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## **RIIO-ED2 Final Determinations UKPN Annex**

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Publication date: 30 November 2022

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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.

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## **1. Introduction**

### **Purpose of this document**

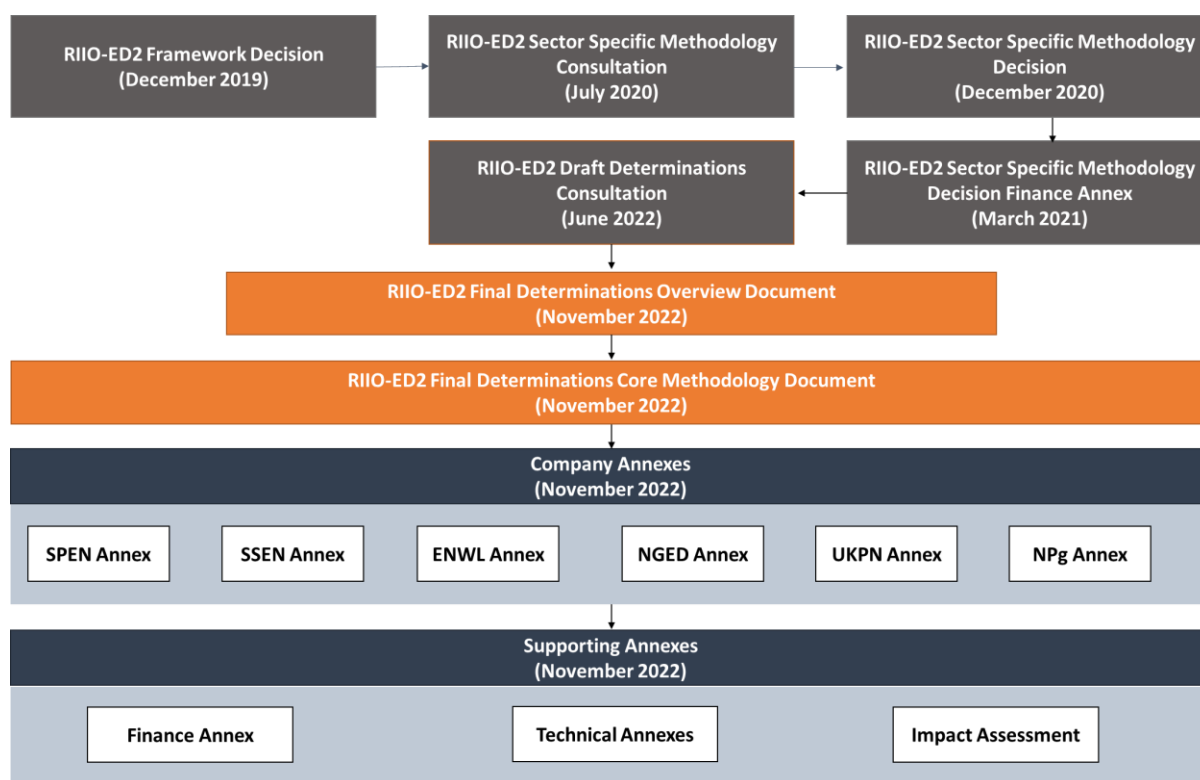
- 1.1 This document sets out our Final Determinations for the Electricity Distribution (ED) price control (RIIO-ED2) for the areas that are specific to UKPN.
- 1.2 The RIIO-ED2 price control will cover the five-year period from 1 April 2023 to 31 March 2028. All figures are in 2020/21 prices except where otherwise stated.
- 1.3 The purpose of this document is to focus on those elements of our Final Determinations for the price control settlement which specifically affect UKPN’s licence areas covering London Power Networks (LPN), South Eastern Power Networks (SPN) and Eastern Power Networks (EPN). This includes:
  - our assessment of the business plan incentive (BPI), including consumer value propositions (CVPs)
  - ex ante cost allowances
  - parameters for common outputs
  - bespoke Output Delivery Incentives (ODIs)<sup>1</sup>
  - bespoke Price Control Deliverables (PCDs)
  - bespoke Uncertainty Mechanisms (UMs)
  - Network Innovation Allowance (NIA) funding.
- 1.4 This document is intended to be read alongside the RIIO-ED2 Final Determinations Core Methodology Document and RIIO-ED2 Final Determinations Overview Document.
- 1.5 Figure 1 sets out where you can find information about other areas of our RIIO-ED2 Final Determinations.

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<sup>1</sup> In this document, we refer to ‘ODI-F’ which is a financial incentive and ‘ODI-R’ which is a reputational incentive.

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Figure 1 Navigating the RIIO-ED2 Final Determinations documents



## What are the company specific elements of UKPN’s Final Determinations?

- 1.6 This section provides a high-level summary of the elements of our Final Determinations which are specific to UKPN.
- 1.7 Table 1 summarises our assessment of UKPN across the four stages of the BPI and where you can find additional information about our decision for each stage.

Table 1 Summary of UKPN BPI performance

<b>BPI Stage</b>	<b>Final Determination</b>	<b>Further Detail</b>
Stage 1 minimum requirements	Pass	Overview Document for approach to assessment and rationale
Stage 2 Consumer Value Propositions	No reward	Chapter 2 of this document
Stage 3 Penalty	No penalty	Chapter 3 of this document
Stage 4 Reward	Reward	Chapter 3 of this document

- 1.8 The cost confidence assessment we have undertaken as part of this process results in a Totex Incentive Mechanism (TIM) incentive rate for UKPN of 50%. For further details on the TIM, see Chapter 9 in the Overview Document.
- 1.9 We present a summary of our ex ante Totex allowances for UKPN in Table 2. This reflects our view of efficient costs including ongoing efficiency over RIIO-ED2. For further details, please refer to Chapter 7 of the Core Methodology Document.

Table 2: UKPN RIIO-ED2 submitted Totex versus allowed Totex (£m, 2020/21 prices)<sup>2</sup>

<b>Cost activity</b>	<b>RIIO-ED2 submitted</b>	<b>DD (Net Before NPCA<sup>3</sup>)</b>	<b>FD (Net Before NPCA)</b>	<b>FD incl Access SCR (Net After NPCA)</b>	<b>Difference to submitted (on a Net Before NPCA basis)</b>
Load related capex	651	541	583	751	-10.4%
Non-load related capex	1,396	1,239	1,283	1,283	-8.1%
Non-operating capex	342	305	334	285	-2.5%
Network operating costs	997	885	1,003	1,003	0.6%
Closely associated indirects	1,542	1,363	1,401	1,004	-9.1%
Business support costs	594	520	565	475	-4.8%
<b>Total</b>	<b>5,523</b>	<b>4,853</b>	<b>5,169</b>	<b>4,802</b>	<b>-6.4%</b>

- 1.10 The common outputs that we are implementing for all DNOs in RIIO-ED2 are set out in Table 3 with further details provided in the Core Methodology Document. Table 3 also sets out the bespoke outputs that we are applying to UKPN in RIIO-ED2 (further details are contained within Chapter 2).

<sup>2</sup> Note that these costs do not include RPEs or 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.

<sup>3</sup> NPCA stands for Non-Price Control Allocations.

Table 3 Summary of common and bespoke outputs applicable to UKPN

<b>Output name</b>	<b>Output Type</b>	<b>Further detail</b>
<b>Common Outputs</b>		
Annual Environmental Report	ODI-R	Chapter 3, Core Methodology Document
DSO	ODI-F	Chapter 4, Core Methodology Document
Digitalisation Licence Obligation	LO	Chapter 4, Core Methodology Document
Technology Business Management (TBM) taxonomy for classifying digital/IT spend	ODI-R	Chapter 4, Core Methodology Document
Collaborative project with networks to develop a new regulatory reporting methodology	ODI-R	Chapter 4, Core Methodology Document
Smart Optimisation Output	LO	Chapter 4, Core Methodology Document
Customer Satisfaction Survey	ODI-F	Chapter 5, Core Methodology Document
Complaints Metric	ODI-F	Chapter 5, Core Methodology Document
Time to Connect	ODI-F	Chapter 5, Core Methodology Document
Guaranteed standards of performance - Connections	Statutory instrument	Chapter 5, Core Methodology Document
Major Connections Incentive	ODI-F	Chapter 5, Core Methodology Document
Treating domestic customers fairly	LO	Chapter 5, Core Methodology Document
Consumer Vulnerability Incentive	ODI-F	Chapter 5, Core Methodology Document
Annual Vulnerability Report	ODI-R	Chapter 5, Core Methodology Document
Interruptions Incentive Scheme	ODI-F	Chapter 6, Core Methodology Document

<b>Output name</b>	<b>Output Type</b>	<b>Further detail</b>
Guaranteed standards of performance - Reliability	Statutory Instrument	Chapter 6, Core Methodology Document
Network Asset Risk Metric	PCD, ODI-F	Chapter 6, Core Methodology Document
Cyber Resilience Information Technology	PCD	Chapter 6, Core Methodology Document and Confidential DNO Annexes
Cyber Resilience Operational Technology	PCD	Chapter 6, Core Methodology Document and Confidential DNO Annexes
<b>Bespoke UKPN Outputs</b>		
Collaborative Streetworks	ODI-F	Chapter 2, UKPN Company Annex
Off-Gas Grid Anticipatory Investment	PCD	Chapter 2, UKPN Company Annex

1.11 The common UMs that we have decided to put in place for all DNOs in RIIO-ED2 are set out in Table 4 with further details set out in the Overview Document or the Core Methodology Document. Bespoke UMs specific to UKPN are also set out in Table 4, with further details in Chapter 4.

