOs have collectively forecast £283m. Our modelled view of costs is £263m, a reduction of £20m.

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
	£m	£m	£m	£m	%
ENWL	30	24	25	-5	-17%
NPgN	4	3	5	1	37%
NPgY	9	7	10	1	9%
WMID	9	8	10	0	5%
EMID	9	7	11	2	23%
SWALES	14	12	13	-2	-11%
SWEST	13	10	12	-1	-8%
LPN	2	2	2	0	-16%
SPN	14	13	13	-1	-8%
EPN	10	9	8	-2	-24%
SPD	5	5	5	-1	-10%
SPMW	14	12	17	3	18%
SSEH	1	1	1	0	-3%
SSES	17	13	12	-5	-27%
Total	152	126	143	-9	-6%

Table 29: Refurbishment NARM modelled costs (£m, 2020/21 prices)

Table 30: Refurbishment Non-NARM modelled costs (£m, 2020/21 prices)

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
	£m	£m	£m	£m	%
ENWL	25	20	23	-2	-6%
NPgN	21	17	20	-2	-8%
NPgY	34	29	33	-1	-4%
WMID	37	30	33	-4	-10%
EMID	20	17	20	0	0%
SWALES	16	13	15	-1	-4%
SWEST	21	16	19	-2	-10%
LPN	2	1	2	0	-1%
SPN	2	2	2	0	-4%

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
EPN	2	2	2	0	-6%
SPD	18	16	17	-1	-7%
SPMW	28	24	25	-3	-10%
SSEH	19	14	18	-1	-6%
SSES	38	30	34	-4	-10%
Total	283	231	263	-20	-7%

# **Civil Works - Asset Replacement Driven**

## **Background**

- 7.260 Civil works driven by asset replacement covers civil works undertaken to replace or modify existing civils items primarily required to facilitate, or enable, asset replacement of plant assets. Activity costs are reported by voltage (being the operating voltage of the replacement plant assets with which the work is associated).
- 7.261 At Draft Determinations, we proposed to use ratio benchmarking, using the ratio of total asset replacement driven civil works to total asset replacement costs. We proposed to use an industry median benchmark ratio based on RIIO-ED1 and RIIO-ED2 data.

## Final Determination summary

7.262 We have decided to maintain our Draft Determinations position.

- 7.263 ENWL, UKPN and SSEN agreed with our Draft Determinations approach, with NPg, NGED and SPEN partially agreeing. NGED and SPEN argued that the expenditure used in the model should be related to assets that drive asset replacement driven civil works expenditure ie switchgear, transformers and batteries. NPg suggested that there should still be an element of qualitative cost assessment to take account of justifiable higher civil works costs, or where low-volume high-cost civil works skew the average unit cost.
- 7.264 We maintain benchmarking by the ratio of total condition driven civil works costs to total asset replacement costs remains the most suitable approach. Our benchmarking results do not suggest that a qualitative assessment might be appropriate in this case.
- 7.265 We tested the proposal of only applying the ratio to costs associated with switchgear, transformers and batteries, but did not see a strong argument for changing our approach. There was broad agreement for our Draft Determinations position, and the alternative approach did not have a material effect on modelled costs.
- 7.266 Table 31 shows our view of modelled costs compared to DNOs' submitted costs. The fourteen DNOs have collectively forecast £187m. Our modelled view of costs is £167m, a reduction of £20m.

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
	£m	£m	£m	£m	%
ENWL	9	8	10	1	10%
NPgN	10	8	10	1	6%
NPgY	14	12	13	-1	-9%
WMID	12	10	13	1	7%
EMID	23	19	18	-5	-23%
SWALES	9	7	8	-1	-8%
SWEST	17	13	14	-3	-16%
LPN	17	16	12	-5	-27%
SPN	11	10	10	-1	-8%
EPN	18	15	15	-3	-14%
SPD	14	12	12	-2	-15%
SPMW	13	11	11	-2	-15%
SSEH	7	5	7	0	5%
SSES	13	11	13	0	-1%
Total	187	156	167	-20	-10%

Table 31: Civil Works Asset Replacement Driven modelled costs (£m, 2020/21 prices)

## **Civil Works - Condition Driven**

## **Background**

- 7.267 This activity covers civil works driven by the condition of civil items. DNOs report a breakdown of works carried out at indoor and outdoor substations as well as cable tunnels, cable bridges and LV street furniture. The detail of works carried out at each substation is recorded by voltage level (eg roofs, doors, enclosures and surrounds, etc. at LV, HV, EHV and 132kV).
- 7.268 At Draft Determinations, we proposed to use an industry median unit cost per asset class using RIIO-ED1 and RIIO-ED2 data. We proposed to benchmark volumes by asset class using the ratio of annual average condition driven civil works volumes to their associated Total Asset Register asset volumes, using a RIIO-ED1 and RIIO-ED2 industry median.

## Final Determination summary

7.269 We have decided to maintain our Draft Determinations position.

Final Determination rationale and Draft Determination responses

7.270 UKPN, SSEN and the RIIO-ED2 CG agreed with our approach, with NGED and SPEN partially agreeing. SPEN considered that we should exclude items relating to the 'Major Civil Project' schemes and add them back post modelling. NGED suggested that we should benchmark against a switchgear, transformers and batteries MEAV (ie plant MEAV).

- 7.271 ENWL and NPg disagreed with our approach. ENWL suggested applying RIIO-ED1 run rates, given the wide variation in unit costs in some cost categories. NPg argued that qualitative assessment was needed to reflect the differences in DNO approach in this area.
- 7.272 We tested benchmarking to different MEAVs but concluded, as we did at Draft Determinations, that this was not a suitable approach.<sup>135</sup> Qualitative assessment has been carried out on the one EJP submitted in this area, and we consider this justified. We do not agree that a post modelling adjustment is appropriate, as our benchmarking results do not suggest this might be appropriate. Moreover, we disagree with the use of RIIO-ED1 run rates, as we consider that the bar should be high for disregarding RIIO-ED2 forecast data.
- 7.273 Table 32 shows our view of modelled costs compared to DNOs' submitted costs. The fourteen DNOs have collectively forecast  $\pounds$ 231m. Our modelled view of costs is  $\pounds$ 217m, a reduction of  $\pounds$ 14m.

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
	£m	£m	£m	£m	%
ENWL	27	22	19	-8	-29%
NPgN	11	9	9	-2	-21%
NPgY	19	16	15	-4	-19%
WMID	27	22	18	-10	-35%
EMID	20	17	18	-3	-12%
SWALES	11	9	9	-2	-19%
SWEST	10	8	10	0	-2%
LPN	12	11	18	6	51%
SPN	12	11	15	3	28%
EPN	15	13	23	8	49%
SPD	18	16	16	-3	-14%
SPMW	20	17	20	0	1%
SSEH	6	5	8	2	25%
SSES	22	17	20	-2	-8%
Total	231	192	217	-14	-6%

Table 32 Civil Works Condition Driven modelled costs (£m, 2020/21 prices)

## **Diversions**

## **Background**

7.274 Diversions activity involves the moving of any electric lines or electrical plant to facilitate the extension, redesign, or redevelopment of any

<sup>&</sup>lt;sup>135</sup> <u>RIIO-ED2 Draft Determinations Core Methodology Document Paragraph 7.243</u>

premises on which those assets are located and/or to which they are connected.

- 7.275 At Draft Determinations we proposed to use an industry median unit cost per diversion activity category and voltage using RIIO-ED2 data to benchmark Diversions. We proposed to accept volumes as submitted by each DNO.
- 7.276 We proposed to fund Diversions ex ante and rejected having any bespoke or common UM covering Diversions as proposed by some DNOs.

### Final Determination summary

- 7.277 For the Diversions funding approach, for Final Determinations we have accepted DNOs' proposal to introduce a UM covering Diversions. The Overview Document sets out further detail on the Wayleaves and Diversions Re-opener.
- 7.278 For the Diversions assessment approach, our decision is to maintain the Draft Determinations position.

- 7.279 On our funding approach, all DNOs except NGED were in favour of having a UM for diversions, in opposition to our Draft Determinations position.
- 7.280 On our assessment approach, SPEN agreed with the use of RIIO-ED2 median unit cost data but NGED disagreed and proposed using DNO unit costs, on the basis of unit costs being influenced by the same factors that drive activity volumes. NGED and SSEN agreed with the use of DNOs' forecast volumes. UKPN proposed that the cost assessment should take into account differing land values across the country. NPg disagreed with the use of unit cost benchmarking and proposed using a MEAV-driven regression using RIIO-ED1 data instead. The RIIO-ED2 CG agreed with our approach.
- 7.281 We do not see a strong rationale for MEAV or network scale generally being the key driver for diversions activity and so do not consider a change to a MEAV-based benchmarking method to be appropriate.
- 7.282 We maintain our view that it is reasonable to compare unit costs across DNOs and set median efficient unit costs. We do not view unit costs as being influenced by external factors outside DNO control to the same extent that volumes could be. We acknowledge that diversions costs would be influenced by internal factors such as DNO policy, but at an activity level the unit cost per diversion/settlement should be comparable across DNOs to assess the cost efficiency of DNOs' approaches to settling claims.
- 7.283 From our analysis of unit costs we also do not find sufficient justification for a need to account for land values. We note that HV diversions for highways appears to be a main outlier category for UKPN but that their RIIO-ED2 unit costs are materially higher than RIIO-ED1, which we do not

consider to be primarily explained by differing land values across different regions.

- 7.284 ENWL disagreed with the reallocation normalisation applied to their diversions costs and UKPN and SSEN proposed to have additional costs brought into baseline if no UM for diversions is provided. Our decision on reallocation normalisations is set out at earlier in this chapter in the section on Normalisations and Adjustments.
- 7.285 Table 33 shows our view of modelled costs compared to DNOs' submitted costs. The fourteen DNOs have collectively forecast £656m. Our modelled view of costs is £561m, a reduction of £94m.

DNO	RIIO-ED2	DD modelled	FD modelled	Difference	Difference
DINO	Subinitieu		modened	Difference	Difference
	£m	£m	£m	£m	%
ENWL	18	59	18	0	0%
NPgN	28	23	20	-8	-29%
NPgY	32	27	22	-10	-30%
WMID	64	52	57	-7	-10%
EMID	82	67	66	-16	-20%
SWALES	31	26	32	2	6%
SWEST	68	52	57	-11	-16%
LPN	23	21	19	-4	-16%
SPN	51	46	43	-7	-15%
EPN	91	79	79	-12	-13%
SPD	19	16	17	-1	-7%
SPMW	38	33	41	3	7%
SSEH	15	12	14	-2	-11%
SSES	97	76	76	-21	-22%
Total	656	588	561	-94	-14%

Table 33: Diversions modelled costs (£m, 2020/21 prices)

## **Rail Diversions**

**Background** 

- 7.286 Rail Diversions activity involves diversions where the installation of rail electrification equipment requires the relocation or re-routing of DNO apparatus.
- 7.287 At Draft Determinations we proposed to set nil ex ante allowances and retain the RIIO-ED1 re-opener mechanism for rail diversions.

## Final Determination summary

7.288 We have decided to maintain our Draft Determinations position.

7.289 The table below provides a summary of our Final Determination for the rail diversions re-opener mechanism (the Rail Electrification Costs Re-opener):

Output parameter	Final Determination	Draft Determination
UM type	Common re-opener for all DNOs	Same as FD
Re-opener window	January 2024 and January 2026	N/A
Trigger	DNO triggered by submission of an application during the re-opener window.	
Authority triggered outside the re-opener window.	N/A	
Materiality threshold	Common materiality threshold of 0.5%	N/A

Final Determination rationale and Draft Determination responses

7.290 We continue to see the approach proposed at Draft Determinations appropriate for this area. All DNOs and the RIIO-ED2 CG agreed with our approach. No other stakeholders commented on our proposed approach.

### **Operational, Non-Operational and Business Support Information Technologies and Telecommunications (IT&T) Costs**

## **Background**

- 7.291 Operational IT&T is the industrial control, communication, and monitoring systems that DNOs use to operate and manage their primary assets. Non-Operational IT&T reflects the systems and equipment not primarily used in the real time management of network assets. IT&T Business Support Costs refer to expenditure on operating and maintaining the operational and non-operational computer and telecommunications systems and applications.
- 7.292 At Draft Determinations we proposed to use ratio benchmarking to assess IT&T costs (Operational, Non-Operational and Business Support Costs IT&T), using MEAV as the cost driver and an industry median benchmark ratio based on RIIO-ED1 and RIIO-ED2 data.

### Final Determination summary

7.293 We have decided to assess IT&T costs (Operational, Non-Operational and Business Support Costs IT&T, excluding costs for the installation of monitoring equipment) using MEAV (excluding Protection and Subsea Cables) as the cost driver and an industry median benchmark ratio based on RIIO-ED2 data. We have decided to assess the installation of monitoring equipment using an industry median unit cost benchmark based on RIIO-ED2 data.

- 7.294 We received seven consultation responses. The RIIO-ED2 CG considered that our proposed approach was appropriate however all DNOs disagreed, generally highlighting that it failed to recognise the unprecedented challenges that the DNOs will face in this area in RIIO-ED2.
- 7.295 Five DNOs suggested the use of RIIO-ED2 data only. We were persuaded by some of the evidence presented regarding the appropriateness of using RIIO-ED1 data. As such, we have changed the approach set out at Draft Determinations and decided to use RIIO-ED2 data only, in recognition of the step change in IT&T costs when compared to RIIO-ED1, resulting from increased DSO responsibilities, installation of monitoring equipment and Data and Digitalisation requirements.
- 7.296 NPg and UKPN suggested the use of MEAV within a regression model whereas NGED and SPEN did not agree with the use of MEAV as a cost driver in a ratio benchmarking approach. NGED suggested using network length or customer numbers as alternatives to MEAV.
- 7.297 We discarded the proposed regression approaches because we consider the move to RIIO-ED2 data sufficient to produce results that are more robust than at Draft Determinations. Nonetheless, we point out that the regression approach based on RIIO-ED1 and RIIO-ED2 data produced fairly similar rankings to those resulting from our ratio benchmarking, and that a model estimated on RIIO-ED2 data only was not deemed to be statistically robust. As part of our analysis, we also tested network length and customer numbers as potential cost drivers within our ratio benchmarking approach. However, due to large adjustments across DNOs we did not consider that this was a robust approach. As such, we have maintained our Draft Determination position and used MEAV ratio benchmarking.
- 7.298 Four DNOs suggested removing DSO and/or installation of monitoring equipment costs from the assessment. Both SPEN and NGED suggested that DSO costs should be excluded from both the disaggregated and totex modelling. The DNOs suggested that either these costs be assessed separately or covered by a UM. Due to reporting inconsistencies, we consider the exclusion of all DSO costs would have biased our benchmarking, and thus we have decided not to exclude them from the analysis.
- 7.299 As for LV monitoring, due to the nature of the installation of monitoring equipment and the lack of RIIO-ED1 historical values across the industry, we have decided to assess these costs separately using an industry unit cost approach based on RIIO-ED2 data only. To calculate the industry unit cost, we aggregated the different types of installation due to the quality of data and for consistency across submissions.

- 7.300 Four DNOs also suggested that we place greater weight on qualitative assessment. We consider the threshold to apply positive qualitative adjustments that deviate from benchmarking results should be high, and we do not think this is the case for these costs.
- 7.301 At Draft Determinations we proposed adjustments to costs submitted by some DNOs based on our engineering reviews. We have decided to remove some of these adjustments and subject these costs to benchmarking as a result of the updated engineering review of needs cases, optioneering and volumes deliverability. As at Draft Determinations, we did not make any adjustments to costs related to data and digitalisation. See Company Annexes for more details on the EJPs review outcome.
- 7.302 Our modelled costs were reallocated to Operational, Non-Operational costs IT&T based on our disaggregation methodology. In the case of IT&T Business Support Costs, the modelled costs were reallocated to Total Business Support Costs (see Table 65).
- 7.303 Table 34 shows our view of modelled costs compared to DNOs' submitted costs. For Operational IT and Telecoms costs, the fourteen DNOs have collectively forecast £960m. Our modelled view of costs is £825m, a reduction of £135m. For Non-Operational IT and Telecoms costs, the fourteen DNOs have collectively forecast £814m. Our modelled view of costs is £729m, a reduction of £85m.

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
	£m	£m	£m	£m	%
ENWL	78	64	71	-8	-10%
NPgN	39	32	37	-2	-5%
NPgY	56	47	59	3	5%
WMID	56	46	48	-8	-15%
EMID	75	61	68	-7	-9%
SWALES	44	36	34	-10	-22%
SWEST	61	46	44	-16	-27%
LPN	41	38	38	-4	-8%
SPN	70	62	65	-4	-6%
EPN	109	94	101	-8	-7%
SPD	105	91	85	-19	-18%
SPMW	117	101	89	-28	-24%
SSEH	38	31	27	-11	-29%
SSES	72	58	60	-12	-17%
Total	960	808	825	-135	-14%

Table 34: Operational IT and Telecoms modelled costs (£m, 2020/21 prices)

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
	£m	£m	£m	£m	%
ENWL	36	29	33	-3	-7%
NPgN	40	32	38	-3	-7%
NPgY	40	33	41	1	3%
WMID	71	59	64	-7	-10%
EMID	78	64	74	-4	-5%
SWALES	54	45	44	-10	-19%
SWEST	65	50	50	-16	-24%
LPN	54	50	54	0	0%
SPN	54	49	53	-1	-1%
EPN	85	74	83	-2	-2%
SPD	50	44	42	-8	-16%
SPMW	49	42	38	-11	-22%
SSEH	48	38	37	-11	-23%
SSES	90	70	78	-12	-13%
Total	814	678	729	-85	-10%

Table 35: IT and Telecoms (Non-Op) modelled costs (£m, 2020/21 prices)

## Legal and Safety

## **Background**

- 7.304 The activity of Legal and Safety relates to investment or intervention where the primary drive is to meet safety requirements and to protect staff and the public.
- 7.305 At Draft Determinations we proposed to use ratio benchmarking, using MEAV as the cost driver and an industry median benchmark ratio based on RIIO-ED1 and RIIO-ED2 data. For other costs we proposed a qualitative assessment complemented by an engineering assessment of EJPs.

## Final Determination summary

7.306 We have decided to maintain the position we set out at Draft Determinations.

- 7.307 We received seven responses to this question. SSEN, NGED and the RIIO-ED2 CG agreed with our proposed approach.
- 7.308 Four DNOs disagreed with our approach. ENWL, NPg and UKPN did not agree with the use of MEAV as a cost driver and stated that it does not provide an accurate reflection of Legal and Safety costs. They proposed that these costs are assessed qualitatively instead. SPEN investigated the possibility of using MEAV as a cost driver in an econometric model,

however this did not represent an appropriate alternative and so they also suggested a qualitative assessment.

- 7.309 We do not consider that a purely qualitative assessment would be appropriate for these costs and have therefore decided to use the combined approach of ratio benchmarking and qualitative assessment.
- 7.310 At Draft Determinations we proposed adjustments to costs submitted by SPEN and UKPN for Site Security, Associated Pension Costs and Fire Protection based on our engineering reviews. We have decided to remove these adjustments and subject these costs to benchmarking to better ensure consistent treatment of common costs across DNOs who either have or haven't submitted supporting EJPs, in an area where costs are driven by safety requirements.
- 7.311 For Other Costs, where DNOs submitted costs for very heterogenous programmes, we have applied a qualitative assessment and accepted those costs in full.
- 7.312 Table 36 shows our view of modelled costs compared to DNOs' submitted costs. The fourteen DNOs have collectively forecast  $\pounds$ 278m. Our modelled view of costs is  $\pounds$ 235m, a reduction of  $\pounds$ 44m.

DNO	RIIO-ED2	DD modelled	FD		
DNO	submitted		modelled	Difference	Difference
	£m	£m	£m	£m	%
ENWL	77	34	65	-12	-15%
NPgN	20	16	13	-6	-32%
NPgY	27	23	19	-8	-30%
WMID	9	8	11	1	14%
EMID	7	6	10	2	33%
SWALES	12	10	12	-1	-6%
SWEST	16	12	15	-1	-6%
LPN	20	19	15	-5	-24%
SPN	15	14	14	-1	-8%
EPN	19	17	20	1	3%
SPD	18	15	12	-6	-33%
SPMW	23	20	13	-10	-42%
SSEH	4	3	4	0	8%
SSES	10	8	11	1	9%
Total	278	204	235	-44	-16%

Table 36: Legal and Safety modelled costs (£m, 2020/21 prices)

## **Overhead Line Clearance**

### **Background**

7.313 The Overhead Line Clearance activity captures work required to rectify overhead line non-compliance with regulations 17 and 18 of the Electricity
Supply Quality and Continuity Regulations (2002) (as amended), for vertical and horizontal clearances, respectively. This activity is broken down by voltage with DNOs reporting proposed works at LV, HV, EHV and 132kV levels.

7.314 At Draft Determinations we proposed using an industry median unit cost based on RIIO-ED1 and RIIO-ED2 data, complemented by an engineering review to determine volume adjustments.

#### Final Determination summary

7.315 We have decided to maintain our Draft Determinations approach. We used an industry median unit cost for total costs based on RIIO-ED1 and RIIO-ED2 data.

