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RIIO-1 Electricity Distribution Summary Annual Report: 2022-23

Foreword

The RIIO-ED1 price control framework encouraged network companies to deliver substantial progress and improvement across the electricity distribution sector in key areas that matter most to consumers, including customer connections, service quality, and network reliability.

Notable improvements were recorded throughout RIIO-ED1. For example, compared to pre-RIIO-ED1 industry averages, the time taken to connect customers improved by around 30% across the period, while average customer satisfaction scores went from 8.0 to 9.1 out of 10.

These movements reflect a strong performance across the sector and the setting of a solid foundation for continued progress under future price control periods.

This report covers the final year of RIIO-ED1, offering a snapshot of the sector's performance and contributes to the broader understanding of the sector's progress as the RIIO-1 period came to its conclusion. A detailed data file has been published alongside this document, containing figures across a range of measures.

We are now well into the RIIO-ED2 period, which is already driving further improvements and preparing the sector for the challenges ahead, including through the implementation of connections reform. RIIO-ED2 includes mechanisms that allow companies to bring forward additional investment where needed, ensuring they have the tools to respond flexibly to emerging demands.

For the remainder of RIIO-ED2 and looking ahead to the ED3 price control starting in April 2028, distribution network operators (DNOs) will play a critical role in progressing further down the pathway to a clean power system. Our price controls will enable the investment required to build the local electricity network infrastructure for the electrification of heat, transport, and industry, and open up routes to net zero. In line with recommendations from the National Infrastructure and Service Transformation Authority (formerly the National Infrastructure Commission), we are developing a framework that supports long-term planning, enables strategic investment, and ensures the sector is equipped to meet future demand.

The near-term investment supported by our price controls needs to be made with a 25-year planning horizon in mind. This longer-term approach will help align network development with regional growth, housing, and decarbonisation plans. It will also support DNOs in continuing to deliver core responsibilities such as ensuring timely connections, maintaining resilience, and responding to the evolving needs of a low-carbon economy.

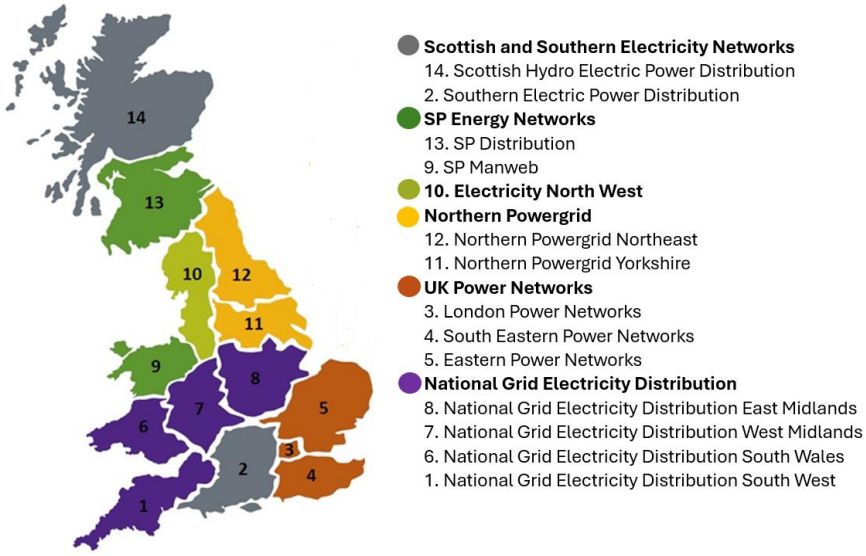
1. Introduction

To ensure value for money for consumers, Ofgem regulates DNOs through periodic price controls. The price controls we set determine the amount of revenue DNOs can earn and specify the levels of performance we expect DNOs to deliver. To protect consumers, we set limits on the network expenditure that can be added to bills, and what must be delivered by the network companies. This report presents a summary of the DNO groups output delivery and financial performance during 2022-23; the final reporting year of the first electricity distribution price control using the RIIO model spanning an eight-year period from 1 April 2015 to 31 March 2023.