Table 4 Summary of common and bespoke UMs applicable to UKPN

<b>UM Name</b>	<b>UM Type</b>	<b>Further detail</b>	<b>Proposed in DDs</b>
<b>Common UMs</b>			
Cost of Debt	Indexation	Finance Annex, Chapter 2	Yes
Cost of Equity	Indexation	Finance Annex, Chapter 3	Yes
Inflation indexation of RAV and allowed return	Indexation	Finance Annex, Chapter 9	Yes
Real Price Effects	Indexation	Annex 2, Chapter 4 of SSMD	Yes
Bad debt/valid bad debt claims by IDNOs	Pass-through	Finance Annex, Chapter 10	No



**Decision** – RIIO-ED2 Final Determinations UKPN Annex

<b>UM Name</b>	<b>UM Type</b>	<b>Further detail</b>	<b>Proposed in DDs</b>
Business/Prescribed Rates	Pass-through	Annex 2, Chapter 8 of SSMD	Yes
Ofgem Licence Fee	Pass-through	Annex 2, Chapter 8 of SSMD	Yes
Pension Deficit Repair mechanism	Pass-through	Annex 2, Chapter 8 of SSMD and Finance Annex, Chapter 10	Yes
Ring Fence Costs	Pass-through	Annex 2, Chapter 8 of SSMD	Yes
Severe Weather 1-in-20	Pass-through	Core Methodology Document, Chapter 7	Yes
Smart Meter Communication Costs	Pass-through	Core Methodology Document, Chapter 7	Yes
Smart Meter Information Technology Costs	Pass-through	Core Methodology Document, Chapter 7	Yes
Supplier of Last Resort	Pass-through	Finance Annex, Chapter 10	No
Transmission Connection Point Charges	Pass-through	Annex 2, Chapter 8 of SSMD and Core Methodology Document, Chapter 7	Yes
Cyber Resilience OT	UIOLI	Core Methodology Document, Chapter 6	Yes
Visual Amenity	UIOLI	Core Methodology Document, Chapter 3	Yes
Worst Served Customers	UIOLI	Core Methodology Document, Chapter 6	Yes
LRE - Low Voltage (LV) Services	Volume driver	Core Methodology Document, Chapter 3	Yes
LRE - Secondary Reinforcement	Volume driver	Core Methodology Document, Chapter 3	Yes
Polychlorinated Biphenyls (PCB)	Volume driver	Core Methodology Document, Chapter 3	Yes
Indirect Scaler	Volume Driver	Overview Document, Chapter 6	No

**Decision** – RII0-ED2 Final Determinations UKPN Annex

<b>UM Name</b>	<b>UM Type</b>	<b>Further detail</b>	<b>Proposed in DDs</b>
Coordinated Adjustment Mechanism	Re-opener	Overview, Chapter 5 of SSMD	Yes
Cyber Resilience IT	Re-opener	Core Methodology Document, Chapter 6	Yes
Cyber Resilience OT	Re-opener	Core Methodology Document, Chapter 6	Yes
Digitalisation	Re-opener	Core Methodology Document, Chapter 4	Yes
DSO	Re-opener	Core Methodology Document, Chapter 4	Yes
Electricity System Restoration	Re-opener	Core Methodology Document, Chapter 6	Yes
Environmental	Re-opener	Core Methodology Document, Chapter 3	Yes
High Value Projects	Re-opener	Overview Document, Chapter 6	Yes
LRE	Re-opener	Core Methodology Document, Chapter 3	Yes
Net Zero	Re-opener	Core Methodology Document, Chapter 3	Yes
Physical Security	Re-opener	Core Methodology Document, Chapter 6	Yes
Rail Electrification	Re-opener	Core Methodology Document, Chapter 7	Yes
Storm Arwen	Re-opener	Overview Document, Chapter 6	Yes
Streetwork Costs	Re-opener	Core Methodology Document, Chapter 7	Yes
Tax Review	Re-opener	Finance Annex, Chapter 7	Yes
Wayleaves and Diversions	Re-opener	Overview Document, Chapter 6	No
<b>Bespoke UMs for UKPN</b>			
N/A	N/A	N/A	N/A

1.12 Table 5 sets out our NIA allowances for UKPN (further details can be found in Chapter 5). Our general approach to the NIA is set out in Chapter 3 of our Core Methodology Document.

Table 5 Summary of NIA applicable to UKPN

<b>UKPN NIA</b>
£15m, to be reviewed by 2025

1.13 Table 6 summarises the financing arrangements that we are applying to UKPN. Please refer to Chapter 4 of our Finance Annex for more detail on these areas.

Table 6 Summary of financing arrangements applicable to UKPN

<b>Finance Parameter</b>	<b>UKPN (SPN and LPN) Rate</b>	<b>Source</b>
Notional Gearing	60%	See Table 14 in Finance Annex
Cost of equity allowance	5.23%	
Cost of debt allowance	3.07%	
WACC allowance (vanilla)	3.93%	

<b>Finance Parameter</b>	<b>UKPN (EPN) Rate</b>	<b>Source</b>
Notional Gearing	60%	See Table 14 in Finance Annex
Cost of equity allowance	5.23%	
Cost of debt allowance	3.01%	
WACC allowance (vanilla)	3.90%	

## 2. Setting outputs

### Introduction

2.1 In this chapter we provide our decisions on:

- The UKPN specific parameters for common outputs, detailed in our Core Methodology Document, which we propose to apply to all DNOs.
- The bespoke outputs and CVPs proposed in UKPN’s Business Plan.

### Common outputs

2.2 The UKPN specific parameters for the common outputs which we have determined for all DNOs in RIIO-ED2 are set out in the tables below. Further details on these outputs and our decisions are set out in the Core Methodology Document of these Final Determinations.

### Interruptions Incentive Scheme (IIS)

2.3 Table 7 and Table 8 summarise UKPN's unplanned Customer Interruptions (CI) and Customer Minutes Lost (CML) targets. The targets are based on information we have at the time of the FD publication. The final numbers will be set out in SpC 4.4 of the licence.

2.4 The unplanned targets are calculated under a common methodology that uses each DNO’s own historical performance to determine their targets, which means they are bespoke for each DNO. This methodology ensures the DNOs are incentivised to improve their performance (or avoid it deteriorating) but recognises that there are factors that will affect each DNO’s current performance and the cost and impact of any changes.

2.5 Table 9 and Table 10 summarise UKPN’s planned CI and CML targets.

2.6 Please refer to Chapter 6 of the Core Methodology Document for further details.

2.7 Please refer to Appendix 7 of the Finance Annex for the incentive values, including IIS revenue cap and collar values for LPN, SPN and EPN.

Table 7: IIS - unplanned CI targets

<b>Network</b>	<b>2023/24</b>	<b>2024/25</b>	<b>2025/26</b>	<b>2026/27</b>	<b>2027/28</b>
LPN	13.5	13.5	13.4	13.3	13.3
SPN	43.1	42.9	42.7	42.5	42.3
EPN	43.3	43.1	42.9	42.6	42.4

Table 8: IIS – unplanned CML targets

<b>Network</b>	<b>2023/24</b>	<b>2024/25</b>	<b>2025/26</b>	<b>2026/27</b>	<b>2027/28</b>
LPN	14.5	14.4	14.3	14.2	14.2

SPN	30.7	30.1	29.5	28.9	28.3
EPN	30.4	29.8	29.2	28.6	28.1

Table 9: IIS – planned CI target

<b>Network</b>	<b>2023/24</b>
LPN	0.02
SPN	0.72
EPN	1.22

Table 10: IIS – unplanned CML target

<b>Network</b>	<b>2023/24</b>
LPN	0.05
SPN	1.55
EPN	2.88

### **Network Asset Risk Metric (NARM) PCD and ODI-F**

2.8 Table 11 summarises UKPN’s Network Asset Risk Metric (NARM) baseline network risk output for RIIO-ED2. Please refer to Chapter 6 of the Core Methodology Document for further details.

Table 11: NARM PCD and ODI-F – Baseline Network Risk Outputs (£R, 2020/21 prices)

<b>Network</b>	<b>Baseline Network Risk Output</b>
LPN	197,057,392
SPN	474,329,173
EPN	900,491,839

### **Consumer Vulnerability Incentive**

2.9 Table 12, Table 12 and Table 14 summarise UKPN's vulnerability incentive targets for PSR Reach, the value of fuel poverty services delivered and the value of low carbon support services delivered. Financial targets are set out in net present value (NPV). Please refer to Chapter 5 of the Core Methodology Document for further details.

Table 12: Consumer Vulnerability Incentive (ODI-F): PSR Reach target

<b>Network</b>	<b>Year 2 target</b>	<b>Year 5 target</b>
UKPN bespoke target	68.9%	75.2%

Table 13: Consumer Vulnerability Incentive (ODI-F): the value of fuel poverty services delivered (NPV, £m)

<b>Network</b>	<b>Year 2 target</b>	<b>Year 5 target</b>
UKPN bespoke target	£7.47m	£31.27m

Table 14: Consumer Vulnerability Incentive (ODI-F): the value of low carbon transition services delivered (NPV, £m)

<b>Network</b>	<b>Year 2 target</b>	<b>Year 5 target</b>
UKPN bespoke target	£3.27m	£19.27m

### **Major Connections Incentive**

2.10 Table 15 shows UKPN's maximum penalty exposure for the Major Connections Incentive which is a penalty-only ODI-F. Please refer to Chapter 5 of the Core Methodology Document for further details.

Table 15: Major Connections Incentive - maximum penalty exposure

<b>Network</b>	<b>RIIO-ED2 penalty exposure in base revenue<sup>4</sup></b>
LPN	0.2%
SPN	0.2%
EPN	0.2%

### **Bespoke outputs**

2.11 For RIIO-ED2, we invited DNOs to propose additional bespoke outputs as part of their business plans reflecting the needs of, and feedback from, their stakeholders and consumers.