Final Determination rationale and Draft Determination responses

- 7.316 We received seven consultation responses. Five DNOs and the RIIO-ED2 CG agreed with our assessment. SSEN disagreed with the approach.
- 7.317 SSEN disagreed with using a unit rate for the total cost and suggested using a unit rate per voltage level. However, we maintain using a blended approach of total costs is more robust due to data inconsistency through time and across DNOs in EHV and 132kV sites interventions.
- 7.318 Based on the updated engineering review of the EJPs and the latest LiDAR information submitted by SSEN, we removed the adjustments made at Draft Determinations, and subject these costs to benchmarking. As part of our analysis, we smoothed NPgY volumes in 2020 based on the volumes submitted in the period 2016-2019 to avoid benchmarking results to be affected by an outlier.
- 7.319 Table 37 shows our view of modelled costs compared to DNOs' submitted costs. The fourteen DNOs have collectively forecast £288m. Our modelled view of costs is £271m, a reduction of £18m.

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
	£m	£m	£m	£m	%
ENWL	9	7	8	0	-2%
NPgN	13	11	15	1	10%
NPgY	9	8	10	1	8%
WMID	29	24	28	-2	-6%
EMID	17	14	14	-3	-18%
SWALES	18	15	26	8	44%
SWEST	58	44	53	-5	-9%
LPN	-	-	-	0	0%
SPN	23	21	23	0	-2%
EPN	35	30	29	-6	-18%

Table 37: Overhead Line Clearances modelled costs (£m, 2020/21 prices)

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
SPD	10	8	9	-1	-9%
SPMW	15	13	13	-2	-13%
SSEH	17	20	16	-1	-8%
SSES	34	27	27	-7	-20%
Total	288	243	271	-18	-6%

# Electricity System Restoration (previously known as Black Start)

# <u>Background</u>

- 7.320 The electricity system restoration (ESR) activity includes the series of actions necessary to restore electricity supply to customers following a total or widespread partial shutdown of the GB Transmission System. ESR requires distribution substations to be re-energised and reconnected to each other in a controlled way to re-establish a fully interconnected system.
- 7.321 ESR expenditure is associated with initiatives to improve the resilience of both the distribution network assets and the key telecommunications systems, essential to DNOs for the organisation and coordination of resources, to achieve Black Start Resilience. The activity is broken down into subcategories as follows:
  - Sites Resolved Black Start Resilience of Protection Batteries achieved at EHV and 132kV
  - Sites Resolved Black Start Resilience of SCADA Batteries achieved at EHV and 132kV
  - Securing of Existing Telecommunications Infrastructure

7.322 At Draft Determinations, we proposed to qualitatively assess ESR costs.

## Final Determination summary

7.323 We have decided to maintain our Draft Determinations approach. We have accepted costs and volumes submitted by SPEN and SSEN, and decided to implement a re-opener mechanism for potential future costs.

- 7.324 We received seven consultation responses. All DNOs but UKPN agreed with our approach, as did the RIIO-ED2 CG.
- 7.325 UKPN did not submit ex ante costs, and argued either no ex ante allowance should be given to DNOs with access to UMs or all DNOs be given equivalent ex ante funding and access to the proposed UM once the new ESR requirements are published by the UK Government. We still consider the approach proposed at Draft Determinations to be fit for purpose. The DNOs that will incur additional or new costs in this area will have the opportunity to trigger the re-opener where required.

7.326 Table 38 shows our view of modelled costs compared to DNOs' submitted costs. The fourteen DNOs have collectively forecast  $\pm 12m$ . Our modelled view of costs is  $\pm 11m$ , a reduction of  $\pm 1m$ .

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
	£m	£m	£m	£m	%
ENWL	-	-	-	0	0%
NPgN	-	-	-	0	0%
NPgY	-	-	-	0	0%
WMID	-	-	-	0	0%
EMID	-	-	-	0	0%
SWALE					
S	-	-	-	0	0%
SWEST	-	-	-	0	0%
LPN	-	-	-	0	0%
SPN	-	-	-	0	0%
EPN	-	-	-	0	0%
SPD	3	2	2	0	-8%
SPMW	4	3	3	0	-12%
SSEH	2	1	2	0	-7%
SSES	4	3	3	0	-12%
Total	12	10	11	-1	-10%

Table 38: ESR modelled costs (£m, 2020/21 prices)

## Quality of Service (QoS) and North of Scotland Resilience (NoSR)

**Background** 

- 7.327 QoS denotes costs where the primary purpose is to improve performance against the IIS targets or to improve the overall fault rate per km of the distribution network.
- 7.328 NoSR costs are related to schemes undertaken with a focus on delivering improvements in the interruptions experience of the Worst Served Customers served on specific circuits in SSEH.
- 7.329 At Draft Determinations, we proposed to disallow all DNOs' submitted QoS costs. Given that all DNOs are subject to a UIOLI allowance for Worst Served Customers at RIIO-ED2, we reallocated SSEN's NoSR expenditure to the Worst Served Customers cost activity.

### Final Determination summary

7.330 We have decided to maintain our Draft Determinations position and disallow all QoS costs. In a change from Draft Determinations, we have decided to allow SSEN's remote generation capex costs at Battery Point, which we have accepted as submitted. For further information on our

decision on QoS funding, including the responses we received, please see Chapter 6.

Final Determination rationale and Draft Determination responses

- 7.331 Two stakeholders and SSEN disagreed with the disallowing of the funding to replace diesel generators at Battery Point.
- 7.332 Having considered responses, we have decided to allow SSEN's remote generation capex costs at Battery Point. The majority of these costs have been subject to engineering review and we consider them justified.

### **Physical Security**

### **Background**

- 7.333 Physical Security costs relate to activities for sites designated as Critical National Infrastructure (CNI). The Secretary of State has initiated the Physical Security Upgrade Programme (PSUP), a BEIS-led national programme to enhance physical security at CNI sites.
- 7.334 At Draft Determinations, we proposed to qualitatively assess these costs.

### Final Determination summary

7.335 We have decided to maintain our Draft Determinations position and qualitatively assessed Physical Security costs. We have decided to accept SSEN costs for two control rooms.

#### Final Determination rationale and Draft Determination responses

- 7.336 We still consider our Draft Determinations approach to be appropriate. All six DNOs and the RIIO-ED2 CG responded to this question and agreed with the proposed approach to assessing physical security costs. Based on the additional evidence provided by SSEN, we have decided to accept the costs related to two control rooms, which will be subject to a PCD. See SSEN Annex for more details on the PCD.
- 7.337 Table 39 shows our view of modelled costs compared to DNOs' submitted costs. ENWL and SSEN have collectively forecast £49m. Our modelled view of costs is £45m, a reduction of £4m.

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
	£m	£m	£m	£m	%
ENWL	5	4	4	0	-7%
NPgN	-	-	-	0	0%
NPgY	-	-	-	0	0%
WMID	-	-	-	0	0%
EMID	-	-	-	0	0%
SWALES	-	-	-	0	0%
SWEST	-	-	-	0	0%

Table 39: Physical Security modelled costs (£m, 2020/21 prices)

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
LPN	-	-	-	0	0%
SPN	-	-	-	0	0%
EPN	-	-	-	0	0%
SPD	-	-	-	0	0%
SPMW	-	-	-	0	0%
SSEH	15	-	13	-1	-7%
SSES	30	-	28	-2	-7%
Total	49	4	45	-4	-7%

## **Flood Mitigation**

## <u>Background</u>

- 7.338 The activity of Flood Mitigation covers physical and non-physical measures of flood prevention in place on a site and/or potential improvements that reduce the risk of flooding.
- 7.339 At Draft Determinations we proposed to use the industry median unit cost based on RIIO-ED1 and RIIO-ED2 data as a benchmark, complemented by an engineering review to determine volume adjustments.

### Final Determination summary

7.340 We have decided to maintain the overall approach set out at Draft Determinations. We have however made changes to the way we have reflected the engineering review in our assessment, removing the adjustment made to NGED submitted costs.

- 7.341 We received seven responses to this question. SPEN, SSEN and the RIIO-ED2 CG agreed with the benchmarking approach outlined at Draft Determinations. ENWL did not state whether they agreed or disagreed with our proposed approach but did comment that they agreed with our proposal to set the unit cost approach on an activity basis. While NGED agreed with our assessment approach, they disagreed with the volume disallowances that we made to their allowances.
- 7.342 UKPN and NPg did not agree with our approach and suggested alternative approaches. UKPN suggested that we take the same risk-based approach to assessing these costs as we did in RIIO-ED1 as they considered it would be more reflective of this cost area. NPg suggested that we model flood mitigation costs by using a scale driver such as MEAV, coupled with a qualitative assessment.
- 7.343 As set out at Draft Determinations, we do not consider that the risk-based assessment we used at RIIO-ED1 is appropriate given the inconsistencies and incomplete data submitted by DNOs.
- 7.344 We tested the benchmarking approach suggested by NPg, using MEAV as a cost driver, and found that it increased the variance in our adjustments.

We therefore do not consider that it is a reasonable alternative approach to unit cost benchmarking in this instance.

- 7.345 At Draft Determinations we proposed adjustments to costs submitted by NGED based on engineering review. We have decided to remove these adjustments and subject these costs to benchmarking to ensure consistent treatment of common costs across DNOs who either have or haven't submitted supporting EJPs in an area where costs are mainly driven by safety requirements.
- 7.346 Table 40 shows our view of modelled costs compared to DNOs' submitted costs. The fourteen DNOs have collectively forecast £72m. Our modelled view of costs is £63m, a reduction of £9m.

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
	£m	£m	£m	£m	%
ENWL	4	3	5	1	35%
NPgN	3	2	1	-1	-43%
NPgY	3	3	2	-1	-44%
WMID	1	1	1	0	-10%
EMID	6	5	6	0	-3%
SWALES	2	2	2	0	-6%
SWEST	2	1	2	0	-1%
LPN	2	2	2	0	-13%
SPN	5	5	4	-1	-18%
EPN	10	8	7	-2	-25%
SPD	5	5	5	0	-2%
SPMW	4	4	5	0	7%
SSEH	1	0	1	1	112%
SSES	24	19	20	-4	-17%
Total	72	60	63	-9	-12%

Table 40: Flood Mitigation modelled costs (£m, 2020/21 prices)

## **Rising and Lateral Mains**

## <u>Background</u>

- 7.347 Rising Lateral Mains (RLMs) are individual DNO owned 3-phase cables or busbars, not laid in the ground, which run within or attached to the outside of a multiple occupancy building for:
  - More than 3m vertically; or
  - more than 3m horizontally; and
  - to which several individual services are connected, usually via a distribution board.

- 7.348 The activity excludes under eaves or mural wiring (report under LV Service Associated with RLMs). The activities reported are broken down into three categories:
  - Assets associated with RLMs
  - Inspections and Maintenance costs and volumes associated with RLMs
  - Numbers of customers serviced by the RLM programme. This is broken down by customers in Houses, Flats and Multi-Storey properties.
- 7.349 At Draft Determinations, we proposed using DNO median unit cost based on RIIO-ED1 and RIIO-ED2 data, complemented by engineering review. We proposed to use the number of customers (ie not necessarily unique customers) serviced by the RLM programme as a driver.

### Final Determination summary

7.350 We have decided to change our Draft Determinations approach and accept costs and volumes submitted by the DNOs for RIIO-ED2.

- 7.351 We received seven responses to this question. SPEN and NPg agreed with our assessment, due to the level of industry variation in the activity. SPEN agreed with the use of RIIO-ED1 and RIIO-ED2 time periods as the scope of intervention has not varied between price controls. The RIIO-ED2 CG also agreed with our approach.
- 7.352 The other four DNOs disagreed with the approach. ENWL disagreed with using a total unit cost as RLMs comprise different activities eg inspections, repairs, monitoring, and replacement. SSEN suggested allowing their RIIO-ED2 unit cost, due to their expectation of a significant increase in their unit cost in RIIO-ED2 and limitations with the data requested in the CV18 table of the BPDTs.
- 7.353 During the consultation period for Draft Determinations, we requested supplementary data templates including the number of customers associated with RLMs activities.
- 7.354 We considered the consultation responses and the new data provided and have decided to accept costs and volumes submitted by the DNOs. As part of our analysis, we undertook a unit cost assessment on assets and inspections and maintenance associated with RLMs. However, we discounted this approach due to gaps in data that produced unreliable results. We also considered an industry median unit cost approach, but due to variations in unit costs between DNOs, differences in reporting in CV18 table within the BPDTs, and large adjustments from submitted costs, we discarded this approach as well.
- 7.355 Although we found the new data insightful, we found great variation in the nature of the volumes of RLMs activities across DNOs. We considered different DNO median unit cost approaches - ie using unique customer numbers and RLMs activities' volumes - but in both cases, it resulted in

large adjustments from submitted costs and thus not deemed to be robust. Therefore, acknowledging the lack of an appropriate benchmarking approach with the available data, we have decided to accept DNOs submitted costs. We intend to engage with the DNOs to resolve the reporting inconsistency through our RIGs process.

- 7.356 SSEN, UKPN and NGED disagreed with the engineering qualitative review, while SPEN agreed. Based on the review of the additional information provided by DNOs related to their EJPs, we have decided to remove all the adjustments made at Draft Determinations.
- 7.357 Table 41 shows our view of modelled costs compared to DNOs' submitted costs. The fourteen DNOs have collectively forecast £129m. Our modelled view of costs is £116m, a reduction of £13m.

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
	£m	£m	£m	£m	%
ENWL	17	14	16	-1	-7%
NPgN	4	4	4	0	-10%
NPgY	9	7	8	-1	-9%
WMID	1	1	1	0	-11%
EMID	1	0	0	0	-7%
SWALES	1	0	0	0	-10%
SWEST	0	0	0	0	-15%
LPN	-	-	-	0	0%
SPN	5	5	5	0	-4%
EPN	1	1	1	0	-7%
SPD	34	29	31	-3	-9%
SPMW	27	23	24	-3	-12%
SSEH	5	4	5	-1	-9%
SSES	24	19	21	-3	-13%
Total	129	107	116	-13	-10%

Table 41: Rising and Lateral Mains modelled costs (£m, 2020/21 prices)

# Worst Served Customers (WSC)

## **Background**

- 7.358 A customer experiencing on average at least four higher voltage interruptions per year, over a three-year period (ie 12 or more over three years, with a minimum of two interruptions per year) is classified as worst served.
- 7.359 At Draft Determinations, we proposed to set an ex ante UIOLI allowance for WSC based on submitted costs. This includes SSEN's reallocated NoSR costs.

#### Final Determination summary

7.360 We have decided to maintain our Draft Determinations position. For further information, please see Chapter 6. SSEH updated its BPDT to report its NoSR costs in the Worst Served Customers activity so a normalisation reallocation is no longer required.

Final Determination rationale and Draft Determination responses

7.361 We consider our Draft Determinations position still appropriate and have decided to retain it. As at Draft Determinations, WSC expenditure has been excluded from totex modelling. All DNOs and the RIIO-ED2 CG agreed with our approach.

#### Losses

#### **Background**

- 7.362 These are costs where management of and, where appropriate, reduction in losses on the electricity distribution network is the primary driver of the investment or action.
- 7.363 At Draft Determinations, for transformer replacement, we proposed using the RIIO-ED2 expert asset replacement industry median unit cost for the relevant asset type. We proposed using engineering review to determine volume adjustments. We proposed to accept 'Other' costs in full. Based on engineering review, we considered that there was no detailed needs case for NGED's 6.6/11kV PMT replacement programme.

#### Final Determination summary

7.364 We have decided to accept NGED's PMT replacement costs, subject to benchmarking against the RIIO-ED2 expert CV7 unit cost. We have made no other changes to our Draft Determinations position.

- 7.365 UKPN, SPEN, SSEN and the RIIO-ED2 CG agreed with our assessment approach. SPEN noted the limited range of asset unit costs submitted by DNOs, making comparability challenging.
- 7.366 ENWL, NPg and NGED and one energy industry body partially agreed with our approach. These DNOs disagreed with the proposed use of the RIIO-ED2 expert asset replacement industry median cost for transformer replacement. NPg would support the use of licensee-specific unit costs as for PCBs, which caters for upsizing and choice of core technology. NGED considered using unit costs that result from the blending of different analysis and which are used for asset replacement would be appropriate. ENWL argued that this activity should be funded at submitted costs. The energy industry body stressed the need for further incentives and constraints.
- 7.367 NGED provided further evidence on the needs case for its 6.6/11kV PMT replacement programme following Draft Determinations, and we now consider these costs justified and subject to cost benchmarking.

Otherwise, we have decided to maintain our Draft Determinations position.

- 7.368 We consider the 6.6/11kV GMT replacement costs comparable and thus appropriate for benchmarking. We do not agree that we should equate this activity to PCBs, given PCBs are subject to a volume driver. In addition, we have now decided that modelled PCBs should also be subject to the CV7 expert unit cost. We consider that the expert unit cost, used extensively across the modelling suite, is the most appropriate output from the asset replacement model.
- 7.369 For information on our decision on an electricity distribution losses incentive, please see paragraph 3.168.
- 7.370 Table 42 shows our view of modelled costs compared to DNOs' submitted costs. The fourteen DNOs have collectively forecast  $\pounds$ 42m. Our efficient view of costs is  $\pounds$ 37m, a 12% reduction.

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
	£m	£m	£m	£m	%
ENWL	10	8	8	-2	-20%
NPgN	-	-	-	0	0%
NPgY	-	-	-	0	0%
WMID	1	1	1	0	-13%
EMID	1	1	1	0	-15%
SWALES	1	1	1	0	-7%
SWEST	1	1	1	0	-12%
LPN	1	1	1	0	-2%
SPN	0	0	0	0	-4%
EPN	1	0	1	0	-7%
SPD	15	13	14	-1	-8%
SPMW	8	7	7	-1	-13%
SSEH	1	1	1	0	-9%
SSES	1	1	1	0	-13%
Total	42	35	37	-5	-12%

Table 42: Losses modelled costs (£m, 2020/21 prices)

## **Environmental Reporting excluding PCBs**

### Background

7.371 This cost area includes the following activities:

- Undergrounding for Visual Amenity
- Non-Undergrounding Visual Amenity Schemes
- Oil Pollution Mitigation Schemes Cables
- Oil Pollution Mitigation Schemes Non-operational Sites

- Oil Pollution Mitigation Schemes Operational Sites
- SF<sub>6</sub> Emitted Mitigation Schemes
- Noise Pollution
- Contaminated Land Clean Up
- Environmental Civil Sanctions
- 7.372 At Draft Determinations, we proposed quantitative modelling of unit costs, which was overlaid and sense checked by a qualitative assessment bespoke to each environmental category. Where we set industry median unit costs, we used RIIO-ED1 and RIIO-ED2 data. For most areas, we found forecast unit costs in RIIO-ED2 to be generally stable or decreasing across activity categories compared to RIIO-ED1. Given the stability across price controls, we considered it appropriate to use a longer timeperiod with the aim of providing more robust results. Where unit costs were not comparable, we either assessed costs using DNO own median unit costs, or accepted forecast costs as submitted.

### Final Determination summary

- 7.373 We have decided to amend our Draft Determinations position for SF<sub>6</sub> emitted mitigation schemes, contaminated land clean up, oil pollution mitigation scheme cables, oil pollution mitigation scheme operational sites, carbon offsetting and community energy. In all other environmental cost categories, we have decided to maintain our Draft Determinations position.
- 7.374 Table 43 provides a summary of the key features and the changes that we have made to our activity-level assessment of environmental reporting expenditure since Draft Determinations.

Environmental reporting cost category	Final Determinations	Draft Determinations
Undergrounding for Visual Amenity	Only NGED submitted costs for RIIO-ED2. We have decided to accept submitted costs in full.	Same as FD
Non- Undergrounding Visual Amenity Schemes	As above	Same as FD
Oil Pollution Mitigation Scheme - Cables	NGED's costs are considered justified and accepted as submitted. Upon further review with additional information provided, we have decided to technically assess SSEN's fluid	SSEN's and NGED's costs accepted as submitted.

Table 43: Final Determinations summary for environmental reporting expenditure

Environmental reporting cost category	Final Determinations	Draft Determinations
	filled cable costs reported in this category.	
Oil Pollution Mitigation Scheme - Operational Sites	Following engineering review, we consider these costs justified. We have decided to accept as submitted.	Given the high variation in unit costs, we proposed to assess these costs using DNO median unit costs.
Oil Pollution Mitigation Scheme - Non Operational Sites	Only SSEN submitted costs for RIIO-ED2. We consider the costs justified, so we have decided to accept submitted costs in full.	Same as FD
SF <sub>6</sub> Emitted Mitigation Schemes	We have decided to accept SSEN's costs, subject to cost assessment. Given the high variation in unit costs, we have decided to assess these costs using DNO median unit costs.	We proposed to assess this category using industry median unit costs, except SSEN's costs which we considered unjustified. SSEN proposed a bespoke PCD for SF <sub>6</sub> asset replacement. Our consultation position for this proposal can be found in the SSEN Annex.
Noise Pollution	We have decided to assess using industry median unit costs.	Same as FD
Contaminated Land Clean Up	Unit costs vary significantly from RIIO-ED1 to RIIO-ED2, so we have decided to accept as submitted.	Given the high variation in unit costs, we propose to assess these costs using DNO median unit costs.
Environmental Civil Sanction	No costs submitted.	Same as FD
Biodiversity/Biod iversity Net Gain	We consider ENWL, UKPN and SSEN costs justified, so we have decided to accept submitted costs in full. SPEN's biodiversity costs have been technically assessed, with £0.5m allowed.	Same as FD
Carbon Offsetting or Removal	We have decided to accept NGED, UKPN and SPEN costs on carbon offsetting as we now consider them justified. We have decided to partially disallow SSEN costs on carbon removal.	We proposed to disallow NGED, UKPN and SPEN costs on carbon offsetting and SSEN costs on carbon removal, as we

Environmental reporting cost category	Final Determinations	Draft Determinations
		considered them to be unjustified.
Community Energy	ENWL and SPEN's costs accepted as submitted. See section on Other Adjustments for detail on the reallocation of community energy costs for ENWL.	SPEN's costs accepted as submitted.