In acknowledgment that the period covered by this report has already concluded, this document provides a concise overview of performance to ensure the completeness and accuracy of the regulatory dataset for the full RIIO-ED1 period. All financial figures in this report are quoted in 2022-23 price base unless stated otherwise. If you require additional performance data, please refer to the supplementary datafile that is published alongside this report.

The following areas are covered by this report:

- Outputs and Incentives – DNO performance against their output incentive commitments, including the incentive payments earned.
- Innovation – Presents an overview of expenditure in relation to the innovation incentives
- Totex Performance and Drivers – Summarises total expenditure and compares it against allowances across all DNO groups.



DNOs are responsible for carrying electricity from the transmission network, and generation sources connected to their network, to network users. The six DNO groups and the areas in which they operate are shown on the map.

2. Outputs and Incentives

Annual output targets apply in four areas (connections; social obligations and customer service; reliability and availability; and environment) where performance can result in incentive rewards (or penalties under certain output areas). There is also a fifth output area, safety, which does not have an annual target; however, DNO groups are required to comply with legislation set out by the Health and Safety Executive (HSE).

DNO performance for each output is summarised below and the underlying data is present in the supplementary data file that is published alongside this report.

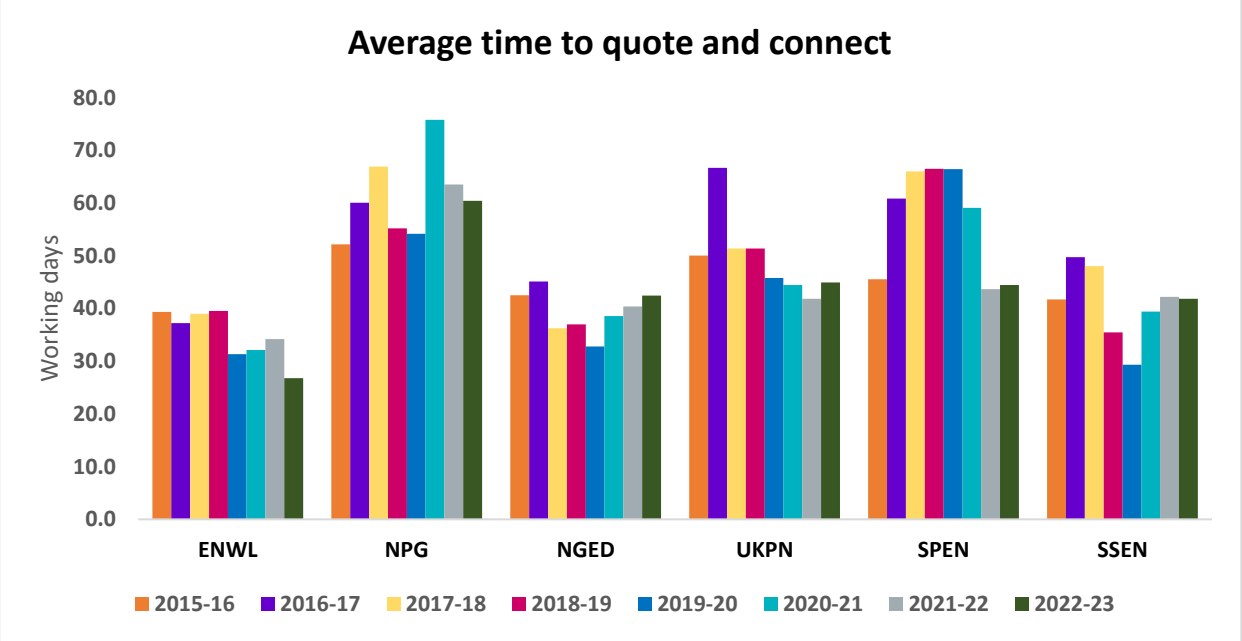
Connections

Performance on connections remains a key area of focus for the distribution networks, particularly around the timely and efficient connection of low carbon technologies. Substantial reform of the connections queue, covering both distribution and transmission, has progressed since the end of the RIIO-ED1 period and will continue through the current RIIO-ED2 price control. This is needed to accelerate the rate of connections, to support cost-effective delivery of the CP2030 Action Plan, and to support growth. DNO performance in the last year of RIIO-ED1 should be viewed against this wider strategic context.