2.12 We said that companies were required to support their bespoke proposals with robust justification. In our Business Plan Guidance (BPG), we asked

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<sup>4</sup> The penalty is calculated by applying approximately a 0.1% penalty rate per Relevant Market Segment (RMS) within the scope of the incentive, up to a maximum exposure of 0.9% base revenue. Please see Appendix 7 of the Finance Annex for this penalty rate to be translated to RoRE.

for this justification to ensure that the potential consumer benefits put forward under bespoke proposals were significant enough to merit introducing any additional cost and/or regulatory complexity associated with them.

- 2.13 Having considered all responses to our Draft Determinations proposals, our decision for each bespoke proposal strikes an appropriate balance between these trade-offs. You can find the background and our assessment approach in our RIIO-ED2 Draft Determinations Overview Document.
- 2.14 UKPN submitted eight bespoke outputs. They include two bespoke ODI-Rs, one bespoke ODI-F, one PCD, three CVPs and one voluntary standard. We provide a summary of each bespoke proposal below, with the full details of each bespoke output put forward by UKPN found in its business plan submission. We set out our assessment of each output and detail which of them we have decided to accept and apply to UKPN in RIIO-ED2.

### **Bespoke Output Delivery Incentives**

- 2.15 The table below summarises the bespoke ODI proposals that UKPN submitted as part of its business plan and our Final Determinations position.

<b>ODI name and description</b>	<b>Consultation response summary</b>	<b>Final Determination</b>	<b>Draft Determination</b>
<p><b>Short Interruptions (SIs) (proposed Voluntary Standard):</b> Reduce the number of SIs by 10% per customer and make automatic compensation payment of £25 to customers who experience more than 25 high voltage SIs in a year.</p>	<p>UKPN accepted our position and noted that it does not understand the reasons for delaying the introduction of a minimum standard for SIs.</p>	<p>Reject output: we are not proposing to develop a minimum standard around SIs for RIIO-ED2 and do not consider it necessary to set a specific reputational ODI on UKPN to report this. Please see below for further details.</p> <p>No costs were submitted against this ODI for us to assess.</p>	<p>Same as FD</p>
<p><b>Reporting repeat power cuts (ODI-R):</b> Bespoke reporting</p>	<p>UKPN accepted our position but considers that its proposal would</p>	<p>Reject output: we do not consider it proportionate to set a specific</p>	<p>Same as FD</p>

<b>ODI name and description</b>	<b>Consultation response summary</b>	<b>Final Determination</b>	<b>Draft Determination</b>
metric for multiple loss of power occurrences of three minutes or longer	have provided better visibility of performance for a wider range of customers.	reputational ODI on UKPN to report this. Please see paragraphs 2.20 to 2.22 below for further details.  No costs were submitted against this ODI for us to assess.	
<b>Reporting Total Time Not Supplied (ODI-R)</b> : Bespoke reporting metric to track the Total Time Not Supplied	UKPN accepted our position but consider its proposal would have provided better visibility of performance for a wider range of customers. We respond to this concern below.	Reject output: we do not consider it proportionate to set a specific ODI on UKPN to report this. Please see paragraphs 2.24 - 2.27 below for further details.  No costs were submitted against this ODI for us to assess.	Same as FD
<b>Collaborative Streetworks (ODI-F)</b> : Reduce the disruption and economic impact associated with street-works.	UKPN agreed with our position but queried application of the TIM to the incentive.	Accept output. We will not set a target for completed projects. We will apply the TIM and the incentive cap. Please see paragraphs 2.28 to 2.34 below for further detail.  No costs were submitted against this ODI for us to assess.	Update at FD: We proposed to accept this ODI-F with an incentive rate of £0.305m per completed project capped at 0.2% of ex ante regulatory equity, subject to TIM, with a target of 40 completed projects over the price control period.

Short Interruptions

*Background*



- 2.16 UKPN proposed to reduce the number of SIs by 10% per customer and make automatic compensation payment of £25 to customers who experience more than 25 high voltage SIs in a year.

*Final Determination rationale and Draft Determination responses*

- 2.17 We proposed to reject this initiative as an ODI-R at Draft Determinations. We are not proposing to develop a minimum standard around SIs for RIIO-ED2, due to insufficient robust historical performance data from all DNOs. While recognising the inconvenience from multiple SIs, we do not consider it necessary to set a specific ODI-R on UKPN to report this.
- 2.18 UKPN accepted our position at Draft Determinations to reject this proposal but was concerned about our decision to delay the introduction of a minimum standard for SIs. UKPN will support further research on appropriate value of payment to customers and proposes that such payment should be automatic without the need for customers to raise claims. As UKPN considers they are taking the initiative to improve SI performance in RIIO-ED2 ahead of other DNOs, they request we take any improvement into account when setting future minimum SI standards so that UKPN is not disadvantaged for any actions they take now.
- 2.19 We have decided to implement our proposal at Draft Determinations. Development of a minimum standard for SI requires robust performance data across all DNOs, and the data available only goes back to 2020/21 at the earliest. As such, it will take time to collect the required data to smooth out impacts of exceptional events that occur. We reject this ODI-R, but as this is a business plan commitment for UKPN, it will need to report under Standard Licence Condition 50 (Business Plan Commitment Reporting) (SLC 50).

Reporting repeat power cuts

*Background*

- 2.20 UKPN proposed a bespoke reporting metric for multiple loss of power occurrences of three minutes or longer.

*Final Determination rationale and Draft Determination responses*

- 2.21 We proposed to reject this initiative as an ODI-R at Draft Determinations. We recognise that repeated power cuts can be inconvenient for customers but do not consider it proportionate to set a specific ODI-R on UKPN to report this.
- 2.22 UKPN noted that it accepts Ofgem's rejection of this proposal, but it considered that this initiative would have provided better visibility of performance for a wider range of customers and act as a stepping stone to introduce a metric for RIIO-ED3.
- 2.23 We have decided to implement our Draft Determination proposal and reject this as an ODI-R. However, as this is a business plan commitment for UKPN, it will need to report its progress under SLC 50.

Reporting Total Time Not Supplied

*Background*

2.24 UNPN proposed a bespoke reporting metric to track the Total Time Not Supplied.

*Final Determination rationale and Draft Determination responses*

2.25 We proposed to reject this initiative as an ODI-R at Draft Determinations. We recognise the inconvenience caused by supply interruptions to customers both in terms of their numbers and their durations, but do not consider it proportionate to set a specific ODI-R on UKPN to report this.

2.26 UKPN noted that it accepts Ofgem's rejection of this proposal but it considered that this initiative would have provided better visibility of performance for a wider range of customers and act as a stepping stone to introduce a metric for RIIO-ED3.

2.27 We have decided to implement our Draft Determination proposal and reject this output. However, as this is a business plan commitment for UKPN, it will need to report its progress under SLC 50.

Collaborative Streetworks

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Purpose	A financial incentive to enable participation in the cross-utility GLA programme of collaborative streetworks.
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Benefits	To reduce the number and length of streetworks disruptions for consumers.
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*Background*

2.28 UKPN proposed a bespoke ODI-F to enable them to participate fully in the Greater London Authority's (GLA) collaborative streetworks framework.

*Final Determination*

<b>Output parameter</b>	<b>Final Determination</b>	<b>Draft Determination</b>
Overall decision	Accept output	Same as FD
ODI type	ODI-F	Same as FD
Incentive value	Upside incentive only, with cap of 0.5% ex ante regulatory equity	Same as FD
Incentive rate	£0.305m per completed project	Same as FD
Reporting method	Through the GLA programme and the ENA Smarter Networks Portal	Same as FD
Licence obligation	SpC 4.10	N/A

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*Final Determination rationale and Draft Determination responses*

- 2.29 We have decided to maintain our position at Draft Determination to accept this ODI-F proposal, with an incentive rate of £0.305m per completed project, subject to the TIM, but to remove the requirement to have a target number of projects to be completed during the price control.
- 2.30 At Draft Determination, we proposed to accept this initiative as an ODI-F. We consider this initiative will reduce the frequency and duration of roadworks by aligning works for multiple parties within one project, and we recognise the proven effectiveness of the GLA framework.
- 2.31 UKPN welcomed this decision but it was concerned that applying the TIM to the incentive cap of 0.5% of ex ante regulatory equity would reduce the number of projects it could carry out during the price control period.
- 2.32 In its business plan UKPN proposed to deliver at least 40 projects during the price control, which we accepted as a target for this ODI. In its response to Draft Determinations UKPN suggest that most projects will be carried out in its LPN area, allowing only 16 projects during RIIO-ED2 as LPN's annual revenue cap is £1.5m (0.2% of its ex ante regulatory equity). We calculate that over the five years of the price control, 0.5% of base revenue divided by the incentive rate of £0.305m amounts to 24 possible projects to be delivered by LPN. We accept however that UKPN cannot predict how many projects will be viable in which of its areas (LPN, SPN, EPN are all subject to this ODI) and so have decided that UKPN should be able to complete as many projects as they can until reaching the cap.
- 2.33 We note UKPN's argument that more projects may be available should the TIM not apply, but the TIM applies to the gas distribution networks participating in this framework, and the regulatory process should be equivalent for gas and electricity so that they have the same level of incentive to collaborate on projects.
- 2.34 Four other stakeholders responded, all agreeing with our position at Draft Determination. In particular, a consumer body welcomed the cap at 0.5%, and the Greater London Authority emphasised the need for all of UKPN's areas to participate in the scheme.

**Bespoke price control deliverables**

- 2.35 The table below summarises bespoke PCD proposals for UKPN and outlines our Final Determinations position.