- 7.375 UKPN, NGED and the RIIO-ED2 CG agreed with our assessment approach. ENWL, NPg, SPEN and SSEN broadly agreed with our approach. NPg challenged the use of RIIO-ED1 and RIIO-ED2 DNO median unit costs for oil pollution mitigation schemes operational sites, given the different intervention types between price controls. ENWL disagreed with the use of unit costs for contaminated land clean up, given the variability in this category. SPEN considered that SF<sub>6</sub> emitted mitigation schemes should be assessed using DNO specific unit costs. SSEN disagreed with the approach for SF<sub>6</sub> emitted mitigation schemes and nature-based solutions. SSEN consumer engagement group asked for clarification on the fluid-filled cables approach.
- 7.376 We have decided to accept SSEN's  $SF_6$  emitted mitigation schemes costs, which we proposed to disallow at Draft Determinations. SSEN provided further evidence on these schemes and these will now be subject to cost assessment. As a consequence of incorporating SSEN's costs in the model, unit costs are variable in this cost category so we have decided to assess using DNO own median unit costs.
- 7.377 We agree that unit costs vary significantly from RIIO-ED1 to RIIO-ED2 for contaminated land clean up and oil pollution mitigation scheme operational sites. Costs are not comparable between DNOs, so we have decided to accept as submitted. The most material costs in the oil pollution mitigation scheme operational sites category have been subject to engineering review and we consider them justified.
- 7.378 For carbon offsetting, we received the required additional information for SPEN, UKPN and NGED so have decided to accept as submitted. We have decided to add ENWL's community energy costs to baseline submitted costs and accept as submitted. We have also received additional evidence from SSEN and, although we continue to have concerns over the cost to consumers, we acknowledge SSEN's inability to deliver on their commitments in the absence of any funding. We have therefore allowed 25% of their carbon removal costs in the disaggregated assessment.
- 7.379 We have technically assessed SSEN's Fluid-filled cables (FFCs) costs given the information submitted by SSEN indicating non-comparability of their FFC expenditure to other DNO CV7-reported FFCs. We have accepted the

costs associated with SSEN's Portsmouth Water FFC expenditure and disallowed their other submitted FFC costs. Our decision on SSEN's bespoke PCD proposal for FFC asset replacement and cost treatment is set out in the SSEN Annex.

## **Polychlorinated Biphenyls (PCBs)**

### **Background**

- 7.380 During RIIO-ED1, three activities associated with the removal of Persistent Organic Pollutants (POPs), such as PCBs, from electrical assets were included in the Environmental Reporting activity. These were the removal of oil from assets that contain unacceptable levels of POPs, the testing of oil specifically carried out to determine levels of POPs, and the wholesale replacement of assets that contain, or (where not possible to test) are suspected of containing, unacceptable levels of POPs.
- 7.381 At Draft Determinations, we proposed to carry out an aggregated unit cost assessment at total cost level using RIIO-ED1 and RIIO-ED2 data and set the benchmark at the DNO median unit cost. As part of the RIIO-ED2 cost assessment, we proposed that the PMT replacement costs would be subject to a volume driver.

#### Final Determination summary

7.382 In a change from our Draft Determinations position, we have decided to assess PCBs at an individual category level and only include RIIO-ED2 data in our assessment. We have disaggregated PCBs asset replacement costs by each type of asset. For information on our decision on the PCBs volume driver, please see Chapter 3.

- 7.383 NPg, the RIIO-ED2 CG and an energy industry body agreed with our assessment approach. NPg noted that it is appropriate to use DNOs' own unit costs, given the variability in the nature of work and volumes. The energy industry body welcomed the disaggregation of the PCB replacement activity.
- 7.384 ENWL and SPEN partially agreed with our approach. ENWL supported the volume driver mechanism but argued that the unit cost applied in the modelling does not represent the true cost of replacing a GMT. It also flagged errors in modelling. SPEN agreed with using DNO submitted unit costs for the volume driver but considered that only RIIO-ED2 unit costs should be used due to differences in reporting and proposed work in RIIO-ED1. It noted the volume driver should extend to associated assets eg poles and protection.
- 7.385 NGED, UKPN and SSEN disagreed with our approach. NGED argued that unit cost benchmarking should be done at an individual category level so that the allowed costs would be more reflective of the forecast activity to be undertaken. UKPN agreed but given the variability in data, noted that the RIIO-ED2 data should set the industry median values. SSEN argued

that the unit costs for all transformer replacement should be the same as those applied in the asset replacement model. It suggested that only uncertain PMT volumes should be subject to the volume driver, and the remainder should be funded as ex ante allowances.

- 7.386 We agree that RIIO-ED1 and RIIO-ED2 unit costs differ significantly, as do unit costs for each PCBs category, hence our change in approach. Given that we are using the 6.6/11kV RIIO-ED2 CV7 expert unit cost for the volume driver, we have used this to benchmark relevant costs in the model. For consistency of approach and to drive efficiency, we also consider it appropriate to use the CV7 expert unit cost for 20kV PMTs and GMTs. For other assets, the submitted unit costs are not comparable to the asset replacement model so we have decided to benchmark to the RIIO-ED2 industry median in this model.
- 7.387 Our assessment approach for each PCBs cost category is summarised in Table 44 below.

PCBs cost category	Assessment approach
Oil changes	RIIO-ED2 industry median
Oil testing	RIIO-ED2 industry median
Refurbishment	Only EPN has submitted costs. These costs have been subject to engineering review and we consider them justified, so we have decided to accept as submitted.
Civil costs	No volumes have been submitted, so costs have been disallowed
6.6kV/11kV PMT replacement	RIIO-ED2 CV7 expert unit cost
20kV PMT replacement	RIIO-ED2 CV7 expert unit cost
6.6/11kV GMT replacement	RIIO-ED2 CV7 expert unit cost
33kV GMT replacement	RIIO-ED2 CV7 expert unit cost
Current Transformer (CT)/Voltage Transformer (VT) replacement	RIIO-ED2 industry median
Switchgear bushing replacement	RIIO-ED2 industry median
6.6/11kV poles replacement	RIIO-ED2 industry median
Switchgear – other replacement	RIIO-ED2 industry median

Table 44: PCBs assessment approach by cost category

7.388 Table 45 shows our view of Environmental Reporting costs compared to DNOs' submitted costs. The fourteen DNOs forecast £380m for environmental activity in RIIO-ED2, including PCBs costs. We assessed the efficient level of expenditure to be £88m lower than submitted costs, a reduction of 23%.

Table 45: Environmental Reporting modelled costs (£m, 2020/21 prices)

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference

	£m	£m	£m	£m	%
ENWL	31	23	27	-4	-12%
NPgN	22	18	19	-3	-15%
NPgY	24	20	20	-4	-17%
WMID	9	7	8	-1	-11%
EMID	8	6	7	-1	-11%
SWALES	4	4	4	0	-7%
SWEST	8	6	7	-1	-13%
LPN	5	4	4	0	-2%
SPN	14	13	13	-1	-7%
EPN	34	29	30	-4	-11%
SPD	41	33	32	-9	-22%
SPMW	46	36	35	-11	-25%
SSEH	40	28	26	-14	-34%
SSES	96	69	61	-35	-37%
Total	380	298	292	-88	-23%

# **Decision** – RIIO-ED2 Final Determinations Core Methodology Document

# **C. Non-Operational Capex**

7.389 Non-Operational Capex related to the capital costs incurred from activities that are unrelated to core activities, but essential to DNOs in being able to carry out these activities. Non-Operational Capex include four activities:

- Property
- Small Tools, Equipment, Plant and Machinery (STEPM)
- IT&T (see Operational, Non-Operational and Business Support IT&T Costs)
- Vehicles and Transport
- 7.390 Table 46 provides a summary of the key features and the changes that we have made to our activity-level assessment of non-operational capex expenditure since Draft Determinations.

Table 46: Final Determinations summary of non-operational capex expenditure

Cost	Final Determination	Draft Determination
Property	Industry median benchmark ratio using RIIO-ED1 and RIIO-ED2 data.	Same as FD
Small Tools, Equipment, Plant and Machinery (STEPM)	Industry median ratio benchmark with RIIO-ED1 and RIIO-ED2 data with qualitative review.	Same as FD
Vehicles and Transport	DNO median ratio benchmark using network length as a driver and RIIO-ED1 and RIIO-ED2 data.	Industry median ratio benchmark using MEAV as a driver and RIIO- ED1 and RIIO-ED2 data.

### Property

### **Background**

- 7.391 Property relates to expenditure on new and replacement property assets which are not system or operational assets. Property Management is a business support cost relating to providing, managing and maintaining non-operational premises (with the exception of operational training centres).
- 7.392 At Draft Determinations we proposed to use ratio benchmarking and assess Non-Operational Property costs and Property Management costs together, using MEAV as the cost driver and an industry median benchmark ratio based on RIIO-ED1 and RIIO-ED2 data.
- 7.393 We applied exclusions for the costs associated with NGED and SSES's EJPs as we did not find them to be fully justified from our EJP review.

#### Final Determination summary

- 7.394 We have decided to maintain our Draft Determinations assessment approach.
- 7.395 From our updated EJP review we no longer find NGED's EJPs to be unjustified, however we have decided to accept the proposed costs for NGED's depot refurbishment with a PCD (see NGED Annex). Due to this PCD treatment the costs associated with NGED's depot refurbishment are included in the technically assessed category and have been excluded from the disaggregated assessment pre-modelling. We continue to find SSES's non-operational property EJP to be partially justified as insufficient additional information has been provided, and retain the cost exclusion in the modelling for this.

- 7.396 NPg and UKPN agreed with our Draft Determinations proposal and ENWL and NGED broadly agreed but proposed that qualitative assessment and adjustments for justified EJPs should be factored into the assessment. SPEN disagreed with our assessment approach on the basis that an econometric model should be considered, complemented by qualitative assessment. The RIIO-ED2 CG suggested that there should be additional scrutiny of potential Non-Operational capex cost outliers.
- 7.397 SSEN disagreed with our Draft Determinations proposal to assess Non-Op Property and Property Management together as they do not consider the cost activities to be well linked and raised issues specific to them. SSEN also disagreed with using MEAV as specified at Draft Determinations, as well as with the lack of recognition that some property costs related to submarine cables should be treated as a company-specific factor. For our response to these points, see sections on Company-Specific Factors and MEAV.

- 7.398 We do not find the econometric model proposed by SPEN to be a better approach than ratio benchmarking, given the low adjusted R-squared of the regression and failure of heteroskedasticity and normality tests.
- 7.399 Moreover, we consider that DNO property expenditure relative to network scale should be comparable over time and that further qualitative assessment of RIIO-ED2 costs would not be consistent with our across-period assessment of cost efficiency.
- 7.400 Finally, we maintain our view that Non-Op Property and Property Management to be well linked activities and better to benchmark as combined costs to take account of the different property ownership approaches between DNOs.
- 7.401 Table 47 shows our view of modelled costs compared to DNOs' submitted costs. The fourteen DNOs have collectively forecast  $\pounds$ 211m. Our modelled view of costs is  $\pounds$ 186m, a reduction of  $\pounds$ 25m.

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
	£m	£m	£m	£m	%
ENWL	12	10	11	-1	-7%
NPgN	8	7	7	-1	-11%
NPgY	6	5	6	1	9%
WMID	12	10	11	-1	-7%
EMID	11	9	11	0	-3%
SWALES	9	8	8	-1	-16%
SWEST	33	25	30	-3	-9%
LPN	12	11	12	0	3%
SPN	10	9	10	0	3%
EPN	21	18	20	-1	-7%
SPD	24	21	17	-7	-28%
SPMW	17	15	13	-4	-26%
SSEH	17	13	13	-4	-26%
SSES	18	14	17	-1	-8%
Total	211	175	186	-25	-12%

Table 47: Non-Operational Capex - Property modelled costs (£m, 2020/21 prices)

## Small Tools, Equipment, Plant and Machinery (STEPM)

### **Background**

7.402 The activity Small Tools, Equipment, Plant and Machinery (STEPM) is the expenditure for items which are used to work on, assist, or test system assets. These items are not considered to be permanently connected to the network.

- 7.403 At Draft Determinations we proposed using ratio benchmarking to assess STEPM, with MEAV as a driver and an industry median benchmark ratio based on RIIO-ED1 and RIIO-ED2 data. Compared to RIIO-ED1 where concerns were raised around reporting inconsistencies, we are more confident that submitted data are more comparable and thus propose a quantitative assessment for RIIO-ED2.
- 7.404 Our view was that the supplementary qualitative review provided additional robustness to the approach, as it accounted for the individual DNOs' programmes of work.

### Final Determination summary

7.405 We have decided to maintain the approach set out at Draft Determinations.

- 7.406 We received seven responses to this question. UKPN agreed with our Draft Determinations approach and SPEN, SSEN and NGED stated that they agreed but proposed that we consider slightly different approaches to our analysis.
- 7.407 ENWL and NPg did not agree with our approach and the RIIO-ED2 CG suggested that outliers in Non-Operational Capex costs should face additional scrutiny of costs.
- 7.408 Of the DNOs that suggested alternative approaches, ENWL suggested that our analysis should be based on RIIO-ED2 forecast data only, NGED suggested that we use RIIO-ED1 historical data only with network length and customer numbers as cost drivers, and SPEN suggested that we use an econometric model for our analysis. NPg disagreed with the postmodelling qualitative adjustment that had been applied to its benchmarked costs but our engineering review confirmed that these costs were not justified. We have therefore decided to retain the qualitative adjustment for Final Determinations. SSEN did not consider we had adequately taken its company specific factors into account during our analysis, having partially accepted them at Draft Determinations. We have decided to retain our Draft Determinations position for SSEN's STEPM costs, as our analysis suggests that the MEAV ratio for SSEN does not materially differ from the other DNOs.
- 7.409 We continue to consider that the historical data and consistent forecast costs reporting submitted by DNOs supports a quantitative benchmarking approach when compared to RIIO-ED1. This also supports the use of both RIIO-ED1 and RIIO-ED2 data in our approach. Overall, we consider that the approach we have taken is a balanced view, using both historical data and forecasts to set allowances and supplemented by qualitative review.
- 7.410 Table 48 shows our view of modelled costs compared to DNOs' submitted costs. The fourteen DNOs have collectively forecast £190m. Our modelled view of costs is £162m, a reduction of £28m.

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
	£m	£m	£m	£m	%
ENWL	23	19	17	-6	-26%
NPgN	14	11	9	-5	-35%
NPgY	15	13	11	-4	-29%
WMID	16	13	13	-2	-16%
EMID	18	15	16	-2	-13%
SWALES	7	6	6	-1	-14%
SWEST	13	10	9	-3	-26%
LPN	11	10	10	-1	-5%
SPN	10	9	11	1	6%
EPN	19	16	18	0	-3%
SPD	5	5	8	2	46%
SPMW	6	5	7	1	17%
SSEH	9	7	8	-1	-14%
SSES	25	19	19	-6	-23%
Total	190	157	162	-28	-15%

Table 48: Small Tools and Equipment modelled costs (£m, 2020/21 prices)

## **Vehicles and Transport**

## **Background**

- 7.411 Vehicles and Transport relates to expenditure on new and replacement wheeled vehicles and generators which are not system assets but are utilised by the DNO or any other Related Party for the purposes of providing services to the DNO. This includes commercial vehicle fleet, mobile plant and generators.
- 7.412 At Draft Determinations, we proposed to assess Non-Operational Vehicles and Transport and Closely Associated Indirect Vehicles and Transport costs together. We used MEAV ratio benchmarking on RIIO-ED1 and RIIO-ED2 data and took the industry median as the benchmark.

### Final Determination summary

7.413 We have decided to change our Draft Determination position for vehicles and transport and use a DNO median benchmark based on RIIO-ED1 and RIIO-ED2 data, with network length as a cost driver. We kept our position of assessing Non-Operational Vehicle and Transport costs and Closely Associated Indirects Vehicle and Transport costs together.

### Final Determination rationale and Draft Determination responses

7.414 We received seven responses to this question. The RIIO-ED2 CG agreed with our approach but noted cost outliers which need additional scrutiny due to potential effectiveness and delivery concerns. ENWL, NPg and SPEN agreed with our approach, while SSEN, NGED and UKPN disagreed. All three that did not agree with our approach believed MEAV was inappropriate for this area of spend.

- 7.415 NGED suggested looking at alternative drivers such as network length or customer numbers. We tested customer numbers as cost driver but disregarded this approach as it resulted in large adjustments from submitted costs and thus not deemed to be robust. We found network length a more suitable cost driver, also due its nature related to vehicles and transport.
- 7.416 As part of our analysis, we tested both DNO and industry medians for benchmarking. We found the DNO median fairer and more reflective of each DNO's vehicles and transport strategy and different fleet electrification ambitions.
- 7.417 SSEN and NGED suggested using RIIO-ED2 data only rather than RIIO-ED1 and RIIO-ED2, due to the differences of investment needed between the two time periods. We kept our position of using RIIO-ED1 and RIIO-ED2 as we consider using 13 years of data smooths the lumpy nature of these costs.
- 7.418 As such, we have decided to change our Draft Determination position for vehicles and transport and use a DNO median benchmark based on RIIO-ED1 and RIIO-ED2 data, with network length as a cost driver. We kept our position of assessing Non-Operational Vehicle and Transport costs and Closely Associated Indirects Vehicle and Transport costs together to avoid any bias in our modelling between those DNOs that lease and those DNOs that buy vehicles.
- 7.419 Modelled costs were then reallocated to Closely Associated Indirects and Non-Op capex based on our allowance disaggregation methodology.
- 7.420 Table 49 shows our view of modelled costs compared to DNOs' submitted costs. The fourteen DNOs have collectively forecast £279m. Our modelled view of costs is £235m, a reduction of £44m.

Table 49: Non-Operational Capex - Vehicles and Transport modelled costs (£m, 2020/21 prices)

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
	£m	£m	£m	£m	%
ENWL	23	18	20	-2	-11%
NPgN	16	13	15	-2	-10%
NPgY	17	14	15	-1	-9%
WMID	31	26	25	-7	-21%
EMID	39	32	31	-7	-19%
SWALES	27	23	21	-7	-24%
SWEST	32	25	24	-8	-24%
LPN	15	13	14	-1	-5%

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
SPN	22	20	20	-2	-9%
EPN	31	27	28	-2	-8%
SPD	6	6	5	-1	-23%
SPMW	6	5	4	-2	-28%
SSEH	7	5	6	-1	-10%
SSES	7	6	6	-1	-14%
Total	279	233	235	-44	-16%

# **D. High Value Projects**

7.421 Table 50 provides a summary of the key features and the changes that we have made to our activity-level assessment of high value project expenditure since Draft Determinations.

Table 50: Final Determinations summary of high value projects expenditure

Cost	<b>Final Determination</b>	Draft Determination
SSEH: Skye-Uist (south) subsea cable	Not included	Same as FD
SWALES: Abergavenny Northern Ring	Included	Same as FD
ENWL: Harker project	Not included	Provisionally allowed, subject to further review.
SSES: Fleet and Bramley substation	Included	Same as FD

## **Background**

- 7.422 High Value Projects (HVPs) are large, one-off NLRE projects that are typically more bespoke in nature due to their size and being delivered less frequently than many of the other day-to-day activities undertaken by the DNOs.
- 7.423 At Draft Determinations, we proposed to set the threshold for HVPs at £25m for non-load projects and to qualitatively assess any qualifying projects for RIIO-ED2.
- 7.424 There were four DNOs with submitted HVPs:
  - SSEH: Skye-Uist (south) subsea cable we considered this project as part of our assessment of SSEN's company-specific factor claim, removing it from the HVP assessment.
  - SWALES: Abergavenny Northern Ring we found the project to be sufficiently justified and to fit the criteria of an HVP.
  - ENWL (Harker project) and SSES (Fleet and Bramley substation) we noted both of these projects were subject to ongoing discussions with third parties. We provisionally allowed these projects, but noted they would be kept under review ahead of Final Determinations.

### Final Determination summary

- 7.425 We have decided to maintain our overall approach to HVPs at Final Determinations. We have retained the £25m threshold for projects to qualify as an HVP and have undertaken qualitative assessment of HVP projects, as supported by stakeholders.
- 7.426 We have included SSES's Fleet and Bramley whole system substation project and SWALES' Abergavenny Northern Ring project as HVPs at Final Determinations. We have not included ENWL's Harker project as a HVP at Final Determinations, as it did not meet the minimum value threshold requirement.
- 7.427 We have maintained our position of assessing SSEH's Skye-Uist (south) subsea cable project as part of our company-specific factor assessment at Final Determinations. Through this assessment, we have decided to include this project within the scope of the HOWS re-opener (see SSEN Annex Chapter 4 for further detail on the HOWS re-opener). We have also included £20.6m of ex ante funding to allow SSEH to continue to develop the projects included within HOWS, including Skye-Uist (south).
- 7.428 We have also established the HVP Re-opener during RIIO-ED2, which is described in Chapter 6 of our Overview Document.