<b>PCD name and description</b>	<b>Consultation response summary</b>	<b>Final determination</b>	<b>Draft determination</b>
<b>Off-gas grid anticipatory investment PCD:</b> (initially	UKPN, the RIIO-ED2 Challenge Group (CG), an	Accept output and technical assessment treatment for costs	Same as FD

<b>PCD name and description</b>	<b>Consultation response summary</b>	<b>Final determination</b>	<b>Draft determination</b>
<p>proposed as CVP) deliver capacity for 242,000 off-gas grid customers to accelerate their transition to electric heating and transport.</p>	<p>energy industry body and a consumer body were supportive of our proposal to fund reinforcement ahead of need.</p> <p>The consumer body was in favour of our proposal to reject funding for advice services, while UKPN opposed this proposal.</p>	<p>associated with reinforcement ahead of need.</p> <p>Reject output and allowances outright for decarbonisation and energy efficiency advice services. Please see paragraphs 2.36 to 2.44 below for further detail.</p>	
<p><b>Polychlorinated biphenyls (PCB):</b> Asset replacement programme to address PCB contaminated assets</p>	<p>UKPN supported Ofgem’s proposal.</p>	<p>Reject output: We have decided to reject this proposal as a PCD and to address PCB contamination in pole mounted transformers through a common volume driver design for all DNOs with an overhead network. The replacement of ground mounted transformers will be addressed using ex ante allowances. Additional detail can be found in Chapter 3 of the Core Methodology Document.</p>	<p>Same as FD</p>

Off-Gas Grid Anticipatory Investment PCD

Purpose Deliver capacity for 242,000 off-gas grid customers

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Benefits Support the transition to electric heating and transport

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### Background

2.36 UKPN submitted a CVP proposal that included two separately costed parts: reinforcement activities, and advice services to off-gas grid communities on decarbonisation.

### Final Determination

Output Parameter	Final Determination	Draft Determination
Overall Decision	Accept reinforcement element as a PCD, technically assessed costs. Reject expenditure for advice services.	Same as FD
Type of PCD	Mechanistic	N/A
Outputs	56,114 metered cut outs 1,585 Overhead line LV Services 1,448 6.6/11kV ground-mounted transformers 158 LV Boards 74 LV Main Overhead line Conductors 4,897 6.6/11kV pole-mounted transformers 93 underground plastic LV mains 203 conventional conductor 6.6/11kV Overhead lines	N/A
Delivery date	31 March 2028	Same as FDs
Totex allowances	£71.5m <sup>5</sup>	£73.14m
Re-opener	None	None
Reporting mechanism	Regulatory Reporting Packs (RRPs)	N/A
Licence areas	SPN and EPN only	Same as FDs
Licence condition	SpC 3.12	N/A

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<sup>5</sup> Figures are gross costs and do not include efficiency challenge.

*Final Determination rationale and Draft Determination responses*

- 2.37 We have decided to set UKPN a PCD for reinforcing its network ahead of need in areas that are not connected to the gas distribution network because we consider that there is high certainty that heat decarbonisation in these areas will lead to an increase in demand on electricity distribution networks. Releasing capacity on the electricity distribution network ahead of need in these areas reduces the risk of delays and deliverability challenges in the future.
- 2.38 We are not, however, proposing to attach a CVP reward for this proposal (see “Consumer Value Propositions” below).
- 2.39 We received four responses with respect to UKPN's proposal for a programme of anticipatory investment in off-gas grid areas: from UKPN, an energy industry body, a consumer body and the CG.
- 2.40 All four responses were supportive of our proposal to accept the reinforcement expenditure with a PCD attached, based on the certainty about demand increasing in the future due to heat decarbonisation. As requested in our Draft Determinations, UKPN submitted further evidence over the summer that allowed us to develop a control in the form of a PCD, giving us confidence that allowances can be returned to consumers, should the investment ahead of need not be delivered as planned.
- 2.41 With respect to the expenditure UKPN proposed for advice services, a consumer body supported our proposal to reject the proposed allowance, for the reasons we had set out in Draft Determinations. One energy industry body, while not submitting a specific view on whether or not to accept the funding, highlighted that there was a lack of funding overall for decarbonisation advice services to customers.
- 2.42 UKPN criticised our proposal to reject the bespoke expenditure for advice services. It argued that the adoption of low carbon technologies in its off-gas grid communities would occur in an uncoordinated and ad hoc fashion, if UKPN did not cooperate with community groups to provide advice services. This uncoordinated approach to communities decarbonising would in turn lead to higher network reinforcement costs, or less capacity released as a result of the reinforcement works funded. UKPN also provided a report setting out results from its innovation project CommuniHeat which modelled the positive effects that local balancing and communities' coordinated investment in decarbonisation and energy efficiency could have on network reinforcement. Finally, UKPN highlighted that our position not to accept the funding was inconsistent with our decision to accept NGED's CVP on Smart Energy Action Plans for consumers in vulnerable circumstances.
- 2.43 We disagree that the position to reject the funding is inconsistent with our decision on NGED's CVP, as this provides services specifically to consumers in vulnerable circumstances who are at risk of being left behind by the energy transition. UKPN by contrast proposed to provide advice to all types of domestic customers in off-gas grid areas. Moreover,

NGED proposed to utilise only existing customer touchpoints, while UKPN proposed to make contact separately.

- 2.44 We disagree that UKPN requires additional funds to coordinate the reinforcement programme with community decarbonisation. UKPN already works with communities as part of its wider engagement and network planning activities and can continue to do so.

### Consumer Value Propositions

- 2.45 The table below summarises the CVP proposals that UKPN submitted as part of its business plan and our Final Determinations position in relation to each. Where appropriate, further information setting out the rationale for our decisions is set out under specified headings.

<b>CVP name and description</b>	<b>Consultation response summary</b>	<b>Final Determination</b>	<b>Draft Determination</b>
<p><b>Consumer Vulnerability Fuel Poverty support programme:</b> Supporting 200,000 customers with direct in-depth fuel poverty support as part of the fuel poverty support programme. Achieving the 200,000 target by investing £9m shareholder fund to support 100,000, and a further £9m funded by customers under the CVP to support the remaining 100,000 customers.</p>	<p>UKPN recommend that we accept the proposal without reward. They stated that there was a variation in treatment for similar proposals from other DNOs, including a disconnect in the number of customers UKPN can support (per 1000 customers) compared to other DNOs. UKPN's CEG disagreed with our proposed treatment, stating that the proposal met our CVP criteria for reward. A consumer body agreed with our proposed treatment but highlighted that there was a variation in our</p>	<p>Accept with no reward: We consider that the proposal does not warrant a CVP reward as the proposal ensures that the scale of UKPN's fuel poverty support is proportionate to the size of its customer base compared to that of other DNOs. However, we have decided to accept the expenditure, having reconsidered it in light of the cost-of-living crisis, and believe that the customers would benefit from the additional support delivered through this programme.  Given the discrete nature of the activity, the</p>	<p>Change at FD: we had proposed to reject this CVP outright as we did not consider it in consumers' best interest to fund and reward an additional 100,000 customers being supported.</p>

<b>CVP name and description</b>	<b>Consultation response summary</b>	<b>Final Determination</b>	<b>Draft Determination</b>
	treatment for similar proposals from other DNOs.	associated costs have been subject to technical assessment rather than benchmarking.	
<p><b>Whole Systems approach to public charging CVP:</b> delivering 2,400 additional charge points to customers without access to off-street parking and in areas of poor air quality.</p>	<p>UKPN and a consumer body provided views on our treatment of this CVP. UKPN stated that they were disappointed with our position but accept it. The consumer body supported our Draft Determinations position.</p>	<p>Reject outright: We have decided to reject both the reward and costs associated with this CVP. UKPN propose to utilise the funding through this CVP to discount the cost of network connections for EV chargepoints for stakeholders interested in delivering them (ie, chargepoint providers). We believe that utilising a CVP to discount the costs of a product or service for a third-party provider goes beyond the scope of what we expect from a DNO and believe that the delivery of EV chargepoints should be a market-led activity.</p>	<p>Same as FD</p>
<p><b>Whole Systems CVP for Off-gas grid:</b> deliver capacity for 242,000 off-gas grid customers to accelerate their</p>	<p>UKPN, the CG, a consumer body and an energy industry body provided views and were supportive of our</p>	<p>Accept, no reward: We consider that this proposal does not warrant a CVP reward because anticipatory</p>	<p>Same as FD</p>



<b>CVP name and description</b>	<b>Consultation response summary</b>	<b>Final Determination</b>	<b>Draft Determination</b>
transition to electric heating and transport.	proposal to fund the programme as a PCD rather than a CVP.	capacity release programmes form part of DNOs' business as usual activities, and do not go beyond baseline expectations.  We have decided to accept the reinforcement expenditure as a PCD. See "Bespoke price control deliverables" above for further details.	

### 3. Setting ex ante allowances

#### Introduction

3.1 This chapter sets out our Final Determinations on ex ante allowances for the different cost areas within UKPN's business plan submission. This chapter should be read alongside other parts of our Final Determinations that set out our overall approach to RIIO-ED2.

#### Ex ante allowances

3.2 Ex ante Totex referenced in this chapter comprises forecast controllable costs and is inclusive of our proposed ongoing efficiency challenge, unless stated otherwise. Furthermore, the figures presented in this chapter do not include real price effects (RPEs) to allow comparison with DNOs' submissions.

3.3 Table 16, Table 17 and Table 18 compare UKPN's submitted ex ante Totex for its network, our Draft Determination proposals, and our Final Determinations position at a disaggregated cost activity level.

Table 16: LPN RIIO-ED2 submitted Totex versus allowed Totex by cost activity (£m, 2020/21 prices)<sup>6</sup>

<b>Cost activity</b>	<b>RIIO-ED2 submitted</b>	<b>DD (Net Before NPCA)</b>	<b>FD (Net Before NPCA)</b>	<b>FD incl Access SCR (Net After NPCA)</b>	<b>Difference to submitted (on a Net Before NPCA basis)</b>
Connections	42	47	38	76	-8%
New Transmission Capacity Charges	5	4	5	5	-4%
Primary Reinforcement	82	75	75	75	-9%
Secondary Reinforcement	51	38	39	39	-23%
Fault Level Reinforcement	1	1	4	4	301%
Civil Works Condition Driven	12	11	18	18	51%
Blackstart	-	-	-	-	0%
Legal & Safety	20	19	15	15	-24%

<sup>6</sup> Note that these costs do not include 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.

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QoS & North of Scotland Resilience	-	-	-	-	0%
Flood Mitigation	2	2	2	2	-13%
Physical Security	-	-	-	-	0%
Rising and Lateral Mains	-	-	-	-	0%
Overhead Line Clearances	-	-	-	-	0%
Losses	1	1	1	1	-2%
Environmental Reporting	5	4	4	4	-2%
Operational IT and Telecoms	41	38	38	38	-8%
Worst Served Customers	-	-	-	-	0%
Visual Amenity	-	-	-	-	0%
Diversions (excl Rail)	23	21	19	19	-16%
Diversions Rail Electrification	-	-	-	-	0%
Civil Works Asset Replacement Driven	17	16	12	12	-27%
Asset Replacement NARM	177	162	169	169	-5%
Asset Replacement Non-NARM	9	9	7	7	-22%
Asset Refurbishment Non-NARM	2	1	2	2	-1%
Asset Refurbishment NARM	2	2	2	2	-16%
IT and Telecoms (Non-Op)	54	50	54	44	0%
Non-Op Property	12	11	12	10	3%
Vehicles and Transport (Non-Op)	15	13	14	12	-5%
Small Tools and Equipment (STEPM)	11	10	10	9	-5%
HVP RIIO-ED2	-	-	-	-	0%
Shetland	-	-	-	-	0%
Tree Cutting	-	-	0	0	0%
Faults	134	123	138	138	3%
Severe Weather 1-in-20	-	-	-	-	0%

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Occurrences Not Incentivised (ONIs)	38	35	39	39	4%
Inspections	20	18	20	20	-2%
Repair and Maintenance	51	46	50	50	-2%
Dismantlement	0	0	0	0	-5%
Remote Generation Opex	-	-	-	-	0%
Substation Electricity	10	9	9	9	-2%
Smart Metering Roll Out	2	2	4	4	87%
Total Closely Associated Indirects (CAI)	437	399	397	270	-9%
Total Business Support	171	156	166	129	-3%
Cost Activities Sub-Total	1,445	1,323	1,365	1,223	-6%
Excluded Cost Activities	-	-	-	-	0%
Total Totex (modelled component)	1,445	1,323	1,365	1,223	-6%
Technically Assessed Totex	54	-	51	48	-5%
<b>Total Totex</b>	<b>1,499</b>	<b>1,323</b>	<b>1,416</b>	<b>1,271</b>	<b>-6%</b>

Table 17: SPN RIIO-ED2 submitted Totex versus allowed Totex by cost activity (£m, 2020/21 prices)<sup>7</sup>

<b>Cost activity</b>	<b>RIIO-ED2 submitted</b>	<b>DD (Net Before NPCA)</b>	<b>FD (Net Before NPCA)</b>	<b>FD incl Access SCR (Net After NPCA)</b>	<b>Difference to submitted (on a Net Before NPCA basis)</b>
Connections	21	28	24	44	15%
New Transmission Capacity Charges	12	11	12	12	-4%

<sup>7</sup> Note that these costs do not include 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.

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Primary Reinforcement	25	22	22	22	-11%
Secondary Reinforcement	70	53	61	61	-14%
Fault Level Reinforcement	12	11	9	9	-29%
Civil Works Condition Driven	12	11	15	15	28%
Blackstart	-	-	-	-	0%
Legal & Safety	15	14	14	14	-8%
QoS & North of Scotland Resilience	-	-	-	-	0%
Flood Mitigation	5	5	4	4	-18%
Physical Security	-	-	-	-	0%
Rising and Lateral Mains	5	5	5	5	-4%
Overhead Line Clearances	23	21	23	23	-2%
Losses	0	0	0	0	-4%
Environmental Reporting	14	13	13	13	-7%
Operational IT and Telecoms	70	62	65	65	-6%
Worst Served Customers	11	10	11	11	-4%
Visual Amenity	7	7	8	8	5%
Diversions (excl Rail)	51	46	43	43	-15%
Diversions Rail Electrification	-	-	-	-	0%
Civil Works Asset Replacement Driven	11	10	10	10	-8%
Asset Replacement NARM	188	169	170	170	-10%
Asset Replacement Non-NARM	13	12	13	13	-4%
Asset Refurbishment Non-NARM	2	2	2	2	-4%

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Asset Refurbishment NARM	14	13	13	13	-8%
IT and Telecoms (Non-Op)	54	49	53	46	-1%
Non-Op Property	10	9	10	9	3%
Vehicles and Transport (Non-Op)	22	20	20	18	-9%
Small Tools and Equipment (STEPM)	10	9	11	10	6%
HVP RIIO-ED2	-	-	-	-	0%
Shetland	-	-	-	-	0%
Tree Cutting	33	30	41	41	22%
Faults	142	127	130	130	-8%
Severe Weather 1-in-20	3	-	0	0	-99%
Occurrences Not Incentivised (ONIs)	40	36	35	35	-11%
Inspections	16	14	16	16	-1%
Repair and Maintenance	46	42	46	46	-1%
Dismantlement	0	0	0	0	306%
Remote Generation Opex	-	-	-	-	0%
Substation Electricity	8	7	7	7	-4%
Smart Metering Roll Out	3	3	5	5	55%
Total Closely Associated Indirects (CAI)	405	364	393	302	-3%
Total Business Support	157	141	150	133	-4%
Cost Activities Sub-Total	1,532	1,373	1,454	1,355	-5%
Excluded Cost Activities	-3	-	-0	-0	-99%
Total Totex (modelled component)	1,529	1,373	1,454	1,355	-5%
Technically Assessed Totex	25	21	22	22	-13%

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<b>Total Totex</b>	<b>1,554</b>	<b>1,394</b>	<b>1,476</b>	<b>1,377</b>	<b>-5%</b>
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Table 18: EPN RIIO-ED2 submitted Totex versus allowed Totex by cost activity (£m, 2020/21 prices)<sup>8</sup>

<b>Cost activity</b>	<b>RIIO-ED2 submitted</b>	<b>DD (Net Before NPCA)</b>	<b>FD (Net Before NPCA)</b>	<b>FD incl Access SCR (Net After NPCA)</b>	<b>Difference to submitted (on a Net Before NPCA basis)</b>
Connections	50	57	44	153	-12%
New Transmission Capacity Charges	1	1	1	1	-8%
Primary Reinforcement	64	55	58	58	-10%
Secondary Reinforcement	92	65	76	76	-17%
Fault Level Reinforcement	5	5	10	10	77%
Civil Works Condition Driven	15	13	23	23	49%
Blackstart	-	-	-	-	0%
Legal & Safety	19	17	20	20	3%
QoS & North of Scotland Resilience	-	-	-	-	0%
Flood Mitigation	10	8	7	7	-25%
Physical Security	-	-	-	-	0%
Rising and Lateral Mains	1	1	1	1	-7%
Overhead Line Clearances	35	30	29	29	-18%
Losses	1	0	1	1	-7%
Environmental Reporting	34	29	30	30	-11%
Operational IT and Telecoms	109	94	101	101	-7%

<sup>8</sup> Note that these costs do not include 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.

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Worst Served Customers	17	15	16	16	-6%
Visual Amenity	7	6	7	7	-1%
Diversions (excl Rail)	91	79	79	79	-13%
Diversions Rail Electrification	-	-	-	-	0%
Civil Works Asset Replacement Driven	18	15	15	15	-14%
Asset Replacement NARM	252	218	226	226	-10%
Asset Replacement Non-NARM	21	18	20	20	-7%
Asset Refurbishment Non-NARM	2	2	2	2	-6%
Asset Refurbishment NARM	10	9	8	8	-24%
IT and Telecoms (Non-Op)	85	74	83	74	-2%
Non-Op Property	21	18	20	15	-7%
Vehicles and Transport (Non-Op)	31	27	28	24	-8%
Small Tools and Equipment (STEPM)	19	16	18	14	-3%
HVP RIIO-ED2	-	-	-	-	0%
Shetland	-	-	-	-	0%
Tree Cutting	57	49	77	77	37%
Faults	227	196	209	209	-8%
Severe Weather 1-in-20	6	-	0	0	-99%
Occurrences Not Incentivised (ONIs)	74	64	68	68	-8%
Inspections	20	18	23	23	12%
Repair and Maintenance	56	48	62	62	12%
Dismantlement	0	0	0	0	0%



Remote Generation Opex	-	-	-	-	0%
Substation Electricity	15	13	14	14	-7%
Smart Metering Roll Out	5	4	7	7	60%
Total Closely Associated Indirects (CAI)	693	600	605	428	-13%
Total Business Support	258	223	240	206	-7%
Cost Activities Sub-Total	2,419	2,090	2,227	2,104	-8%
Excluded Cost Activities	-6	-	-0	-0	-99%
Total Totex (modelled component)	2,413	2,090	2,227	2,104	-8%
Technically Assessed Totex	56	47	50	50	-11%
<b>Total Totex</b>	<b>2,470</b>	<b>2,137</b>	<b>2,277</b>	<b>2,153</b>	<b>-8%</b>

### Technically assessed costs

3.4 For technically assessed costs, we have made the following adjustments, listed in Table 19 below. Our view of bespoke proposals is presented in Chapter 2. Further information on the West London proposal is provided in the section “Engineering Justification Paper review” and in Appendix 1.

Table 19: Technically Assessed Costs (£m, 2020/21 prices)

<b>Proposal name</b>	<b>Submitted</b>	<b>DD<sup>9</sup></b>	<b>FD</b>	<b>Confidence</b>
Off-gas grid anticipatory investment PCD	75.2	73.1	71.5	High
CVP: Consumer Vulnerability Fuel Poverty support programme	9	-	9	High
West London	51.1	-	51.1	High

<sup>9</sup> DD and FD figures are gross costs and do not include efficiency challenge.