- 7.429 All six DNOs agreed with our proposed approach to qualitatively assess HVPs. UKPN suggested that we should undertake cross-checks between Asset Replacement and HVPs to ensure that DNOs without HVPs are not disadvantaged in Ofgem's run-rate and survivor modelling.
- 7.430 NPg, SSEN, UKPN, NGED, the RIIO-ED2 CG and a consumer group agreed with our proposal to maintain the HVP threshold at £25m. ENWL and SPEN argued that the £25m threshold was too high, with ENWL suggesting it should be £18m or £20m instead.
- 7.431 SSEN disagreed with our proposal to disallow the Skye to Uist (south) HVP submitted in its Business Plan, which we assessed as part of its company-specific factor claim.
- 7.432 We also received a number of responses regarding our proposal to disallow ex ante funding for the Skye-Uist (south) subsea cable replacement that SSEN had included as an HVP in its Business Plan. These were from residents of the Scottish islands (21 responses), community councils, groups or organisations located in the Scottish islands (8 responses) and other interested stakeholders (2 responses). The responses generally disagreed with our proposed at Draft Determinations and presented a number of points which were common across some or the majority of proposals:
  - concerns about the security of supply to Uist and other islands in the Outer Hebrides;

- concerns about the environmental impact of running diesel generators for a sustained period in the event of a fault on the existing Skye-Uist subsea cable;
- capacity constraints on the existing cable limiting the opportunity to build new renewable power projects on the islands;
- the potential for a reduction in income for existing community-owned renewable energy projects in the event of a fault, noting that these projects can no longer get insurance cover for subsea cable faults;
- the potential impact on the local economy in the event of a fault on the existing cable.
- 7.433 We also received two responses from MSPs and one response from an MP regarding our proposal on the Skye-Uist (south) cable. One response noted that residents of the Western Isles pay 26% more on average than current energy price cap. Another suggested that a re-opener option would be suboptimal for consumers, given the potential delay in investment. A third suggested Ofgem's disallowance of the project combined with our rejection of SSEN's proposed fix-on-fail volume driver appears to leave customers in the Scottish Islands at risk of relying on diesel for their electricity, if the existing cable fails.
- 7.434 It is critical to ensure the right option is chosen to support both the nearterm and long-term resilience and capacity requirements of the Outer Hebrides. Both the replacement cable and any new Skye-Uist link should be consistent with the objectives of SSEH's wider strategic plan for Hebrides and Orkney and should not be treated in isolation from this broader strategic vision.
- 7.435 We have decided to provide ex ante development funding for projects covered within the HOWS re-opener, including Skye-Uist (south) (see SSEN Annex Chapter 4 for further details). This will allow SSEH to finalise its strategic whole systems approach to subsea cables and undertake preconstruction activities, minimising any delays to the delivery of these projects. The remainder of the funding for these projects may be accessed through the HOWS re-opener. This provides a clear route to funding for the Skye-Uist (south) project, while ensuring the correct option is selected to deliver value for money for customers, provide resilience to Uist and the Outer Hebrides, and allow renewable energy projects to be developed in the future. Ofgem will continue to work closely with SSEH ahead of any re-opener submissions made under HOWS.
- 7.436 We think our approach to funding for the replacement of the existing Skye-Uist cable helps to mitigate the concerns expressed by stakeholders. By providing ex ante development funding and including the project within HOWS, SSEN can continue to progress pre-construction activities related to the project and has a clear route to future funding, which mitigates stakeholders concerns about the security of supply and potential negative economic and environmental impacts on the community in the event of a fault. We think that SSEN also has an opportunity to address stakeholder

concerns about capacity constraints limiting the growth of renewable projects in the future as part of its strategic whole systems plan and the design option chosen for the replacement project.

7.437 Table 51 and Table 52 shows our view of modelled costs compared to DNOs' submitted costs. For HVP costs, the fourteen DNOs have collectively forecast £93m. Our modelled view of costs is £73m, a reduction of £19m. For Shetland costs, the SSEH has forecast £77m. Our modelled view of costs is £73m, a reduction of £4m.

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
	£m	£m	£m	£m	%
ENWL	-	18	-	0	0%
NPgN	-	-	-	0	0%
NPgY	-	-	-	0	0%
WMID	-	-	-	0	0%
EMID	-	-	-	0	0%
SWALE					
S	30	25	27	-3	-11%
SWEST	-	-	-	0	0%
LPN	-	-	-	0	0%
SPN	-	-	-	0	0%
EPN	-	-	-	0	0%
SPD	-	-	-	0	0%
SPMW	-	-	-	0	0%
SSEH	8	25	-	-8	-100%
SSES	54	42	46	-8	-15%
Total	93	110	73	-19	-21%

Table 51: HVP RIIO-ED2 modelled costs (£m, 2020/21 prices)

Table 52: Shetland modelled costs (£m, 2020/21 prices)

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
	£m	£m	£m	£m	%
ENWL	-	-	-	0	0%
NPgN	-	-	-	0	0%
NPgY	-	-	-	0	0%
WMID	-	-	-	0	0%
EMID	-	-	-	0	0%
SWALE					
S	-	-	-	0	0%
SWEST	-	-	-	0	0%

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
LPN	-	-	-	0	0%
SPN	-	-	-	0	0%
EPN	-	-	-	0	0%
SPD	-	-	-	0	0%
SPMW	-	-	-	0	0%
SSEH	77	52	73	-4	-5%
SSES	-	-	-	0	0%
Total	77	52	73	-4	-5%

# E. Network Operating Costs

7.438 Network operating costs (NOCs) are day-to-day costs incurred by DNOs as part of the work required to maintain and operate the distribution networks. Table 53 provides a summary of the key features and the changes that we have made to our activity-level assessment of network operating costs since Draft Determinations.

	,	
Cost	Final Determination	Draft Determination
Faults and Occurrences Not Incentivised (ONIs)	Regression analysis pooling Faults and ONIs costs using RIIO-ED1 and RIIO-ED2 data, and weighted Faults volumes and ONIs volumes as independent variables. RIIO- ED2 dummy time trend included.	Regression analysis pooling Faults and ONIs costs using DPCR5, RIIO-ED1 and RIIO- ED2 data, and Faults volumes and ONIs volumes as independent variables. Two linear time trends included.
Tree Cutting	For ENATS 43-8, industry median unit cost benchmark at individual voltage and category level using spans affected and RIIO-ED1 and RIIO-ED2 data. For ETR-132, industry median unit cost	For ENATS 43-8, industry median unit cost benchmark at individual voltage and category level using spans affected and RIIO-ED1 and RIIO-ED2 data. For ETR-132, industry median unit cost

Table 53: Final Determinations summary of network operating costs expenditure

	affected and RIIO-ED1 and RIIO-ED2 data. For ETR-132, industry median unit cost benchmark at sub-category level using RIIO-ED1 and RIIO-ED2 data. Volumes modelled on the run-rate of	affected and RIIO-ED1 and RIIO-ED2 data. For ETR-132, industry median unit cost benchmark at total cost level using RIIO-ED1 and RIIO- ED2 data. Volumes modelled on the run-rate of DPCR5
Severe Weather 1-in- 20	DPCR5 and RIIO-ED1 actuals. Excluded from cost assessment. UIOLI with zero starting allowance.	and RIIO-ED1 actuals. Same as FD
Inspections and Repairs & Maintenance	MEAV ratio benchmarking over RIIO-ED2, with industry median as the benchmark.	Same as FD, but using RIIO- ED2 data only

Cost	Final Determination	Draft Determination
NOCs Other	Dismantlement: MEAV ratio over RIIO-ED1 and RIIO- ED2, with industry median as the benchmark. Substation Electricity: accepted submitted costs. Remote Generation Opex: accepted submitted costs.	Same as FD for Dismantlement and Remote Generation Opex, DNO median unit cost based on RIIO-ED1 and RIIO-ED2 data for Substation Electricity.
Smart Meter Rollout	Industry median unit cost benchmark based on RIIO- ED2 data.	Same as FD

# Faults and Occurrences Not Incentivised (ONIs)

# <u>Background</u>

- 7.439 Faults costs are classified under Interruptions and reported as Unplanned Incidents which require action to restore an asset to Pre-Fault Availability. A fault starts at the same time as an Unplanned Incident and is completed when an asset is restored to Pre-Fault Availability. This may occur at a time that is later than when an Unplanned Incident (as reported under IIS) stops. Costs associated with faults relate to the activity required to restore the faulted asset to Pre-Fault Availability.
- 7.440 An ONI is any occurrence logged on the enquiry service operated by the licensee under Standard Licence Condition 8 (Safety and Security of Supplies Enquiry Service (SSSES)) which is not an incident, and which is not as a result of being identified during the installation of, or attempted installation of, a Smart Meter.
- 7.441 At Draft Determinations, we proposed using a model in which faults volumes and ONIs volumes are included as separate independent variables, thus drawing out any differences in faults and ONIs drivers. We also included two linear time trends to account for potential time effects not captured by the main drivers.

## Final Determination summary

7.442 We have decided to change our approach to weight the faults and ONIs volume cost drivers and replace the two linear time trends with a RIIO-ED2 time dummy. We have estimated the regression model on RIIO-ED1 and RIIO-ED2 data.

## Final Determination rationale and Draft Determination responses

7.443 UKPN and the RIIO-ED2 CG agreed with our approach. NGED, ENWL and SSEN partially agreed. NGED suggested incorporating a relevant scale variable such as network length in the model, to ensure that faults and ONIs are linked to a DNO's scale. SSEN argued that subsea cable faults should be excluded from the modelling. ENWL suggested that the allocation in the model between faults and ONIs needs to be reviewed ahead of Final Determinations to ensure a more appropriate balance of allowances across the categories.

- 7.444 NPg, SPEN and one energy industry body disagreed with our approach. NPg proposed that the assessment approach should be changed to either modelling at a more disaggregated level or a network specific factor adjustment, to take account of the historical reasons for the high volumes, given the evidence that the mix of fault types has a significant impact on how DNOs perform in the model. SPEN argued that regressing faults costs against the aggregated number of faults does not capture the varying costs incurred and forecast by DNOs. It proposed running regression models for ONIs and faults separately, disaggregating the number of faults into four categories based on their voltage level and location. The industry body noted the increase in Short Interruptions, disagreeing with the reduction in allowances for faults and ONIs.
- 7.445 Through the CAWG, NPg also highlighted that the Draft Determinations model accounted more for the mix of work than the unit cost efficiency of each DNO. It suggested weighting the cost drivers in the regression model by average unit costs. That is, multiplying the volumes of each fault or ONIs type by the average unit cost for that fault or ONIs type and summing these together for weighted volumes. We have tested this model and agree that it more accurately assesses efficiency, as well as being more statistically robust. Therefore, we have decided to change to this approach. We agree that the model performs better without DPCR5 data so we have based the regression on RIIO-ED1 and RIIO-ED2 data. The results of the regression analysis are shown in Appendix 2.
- 7.446 Results of the Chow test suggested the presence of a structural break between RIIO-ED1 and RIIO-ED2, and thus we have decided to replace the two linear time trends of the Draft Determinations model with a RIIO-ED2 time dummy. We note the point on the allocation of faults and ONIs costs, and have amended this in the modelling suite. We have decided that the model should incorporate subsea cables costs. We have applied a post-modelling increase to SSEH's subsea cable faults allowance to provide additional ex ante funding for managing faults, rather than allowing the proposed bespoke fix-on-fail volume driver (see SSEN Annex Chapter 4 for further details).
- 7.447 We tested adding a scale variable to the model, and do not agree that this improves the statistical robustness of the model. As at Draft Determinations, we do not agree that a more disaggregated model in this cost area functions well.<sup>136</sup> We note the point on Short Interruptions. For more information on these, please see Chapter 6.
- 7.448 Table 54 and Table 55 show our view of modelled costs compared to DNOs' submitted costs. The fourteen DNOs forecast they would spend  $\pm$ 1,867m on Faults and  $\pm$ 509m on ONIs in RIIO-ED2. We assessed the

<sup>&</sup>lt;sup>136</sup> <u>RIIO-ED2 Draft Determinations Core Methodology Document Paragraphs 7.348-9</u>

efficient level of expenditure to be  $\pm 1,718$ m for Faults and  $\pm 453$ m for ONIs, a reduction of 8% for Faults and 11% for ONIs.

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
	£m	£m	£m	£m	%
ENWL	127	103	120	-8	-6%
NPgN	119	97	98	-21	-17%
NPgY	178	149	163	-15	-8%
WMID	123	101	114	-9	-8%
EMID	142	117	132	-11	-7%
SWALES	54	45	51	-3	-6%
SWEST	108	83	95	-14	-12%
LPN	134	123	138	4	3%
SPN	142	127	130	-11	-8%
EPN	227	196	209	-18	-8%
SPD	121	105	113	-8	-7%
SPMW	121	104	106	-15	-12%
SSEH	61	47	62	1	2%
SSES	209	164	188	-21	-10%
Total	1,867	1,562	1,718	-149	-8%

Table 54: Faults modelled costs (£m, 2020/21 prices)

Table 55: ONIs modelled costs (£m, 2020/21 prices)

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
	£m	£m	£m	£m	%
ENWL	46	38	40	-6	-14%
NPgN	29	24	24	-5	-18%
NPgY	61	51	54	-6	-11%
WMID	45	37	35	-10	-21%
EMID	34	28	28	-5	-16%
SWALES	17	14	14	-3	-16%
SWEST	27	21	22	-6	-21%
LPN	38	35	39	2	4%
SPN	40	36	35	-4	-11%
EPN	74	64	68	-6	-8%
SPD	26	22	24	-1	-5%
SPMW	25	21	22	-2	-10%
SSEH	6	5	6	-1	-9%
SSES	41	32	40	-2	-4%

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
Total	509	427	453	-56	-11%

### **Tree Cutting**

### **Background**

7.449 Tree Cutting is the activity of physically felling or trimming vegetation from around network assets. The activity includes costs for:

- The felling or trimming of vegetation to meet Energy Networks Association Technical Standard (ENATS) 43-8 and ETR 132 requirements.
- The inspection of vegetation cut for the sole purpose of ensuring the work has been undertaken in an appropriate manner.
- Inspection of tree-affected spans where included as part of a tree cutting contract.
- 7.450 At Draft Determinations, for ENATS 43-8, we proposed to use RIIO-ED1 and RIIO-ED2 data to set an industry median unit cost benchmark for each voltage and activity category using spans affected as the cost driver. For ETR-132, we proposed to use RIIO-ED1 and RIIO-ED2 data to set an industry median unit cost benchmark at total cost level.
- 7.451 DPCR5 and RIIO-ED1 run rate analysis of tree cutting volumes showed that there was a slight increase in volumes for the ENATS 43-8 activity and an overall decrease in volumes for ETR-132 for the RIIO-ED2 period. Therefore, in both cases we proposed to use modelled volumes from the run rate analysis.

### Final Determination summary

7.452 We have decided to maintain our Draft Determinations position, with the exception of modelling ETR-132 costs by sub-category rather than at total cost level.

- 7.453 The RIIO-ED2 CG agreed with our approach as did UKPN. UKPN did question our proposal to apply a median unit cost to all volumes, given spans cut and spans inspected generate substantially different unit costs.
- 7.454 Four DNOs partially agreed with our approach. ENWL agreed that using industry median cost was logical, as the trends in the proposed approach for tree cutting costs and volumes are similar for the majority of DNOs over RIIO-ED1 and RIIO-ED2 and the requirements are broadly consistent across the periods, but noted the wide range of adjustments. SPEN agreed with treating ENATS 43-8 and ETR 132 costs separately and with modelling efficient costs by voltage and activity category, but disagreed with the proposed benchmarking period for ENATS 43-8. It argued that only RIIO-ED2 should be used, given the practice of LiDAR inspections has only recently become common for this purpose across DNOs. NGED

agreed with this, also noting maintenance costs should be included under ETR-132. NPg agreed with the approach for ETR-132, but supported using spans cut and inspections rather than spans affected as the cost drivers.

- 7.455 SSEN disagreed with our approach. They asked for the removal of the volume adjustment against spans affected, given that the volumes are justified by the latest LiDAR data, and argued for the subsequent unit cost assessment to be split up by both activity and voltage to ensure a fair comparison is made.
- 7.456 We agree that modelling ETR-132 costs at a total level, rather than by sub-category, disregards the maintenance clearance for compliance costs submitted by NGED and SSEN. We have therefore decided to model ETR-132 costs by sub-category. This change does not materially impact other DNOs.
- 7.457 Otherwise, we have decided to maintain our Draft Determinations position. We consider that our argument for using RIIO-ED1 and RIIO-ED2 data and modelled volumes still stands. We consider that spans inspected was not an appropriate driver for ENATs 43-8 due to reporting issues in this area. LiDAR inspections are recorded in km and physical inspections in the metric of spans, meaning it is not appropriate to combine both inspection activities for modelling purposes. DNOs also have different policies in tree cutting inspection and cutting strategies and cycles, resulting in different volumes and approaches by all.<sup>137</sup> We have not been able to resolve these reporting issues, so have decided to continue to use spans affected as the cost driver for ENATs 43-8. We note the wide range of adjustments but, having tested a number of different approaches, consider that the current model is the best performing one.
- 7.458 For information on our decision on ENWL's and SSEN's Ash Dieback volume drivers, please see the respective Company Annexes.
- 7.459 Table 56 shows our view of modelled costs compared to DNOs' submitted costs. The 14 DNOs forecast they would spend £693m on tree cutting. We assessed the efficient level of expenditure to be £607m, a reduction of 12%.

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
	£m	£m	£m	£m	%
ENWL	32	40	30	-2	-6%
NPgN	22	18	18	-4	-16%
NPgY	32	26	26	-6	-18%

Table 56: Tree Cutting modelled costs (£m, 2020/21 prices)

<sup>&</sup>lt;sup>137</sup> We note that at Draft Determinations we stated that the drivers used to assess tree cutting costs were spans inspected and spans cut. This was done in error, as the model proposed at Draft Determinations used spans affected as a driver.

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
WMID	61	50	53	-8	-13%
EMID	61	50	47	-14	-23%
SWALES	50	42	49	-1	-2%
SWEST	74	56	69	-5	-7%
LPN	-	-	0	0	0%
SPN	33	30	41	7	22%
EPN	57	49	77	21	37%
SPD	24	21	20	-4	-18%
SPMW	58	50	43	-15	-25%
SSEH	49	38	41	-8	-17%
SSES	140	110	93	-48	-34%
Total	693	581	607	-86	-12%

**Decision** – RIIO-ED2 Final Determinations Core Methodology Document

# Severe Weather 1-in-20

## **Background**

- 7.460 An exceptional severe weather event is deemed to begin at the beginning of a 24-hour period when the number of incidents caused by the event at distribution higher voltage in that period is equal to or greater than the commencement threshold number (42 times the mean number of incidents per day) and is deemed to end at the time determined by the Authority having regard to the selected criteria.
- 7.461 At Draft Determinations, as noted in paragraph 7.46, we proposed to exclude this activity from cost modelling. We proposed the implementation of a pass-through totex allowance mechanism with zero starting allowance. In the event that a DNO experiences a severe weather 1-in-20 event, then the efficient costs associated with the event can be reported and a true-up will be calculated by the PCFM.

### Final Determination summary

7.462 We have decided to retain our Draft Determinations approach.

## Final Determination rationale and Draft Determination responses

7.463 We continue to consider the approach proposed at Draft Determinations appropriate. We had seven responses to this question which includes the RIIO-ED2 CG and the six DNOs. All respondents agreed with the approach, with two noting the difficulties in forecasting these. One agreement was conditional on the qualifying costs and exclusions boundaries.

### **Inspections and Repairs & Maintenance**

#### **Background**

- 7.464 Inspections are carried out to identify safety issues and assess the condition of assets. Repairs & Maintenance are activities that aim to ensure that assets will reach anticipated life expectancy. This may involve the replacement of consumable items and repairs carried out where sub-components are replaced, or minor issues rectified.
- 7.465 At Draft Determinations, we proposed assessing the three cost categories together, using MEAV as a driver and setting the benchmark at the industry median over a 13-year period (RIIO-ED1 and RIIO-ED2).

#### Final Determination summary

7.466 We have decided to retain our Draft Determinations approach and use MEAV-based ratio benchmarking to assess Inspections, Repair and Maintenance costs. However, in a change from Draft Determinations, we have decided to use RIIO-ED2 data only for the assessment.

- 7.467 We received seven consultation responses. The RIIO-ED2 CG supported the approach presented at Draft Determinations, while all six DNOs partially or fully disagreed with our proposal.
- 7.468 NGED suggested using a subset of MEAV to make the assessment more reflective of the assets that are actually inspected, maintained or repaired, thus avoiding favouring companies with large underground networks which require minimal inspection. Specifically, NGED suggested using overhead lines, switchgear and transformers for inspections and excluding cables for repair and maintenance. We tested NGED's proposal and other alternative approaches but found results less robust and thus kept MEAV (excluding protection and subsea cables) as the driver.
- 7.469 ENWL argued that the proposed model relies too heavily on MEAV as a driver and does not give due consideration to the increasing costs in RIIO-ED2 to inspect, maintain and repair newer equipment. NPg raised a similar argument, and added policy changes and differences in inspection and maintenance cycles to the factors that would justify a qualitative adjustment in the model. We were persuaded that most DNOs will experience an increase in costs in this area due to policy and technological changes. As such, we have decided to change our Draft Determinations position (based on RIIO-ED1 and RIIO-ED2 data) and assess these costs using RIIO-ED2 data only.
- 7.470 SSEN considered using MEAV inappropriate, because it wrongly assumes same inspection and maintenance cycles for all assets and all DNOs whereas each DNO is characterised by a unique asset mix which is reflected in different intervention approaches. Moreover, it highlighted that the proposed approach does not consider the impact of inspection and maintenance investment on asset replacement and refurbishment

expenditure, and that the repair regime is DNO specific. As such, except for subsea cables, SSEN proposed benchmarking each DNO's unit costs as an alternative to the Draft Determinations position. As at RIIO-ED1, we continue to think that MEAV is an appropriate driver for our assessment, as it gives a good representation of DNOs' asset population and its use is consistent with other cost assessment areas.