## Engineering Justification Paper review

### Overview

- 3.5 Our review of UKPN’s Engineering Justification Papers (EJPs), and the associated supporting information, is one of several assessment tools that has contributed to our overall assessment of UKPN’s submission. The positions set out in this section should be considered in the wider context of the cost assessment methodology set out in Chapter 7 of the Core Methodology Document.
- 3.6 Following our review of EJPs in accordance with paragraph 2.23 of the Engineering Justification Papers for RIIO-ED2 Guidance document<sup>10</sup>, our review of Draft Determination consultation responses and additional material provided by UKPN, this section sets out our engineering assessment as part of our Final Determinations.
- 3.7 As discussed in Chapter 7 of the Core Methodology Document, our assessment provides a view on each EJP that was assigned one of three outcomes: Justified, Partially Justified, or Unjustified.
- 3.8 A summary of our review of UKPN’s EJPs is presented in Table , showing the number of EJPs in each category and how our overall assessment has changed between Draft Determinations and Final Determinations. We have provided more detail in Appendix 1 on EJPs of significant value where our review determined the EJP to be Partially Justified or Unjustified, noting instances where we have changed our EJP review position as part of our Final Determinations.
- 3.9 We intend to work with DNOs and other stakeholders to identify additional and enhanced reporting requirements to improve our ongoing monitoring and review of DNOs’ performance and delivery of their outputs in period. We set out some potential examples of areas where we will consider enhanced reporting in Appendix 2.

Table 20: Summary of the UKPN Final Determinations EJP Review

<b>EJP Review Outcome (Count of EJPs)</b>	<b>Final Determinations</b>	<b>Draft Determinations</b>
Justified	52	42
Partially Justified	38	28
Unjustified	3	22
Total EJPs	93	92

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<sup>10</sup> RIIO ED2 Engineering Justification Paper Guidance  
[https://www.ofgem.gov.uk/sites/default/files/docs/2021/02/riio\\_ed2\\_engineering\\_justification\\_paper\\_guidance.pdf](https://www.ofgem.gov.uk/sites/default/files/docs/2021/02/riio_ed2_engineering_justification_paper_guidance.pdf)

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- 3.10 As a result of engagement between NGESO, NGET, SSEN and UKPN we accepted a new EJP for West London Demand growth, which we deem as Justified.

**Load Related Expenditure (LRE): Draft Determination responses and Final Determination rationale**

- 3.11 Chapter 7 of the Core Methodology Document details the interactions between our engineering review of the LRE EJPs and the activity level assessment of LRE.
- 3.12 For LRE, UKPN provided a range of responses which detailed additional information and further analysis on its proposals in this investment area. Following review of the additional information provided by UKPN, three EJPs considered to be Unjustified or Partially Justified at Draft Determination, are now considered Justified at Final Determinations.
- 3.13 Please see Appendix 1 for further detail on our assessment of the LRE EJPs.

**Non-Load Related Expenditure (NLRE): Draft Determination responses and Final Determination rationale**

- 3.14 As part of our Draft Determinations, we highlighted concerns related to UKPN's overall approach to NLRE, in light of its RIIO-ED1 performance to date.
- 3.15 In relation to NLRE, and specifically on NARM related expenditure, UKPN provided further information relating to its RIIO-ED1 performance and the impact that the introduction of the Common Network Asset Indices Methodology (CNAIM) has had on its asset management.
- 3.16 For UKPN's NLRE investments, we have updated our engineering position for a number of EJPs from Unjustified to Partially Justified with volumes accepted as submitted. We are satisfied that these investments proposed by UKPN are economic and efficient if delivered as planned. For these asset categories, as detailed in Chapter 7 of the Core Methodology Document, we will introduce additional reporting requirements through the Regulatory Instructions and Guidance and RRP.
- 3.17 We note that some of the works undertaken in RIIO-ED1 on sensitive investment areas such as Fluid Filled Cables (FFCs), where leakage has been reduced using novel or innovative solutions, may not lead to the most efficient long-term solutions for consumers. Whilst the leakage rate has been reduced over a short period, we are concerned that the wider benefits associated with the replacement of FFCs with modern alternatives, such as no leakage (modern equivalents do not use oil), reduced operational costs in future price control periods, and additional ratings capability (nominally expected when replaced with modern alternatives), have not been realised. Therefore, the adopted strategy may not be in the interests of future consumers. Where alternative options to replacement have been proposed and these do not provide the

same long-term benefits associated with replacement, we will closely monitor these assets if future funding is requested, taking into consideration the historical investment behaviours.

- 3.18 Please see Appendix 1 for further detail on our assessments of the NLRE EJPs.

### **TIM**

- 3.19 Our updated cost confidence assessment results in a proposed Totex Incentive Mechanism (TIM) incentive rate for UKPN of 50.0%. For further details on the TIM, see Chapter 9 of the Overview Document.

### **BPI Stage 3**

- 3.20 We have decided that UKPN does not incur any penalty following our BPI Stage 3 assessment, as we continue to consider that UKPN has not submitted any lower confidence costs. This is the same approach that we proposed at Draft Determinations.
- 3.21 UKPN and the UKPN CEG did not respond directly regarding BPI Stage 3 but they both disagreed with the proposed overall BPI staged assessment approach and the limited penalties applied. We disagree and consider the methodology for BPI calculations set out at Draft Determinations appropriate for Final Determinations.

### **BPI Stage 4**

- 3.22 We have decided that UKPN will earn a reward of £29.7m following our BPI Stage 4 assessment. This is different to what was proposed at Draft Determinations, when we did not propose a reward. The updates to our cost assessment approach for Final Determinations resulted in a reward for UKPN.
- 3.23 UKPN and the UKPN CEG disagreed with the perceived lack of reward for UKPN. UKPN considered that while the cost benchmarking places UKPN as the “most efficient” DNO, flaws in the benchmarking, plus the choice of an efficiency catch-up which exceeds the level of the most efficient DNO resulted in no reward for UKPN in the Stage 4 assessment. It considered there was no benefit to it keeping costs down in RIIO-ED1 and minimising cost increases in RIIO-ED2, citing contrasts in average cost per customer as compared to other DNOs.
- 3.24 The UKPN CEG stated that the prospect of a significant reward under the BPI had a positive effect on UKPN’s motivation to produce the best business plan for RIIO-ED2. It highlighted extracts from the SSMD that indicated the BPI would reward DNOs for submitting ambitious business plans. It questioned how no reward promotes the interests of consumers.
- 3.25 Both respondents also raised some general concerns with the proposed Stage 4 approach as it was applied across RIIO-ED2.

3.26 We consider the methodology for BPI calculations set out at Draft Determinations appropriate for Final Determinations. Nonetheless, as highlighted in the Overview Document, we will review the BPI process as part of our future review of price controls.

3.27 1 sets out our decisions on high confidence cost categories and allowances (before the application of RPEs and ongoing efficiency).

Table 19: Final Determination on Stage 4 (£m, 2020/21 prices)

<b>Cost Category</b>	<b>UKPN's view</b>	<b>Ofgem view</b>	<b>BPI reward</b>
Modelled Costs	5,389.7	5,385.6	25.5
Bespoke Outputs and Technically Assessed	135.3	129.2	N/A

## 4. Adjusting ex ante allowances for uncertainty

### Introduction

- 4.1 In this chapter we set out our Final Determinations position on bespoke UMs.
- 4.2 We set out more detail on the common UMs in our Core Methodology Document and Overview Document, including our broader Final Determinations position and rationale.

### Bespoke UM Proposals

- 4.3 In our SSMD we invited DNOs to propose bespoke UMs with suitable justification in their business plans. When assessing those we have considered the extent to which the supporting information provided by the DNOs justifies the key criteria outlined in the Business Planning Guidance (BPG):
- materiality and likelihood of the uncertainty
  - how the risk is apportioned between consumers and the network company
  - the operation of the mechanism
  - how any drawbacks may be mitigated to deliver value for money and efficient delivery.
- 4.4 We also considered whether the uncertainty was regionally specific, or sector wide, to assess whether a common UM could be more appropriate. You can find the background and our assessment approach in Chapter 6 of our Overview Document.
- 4.5 The table below summarises the bespoke UM proposals that UKPN submitted and outlines our Final Determinations position. For full details on bespoke UMs, refer to UKPN’s business plan submission.