- 7.471 SPEN and UKPN suggested using econometric models to capture potential non-constant returns to scale and time trends in costs. We found the proposed econometric approaches did not result in a substantial improvement on our approach and as such discarded them.
- 7.472 Both ENWL and NGED suggested assessing cut-outs inspections separately, particularly considering the changes to the inspection regime associated with smart metering rollout and consequent reduction in meter operator visits. We do not consider separating out cut-outs inspections from total inspections costs is appropriate because the nature of the activity is the same. We acknowledge that cut-outs inspections costs will likely increase with smart meters penetration, however we consider using RIIO-ED2 data only in our benchmarking mitigates for this.
- 7.473 Table 57 and Table 58 show our view of modelled costs compared to DNOs' submitted costs. For Inspections costs, the fourteen DNOs have collectively forecast £248m. Our modelled view of costs is £229m, a reduction of £19m. For Repairs and Maintenance costs, the fourteen DNOs have collectively forecast £660m. Our modelled view of costs is £612m, a reduction of £47m.

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
	£m	£m	£m	£m	%
ENWL	17	14	15	-1	-9%
NPgN	14	12	12	-3	-18%
NPgY	19	16	17	-2	-10%
WMID	21	17	19	-2	-9%
EMID	22	18	22	0	-1%
SWALES	15	13	12	-3	-19%
SWEST	20	16	16	-4	-20%
LPN	20	18	20	0	-2%
SPN	16	14	16	0	-1%
EPN	20	18	23	2	12%
SPD	9	8	9	0	1%
SPMW	12	10	10	-2	-18%
SSEH	24	18	23	-1	-5%
SSES	18	14	16	-2	-13%

Table 57: Inspections modelled costs (£m, 2020/21 prices)

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
Total	248	206	229	-19	-8%

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
	£m	£m	£m	£m	%
ENWL	54	44	50	-5	-9%
NPgN	39	32	32	-7	-18%
NPgY	49	41	45	-5	-10%
WMID	48	39	43	-5	-9%
EMID	49	41	49	-1	-1%
SWALES	27	23	22	-5	-19%
SWEST	34	26	27	-7	-20%
LPN	51	46	50	-1	-2%
SPN	46	42	46	0	-1%
EPN	56	48	62	7	12%
SPD	40	35	40	0	1%
SPMW	53	45	43	-10	-18%
SSEH	28	22	29	1	4%
SSES	85	66	74	-11	-13%
Total	660	550	612	-47	-7%

Table 58: Repairs & Maintenance modelled costs (£m, 2020/21 prices)

# **NOCs Other**

## **Background**

- 7.474 NOCs Other comprises three categories: Dismantlement, Remote Generation Opex and Substation Electricity costs. These are defined as follows:
  - Dismantlement is the activity of de-energising, disconnecting, and removing (where appropriate) network assets where the cost of dismantlement is not chargeable to a third party and no new assets are to be installed.
  - Remote Generation Opex denotes the costs associated with fixed diesel generation stations that provide permanent emergency backup in remote locations including islands. Remote locations will generally only have a single electrical feed. Mobile generation is not classified a Remote Generation.
  - Substation Electricity denotes the costs associated with electricity consumption (both metered and unmetered) in DNOs' substations.
- 7.475 At Draft Determinations, for dismantlement, we proposed using MEAV ratio benchmarking based on RIIO-ED1 and RIIO-ED2 data. For substation

electricity activities, we proposed using DNOs' median unit costs based on RIIO-ED1 and RIIO-ED2 data. We proposed to allow submitted costs for Remote Generation Opex.

### Final Determination summary

7.476 We have decided to maintain the Draft Determinations position for Dismantlement and Remote Generation Opex. For Substation Electricity, we have decided to accept submitted costs.

- 7.477 We received seven consultation responses. The RIIO-ED2 CG supported the approach presented at Draft Determinations, while we received mixed views from the six DNOs.
- 7.478 On Dismantlement, four DNOs broadly agreed with the proposed approach, although SSEN pointed out (for all areas) the distortions caused by the proposed methodology to disaggregate allowances and NPg highlighted the need to account for specific, one-off projects. SPEN disagreed with the approach, which it deemed not to give due consideration to fully justified EJPs. We consider the threshold not to make costs subject to benchmarking should be high, even when these costs are fully justified from an engineering perspective. As such, we have decided to retain our Draft Determination position and subject all submitted costs to benchmarking.
- 7.479 ENWL also disagreed with the proposed industry median because significant reporting inconsistencies make DNOs not comparable, and suggested using run rates instead. We think these costs are comparable and, as highlighted at Draft Determinations, we consider RIIO-ED1 costs not wholly reflective of RIIO-ED2 costs. Thus, we have decided to retain our Draft Determinations approach and used MEAV ratio benchmarking based on RIIO-ED1 and RIIO-ED2 data.
- 7.480 On Substation Electricity, ENWL agreed with the Draft Determinations approach in principle, but highlighted the presence of reporting inconsistencies. All other DNOs disagreed with the use of unit costs based on RIIO-ED1 and RIIO-ED2 data, claiming that it does not take into account the recent increases in electricity prices and related future uncertainty which are not under DNOs' control. As alternative solutions, DNOs proposed benchmarking volumes only (possibly in combination with a re-opener, NPg), a re-opener (SPEN), an RPE-type of adjustment to account for further movements in the prices of electricity (UKPN) and, if the current approach is retained, using the last 5 years of RIIO-ED1 only (NGED). We acknowledge that the approach proposed at Draft Determinations was biased towards an historical performance which might not reflect future electricity prices. As such, in a change from Draft Determinations, we have decided to accept submitted costs for Substation Electricity. Given Substation Electricity costs represent a very small share of totex, we consider the introduction of a UM in this area not to be proportionate.
- 7.481 We continue to consider our Draft Determinations approach for Remote Generation Opex appropriate, and thus have decided to retain the approach. The DNOs either did not comment on or agreed with it.
- 7.482 Table 59, Table 60 and Table 61 shows our view of modelled costs compared to DNOs' submitted costs. For Dismantlement costs, the fourteen DNOs have collectively forecast £9m. Our modelled view of costs is £6m, a reduction of £3m. For Remote Generation Opex costs, the fourteen DNOs have collectively forecast £31m. Our modelled view of costs is £28m, a reduction of £3m. For Substation Electricity costs, the fourteen DNOs have collectively forecast £148m. Our modelled view of costs is £135m, a reduction of £13m.

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
	£m	£m	£m	£m	%
ENWL	2	2	1	-1	-47%
NPgN	2	1	1	-1	-51%
NPgY	2	1	1	-1	-48%
WMID	0	0	0	0	50%
EMID	0	0	0	0	164%
SWALES	0	0	0	0	51%
SWEST	0	0	0	0	121%
LPN	0	0	0	0	-5%
SPN	0	0	0	0	306%
EPN	0	0	0	0	0%
SPD	1	1	0	0	-37%
SPMW	1	0	0	0	-39%
SSEH	0	0	0	0	-1%
SSES	2	2	1	-1	-48%
Total	9	8	6	-3	-37%

Table 59: Dismantlement modelled costs (£m, 2020/21 prices)

Table 60: Remote Generation Opex modelled costs (£m, 2020/21 prices)

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
	£m	£m	£m	£m	%
ENWL	-	-	-	0	0%
NPgN	-	-	-	0	0%
NPgY	-	-	-	0	0%
WMID	-	-	-	0	0%
EMID	-	-	-	0	0%
SWALES	0	0	0	0	-9%

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
SWEST	5	4	4	-1	-14%
LPN	-	-	-	0	0%
SPN	-	-	-	0	0%
EPN	-	-	-	0	0%
SPD	-	-	-	0	0%
SPMW	-	-	-	0	0%
SSEH	26	20	24	-2	-9%
SSES	-	-	-	0	0%
Total	31	24	28	-3	-10%

Table 61: Substation Electricity modelled costs (£m, 2020/21 prices)

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
	£m	£m	£m	£m	%
ENWL	10	8	10	-1	-7%
NPgN	6	5	5	-1	-10%
NPgY	10	8	9	-1	-9%
WMID	11	9	10	-1	-10%
EMID	19	16	18	-1	-8%
SWALES	7	6	7	-1	-9%
SWEST	10	8	9	-1	-15%
LPN	10	9	9	0	-2%
SPN	8	7	7	0	-4%
EPN	15	13	14	-1	-7%
SPD	12	11	11	-1	-8%
SPMW	9	8	8	-1	-12%
SSEH	7	5	6	-1	-9%
SSES	13	10	11	-2	-13%
Total	148	123	135	-13	-9%

# **Smart Meter Rollout**

# Background

7.483 The Smart Meter Rollout relates to the activity of a DNO having to physically attend a site to allow the installation of a smart meter.

- 7.484 At Draft Determinations we proposed to remove the volume driver and provide an ex ante allowance, set using an industry median unit cost based on RIIO-ED2 data. We changed our approach from RIIO-ED1 because the volumes required to deliver the rollout are no longer uncertain and the rollout now has a definitive end date.
- 7.485 We proposed that Smart Meter IT and communication costs remain passthrough items in line with RIIO-ED1 arrangements.

#### Final Determination summary

7.486 We have decided to maintain our Draft Determinations approach.

Final Determination rationale and Draft Determination responses

- 7.487 We received seven responses to this question. SPEN, SSEN and the RIIO-ED2 CG agreed with our proposed approach and four DNOs did not agree.
- 7.488 Of those that disagreed with our Draft Determinations approach, all commented that they did not agree with the removal of the volume driver UM that was in place during RIIO-ED1. They stated that the volumes required for delivery of the rollout are still uncertain and outside the control of DNOs.
- 7.489 We also received comments regarding the setting of intervention volumes. NPg disagreed with our approach of using a 3% industry median rate, again stating that volumes remain uncertain during RIIO-ED2 and questioning whether the approach taken benefits those DNOs with higher forecasted installations disproportionately. NGED also disagreed with our approach and suggested the use of RIIO-ED1 data to set volumes. UKPN stated that the intervention volumes were in line with their projections had the volume driver been maintained, however historical spend at licensee level was not adequately reflected.
- 7.490 We consider that given the stage that the rollout has reached, there is no longer sufficient delivery uncertainty to include the RIIO-ED1 volume driver. At the time of setting RIIO-ED1, delivery and timelines for the rollout were still affected by uncertainty and lack of historical data. The volume driver sought to address this.
- 7.491 Despite previous delays to the rollout, we consider that any uncertainty is now greatly reduced. This is partly due to the availability of better data, allowing DNOs to know how many installations need to be completed. In addition, we now have historical data of unit costs and intervention rates for DNOs which allows us to set robust allowances and volumes for the remainder of the rollout.
- 7.492 Table 62 shows our view of modelled costs compared to DNOs' submitted costs. The fourteen DNOs have collectively forecast £72m. Our modelled view of costs is £66m, a reduction of £6m.

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
	£m	£m	£m	£m	%
ENWL	13	11	9	-4	-29%
NPgN	2	2	2	0	-13%
NPgY	4	3	3	-1	-22%
WMID	5	5	5	-1	-11%
EMID	5	4	5	0	-6%
SWALES	3	3	3	-1	-19%
SWEST	3	2	3	0	-1%
LPN	2	2	4	2	87%
SPN	3	3	5	2	55%
EPN	5	4	7	3	60%
SPD	12	11	10	-2	-20%
SPMW	8	7	6	-2	-23%
SSEH	1	1	1	0	-42%
SSES	5	4	3	-2	-31%
Total	72	61	66	-6	-9%

Table 62: Smart Metering Rollout modelled costs (£m, 2020/21 prices)

# F. Closely Associated Indirects and Business Support

7.493 Table 63 provides a summary of the key features and the changes that we have made to our activity-level assessment of Closely Associated Indirects and Business Support Costs (BSCs) since Draft Determinations.

Table 63: Final Determinations summary of Closely Associated Indirects and Business Support Costs expenditure

Cost area	Final Determination	Draft Determination
Closely Associated Indirects, excluding vehicles and transport	Regression analysis using RIIO-ED1 and RIIO-ED2 data with MEAV as an explanatory variable and a RIIO-ED2 time period dummy.	Regression analysis using RIIO-ED1 and RIIO-ED2 data with MEAV as an explanatory variable and two linear time trends.
Core Business Support	Regression at DNO level using RIIO-ED1 and RIIO-ED2 data with MEAV as an explanatory variable and two linear time trends.	Regression at network level using RIIO-ED1 and RIIO-ED2 data with MEAV as an explanatory variable and two linear time trends.

# **Closely Associated Indirects**

#### **Background**

- 7.494 Closely Associated Indirects costs include the back office functions directly involved in the construction and operation of the network assets, such as project management and network design.
- 7.495 Closely Associated Indirects activities are grouped into the following categories:
  - Core Closely Associated Indirects: Network design and engineering, project management, system mapping, engineering management and clerical support (excluding Wayleaves), stores, network policy, control centre and call centre.
  - Wayleaves
  - Vehicles and transport
  - Operational training including workforce renewal.
- 7.496 At Draft Determinations, we proposed to use a regression analysis based on 13 years of data – RIIO-ED1 and RIIO-ED2 with MEAV as explanatory variable for all Closely Associated Indirects costs excluding Closely Associated Indirects Vehicles and Transport. For the latter, we proposed assessing Closely Associated Indirects Vehicles and Transport together with Non-Operational Capex and using MEAV as a driver with RIIO-ED1 and RIIO-ED2 data.

#### Final Determination summary

- 7.497 We have decided to broadly maintain our approach for Final Determinations. We continue to estimate a regression model for Closely Associated Indirects costs (excluding Vehicles and Transport) over the RIIO-ED1 and RIIO-ED2 periods with MEAV as the scale variable. Consistent with our approach to totex modelling we have excluded protection assets and subsea cables from the MEAV explanatory variable.
- 7.498 In line with our broader approach to re-considering the time trends used in our regression modelling we considered switching from using two time trends to including a time dummy for the RIIO-ED2 period. We have tested whether an RIIO-ED2 time dummy is statistically appropriate by performing the Chow test, which indicated that there is a structural break in the data between the RIIO-ED1 and RIIO-ED2 periods.
- 7.499 For our Final Determinations approach to Closely Associated Indirects Vehicles and Transport, please refer to the section on Vehicles and Transport.

#### Final Determination rationale and Draft Determination responses

7.500 We received seven responses. NPg, ENWL and SPEN and the RIIO-ED2 CG broadly or fully agreed with the proposed approach, while SSEN, UKPN and NGED disagreed.

- 7.501 The RIIO-ED2 CG agreed with using regression analysis for Closely Associated Indirects and Business Support but pointed out that further reductions could be achieved by addressing differences across DNOs, using a driver characterised by a slower growth rate than MEAV and taking into account that the National Grid acquisition of WPD (now NGED) will likely bring further cost savings.<sup>138</sup>
- 7.502 ENWL acknowledged the appropriateness of using a long-run regression analysis but highlighted that it might not fully reflect the costs of responding to future challenges. For example, it proposed to assess Operational Training separately and using RIIO-ED2 data only, to account for the cost increases in this area due to aging workforce and increased net zero related workload. Supported by the RIIO-ET2 precedent, SPEN also favoured a separate assessment for Operational Training, noting that differences in resourcing models are not captured by scale variables. Similarly, NGED proposed excluding both Operational Training and Wayleaves from the regression analysis, suggesting these activities are consistently reported by all DNOs.
- 7.503 SSEN disagreed with the Draft Determinations position and proposed the following changes to the assessment approach in this area: Complementing MEAV with a driver able to capture the increases in non-load related activities; amending the weights assigned to underground cables and overhead line to better reflect that the two types of assets have similar implications in terms of indirect costs; accepting the company specific factor rejected at Draft Determinations; introducing an opex adjuster mechanism to ensure appropriate funding for areas covered by UMs; and taking into account that out of area networks are not explained by MEAV.
- 7.504 NGED also pointed to the need to account for the volume of activities in the regression and proposed amending the currently simplistic model specification by using a scale variable (ie a combination of MEAV, network length and customer numbers) in combination with asset additions. UKPN via its economic consultant NERA disagreed with the use of asset additions or net capex in the regression due to, respectively, collinearity and endogeneity concerns, and proposed a regression model for Closely Associated Indirects and Business Support Costs (excluding DSO costs) all together, with MEAV and customers growth as variables.
- 7.505 For stakeholder responses on Closely Associated Indirects Vehicles and Transport, refer to the section on Vehicles and Transport.
- 7.506 In considering stakeholders' responses to our Draft Determinations, we have tested several alternative specifications for Closely Associated Indirects costs. These include estimating the regression model over the RIIO-ED2 period only and excluding Operational Training or DSO costs

<sup>&</sup>lt;sup>138</sup> WPD became part of the National Grid Group following is acquisition in 2021. It was renamed National Grid Electricity Distribution (NGED) from 21 September 2022.

from the modelled variable. We also considered alternative scale variables such as network length and the use of CSVs compromised of MEAV, network length, customers and peak demand. We estimated alternative specifications with workload/activity drivers such as asset additions and customer growth. Finally, we also estimated a joint model of Closely Associated Indirects and Business Support Costs.

- 7.507 These alternative specifications produced models that were either not appreciably better than our Draft Determination approach in terms of model fit (as measured by the R-squared statistic) or which performed relatively poorly in terms of diagnostic statistics. It is notable that both the efficiency rankings and range of efficiency scores across the DNOs is very similar across the alternative specifications. This gives us increased confidence that continuing with our Draft Determinations approach is appropriate.
- 7.508 Table 64 shows our view of modelled costs compared to DNOs' submitted costs. The fourteen DNOs have collectively forecast £5,780m. Our modelled view of costs is £5,263m, a reduction of £517m.

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
	£m	£m	£m	£m	%
ENWL	404	327	387	-17	-4%
NPgN	289	235	271	-18	-6%
NPgY	332	277	342	10	3%
WMID	456	374	399	-57	-13%
EMID	476	392	444	-33	-7%
SWALES	232	193	221	-11	-5%
SWEST	342	261	287	-55	-16%
LPN	444	399	404	-40	-9%
SPN	405	364	393	-13	-3%
EPN	693	600	605	-88	-13%
SPD	366	317	350	-16	-4%
SPMW	360	310	313	-48	-13%
SSEH	346	270	302	-44	-13%
SSES	634	499	547	-88	-14%
Total	5,780	4,817	5,263	-517	-9%

Table 64: Closely Associated Indirects modelled costs (£m, 2020/21 prices)

# **Business Support Costs**

#### **Background**

7.509 BSCs are the indirect operating costs that are required to support the DNOs overall business, such as corporate governance arrangements. For RIIO-ED2, BSCs fall into the following categories:

- Core Business Support, comprising of Human Resources and Non-Operational Training, Finance and Regulation, Insurance, Fines and Penalties, and Chief Executive Officer (CEO)
- IT & Telecoms
- Property Management
- 7.510 At Draft Determinations, we proposed to use a regression analysis based on 13 years of data – RIIO-ED1 and RIIO-ED2 with the MEAV as the explanatory variable for Core BSCs. We assessed IT&T BSCs together with operational and non-operational IT&T capex (see section on Operational, Non-Operational and Business Support IT&T), while we proposed to assess Property Management costs together with non-operational property costs (see section on Property). In both cases, we proposed a ratio benchmarking using MEAV as a driver with RIIO-ED1 and RIIO-ED2 data.

# Final Determination summary

- 7.511 We have decided to change our approach to modelling Core BSCs for Final Determinations. We have moved to modelling costs at the group, rather than DNO level, as suggested by a number of stakeholders in response to our Draft Determinations.
- 7.512 We continue to use MEAV as a scale variable in the modelling, however, consistent with our approach to totex modelling, we have excluded protection assets and subsea cables from the definition of MEAV.
- 7.513 In line with our broader approach to re-considering the time trends used in our regression modelling we considered switching from using two time trends to including a time dummy for the RIIO-ED2 period. However, in testing whether a RIIO-ED2 time dummy is statistically appropriate by estimating the Chow Test Statistic, we found no evidence of a structural break in the data between the RIIO-ED1 and RIIO-ED2 periods. We therefore continue to include two time trends, as per our Draft Determination approach.

#### Final Determination rationale and Draft Determination responses

- 7.514 We received seven responses, with mixed views on our proposed approach to assessing BSC.
- 7.515 The RIIO-ED2 CG agreed with using regression analysis for Closely Associated Indirects and Business Support. However, it pointed out that further reductions could be achieved by addressing differences across DNOs through the use of a driver characterised by a slower growth rate than MEAV, and taking into account the National Grid acquisition of WPD will likely bring further cost savings.
- 7.516 SPEN broadly agreed with the proposed approach and highlighted the lack of options to improve the model's statistical robustness. ENWL, NPg and SSEN disagreed with the assessment at the licensee level and proposed reverting back to the RIIO-ED1 approach by assessing BSCs at the group level, to avoid allocation issues and reflect how these costs are actually

incurred. As an alternative to group-level assessment, ENWL proposed to introduce group-level scale variables in the existing model specification.

- 7.517 SSEN also reported three flaws in the proposed approach:
  - The weights assigned to underground cables and overhead line in the MEAV variable do not reflect that the two types of assets have similar implications in terms of indirect costs.
  - The company specific factor rejection results in an unfair assessment for one network.
  - Out of area networks are not explained by MEAV, with further impact created by the Net After Non Price Control allocation being applied without using the company specific ratio.
- 7.518 NGED raised concerns around the heavy reliance on MEAV, a cost driver which it argued risks biasing results due to the different weights assigned to assets, and proposed using network length instead. More radically, UKPN proposed a regression model for Closely Associated Indirects and Business Support Costs (excluding DSO costs) all together, with MEAV and customers growth as variables.
- 7.519 In considering stakeholders arguments that BSCs should be modelled at the group level, we found that doing so considerably improved the fit of the model (as measured by the R-squared statistic) and reduced the range of efficiency scores produced across companies. While the model does not pass the diagnostic test for heteroskedasticity, we used heteroskedasticity-robust clustered standard errors in our modelling which alleviates this concern.
- 7.520 Table 65 shows our view of modelled costs compared to DNOs' submitted costs. The fourteen DNOs have collectively forecast  $\pounds$ 2,775m. Our modelled view of costs is  $\pounds$ 2,474m, a reduction of  $\pounds$ 301m.

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
	£m	£m	£m	£m	%
ENWL	256	208	233	-24	-9%
NPgN	140	114	133	-6	-4%
NPgY	164	136	168	5	3%
WMID	224	183	195	-28	-13%
EMID	227	187	208	-19	-8%
SWALES	115	96	95	-21	-18%
SWEST	188	144	146	-42	-22%
LPN	173	156	168	-5	-3%
SPN	159	141	153	-6	-4%
EPN	262	223	244	-18	-7%

Table 65: Business Support modelled costs (£m, 2020/21 prices)

DNO	RIIO-ED2 submitted	DD modelled	FD modelled	Difference	Difference
SPD	190	165	159	-31	-16%
SPMW	179	154	143	-36	-20%
SSEH	186	143	153	-33	-18%
SSES	313	244	276	-37	-12%
Total	2,775	2,294	2,474	-301	-11%

# **Indirects Scaler**

# **Background**

- 7.521 In response to our Draft Determinations, and in particular the material reduction to load related allowances, many DNOs proposed the introduction of a UM to automatically scale up allowances for indirects, as and when capex allowances flex upwards through other UMs.
- 7.522 UKPN submitted regression analysis conducted on its behalf by NERA which sought to estimate the historical relationship between expenditure on indirects and capex. This regression analysis modelled indirect expenditure as a function of MEAV and capex over the period 2011 to 2021. Given the functional form of the model, which was estimated in levels, the coefficient on the capex variable can be interpreted as the increase in indirect expenditure associated with a unit increase in capex. This coefficient can therefore be used to set the value of an indirect scaler, assuming that the historical relationship between capex and indirects reflects the efficient level of indirects required for a given level of capex.
- 7.523 NERA undertook two versions of this regression analysis, one with the dependent variable for indirects defined as the sum of Closely Associated Indirects and BSC and one defined as only Closely Associated Indirects costs.
- 7.524 The proposal for an Indirects Scaler was discussed in the CAWGs and supported by a majority of the DNOs.

# Final Determination summary

- 7.525 We are persuaded that UKPN's proposal for an Indirects Scaler at a value of 10.8% of each unit of capex allowance provided under load-related UMs is an appropriate mechanism to manage the uncertainty around indirect allowances associated with LRE. The Indirects Scaler will apply to the following load-related UMs:
  - Secondary Reinforcement Volume Driver
  - LV Services Volume Driver
  - LRE Re-opener

### Final Determination rationale and Draft Determination responses

- 7.526 We have considered the appropriate scope of the Indirects Scaler and determined that it should apply only to load related UMs. This is on the basis that the rationale for introducing the scaler is a product of the materiality of reductions to load related expenditure made in our Final Determinations relative to DNOs' Business Plans. This combined with the high levels of uncertainty around the scale and pace of LCT rollout gives rise to the prospect of material upward adjustments to load allowances inperiod through the operation of the load-related UMs which, if left unmitigated, could give rise to a funding gap for the associated indirect expenditure.
- 7.527 In setting the value of the Indirects Scaler we have used the coefficient from the NERA regression which models Closely Associated Indirect costs only (ie 0.108). This is because we do not consider there to be a sufficiently strong relationship between BSC (such as Finance, HR, CEO costs etc.) and LRE. We note this is also consistent with the operation of the Opex Escalator in the RIIO-ET2 price control.

### **G. Streetworks**

7.528 Table 66 provides a summary of the key features and the changes that we have made to our activity-level assessment of streetworks expenditure since Draft Determinations.

Table 66: Final Determinations summary of streetworks expenditure

Cost	Final Determination	<b>Draft Determination</b>
Streetworks	We used the DNOs' recent Streetworks costs to model their future spend, based on a growth rate factor. We used a ratchet mechanism, as no benchmark was applied.	Same as FD, except for inclusion of Out of Price Control costs.

# **Background**

- 7.529 Streetworks costs relate to activities that enable and support works in the public domain, such as permits and inspections relating to working on the highway and on footpaths. The costs associated with Streetworks result from complying with traffic management legislation, which is designed to ease congestion and disruption to the road network and establish conditions and requirements during DNO activities. Some DNOs also incur lane rental costs, which are levied by highway authorities for occupation of the busiest streets at the busiest times.
- 7.530 Streetworks costs have historically impacted DNOs differently due to local authorities having introduced permit and lane rental schemes at different rates, leading to some DNOs operating in regions that are more heavily permitted than others. Furthermore, permit and lane rental charges can vary substantially between local authorities, limiting the suitability of Streetworks for comparative benchmarking.

- 7.531 At Draft Determinations we proposed to use each DNO's recent average Streetworks costs (ie base year 2019-21) to model their future spend. We calculated a growth rate factor based on the trend of underlying activity volumes (ie LRE, Connections, NOCs) driving Streetworks activity. As the approach did not involve benchmarking, we proposed to apply a ratchet mechanism that selects the lower of DNO-submitted and modelled costs for future spending.
- 7.532 We also proposed to retain the RIIO-ED1 re-opener mechanism for Streetworks costs.

#### Final Determination Summary

- 7.533 We have decided to largely retain the Draft Determinations approach, although we have decided to use Out of Price Control costs for the assessment of the Streetworks activity.
- 7.534 The table below provides a summary of our Final Determination for the Streetworks re-opener mechanism (the Specified Street Works Costs Re-opener):

Output parameter	Final Determination	Draft Determination
UM type	Common re-opener for all DNOs	Same as FD
Re-opener window	January 2026	N/A
Trigger	DNO triggered by submission of an application during the re-opener window.	
Authority triggered outside the re-opener window.	N/A	
Materiality threshold	Common materiality threshold of 0.5%	N/A

Final Determination rationale and Draft Determination responses

- 7.535 We received seven consultation responses. SSEN and the RIIO-ED2 CG supported our overall proposed approach, but SSEN disagreed with the connections data we used and suggested excluding Out of Price Control costs. We agree with SSEN that excluding all Out of Price Control costs from the assessment is more appropriate and more consistent with the totex modelling.
- 7.536 The other five DNOs partially or fully disagreed with our proposed approach. SPEN, ENWL and NGED disagreed with the proposed use of 2019-2021 as base years, stating that there has been (and will be) new or increased uptake of permitting schemes which are not accounted for in the proposed base year selection. SPEN suggested a new base year 2019-2021 based on the industry median of the ratio of Streetworks costs to

the underlying costs activities (ie Connections, LRE, NOCs). As stated at Draft Determinations, we consider Streetworks costs are not suited to an industry benchmark approach and thus deem this suggestion not an appropriate alternative.

- 7.537 ENWL highlighted that the omission of Streetworks costs recovered through the RIIO-ED1 re-opener were not included in the base years and suggested that the base year 2019-21 should be updated using 2022 RRP data. Alternatively, NPg proposed using the most recent year of actuals (2021) as a base year, and considered it to be more reflective of future work. We have decided to retain our position regarding the time-period (2019-21) used to calculate the base year, to strike a balance between using a longer historical time-period while excluding earlier years that may not capture Streetworks schemes that were introduced recently. Moreover, we consider the BPDT data are a reliable representation of Streetworks costs, which is consistent across our assessment areas.
- 7.538 NGED also disagreed with the data used in our analysis (Streetworks cost included in the Costs and Costs & Volumes tables of the BPDTs) and suggested instead using the memo tables (M9a and M9b). We have decided to maintain our Draft Determinations position and use costs submitted in the Costs and Costs & Volumes sections of the BPDTs. We consider moving to memo tables would have generated biases in the overall benchmarking, given the challenges in fully reconciling the information from the two sources.
- 7.539 NPg proposed changing the methodology, because using the activity volumes fails to recognise that changes in costs are driven not only by changes in volumes, but also by external factors such as increased permit activity driven by councils' adoption of full permitting schemes and the Department for Transport's 'Street Manager' scheme. We consider the implementation of the re-opener mitigates the risk of unfunded increasing costs in the future.
- 7.540 UKPN and NPg suggested removing the ratchet mechanism. As our assessment of Streetworks costs is not based on industry benchmarking, we still consider it appropriate to apply a ratchet mechanism that selects the lower of DNO's submitted and modelled costs for future years.
- 7.541 7.541 In relation to the Streetworks re-opener mechanism, SSEN noted that the re-opener should take account of Environment Agency Guidance RPS 211 implementation costs. Similarly, NGED recommended that the re-opener scope be broadened to cover the changing policy environment, in a manner consistent with RIIO-GD2. They also proposed that the re-opener should have an additional close-out window at the end of RIIO-ED2. We have updated the Specified Street Work costs definition in the licence condition to more closely align it with the RIIO-GD2 definition and take account of these issues raised, but continue to see one re-opener window as sufficient.

# H. Non-controllable costs

7.542 We decided to retain our Draft Determinations position and accept in full all submitted non-controllable costs.

# Post modelling adjustments

### Overview

- 7.543 In this section we discuss the two areas we have considered the application of adjustments to our totex and disaggregated benchmarking:
  - Demand driven adjustment
  - Quality of service adjustment.
- 7.544 Table 67 provides a summary of the key features and the changes that we have made to our post modelling adjustments since Draft Determinations.

Table 67: Final Determinations summary of post modelling adjustments

Cost Area	Final Determination	Draft Determination
Demand driven adjustment	Demand driven adjustment based on totex Model 1, 2 and 3, ad using a FES System Transformation	Demand driven adjustment based on totex Model 3 and using a FES System Transformation scenario.
	Adjustment applied to totex Model 1, 2 and 3 only.	Adjustment applied to totex Model 1, 2 and 3 and the LRE component of the disaggregated modelling.
QoS adjustment	No QoS based post- modelling adjustment.	Same as FD

# **Demand driven adjustments**

#### **Background**

- 7.545 Our totex and disaggregated benchmarking models use the DNOs' Business Plan forecasts of load growth, as measured by units distributed, peak demand, LCT uptake, etc. The regression models employed for the totex benchmarking seek to control for differences in these variables across DNOs, through their inclusion as independent, explanatory variables, while the disaggregated models attempt to adjust DNOs' forecast workload activity to an efficient view of workload activity given their respective demand forecasts and LCT uptake projections.
- 7.546 Our UM package for LRE, specifically the Secondary Reinforcement Volume Driver, aims to manage the risks associated with under or overprovision of allowances, as it is designed to flex allowances up and down based on actual outturn demand growth as a result of LCT uptake. However there remains a risk to consumers that DNOs that have submitted the most ambitious load plans and scenarios are provided with inflated ex ante allowances if the forecast level of growth does not materialise, especially in light of the concerns highlighted by our analysis

of the plans as described in our Draft Determinations. It is in consumers' interests to maintain lower costs where possible, and as such it is in our view preferable to set a lower, more conservative, ex ante allowance that flexes up, rather than having to flex allowances down for large sections of the sector.

7.547 At Draft Determinations, we considered various options for how we might vary the level of demand growth that is funded through the ex ante allowances we set, mitigating the risk of inflated ex ante allowances, and ensuring consumers are protected. We chose to apply an adjustment which used the estimated elasticities from totex Model 3 in combination with the FES 2021 System Transformation view of the cumulative size of EV charger additions and cumulative number of HP additions to calculate an alternative set of modelled totex for Model 3. We calculated the percentage difference between the original modelled totex and the alternative System Transformation adjusted modelled totex to obtain a percentage reduction for the post-modelling adjustment. We then applied this adjustment to totex Model 1, 2 and 3 and the LRE component of our disaggregated modelling.

#### Final Determination summary

- 7.548 We have updated our approach since Draft Determinations, and have applied the following steps to calculate the demand driven post-modelling adjustment:
  - Step 1: Estimate the totex regression models to obtain cost elasticities with respect to each driver (from the estimated regression coefficients) and a set of modelled (predicted) totex.
  - Step 2: Derive alternative forecasts of EV and HP uptake based on the FES 2022 System Transformation scenario.
  - Step 3: Use the System Transformation forecasts of EV and HP uptake alongside a benchmarking approach to normalise submitted volumes to derive an alternative forecast of capacity released.
  - Step 4: Use the alternative forecast of capacity released to derive an adjusted bottom-up CSV, using the same weights as for the original bottom-up CSV.
  - Step 5: Use the estimated elasticities for totex Model 1, 2 and 3 from Step 1 in combination with a FES System Transformation consistent view of EV and HP uptake, capacity released and the bottom-up CSV to calculate three alternative sets of modelled totex.
  - Step 6: Use the difference between the modelled totex from Step 1 and the modelled totex from Step 5 to calculate the appropriate £m reduction for each set of totex for the post-modelling adjustment.
- 7.549 We do not apply a demand driven post-modelling adjustment to the disaggregated benchmarking models, to avoid any issues of double counting with the volume adjustments within these models, as these utilise a similar approach to adjusting LCT uptake and capacity released.

#### Final Determination rationale and Draft Determination responses

- 7.550 In the responses to our Draft Determinations, most DNOs agreed that there was a need for an adjustment to rebase allowances to a common scenario. NGED disagreed with the need for an adjustment, noting that funding DNOs in accordance with the Business Plan scenarios would remove the need and regulatory burden of having funding only available through a UM or volume driver.
- 7.551 UKPN suggested that Ofgem should apply a demand-driven adjustment pre-modelling, and that this adjustment should consider other data in addition to LCT uptake. UKPN said that simply using a demand driven adjustment based on an alternative view of LCT uptake does not properly normalise LRE submissions across the DNOs. UKPN argue that this approach does not adjust for the varying levels of proposed reinforcement requirements which are based on inconsistent assumptions concerning the actual demand contribution per LCT. UKPN stressed that to compare DNO submissions fairly, any adjustments need to properly normalise assumed LCT contributions to peak demand.
- 7.552 In terms of the calculation of the adjustment, ENWL and NGED said that it was inappropriate to base the size of the adjustment solely on totex Model 3 due to the different ways in which each model captures differences in planning scenarios and the impact of LCT connections. Instead, they suggested using model-specific adjustments.
- 7.553 Five DNOs disagreed with the use of the FES System Transformation scenario for the adjustment. ENWL said that using the System Transformation scenario risks not allowing networks to adequately facilitate the net zero transition. SPEN said that System Transformation was an outlier when compared to other net zero scenarios used by the ESO and the Climate Change Committee. UKPN disagreed that System Transformation represented the lowest cost scenario, as it assumes lower flexibility relative to Consumer Transformation.
- 7.554 UKPN expressed concern that our models did not account for customer flexibility, and said that the degree of customer flexibility was a relevant factor in accurately characterising the impact of different scenarios.
- 7.555 In terms of the implementation of the adjustment, NPg and UKPN stated that the implementation of the post-modelling adjustment led to double counts. They said that the models do not adequately control for differences in planning scenarios, leading the benchmarking to make adjustments based on differences in scenario, rather than differences in efficiency. They said that subsequently applying the demand driven adjustment was equivalent to making two disallowances for the same costs. They said that this was also the case where volume adjustments were made to disaggregated models before applying the demand driven adjustment.
- 7.556 ENWL and SSEN disagreed with our approach to apply the adjustment to the entirety of the totex models and suggested that the adjustment only

be applied to LRE component of totex, and the associated indirects. NPg suggested that the demand driven adjustment should not be applied to the disaggregated modelling.

- 7.557 As at Draft Determinations, we consider that an adjustment is required to rebase DNO allowances to a lower, more conservative, ex ante allowance that flexes up. Doing so will help maintain lower costs where possible, which is protects the interests of consumers, and will mitigate the risk of inflated ex ante allowances should LCT projections included in the DNOs' Business Plan fail to materialise. We note that the majority of DNOs were in agreement that some form of an adjustment is necessary.
- 7.558 With regards to whether the adjustment should be applied pre- or postmodelling, we consider this involves an exercise in regulatory judgement. We have assessed that a pre-modelling adjustment would be very challenging to robustly calculate and implement. A pre-modelling adjustment would also require adjusting the modelled component of all submitted costs, along with the cost drivers to be used in the modelling. None of the consultation responses suggested a method for making such adjustments. In our judgment, we consider it more appropriate to apply the adjustment post-modelling.
- 7.559 As for our Draft Determinations, we have chosen to use the ESO's System Transformation FES as the basis for our post-modelling adjustment. We opted for this scenario because while it facilitates the delivery of net zero, it has lower LCT uptake relative to the other FES – and we consider LCT uptake to be the main external cost driver for the DNOs' planning scenarios. This is not to say we consider System Transformation is the most likely view of the future, but instead that we consider it more appropriate to use a more conservative view of LCT uptake to set allowances in order to protect consumers from higher costs than necessary while ensuring allowances are sufficient to enable net zero.
- 7.560 We agree with the consultation responses that it is more appropriate to apply model-specific adjustments for each relevant model. As outlined above, we have implemented this in the totex models by combining the estimated coefficients from the regressions with a System Transformation view of LCT uptake and capacity released. Ideally, we would also derive a view of the other cost drivers<sup>139</sup> used in these models based on System Transformation projects for LCT uptake, however we consider this very challenging to do robustly.

<sup>&</sup>lt;sup>139</sup> The key drivers requiring adjustment would be those with significant weight in the bottom-up and top-down CSVs – such as MEAV, network length and customer numbers. Rebasing MEAV would be particularly challenging, as it would require Ofgem to take a view on the composition of each DNOs' network of assets under a System Transformation scenario.

- 7.561 We derive the System Transformation view of LCT uptake using the same methodology as for our Draft Determinations, but using FES 2022 instead of FES 2021.<sup>140</sup>
- 7.562 We derive the adjusted view of capacity released initially by normalising and benchmarking submitted volumes relative to forecast levels of LCT demand growth, before calibrating to a System Transformation (ST) view of LCT uptake. The steps are as follows:
  - Step 1: Calculate DNO forecast LCT demand growth. This is calculated by multiplying DNO LCT numbers by a consistent contribution to peak demand (the values used, listed below, are based on evidence provided by DNOs that was described in the Secondary Reinforcement disaggregated benchmarking section). For the HV/LV voltage levels we assume peak demand contributions of 1.3 kW per EV and 2.9 kW per HP. For the impact at the primary network, we assume values of 0.6 kW per EV and 0.8 kW per HP.
  - Step 2: Calculate an industry median ratio of DNO capacity released relative to the size of DNO forecast LCT growth. This is performed separately for primary, secondary GMTs, and secondary PMTs, based on the approximate share of customers served by PMTs and GMTs.
  - Step 3: Calculate System Transformation LCT demand growth and multiply by the industry median ratio above to obtain the normalised capacity released based on the ST view of LCT uptake.
  - Step 4: Finally, recognising the softer and less direct link between proposed primary reinforcement and LCT uptake, we average DNO submitted capacity released volumes with the normalised capacity released calculated in step 3 for primary reinforcement. Combining this view with the capacity released for secondary reinforcement calculated in step 3, we obtain the adjusted capacity released driver.
- 7.563 We then use this adjusted view of capacity released to calculate an alternative version of the bottom-up CSV, using the same weights for each cost driver as used in the original bottom-up CSV.
- 7.564 As described above, we use the estimated elasticities for totex Model 1, 2 and 3 from the original regressions in combination with the FES System Transformation view of EV and HP uptake, capacity released and the bottom-up CSV to calculate three alternative sets of modelled totex. We then calculate the difference between these alternative sets of modelled totex and modelled totex from the original regressions to calculate the appropriate reduction for the totex model. We do not apply a direct postmodelling adjustment to the disaggregated benchmarking models, to avoid any issues of double counting with the volume adjustments implemented within these models, which utilise a similar approach to adjusting LCT uptake and capacity released.

<sup>&</sup>lt;sup>140</sup> We use equal weights on HPs and EVs within the composite LCT uptake variable.

7.565 Our updated approach results in a reduction in RIIO-ED2 totex of approximately 2% on average, which is smaller than the average adjustment at Draft Determinations of 3%.