<b>Bespoke UM name and description</b>	<b>Consultation response summary</b>	<b>Final Determination</b>	<b>Draft Determination</b>
<b>UM1 Services Volume Driver:</b> A volume driver for LV services	No responses received in relation to this bespoke UM. Please refer to Chapter 3 of the Core Methodology Document for more information on responses to our LRE UMs.	Reject: We consider it is addressed by our common LRE UMs. Please refer to Chapter 3 of the Core Methodology Document for more information.	Same as FD

<b>Bespoke UM name and description</b>	<b>Consultation response summary</b>	<b>Final Determination</b>	<b>Draft Determination</b>
<p><b>UM2 Capacity Volume Driver:</b> A capacity-based volume driver for secondary reinforcement</p>	<p>No responses received in relation to this bespoke UM. Please refer to Chapter 3 of the Core Methodology Document for more information on responses to our LRE UMs.</p>	<p>Reject: We consider it is addressed by our common LRE UMs. Please refer to Chapter 3 of the Core Methodology Document for more information.</p>	<p>Same as FD</p>
<p><b>UM3 Investment in Primary Infrastructure:</b> A re-opener mechanism for primary reinforcement</p>	<p>No responses received in relation to this bespoke UM. Please refer to Chapter 3 of the Core Methodology Document for more information on responses to our LRE UMs.</p>	<p>Reject: We consider it is addressed by our common LRE UMs. Please refer to Chapter 3 of the Core Methodology Document for more information.</p>	<p>Same as FD</p>
<p><b>UM4 Connections within Price Control:</b> A re-opener to adjust allowances in response to changing customer contributions to connections.</p>	<p>No responses received in relation to this bespoke UM. Please refer to Chapter 3 of the Core Methodology Document for more information on responses to our LRE UMs.</p>	<p>Reject: We consider it is addressed by our common LRE UMs. Please refer to Chapter 3 of the Core Methodology Document for more information.</p>	<p>Same as FD</p>
<p><b>UM5 Diversions:</b> A re-opener for costs of diversions which are not funded by the third party requesting them</p>	<p>Consultation responses from three DNOs disagreed with our Draft Determinations proposal to not provide a UM for Diversions.</p>	<p>Reject bespoke UM: We have decided to implement a common Wayleaves and Diversions Re-opener. Please refer to Chapter 6 of the Overview Document</p>	<p>Same as FD: But unlike at Final Determinations, we did not propose a common Diversions Re-opener.</p>

<b>Bespoke UM name and description</b>	<b>Consultation response summary</b>	<b>Final Determination</b>	<b>Draft Determination</b>
	Please refer to Chapter 6 of the Overview Document for more information.	for more information.	
<p><b>UM6 Accelerating London's Decarbonisation:</b></p> <p>To provide a specific response to GLA plans to decarbonise London by 2030</p>	UKPN raised a concern that it perceives there is a lack of clarity regarding the processes around which the Net Zero Re-opener could be triggered.	Reject: We consider that the Net Zero Re-opener is sufficiently clear as described in Chapter 3 of the Core Methodology Document. In addition, the LRE Re-opener also allows for Strategic Investment to be proposed during RIIO-ED2.	Same as FD
<p><b>Access SCR:</b> To account for Access SCR related uncertainty.</p>	No responses received in relation to this bespoke UM. Please refer to Chapter 12 of the Overview Document for information on responses to our RIIO-ED2 treatment of the Access SCR.	Reject: We consider it is addressed by our common LRE Re-opener. Please refer to Chapter 12 of the Overview Document and Chapter 3 of the Core Methodology Document for more information.	Same as FD



## 5. Network Innovation Allowance

### Introduction

- 5.1 Our SSMD and the Draft Determinations Core Methodology Document set out the criteria that we have used to assess NIA funding requests. The Final Determinations Core Methodology Document also details our Final Determination position for the RIIO-ED2 NIA Framework and extension of the existing Strategic Innovation Fund to the DNOs.
- 5.2 UKPN in its business plan proposed it should be awarded £25m of NIA over 5 years, equivalent to £5m per year, which is approximately equivalent to the NIA it spent annually in RIIO-ED1, and less than it was allowed to spend.

### Final Determination

<b>Parameter</b>	<b>Final Determination</b>	<b>Draft Determination</b>
Level of NIA funding	£15m, to be reviewed at the latest by 2025.	Same as FD

### Final Determination rationale and Draft Determination responses

- 5.3 We have decided to confirm our position as proposed at Draft Determinations.
- 5.4 UKPN was the only stakeholder that commented on the proposed NIA for it. It supported our proposal to award initially the equivalent of 3 years' worth of its requested amount. It stated that it had based its request on stakeholder engagement and actual spend in RIIO-ED1, and that it had developed a mature innovation culture which is less dependent on ringfenced innovation stimulus.

## Appendix 1 Key Engineering Recommendations

A1.1 This section provides additional details regarding our assessment of specific EJPs.

A1.2 Due to the high number of EJPs presented within the submission, we have focused on EJPs of significant value where our Draft Determinations review determined the EJP to be Partially Justified or Unjustified.

Table 20: LRE - Key Engineering Recommendations

<b>EJP</b>	<b>Final Determinations</b>	<b>Draft Determinations</b>
West London Growth  ED2-EJP-LP-101	Justified  We note that this new EJP is designed to mitigate connection queue issues between NGET and SSEN around North and West London. Given the consumer interest in these works being delivered as planned we see these works as justified. We note that these works have an asset health driver at present.	This EJP was submitted following the publication of our Draft Determinations, therefore this was not included within our Draft Determinations assessment.
Flexibility  ED2-EJP-SG-011	Partially Justified  Limited additional information has been provided by UKPN following our Draft Determinations, which has not addressed the risks that we raised at Draft Determinations.	Partially Justified  UKPN identified named sites where flexibility services will be utilised in place of capital investment to manage load growth or specific maintenance / outage periods. Some costs are associated with ongoing RIIO-ED1 "legacy" contracts where the service is no longer required. It was not considered efficient that consumers should pay for errors in UKPN's forecasting of need. Due to need being based on future demand / generation growth there was a risk related to inherent uncertainty and also consumers paying for services that are ultimately not procured.

<p>Greater Cambridge East-West Strategy</p> <p>ED2-EJP-EP-008</p>	<p>Justified</p> <p>UKPN have provided additional information that relates to the selection of sites and routing. This information, when considered alongside UKPN's original submission, provides sufficient detail to alleviate the risks that we identified at Draft Determinations.</p>	<p>Partially Justified</p> <p>A coordinated investment strategy in the Cambridge area (expansion of assets to the East and West) was proposed including a new Grid substation and a new primary substation. The needs case and optioneering presented was considered to be clear and well justified and was accepted. However, there was material uncertainty regarding cost and deliverability with major elements (such as site selection, cable routing, and consenting) not yet achieved which raised concerns regarding the proposed delivery timescales and estimated costs. We considered there to be material risk relating to the cost and deliverability with major elements, such as site selection, cable routing, and consenting which have not yet been undertaken and could impact the proposed delivery timescales and estimated costs.</p>
<p>Distribution Reinforcement</p> <p>ED2-EJP-NP-101</p>	<p>Partially Justified</p> <p>Limited additional information has been provided by UKPN following our Draft Determinations, which has not addressed the risks that we raised at Draft Determinations.</p>	<p>Partially Justified</p> <p>Investment in a range of LV assets was proposed to meet future load growth. The proposed volumes were highly dependent on scenario outturn and hence there is inherent uncertainty regarding volume and cost. UKPN proposed an uncertainty mechanism to accommodate scenarios in which required investment is greater than proposed costs. Underspend was proposed to be managed through TIM.</p>

		<p>It was accepted that UKPN was likely to have to undertake an extensive portfolio of investment in this area and that requirements were highly dependent on scenario outturn and hence are outside of UKPN’s control. However, UKPN’s proposal suggested that underspend should be managed through TIM. This created a significant risk of unearned performance as a result of uncertainty in forecasting.</p>
<p>Small Section Conductor  ED2-EJP-NP-103</p>	<p>Partially Justified</p> <p>Limited additional information has been provided by UKPN following our Draft Determinations, which has not addressed the risks that we raised at Draft Determinations.</p>	<p>Partially Justified</p> <p>The needs case and options were considered robust. However, the approach taken to identifying individual schemes and defining overall volumes was unclear despite there being a significant increase compared to the RIIO-ED1 run rate. UKPN presented a flat distribution of cost and volumes delivered across the RIIO-ED2 period indicating that planning of these investments was at an early stage. No further information was provided in response to SQs regarding the reason for the step change in volumes and how deliverability would be managed. We did not believe that the proposed volumes were sufficiently justified at this stage and therefore were considered a risk.</p>
<p>High Risk Overhead Composite Spurs  ED2-EJP-NP-013</p>	<p>Partially Justified</p> <p>As part of their post-DD submission, UKPN have not sufficiently addressed the risks that we raised at Draft Determinations. Therefore,</p>	<p>Partially Justified</p> <p>UKPN proposed to interconnect spurs based on high customer numbers, high capacity of connected transformers, and presence of cable in first section(s).</p>

	we maintain our position that this EJP is Partially Justified.	<p>General needs case was valid, however the level of intervention proposed appeared excessive for little gain. It was not clear why the proposed option was selected.</p> <p>UKPN’s options assessment included a proposal to intervene only on “Priority 1 Spurs”. It was not clear what benefits were achieved beyond this level of intervention and hence we considered there to be a risk with the selected option and hence its associated volumes and costs.</p>
<p>Mural Wiring</p> <p>ED2-EJP-NP-104</p>	<p>Justified</p> <p>UKPN have clarified that the volumes will be delivered during RIIO-ED2, and if consumer LCT uptake is lower than projected, volumes will be delivered in high growth areas to mitigate the need for these interventions in RIIO-ED3. Sufficient information has been provided to move the EJP to Justified.</p>	<p>Partially Justified</p> <p>The needs case for intervening on looped services was considered robust. However, out-turn volumes would be entirely dependent on customer activity.</p> <p>We considered that there was a risk related to the out-turn volumes due to them being entirely dependent on customer activity.</p>
<p>Phasing out of legacy networks (2kV)</p> <p>ED2-EJP-NP-008</p>	<p>Unjustified</p> <p>Limited additional information has been provided by UKPN following our Draft Determinations, which has not addressed the risks that we raised at Draft Determinations.</p>	<p>Unjustified</p> <p>There was a well justified needs case on the basis of operational safety and network performance for this proposal. However, aspects related to load growth were not clearly evidenced. Given the limited number of assets involved it is expected that greater detail would be provided regarding the specific investments proposed and the development of these proposals. UKPN provided only basic information regarding the delivery dates and cost phasing of these</p>

		investments, which raised a risk of what would be delivered in RIIO-ED2.
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Table 21: NLRE (Non-NARM) - Key Engineering Recommendations