## **Quality of service adjustment**

#### **Background**

- 7.566 We expect DNOs to deliver high quality services that meet customers' needs and we set ex ante allowances to reflect this.
- 7.567 At Draft Determinations, we noted that the cost-quality relationship was highly complex to quantify. Low quality may be associated with low cost (ie it is cheaper to deliver low quality), if, for example, low quality entails installing lower cost equipment and employing fewer resources for engaging with customers. However, it is also possible that low quality ends up leading to higher costs, if it ends up triggering costly repairs and significant customer engagement. There are also dynamic or lagging effects to consider, in that low cost today may lead to low quality in future price controls rather than the current one.
- 7.568 We also noted that for the IIS, we set company specific targets based on individual average performance, which reduces the risk that a DNO will start RIIO-ED2 in a position where they are in penalty territory, ie under-delivering against their outputs.
- 7.569 We proposed not to implement any pre-, within-, or post-modelling adjustments to account for any perceived funding gap associated with the link between quality of service and costs. We made this proposal on the basis that:
  - There are considerable practical challenges and complexities with integrating quality of service within the cost assessment using post-modelling adjustments.
  - We had not been provided with quantitative data and justification that individual DNOs' historical and forecast costs are consistent or inconsistent with performance targets expected from the sector in RIIO-ED2.
  - We had used forecast Business Plan data to set proposed performance targets and ex ante costs for the RIIO-ED2 period, which we considered to reduce the risk that the price control may be distorted or overly challenging in its assumptions about the relationship between cost and service quality.
- 7.570 In our Draft Determinations, we said that the onus was on DNOs to justify their case for any proposed adjustments, and that we proposed to set a high evidential bar for accepting any cost adjustment claims.

#### Final Determination summary

7.571 We have decided to maintain our Draft Determinations position and not implement any pre-, within-, or post-modelling adjustments to account for

any perceived funding gap associated with the link between quality of service and costs.

Final Determination rationale and Draft Determination responses

- 7.572 The majority of DNOs were in agreement with our approach at Draft Determinations, with ENWL noting that this kind of adjustment was highly problematic, and not practical. It added that it would expect incentives, incentive targets, and outcomes to be adjusted to reflect efficient levels of cost allowances. NGED disagreed with our approach, reasoning that the cost assessment framework did not account for quality of service, and that there was a risk that the benchmark was being set by low quality companies, and that there may be a funding gap to the performance target set under the ODI regime.
- 7.573 NGED proposed that we should make a cost adjustment for the DNO with historical leading performance on customer satisfaction and connections, using the assumption that the totex models only fund average sector performance over the period in which the models are estimated. It proposed to quantify the adjustment using the difference between average sector performance and target performance, in combination with the lower quartile ODI and the customer satisfaction penalty rate.
- 7.574 We have reviewed NGED's proposal for estimating a QoS based adjustment and note that this approach relies on the assumption that performance in the forecast period (including RIIO-ED2) remains in line with the latest available historical data. We have concerns with implementing this kind of adjustment as it relies on the assumption that the DNO which receives the adjustment will continue to deliver leading, or above average, levels of performance on guality of service in RIIO-ED2. We do not consider it appropriate to make this assumption, particularly in light of the transformational changes expected in the sector over the RIIO-ED2 period. Furthermore, as the proposed adjustment is calibrated based on the difference between the assumed performance delivered in RIIO-ED2 and the target level of performance for ODI rewards and penalties (ie the level from which rewards and penalties apply), it means that there would be no mechanism to claw back this additional funding should the quality of service performance in RIIO-ED2 turn out to be lower than assumed.
- 7.575 As noted above, at Draft Determinations we stated that we consider there to be a high evidential bar for accepting any adjustment claims, given the asymmetric risk to consumers here in favour of companies. We were not convinced that NGED had sufficiently quantified or qualified the issue, nor on the extent to which this effect was not already captured in our benchmarking.
- 7.576 As discussed in our Draft Determinations, we undertook a robust business plan assessment and cost benchmarking process to set ex ante allowances for areas that directly and indirectly impact DNOs' ability to deliver their outputs. In addition, for the IIS, we set company specific targets based on

individual average performance, which reduces the risk that a DNO will start RIIO-ED2 in a position where they are in penalty territory, ie underdelivering against their outputs.

7.577 As such, we maintain the view that our overall approach to cost assessment and the calibration of performance targets sufficiently addresses the challenges between quality of service and cost allowances.

# **Combining models and efficiency challenge**

#### **Background**

- 7.578 We benchmark DNOs business plans to assess the relative efficiencies amongst companies. This is used to determine the efficient 'frontier' level to which less efficient DNOs are required to 'catch-up'.
- 7.579 In high-level terms, we use our totex and disaggregated modelling to estimate 'average' efficient costs for each DNO. Our view of efficient costs for the purposes of setting allowances are then derived after we apply a catch-up challenge to these 'average' modelled costs.
- 7.580 We consider that totex and disaggregated benchmarking approaches are different in nature but mutually complementary since they seek to capture different characteristics of the DNOs' Business Plans and explore the efficiency and justification for the plans using different tools and techniques.
- 7.581 At Draft Determinations, we weighted both approaches equally to calculate our combined view of modelled costs for RIIO-ED2 ie applying a combined 50% weighting on our three totex models and a 50% weighting on our disaggregated model, as detailed below:
  - Totex Model 1: 16.67%
  - Totex Model 2: 16.67%
  - Totex Model 3: 16.67%
  - Disaggregated Model: 50.00%
- 7.582 At Draft Determinations, we proposed to adopt an efficiency benchmark (catch-up efficiency challenge) that includes a linear glide path from the 75<sup>th</sup> to the 85<sup>th</sup> percentile over the first three years of RIIO-ED2.
- 7.583 We calculated an average efficiency benchmark, including a glide path, based on an unweighted average of our three totex models. This average efficiency benchmark was then applied consistently to the modelled costs produced by all three totex models, but not to our disaggregated modelled costs. In other words, we combined our three totex models ahead of applying the efficiency benchmark, following which we incorporated our disaggregated modelling results.

#### Final Determination summary

7.584 We have decided to retain our Draft Determinations position on model weights, using equal weighting between the totex and disaggregated

modelling approaches and equal weighting on each totex model. We also retain the linear glide path approach from the 75<sup>th</sup> to 85<sup>th</sup> percentile over the first three years of RIIO-ED2.

- 7.585 We have changed our approach to calculating and applying the efficiency benchmark. For Final Determinations, we have calculated a weighted average efficiency benchmark, including a glide path, which places a 16.67% weight on each totex model and a 50% weight on the disaggregated benchmarking. The efficiency scores taken from the disaggregated benchmarking are calculated with the exclusion of any volume adjustments.
- 7.586 We apply this average benchmark to each model, then combine each set of modelled costs using the same weights.

#### Final Determination rationale and Draft Determination responses

7.587 The responses to our Draft Determinations had varied views on our proposed approach to combining the suite of cost assessment models.

#### Model weights

- 7.588 In terms of the relative weight placed on the totex and disaggregated modelling approaches, NPg said that more weight (67% instead of 50%) should be placed on the totex models due to problems they identified with the disaggregated approach. However, NGED said that the disaggregated models should be given at least a weight of 50%, as these models are better able to deal with the change in load between RIIO-ED1 and RIIO-ED2.
- 7.589 Regarding the weights applied to each totex model, SSEN said that Ofgem should not give equal weight to each totex model, but should instead give equal weight to the top-down models (Model 2 and Model 3) in aggregate and the bottom-up model (Model 1). That is, 25% of the overall weight should be allocated to Model 1, 12.5% each to Model 2 and Model 3, and 50% weight to the disaggregated model.
- 7.590 As per our approach at RIIO-ED1 and for our RIIO-ED2 Draft Determinations, we are satisfied that totex and disaggregated benchmarking approaches provide complementary views of DNOs' costs, as they seek to capture different characteristics of the DNOs' business plans. As such, we do not think there are strong reasons to assign different weights to the two approaches. Moreover, since Draft Determinations, we have improved the logic and robustness of both our totex and disaggregated models. We have therefore decided to retain the equal weighting between both approaches to calculate our combined view of modelled costs for RIIO-ED2.
- 7.591 In our view, each of our totex models captures a different, equally insightful approach to totex benchmarking. This allows us to accommodate a range of cost drivers and model specifications in our benchmarking, thus providing a comprehensive view of DNOs' relative efficiency and avoid overreliance on a single model. Model 1 is the most

closely linked to the disaggregated modelling, using a wider range of cost drivers and also a unit cost approach to calculate the cost driver weights. Model 3 places more emphasis on external, exogenous cost drivers, using a top-down CSV and the composite LCT uptake variable as an external driver of load-related expenditure. Model 2 represents a combination of the approaches taken in totex models 1 and 3, by using a top-down CSV alongside capacity released to represent DNO reinforcement workload.

#### Calculation and application of efficiency benchmark

- 7.592 All DNOs raised concerns about the level of the catch-up efficiency challenge and how it had been calculated and applied to modelled costs. UKPN said that the benchmark should be calculated using the results of the combined models (totex and disaggregated) and applied to combined modelled costs. We have amended our approach for Final Determinations to be consistent with this suggestion. We agree with this argument, noting that the catch-up efficiency challenge is more accurate when calculated based on the results from all the approaches considered in the assessment. We also note the changes that we have made to our disaggregated models since Draft Determinations, such as placing greater weight on assessment using industry median unit costs, means we are satisfied there is scope to apply a catch-up efficiency challenge to the totex derived through the disaggregated modelling. Therefore, we have decided to calculate a weighted average efficiency benchmark and apply it across all models.
- 7.593 All DNOs said that the level of catch-up efficiency should reflect the level of confidence in modelled costs. They said that Ofgem's proposed efficiency challenge was more stretching than at RIIO-ED1, and as stretching as RIIO-GD2, despite a comparative reduction in the quality of the underlying totex models (in terms of model fit, diagnostic tests and spread of efficiency scores).
- 7.594 SSEN argued that the use of a diversity of models, rather than increasing confidence in the modelling results, instead introduces additional uncertainty.
- 7.595 Most DNOs argued that consistency with the approach taken in RIIO-GD2 is not in itself sufficient justification for the level of catch-up efficiency challenge applied for the RIIO-ED2 period. It was argued that the different context surrounding RIIO-ED2 merited a separate consideration of the efficiency challenge. In particular, it was noted that the following factors implied a less stretching catch-up efficiency target than RIIO-GD2:
  - the absence of industry-wide totex outperformance in the preceding price control
  - the additional uncertainty over RIIO-ED2 period arising from LCT planning scenarios
  - the collection of new data in new areas, compared to RIIO-GD2

- 7.596 NPg, SSEN and NGED said that Ofgem was wrong to conclude that the impact of introducing a glidepath from the 75th to 85th percentile was not material as it accounted for c. 0.7% of totex allowances.
- 7.597 ENWL, SPEN and SSEN stated that Ofgem's approach implied a level of efficiency that no DNO has achieved. SSEN additionally stated that it was the most stringent catch-up efficiency challenge used in comparable regulatory decisions and amounted to an arbitrary efficiency standard.
- 7.598 NPg and SSEN did not agree with Ofgem's reasoning that an adaption to totex-based price controls would result in more reliable totex benchmarking results. SSEN argued that totex-based price controls would mean that the catch-up dynamic has become less relevant, as efficiency gains progressively shift away from catch-up and towards ongoing efficiency.
- 7.599 NPg disagreed that the use of capacity released as a cost driver in two of the totex models made the suite of models more robust than at RIIO-ED1. It argued that there were significant issues with the capacity released data, and that capacity released was intended to control for differences in planning scenarios, an issue that did not previously exist. Since Draft Determinations, we have addressed the issues within the capacity released data, as discussed in paragraph 7.124. Our reference to the use of capacity released in our Draft Determinations served as an example of how our models used a range of approaches to assess costs.
- 7.600 For our Final Determinations, we have decided to retain the glide path efficiency challenge. We are satisfied that the quality of our modelling has improved relative to both RIIO-ED1 and our RIIO-ED2 Draft Determinations, which gives us greater confidence in our models' identification of the efficiency frontier. We have come to this view based on the following reasons:
  - DNOs have been operating under a totex-based price control for two price control review cycles, and so we have a more consistent time series data set for benchmarking purposes than for any other price control review undertaken to date, bringing benefits to the quality of our modelling. For example:
    - The RIGs reporting framework has been stable since 2010 with a strong alignment with the BPDTs. DNOs are required to report detailed cost data each year, which we subject to the annual reporting process, exposing the data to continuous review, challenge and external scrutiny.
    - The introduction of a licence condition on data quality (via the Data Assurance Guidance process) at the start of RIIO-ED1 and the introduction of CNAIM and Information Gathering Plans (IGPs) increases our confidence in the data feeding into the BPDTs.
  - In the context of RIIO-ED2, we disagree with the assertion that an adaption to totex-based price controls means that efficiency gains

shift away from catch-up and towards ongoing efficiency. Instead, we consider it more likely that there is greater variation in cost performance, reflecting the DNOs' different views on the efficient approach to supporting net zero.

- We have been able to draw on historical data in our modelling to a greater extent than at RIIO-ED1. Our modelling benefits from 6 years of RIIO-ED1 historical data, as well as the consideration of the 5 years of DPCR5 historical data, whereas our modelling at RIIO-ED1 drew on 4 years of historical data.<sup>141</sup> This means we have greater confidence that our models capture the true relationship between costs and cost drivers.
- Our approach to benchmarking uses a range of model specifications and cost drivers to determine DNOs' efficiency scores and catch-up challenge. In recognition of the complexity underlying this price control, we do not rely on any one single model, but instead consider DNOs' relative efficiency from a wide range of perspectives, which gives us sufficient confidence that our overall determination is appropriate in the round. The overall pattern of efficiency scores is relatively consistent across the totex models. This provides reassurance that the relative differences in cost performance can be attributed to differences in efficiency. There are larger differences in the pattern of efficiency scores between the totex and disaggregated modelling, but we consider that is to be expected given the two workstreams take different approaches to assessing costs.
- Since Draft Determinations, we have improved the quality of our totex and disaggregated modelling. Our totex models now have adjusted Rsquared values in line with the totex models used at RIIO-ED1 (0.86 to 0.88) and are also statistically robust. At RIIO-ED1, the efficiency scores used to calculate the benchmark ranged from 0.93 to 1.09.<sup>142</sup> The weighted average efficiency scores used to calculate the benchmark for our Final Determinations have a slightly narrower range, of 0.95 to 1.09. Although we acknowledge that model fit (as measured by R-squared and the range of efficiency scores) does not necessarily imply improved model quality, it does provide reassurance that our totex models are of at least a comparable quality to those used at RIIO-ED1.

<sup>&</sup>lt;sup>141</sup> The RIIO-ED2 BPDTs collected data from DPCR5 onwards, due to inconsistencies in reporting prior to this point. Historical data from DPCR5 was used during the initial development of both our totex and disaggregated models. We note that totex Model 3 relies only on forecast data from 2022 onwards, but the results from this model are given a weight of only 16.7% when determining allowances. The remaining 83.3% of allowances are based on models which draw on historical data from the RIIO-ED1 period. <sup>142</sup> The efficiency scores presented here are taken directly from the RIIO-ED1 modelling suite. They are based on modelled costs pre efficiency challenge, the same way we calculate efficiency scores for RIIO-ED2.

 Compared to RIIO-ED1, our disaggregated modelling suite includes significantly more regression-based analysis, which has improved model robustness and makes our disaggregated assessment less vulnerable to any cost allocation or reporting issues that may exist in the data.

7.601 The following factors have also supported our decision:

- We expect that the electricity distribution sector will experience significant change during RIIO-ED2 as the DNOs invest to facilitate the net zero transition. The efficiency scores calculated over the RIIO-ED2 period (which use cost forecasts put forward in DNO Business Plans) may risk capturing inefficiencies in the forecast run rates of spend that are needed to respond to this transition, when more effective business strategies and opportunities for catch-up efficiencies exist within the sector.
- In our view, this context means that the choice of benchmark is particularly important for ensuring that our price controls reflect DNO practices and expenditure that are efficient going forward. Our cost assessment allows a significant increase in expenditure relative to RIIO-ED1 allowances, however, at the same time, we wish to ensure we apply a sufficiently stringent efficiency challenge that will push the sector to deliver transformational change efficiently and ensure the general interests of consumers are protected.
- The 75th and 85th percentile benchmarks are close together when calculated based on the weighted average efficiency scores, at 0.99 and 0.98, respectively. This means that the materiality of applying a glide path efficiency challenge is low when compared to applying a 75th percentile efficiency challenge, at approximately £112m, or 0.44% of final allowances.<sup>143</sup> This means there is limited risk that applying this tougher benchmark will endanger DNO investment.
- Our modelling for RIIO-ED2 has produced a lower efficiency challenge than at RIIO-ED1. At RIIO-ED1, the upper quartile efficiency score was 0.97. Our modelling for our RIIO-ED2 Final Determinations has produced an upper quartile efficiency score of 0.99 and an 85th percentile efficiency score of 0.98. We acknowledge that the benchmarks for RIIO-ED1 and RIIO-ED2 are constructed from two different datasets (which limits a direct comparison), but we consider that the benchmark level at RIIO-ED1 provides helpful context for the decision on the benchmark at RIIO-ED2.
- 7.602 Our decision to set the choice of benchmark is an exercise in regulatory judgement. We are satisfied that the improvements in the quality, detail and comparability of the data and our modelling justify our retaining of

<sup>&</sup>lt;sup>143</sup> The difference between the catch-up challenge when applied using the 75<sup>th</sup> percentile only, and when using the glidepath to the 85<sup>th</sup> percentile, was calculated post ongoing efficiency and relative to submitted normalised costs.

the linear glide path approach from the 75<sup>th</sup> to 85<sup>th</sup> percentile over the first three years.

7.603 Figure 14 below shows the efficiency scores and the 75<sup>th</sup> and 85<sup>th</sup> percentile for our three totex models and our disaggregated modelling, as well as the combined scores.



Figure 14 Top-down and disaggregated modelling - efficiency scores

# **Real Price Effects and Ongoing Efficiency**

#### **Background**

- 7.604 We set price control allowances that are indexed to a general inflation measure (ie the Consumer Prices Index including owner occupiers' housing costs (CPIH)). To the extent that CPIH does not adequately capture external changes to prices that network companies face, we may make further adjustments to allowances. We refer to these adjustments as RPEs.
- 7.605 At Draft Determinations we proposed to include adjustments for RPEs for all DNOs as part of their Final Determination allowances. These RPE adjustments are based on forecasts for the indices which make up the overall RPE index. We also proposed to 'true up' the RPE adjustments annually based on out-turn differences between CPIH and input price indices.<sup>144</sup>

<sup>&</sup>lt;sup>144</sup> The use of the CPIH index is in line with our approach to general inflation in the PCFM. For more details, see CEPA's report, 'RIIO-ED2 Final Determinations: Frontier Shift methodology paper', p. 48.

- 7.606 Ongoing efficiency reflects the productivity improvements that we consider even the most efficient company can achieve over RIIO-ED2. In our Draft Determinations we proposed an ongoing efficiency challenge of 1.2% pa.
- 7.607 In arriving at our Draft Determination position, we considered evidence on Total Factor Productivity (TFP) estimates produced using data from the 2019 EU KLEMS database. However, recognising the limitations of an approach based on historical growth in productivity in sectors other than electricity distribution, we also considered a range of other factors. These included:
  - the ambition of the electricity distribution sector to deliver transformational change over the RIIO-ED2 period;
  - the potential for both embodied and disembodied technical change;
  - the time period covered by the TFP estimates and our view that there
    is not strong evidence to suggest that the slowdown in wider
    productivity growth since the Global Financial Crisis should fully
    impact the sector during the RIIO-ED2 period;
  - the range of ongoing efficiencies submitted in DNO's Business Plans; and
  - recent regulatory decisions on the ongoing efficiency challenge in different network price controls.
- 7.608 Finally, we also considered the extent to which past innovation funding awarded in previous price controls could lead to further efficiencies in RIIO-ED2, beyond those in competitive sectors, and the extent to which these are already captured in our comparative benchmarking.
- 7.609 For Final Determinations, we commissioned CEPA to review the responses to our Draft Determinations and provide updated recommendations for RPE indices and ongoing efficiency assumptions. Details of CEPA's updated analysis can be found in CEPA's 'RIIO-ED2 Final Determinations: Frontier Shift methodology paper'.

#### Final Determination summary

- 7.610 We have broadly maintained our approach to RPEs in our Final Determinations. We have accepted CEPA's recommendations for updated RPE values which, following CEPA's approach to determining the notional cost structure, result in 87.9% of DNO's notional costs being indexed to external price indices other than CPIH.
- 7.611 With respect to ongoing efficiency, we are updating our approach by setting an ongoing efficiency challenge of 1.0% pa.