<b>EJP</b>	<b>Final Determinations</b>	<b>Draft Determinations</b>
Off-Gas-Grid Investment  ED2-EJP-NP-102	Partially Justified – Control Required  We note the additional information provided by UKPN. However, there remains a risk that outturn volumes, and hence costs, will vary from those that have been proposed. Therefore, we recommend the use of a control, namely a PCD, to protect consumer interests.	Partially Justified  The paper set out an acceptable needs case and associated analysis for upgrading network infrastructure supplying customers not connected to gas supplies in order to ensure that these customers could benefit quickly from decarbonisation technologies. However, there was limited explanation or justification for the volume that was proposed for delivery in RIIO-ED2.  We considered that there was a risk related to the proposed volumes, and recommended a control.
Asset Protection  ED2-EJP-NP-012	Partially Justified  Limited additional information has been provided by UKPN following our Draft Determinations, which has not addressed the risks that we raised at Draft Determinations. Therefore, we maintain our position that this EJP is Partially Justified.	Partially Justified  The EJP presented a justified needs case for the works, with credible optioneering. There was limited justification provided for the volumes proposed within the EJP.  We considered that there was a risk related to the proposed volumes as we did not believe that they had been sufficiently justified at this stage.
HV Cable Replacement  ED2-EJP-AS-027	Partially Justified - Accept Submitted Volumes  UKPN provided additional information that somewhat justified the volumes	Partially Justified  There was considered to be a clear need to intervene on some HV cables during the RIIO-ED2 period and it was

	<p>proposed, however there remains a risk associated with the efficient delivery of the volumes. Therefore, it is proposed to accept the submitted volumes with additional reporting.</p>	<p>accepted that replacement was the only credible options for these assets. However, it was unclear how the proposed volumes had been arrived at. This was not sufficiently clarified by UKPN during the SQ process.</p> <p>We considered that there was a risk relating to the proposed volumes as we did not believe that they had been sufficiently justified at this stage.</p>
<p>LV Cable Replacement combined with CONSAC</p> <p>ED2-EJP-AS-028</p>	<p>Partially Justified - Accept Submitted Volumes</p> <p>UKPN provided additional information that somewhat justified the volumes proposed, however there remains a risk associated with the efficient delivery of the volumes. Therefore, it is proposed to accept the submitted volumes with additional reporting.</p>	<p>Partially Justified</p> <p>There was considered to be a clear need to intervene on some LV cables during the RIIO-ED2 period and it was accepted that replacement was the only credible options for these assets. However, it was unclear how the proposed volumes had been arrived at. This was not sufficiently clarified by UKPN during the SQ process.</p> <p>We considered that there was a risk related to the proposed volumes as we did not believe that they had been sufficiently justified at this stage.</p>

Table 22: NLRE (NARM) - Key Engineering Recommendations

<b>EJP</b>	<b>Final Determinations</b>	<b>Draft Determinations</b>
<p>Wood Poles and Narrow Based Towers</p> <p>ED2-EJP-AS-020</p>	<p>Partially Justified - Accept Submitted Volumes</p> <p>UKPN provided additional information that somewhat justified the volumes proposed. We also note that the proposed RIIO-ED2 interventions from UKPN would prevent the need for a large block of interventions in early RIIO-ED3, which could cause future deliverability risks. The RIIO-ED2 proposal would increase network resilience, in particular for storms.</p> <p>However there remains a risk associated with the efficient delivery of the volumes. Therefore, in order to ensure that the proposed benefits are delivered during RIIO-ED2, as proposed by UKPN, it is proposed to accept the submitted volumes with additional reporting.</p>	<p>Partially Justified</p> <p>We noted three trends in these asset categories:</p> <p>The needs case for intervention on some assets of this type was accepted and the optioneering presented was considered robust.</p> <p>UKPN proposed a significantly higher volume of replacements than forecast or delivered in RIIO-ED1. However, no information was provided to sufficiently justify this increase or describe the planning and delivery strategy.</p> <p>The RIIO-ED1 investment trends showed in some cases noteworthy changes from replacement to refurbishment, with limited justification for these movements.</p>
<p>HV Transformers</p> <p>ED2-EJP-AS-024</p>	<p>Partially Justified - Accept Submitted Volumes</p> <p>The interventions in RIIO-ED1 appear from the narrative to produce results which suggest they have not reduced the risk of the asset. The justification for stopping refurbishment is also weak. Whilst an asset may be old that does not denote its condition is such that refurbishment is not a suitable option.</p>	<p>The combination of these three trends led to uncertainty regarding deliverability and the robustness of the proposed volumes.</p> <p>We considered there to be a risk relating to the proposed volumes as we did not consider them to have been sufficiently justified at this stage. In addition, we had concerns that if approved, the delivered works may be significantly different.</p>



<p>Primary Transformers</p> <p>ED2-EJP-AS-090</p>	<p>We note that there are a range of benefits used to drive the optioneering which include reverse power flow, low losses, and capacity increase. However, these are not presently accounted for in our existing controls. Furthermore, we are unclear on the long-term benefits of broadly limiting asset refurbishment. Therefore, in order to ensure that the proposed benefits are delivered during RIIO-ED2, as proposed by UKPN, it is proposed to accept the submitted volumes with additional reporting.</p>	
<p>Broad based Towers</p> <p>ED2-EJP-AS-091</p>	<p>Justified</p> <p>UKPN provided sufficient additional information to justify the proposed investment, addressing the risks raised at Draft Determinations.</p>	
<p>LV Switchgear</p> <p>ED2-EJP-AS-023</p>	<p>Partially Justified - Accept Submitted Volumes</p> <p>We agree in principle that the replacement of assets in certain cases is the correct option. However, the narrative around removing refurbishment as a consistent option appears weak. We acknowledge that there is a bow wave which requires attention, however we remain concerned that the majority of the need case now appears to fall onto the bow wave of future works, which is not a suitable driver for works when considering the present control mechanisms in place.</p>	

<p>Tower Painting Programme</p> <p>ED2-EJP-AS-052</p>	<p>Justified</p> <p>Volumes associated with CV8 and CV9 refurbishments have been accepted.</p>	
<p>Fluid Filled Cable Replacement Programme</p> <p>ED2-EJP-AS-095</p>	<p>Partially Justified - Accept Submitted Volumes</p> <p>UKPN provided additional information on their RIIO-ED1 track record and we note that there was increased investment in other cables types ahead of FFC. We note that UKPN used innovated solutions to slow leakage, but we note that this does not bring the equivalent benefit to replacement when considering leakage. The narrative provided has not provided enough confidence to suggest these works are justified in full.</p> <p>However, we deem the replacement of FFCs with modern alternatives to be in the interests of present and future consumers. Despite the limited justification we propose to accept submitted volumes with additional reporting.</p>	<p><b>Unjustified</b></p> <p>We noted 2 main trends in these proposals:</p> <p>We noted in RIIO-ED1 a number of the cables presented for intervention in ED2 definitively ruled out “do nothing” or “repair” in RIIO-ED1. As these cables appeared to have been repaired or had no intervention, this caused difficulty in accepting the presented optioneering in RIIO-ED2 which mirrors the wording and theme used in RIIO-ED1.</p> <p>The cable asset health as reported was questioned as we were unclear the risk attached to the cable and predicted deterioration was correct. This caused the needs case to be questioned. We would have expected additional narrative on these points.</p> <p>As a result, we considered there to be a contradiction between the needs case and optioneering presented by UKPN in their submission and their actual approach to assets of this kind. This created uncertainty as to whether the proposed investments would ultimately be delivered.</p> <p>We considered there to be a risk related to the delivery of proposed works.</p>

## Appendix 2 Examples of Enhanced Reporting

Category	Asset Category	Volumes (Additions)	Relevant reporting lines	Potential monitored outcomes
LV, HV, EHV & 132kV UG cables (km)	LV Main (UG Consac)	0	km replaced	Portfolio of fluid filled cables reduced
	LV Main (UG Plastic)	60.5	Oil content removed	Prevention of oil leakage
	LV Main (UG Paper)	0	Leakage stopped	Increased ratings with
	6.6/11kV UG Cable	65		modern equivalent
	33kV UG Cable (Non Pressurised)	128.3		Reduced long term oil management costs
	33kV UG Cable (Oil)	0		
	66kV UG Cable (Non Pressurised)	12.9		
	66kV UG Cable (Oil)	0		
	132kV UG Cable (Non Pressurised)	72.9		
	132kV UG Cable (Oil)	0		
LV Cut Outs	Cut Out (Metered)	10,000	No. of assets	Improve safety Improve network performance
LV & HV Switchgear	LV Circuit Breaker	55	No. of assets replaced, due to:	Addressing defective batches of assets
	LV Pillar (ID)	75	Type defects	Safety concerns from water ingress

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<b>Category</b>	<b>Asset Category</b>	<b>Volumes (Additions)</b>	<b>Relevant reporting lines</b>	<b>Potential monitored outcomes</b>
	LV Pillar (OD at Substation)	1,600	Obsolescence Condition	and damage at indoor sites Replacement of the large ageing population which have reached obsolescence
	LV Pillar (OD not at a Substation)	0	Sites addressed based on safety concerns	
	LV Board (WM)	305	Increase in HV feeder visibility	
	6.6/11kV CB (GM) Primary	265		with minimal support from the original equipment manufacturer
	6.6/11kV CB (GM) Secondary	212		
	6.6/11kV Switch (GM)	181		Facilitation of full remote control at some sites, enabling modern protection and communication systems
	6.6/11kV RMU	850		Removal of oil and SF6 Circuit Breakers from the network.
HV, EHV & 132kV Transformers	6.6/11kV Transformer (PM)	1,120	No. of assets replaced	Replacement of ageing fleet
	6.6/11kV Transformer (GM)	2,100	MVA added	Increased ratings with modern equivalent expect 1.1GVA increase.
	33kV Transformer (GM)	63		Reduction in network losses

<b>Category</b>	<b>Asset Category</b>	<b>Volumes (Additions)</b>	<b>Relevant reporting lines</b>	<b>Potential monitored outcomes</b>
	66kV Transformer (GM)	4		Assets with modern tap changers and controlled by new AVC schemes, enabling 100% reverse power flows and future CLASS functionality
	132kV Transformer (GM)	27		