#### Final Determination rationale and Draft Determination responses

RPEs

- 7.612 There were eight respondents to our Draft Determinations. One of these respondents, the RIIO-ED2 CG, described our proposed approach without offering a view.
- 7.613 The remainder of the responses, from the ENA and the six DNOs, disagreed with our proposal. The rationale was largely drawn from the NERA report for the ENA, submitted on behalf of all DNOs. All DNOs supported the conclusions of that report, though different DNOs gave emphasis to different points. The main points were:
  - the notional cost structure is based on outdated information from the Business Plan Data Tables;
  - CEPA should not pool the general and specialist labour input cost categories;
  - the process for assessing materiality is arbitrary;
  - it is wrong not to set RPEs for input cost categories which do not pass CEPA's materiality thresholds; and
  - the price index selection method is intrinsically flawed as it fails to discriminate between different indices and is overly reliant on regulatory precedent.
- 7.614 Additionally, NGED criticised CEPA's selection of input price indices, in particular the choice of the ONS Average Weekly Earnings (AWE) index instead of the ONS ASHE Median Hourly Pay index. It argued that AWE's lack of differentiation between part-time and full-time workers could generate a bias if there is a relative change in the share of part-time workers in the wider economy compared to the electricity distribution sector.
- 7.615 In addition to these points ENWL and NGED commented on the indexation approach. They both supported the proposal that upfront allowances for RPEs will be provided with a 'true-up' after the indices/indexation impact is known.
- 7.616 NPg did not agree with Ofgem's decision to index RPEs. It considered that the provision of ex ante allowances means Ofgem still needs to manage the risk of RPEs being higher than allowed for as indexation using imperfect indices creates yet another dimension of risk around the variation in those indices.
- 7.617 In response to NERA's point that the indices are calculated using outdated information from DNOs' Business Plan Data Tables, CEPA updated the notional cost structure to reflect the breakdown of totex across expenditure categories implied by our Final Determination allowances (as agreed with DNOs at the CAWG).<sup>145</sup>

<sup>&</sup>lt;sup>145</sup> Technically, the breakdown reflects the totex expenditure by category implied by allowances produced by our 28th October 2022 model run.

- 7.618 On the issue of combining input cost categories, CEPA concluded that there was insufficient evidence to definitively support combining General Labour and Specialist Labour on cost allocation grounds, as was done at Draft Determinations. For Final Determinations, CEPA has kept these categories separate which will capture any differences in input cost pressures between these two input cost categories.
- 7.619 CEPA reviewed NERA's criticism of its selection of indices for each cost category but did not agree that the approach was flawed. However, CEPA did clarify and refine its approach, recommending the inclusion of two additional indices accordingly.
- 7.620 CEPA reviewed the BCIS Electrical Engineering Labour index which was not used in the Draft Determinations on the grounds that it showed similar historical movements as the BEAMA Electrical Engineering Labour index. CEPA finds that these indices have diverged in trend in the most recent years of outturn data. This suggests that the two indices may capture different elements of electrical engineering labour costs and may therefore not be duplicative of each other. CEPA has therefore expanded the list of underlying input price indices for the Specialist Labour category to include the BCIS Electrical Engineering Labour index.
- 7.621 On the use of materiality thresholds, across the price control Ofgem uses materiality thresholds to strike a balance between transferring onto customers significant risks, which are external to DNOs, and the complexity of the associated UM. Where DNOs could make substantial windfall gains or losses, there is a strong case for a UM. However, it is much more marginal where cost categories represent a small share of totex and annual variation can be expected to only have a small impact on total costs. Moreover, whilst such risks are largely outside of the DNOs control, they still have some residual ability and incentive to manage and mitigate these cost pressures through their procurement and supply chain management strategies. Therefore, there may be little value in transferring relatively minor risks onto customers.
- 7.622 In response to NGED's points around the use of the ONS ASHE Median Hourly Pay index, CEPA agree that the lack of differentiation between part-time and full-time workers in the AWE index means that both indices have their advantages and disadvantages. Therefore, CEPA included the ASHE index amongst the general labour indices.
- 7.623 CEPA also updated the underlying information on which the RPE forecasts are calculated to use the updated outturn input price indices up to the financial year 2021/22.

# **Ongoing Efficiency**

7.624 There were 11 respondents to the Draft Determination position on ongoing efficiency. The RIIO-ED2 CG and a consumer group agreed with the level of ongoing efficiency challenge applied in our Draft Determinations. The remainder of respondents disagreed with the level of challenge, and most also raised concerns with the approach adopted by Ofgem.

- 7.625 All the DNOs supported the conclusions of the NERA and Frontier Economics reports commissioned on behalf of the ENA. These raised the following points:
  - Ofgem is wrong to rely on value-added measures of TFP given the resulting ongoing efficiency challenge is applied to the whole of DNOs' totex.
  - CEPA does not sufficiently justify either the expansion of its set of comparator sectors or the time periods over which it calculates TFP.
  - CEPA is wrong to advise that transformational change during RIIO-ED2 will deliver additional TFP growth. The impact on productivity growth of these changes at RIIO-ED2 is highly uncertain and unevidenced.
  - CEPA/Ofgem are wrong to assert that past innovation funding will result in TFP growth over and above that suggested by historical growth accounting approach.
  - CEPA does not quantify the scale of the impact of embodied technical change on total scope for productivity growth and it is therefore wrong to use this to motivate a qualitative adjustment to the ongoing efficiency challenge.
  - CEPA does not evidence its assessment that the post-Global Financial Crisis slowdown in productivity will not substantively apply to DNOs during RIIO-ED2.
  - Regulatory precedent does not support an ongoing efficiency target of 1.2% pa.
  - CEPA is inconsistent in, on the one hand considering there is too much uncertainty to make an adjustment to ongoing efficiency challenge to account for impact of factors such as Brexit, COVID and the war in Ukraine but on the other hand recommending a qualitative adjustment for uncertain factors such as embodied technical change.
- 7.626 ENWL and SSEN submitted reports by Oxera which made the following additional points:
  - An efficiency challenge of 1.2% pa is only empirically supported by only one TFP estimate.
  - CEPA is wrong to conclude that value-added TFP measures are more robust than gross-output based measures.
  - Transformational change during RIIO-ED2 period will require more, not less, expenditure and the potential economies of scale arising from increased activity levels are already captured in the comparative benchmarking models.

- Embodied technical change was found to be inconsequential when estimated on behalf of the Dutch Electricity and Gas regulator.
- CEPA's analysis does not acknowledge that any improvement in quality of inputs is likely to have been passed on to consumers in terms improved quality of service by DNOs.
- Ofgem's approach of using of DNOs' submitted ongoing efficiency assumptions as a lower bound for its ongoing efficiency challenge creates perverse incentives on DNOs to submit less ambitious Business Plans at future price controls.
- CEPA is wrong to calculate its TFP estimates based on a simple unweighted average across sectors.
- Ofgem is wrong to apply the 1.2% pa ongoing efficiency challenge to the two years prior to the start of RIIO-ED2 as this double-counts the overall scope for productivity improvements.
- CEPA is wrong not to take account of economy-wide forecasts of productivity such as the Bank of England and OBR forecasts.
- CEPA has misinterpreted the submitted ongoing efficiency assumptions in UKPN and SSEN's business plans.
- CEPA is overly dismissive of independent studies which present empirical evidence demonstrating that the benchmark efficiency challenge from competitive industries was not achieved in the electricity distribution sector.
- 7.627 NGED cautioned that some DNOs had cited 'ambition' as the rationale behind the ongoing efficiency assumptions in their business plans, and that this was an inappropriate basis for Ofgem to set an ongoing efficiency challenge.
- 7.628 NGED also argued that Ofgem's ongoing efficiency challenge does not constitute an efficient allocation of risk between companies and customers and that it was equivalent to setting a material clawback in totex outperformance during RIIO-ED2.
- 7.629 Finally, SSEN Transmission argued that 1.2% pa. represents an especially challenging efficiency target given the proportion of ex ante totex in DNO's business plan being moved into UMs.
- 7.630 Our consultant, CEPA, reviewed stakeholders' responses to our Draft Determinations but did not find cause to revise the recommendations provided in their June 2022 report. These recommendations provide the following reference points for an ongoing efficiency challenge:
  - 0.5%, consistent with the ongoing efficiency challenge proposed by the least ambitious companies.
  - 1.0%, consistent with the ongoing efficiency challenge proposed by the most ambitious network companies.

- 1.2%, which would represent a more stretching outlook for the frontier efficiency achievements possible in RIIO-ED2.
- 7.631 Setting an ongoing efficiency challenge is an exercise of regulatory judgment and involves taking account of multiple factors as well as assessing the relevance of different evidence sources. Having reevaluated the evidence around each of CEPA's reference points and having considered stakeholders' responses to our Draft Determinations we are changing our approach by setting an ongoing efficiency challenge in our Final Determinations of 1.0% pa.
- 7.632 We consider the revised efficiency challenge of 1.0% pa to represent a stretching target, which is consistent both with recent UK regulatory precedent and the ongoing efficiency assumptions put forward by the most ambitious DNOs in the sector. It also reflects our view, as expressed in our Draft Determinations, that the EU KLEMS growth accounting evidence does not fully capture embodied technical change and that DNOs have to some extent been protected from the economy-wide productivity slowdown since the Global Financial Crisis.
- 7.633 With respect to the point raised by Oxera that Ofgem was wrong to compound the ongoing efficiency challenge from the two years prior to the start of RIIO-ED2, the Business Plan Guidance contained clear guidance to DNOs that they should exclude ongoing efficiency and RPEs from their forecast costs. All DNOs have confirmed to us that they have adhered to the Business Plan Guidance in this regard. Therefore, we do not agree that compounding the ongoing efficiency challenge prior to the start of RIIO-ED2 should double count the overall scope for productivity improvements and we have decided to maintain our approach of applying ongoing efficiency and RPEs from 2021/22.

# **Disaggregation of allowances**

#### **Background**

7.634 While DNOs submit their forecast costs at an activity level, our cost assessment produces allowances at a totex level. Allowances need to be broken down into the seven PCFM cost categories<sup>146</sup>, and the introduction of volume drivers, PCDs, and other price control mechanisms, require totex allowances to be broken down at an activity/output level. It is also important to have allowances disaggregated at an activity level in order to allow comparison against submitted costs, and to monitor in-period performance.

 $<sup>^{146}</sup>$  Load related capex, Non-load related capex – asset replacement, Non-load related capex – other, Faults, Tree cutting, 100% 'revenue pool' expenditure, and Controllable opex.

- 7.635 It should be noted that the approach taken to disaggregate allowances does not impact the overall totex allowance but does affect the proportion that is classed as variant (at-risk) and non-variant (fixed) totex.<sup>147</sup>
- 7.636 At Draft Determinations, we proposed to use the proportional split of costs by activity from DNO submitted costs to reflect DNO business plans and different demand scenarios.

#### Final Determination summary

- 7.637 We have decided to update our approach from Draft Determinations and use the average of DNO submitted cost proportions and cost proportions produced from our disaggregated modelling, in order to allocate totex allowances.
- 7.638 This 50%/50% blended approach is used to disaggregate totex allowances to an activity level, and also to further disaggregate into activity subcategories where applicable (eg for the Secondary Reinforcement Volume Driver).

### Final Determination rationale and Draft Determination responses

- 7.639 We received seven responses to our Draft Determinations on this area. The RIIO-ED2 CG agreed with our approach, considering it to be appropriate that we had reflected the DNO's operational plans by using their submitted costs to disaggregate totex allowances.
- 7.640 All DNOs disagreed with our proposed approach at Draft Determinations. They expressed concern that the outcome of our disaggregated modelling process was not reflected in the allowances and that this created problems, both when engaging with their stakeholders and where cost areas are flexed up or down depending on outturn workloads. The majority of DNOs suggested that we disaggregate allowances using an equal weighting between totex models (split by submitted cost proportions) and disaggregated models to be more reflective of the overall cost assessment process.
- 7.641 NPg was critical of our approach and argued that we should base our disaggregation of allowances on the outcomes of the disaggregated modelling process alone, and that the use of submitted cost proportions is flawed. It highlighted that the over-allocation of allowances in secondary reinforcement, which is subject to a volume driver to allow allowances to flex up and down, is highly problematic.
- 7.642 We have worked closely with the DNOs through the CAWG on this issue, and our approach for Final Determinations reflects the recommended approach from the majority of the DNOs. We acknowledge that there are many different approaches that could be undertaken to disaggregate

<sup>&</sup>lt;sup>147</sup> On a net before non-price control allocation basis. As we have moved to a % allocation method for non-price control allocations for Final Determinations there could be a small variation in the amount of non-price control allocation applied depending on the disaggregation methodology used.

allowances, and that there are advantages and disadvantages associated with the various options, but that ultimately the decision is subject to a degree of regulatory judgement.

- 7.643 We considered the approach proposed by NPg and accept that it has a logical basis, ie using the results from the disaggregated modelling process to inform cost allocation proportions. However, we were not persuaded that the approach should be implemented for Final Determinations. In particular, while the approach may have some logic, it does not take into account the totex benchmarking, which represents 50% of our overall cost assessment approach. Importantly the outcomes of our disaggregated modelling are not necessarily applicable to our totex benchmarking, and vice versa. We consider that the exclusion of either from the disaggregation of allowances methodology would lead to a worse overall outcome. We are not satisfied that such an approach achieves the right outcomes for RIIO-ED2. This would again be subject to criticism from DNOs and stakeholders that our approach does not reflect our overall cost assessment, or the business plans that DNOs submitted.
- 7.644 The main criticism from NPg on the use of submitted cost proportions to inform the allocation of totex is related to the inclusion of the demand driven adjustment, which it states alters the composition of the submitted costs. It argues that if we were to use submitted cost proportions within our disaggregation of allowances methodology then we should first adjust submitted cost proportions to take account of the demand driven adjustment.
- 7.645 While a demand driven adjustment is made to our totex benchmarking, this adjustment is based on the elasticity of totex, as a whole, to changes in explanatory variables (as discussed in para 7.548). Applying this adjustment entirely to the LRE component of totex would not account for the impact the demand driven adjustment is expected to have on other costs such as Closely Associated Indirects. Applying the adjustment to totex, as a whole, avoids the need to make relatively arbitrary decisions on what proportion of the adjustment should be applied to specific activity areas. As such, to represent our totex workstream within the disaggregation of allowances methodology, we consider it appropriate to use the submitted business plans of each DNO to inform cost proportions, as our totex workstream does not make any assumption or give any information on how these allowances should be disaggregated.
- 7.646 We are satisfied that our approach at Final Determinations is robust. There was criticism of our approach at Draft Determinations from most DNOs, including NPg, that our allowance allocation led to a significant over-allocation of allowances to LRE, at the expense of other activity areas. This was a product of ambitious forecast LRE in some DNOs' submitted business plans. We have tested the various options, including the approach preferred by NPg, and overall, we are satisfied that our chosen approach offers the most balanced outcome in terms of allowance

allocation, given there is no one answer for the appropriate approach to disaggregate totex allowances.

7.647 We are satisfied that there is inherent value in applying a consistent approach for the sector and we have not been provided with sufficient evidence to justify taking a bespoke allocation approach for DNOs. Our analysis suggests that NPg's preferred approach would provide allowances to NPg on Closely Associated Indirects and Business Support Costs far in excess of its Business Plan submission. In contrast, our chosen approach provides NPg with allowances consistent with its ask for Closely Associated Indirects and Business Support Costs, and a lower LRE allowances which it can then scale up using the LRE UMs.
## **Appendix 1 Econometric model results**

- A1.1 We have used a number of statistical tests for the totex models. These tests provide an indication of the robustness of the modelling results and also indicate where a parameter estimate might be biased and require an adjustment to the model specification. We included the following statistical robustness tests:
  - Ramsey RESET test for model misspecification: a general test for model misspecification. A failure of this test indicates that a linear functional form is not sufficient to explain the data, and so a driver may need to be transformed to logs, powers or something else.
  - White test for heteroskedasticity: heteroskedasticity can cause the standard errors to be biased. It typically occurs when the variation in the residuals is very different over time. The White test examines whether the variance in the model's residuals is constant (homoscedasticity). However, we use clustered robust standard errors to control for possible heteroskedasticity.
  - Skewness and Kurtosis (SK) test for normality: the SK test is used to test whether the residuals are normally distributed. Normality of residuals is not a necessity to derive unbiased results.
  - Pooling test for structural break: the pooling test focuses on whether the coefficients in the model are stable over time. If there is a statistically significant structural break in the data, there may not be a justification for pooling the data. One response to our Draft Determinations noted that the pooling test suffers from low power, as the 'unrestricted' model (where the relationship between costs and cost drivers is allowed to vary year on year) requires the estimation of a large number of parameters.
  - Chow test for structural break: Given the low power of the pooling test, we also use the Chow test to assess whether there is evidence of a structural break between the RIIO-ED1 and RIIO-ED2 periods, the relevant time periods for the specification of the econometric models.
- A1.2 There is no single method or robustness test to assess the model mechanistically. In order to assess the suitability of the models, we reviewed the results against the statistical tests and carefully considered the statistical robustness of the models and the economic rationale.
- A1.3 Table 68 below shows the regression results of the three totex models.

	Model 1	Model 2	Model 3
Time period	2016-2028	2016-2028	2022-2028
Estimated coefficient			
Bottom-up CSV	0.75***		

Table 68: Econometric model results

	Model 1	Model 2	Model 3
Top-down CSV		0.71***	0.63***
Capacity released		0.06**	
Composite LCT uptake variable (HPs and EVs)			0.10***
RIIO-ED2 dummy	0.17***	0.16***	
Constant	1.34***	-4.28***	-3.97***
Robustness test (p-values)			
Ramsey RESET	0.439	0.431	0.615
Heteroskedasticity	0.135	0.087	0.591
Normality	0.144	0.754	0.000
Pooling	1.000	1.000	1.000
Chow	0.946	0.438	0.609
Model fit			
Adjusted R- squared	0.88	0.88	0.86

Note: \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1

- A1.4 The totex regression models are 'log-linear' that is, both the dependent variable and the explanatory variables (with the exception of the RIIO-ED2 dummy variable) are in natural logarithms. The log-linear model specification allows the coefficients on the explanatory variables to be interpreted as elasticities that is, the 'responsiveness' of totex to a change in the explanatory variable in question.
- A1.5 A priori, we would expect each of the cost drivers included in the regression specifications to have positive coefficients, indicating that an increase in the volume of the cost driver leads to an increase in totex. Specifically, we would expect DNOs with higher scale (as measured by the CSVs), higher workload (as measured by capacity released) and higher LCT uptake to have higher totex requirements. We include a dummy variable for the RIIO-ED2 period as there is an anticipated change in the nature and scale of DNO activities (and thus totex) during the RIIO-ED2 period compared to RIIO-ED1. We would also expect the estimated coefficient or elasticity on the CSVs to be less than 1, indicating the presence of economies of scale (a 1% increase in scale results in less than a 1% increase in totex).
- A1.6 Our regression results conform to these expectations:
  - Model 1: The first totex model (consisting of a bottom-up CSV and a RIIO-ED2 dummy variable) passes all statistical diagnostic tests at the 5% significance level and has an adjusted R-squared of 0.88, compared to an adjusted R-squared of 0.86 for Draft Determinations. The coefficients on the bottom-up CSV and RIIO-ED2 dummy are positive (as we would expect) and statistically significant at the 1%

significance level. The estimated coefficient or elasticity on the bottom-up CSV is less than 1, which implies that on average, a 1% increase in this CSV is associated with less than a 1% increase in totex – that is there are economies of scale.

- Model 2: The second totex model (consisting of a top-down CSV, capacity released, and a RIIO-ED2 dummy variable) also passes all statistical diagnostic tests at the 5% significance level. The model has an adjusted R-squared of 0.88, compared to 0.84 for Draft Determinations. The estimated coefficients on the top-down CSV, capacity released, and RIIO-ED2 dummy are positive (as we would expect) and statistically significant at the 5% significance level. Similarly to Model 1, the estimated coefficient on the top-down CSV is less than 1, indicating the presence of economies of scale.
- Model 3: The third totex model (consisting of a top-down CSV and a composite LCT uptake variable of the number of HPs and EVs) passes the RESET, heteroskedasticity, Pooling and Chow tests. The coefficients on the top-down CSV and composite LCT uptake variable are positive (as we would expect) and statistically significant at the 1% significance level. As with Model 2, the estimated coefficient on the top-down CSV is less than 1, indicating the presence of economies of scale. Model 3 fails the test for normality of residuals, however we note that normality of residuals is not required for OLS to derive unbiased coefficient estimates.
- A1.7 All three totex regression models have similar model fit as measured by the adjusted R-squared: 0.88, 0.88 and 0.86 respectively. The model fit has improved relative to our Draft Determinations specifications, where the adjusted R-squared was 0.86, 0.84 and 0.80 for Model 1, 2 and 3, respectively.

## **Appendix 2 Disaggregated regression models results**

A2.1 Table 69 shows the results of the regression analysis at the disaggregated level. For the three models, the model specification assumes a Cobb-Douglas functional form. Core BS uses two linear time trends, while the other two models use an RIIO-ED2 dummy time.

	Faults and ONIs	Closely Associated Indirects	Core Business Support (company level)
Time period	2016-2028	2016-2028	2016-2028
Estimated coefficient			
MEAV (DNO level)		0.75***	
MEAV (company level)			0.80***
Number of Faults (weighted)	0.65***		
Number of ONIs (weighted)	0.38***		
RIIO-ED2 dummy	0.02	0.09***	
Time trend (whole period)			0.02
Forecast time trend			-0.01
Constant	-6.44***	-7.99***	-10.17***
Robustness test (p-values)			
Ramsey RESET	0.535	0.077	0.515
Heteroscedasticity	0.119	0.869	0.017
Normality	0	0.149	0.239
Pooling	1	1	1
Chow	0.945	0.132	0.055
Model fit			
Adjusted R- squared	0.93	0.77	0.84

Table 69 Regression Results Disaggregated Models

Note: \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1