In 2022-23, overall performance on the Time to Connect (TTC) Incentive was slightly reduced relative to performance in 2021-22, and only ENWL met targets across all four areas assessed by the TTC (*datafile: 'Ch2 outputs – connections', rows 21–79*). Under the Incentive on Connections Engagement (ICE), no penalties were imposed in 2022-2023 due to satisfactory performance by all DNO groups. All DNO groups also met or exceeded the annual report target for Connections Guaranteed Standards of Performance (GSoP) where three DNO groups (ENWL, NGED and UKPN) received a green RAG status and another three DNO groups (NPg, SPEN and SSEN) received Amber status (*datafile: 'Ch2 outputs – connections', rows 82–100*).

DNO groups received a combined £15.45m reward in 2022-23 under the TTC incentive.

Figure 1: Average Time to Quote & Connect

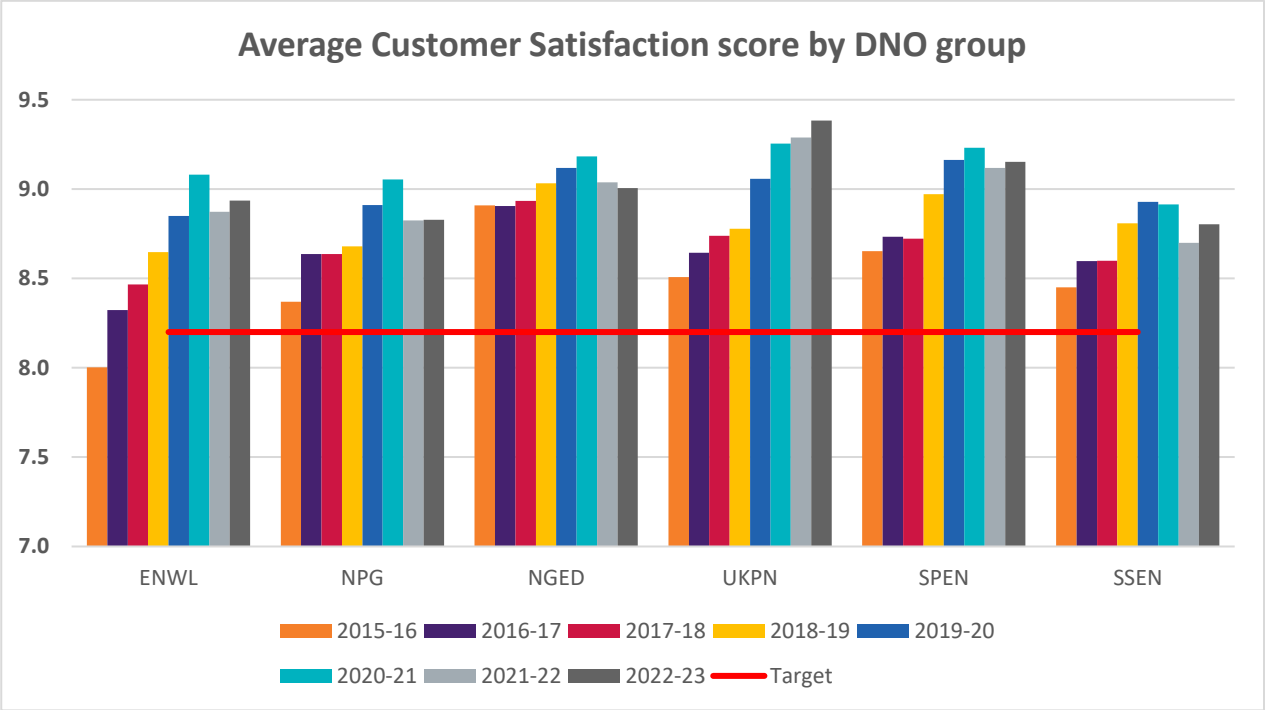


Social Obligations and Customer Service

All DNO groups met or exceeded the Customer Satisfaction Survey (CSS) targets, building on their performance in prior years of RIIO-ED1. The industry average score reached 9.05 out of 10 (*datafile: 'Ch2 outputs – cust sat', rows 11–37*). All DNOs outperformed the target on complaints (*datafile: 'Ch2 outputs – cust sat', rows 40–56*). Three DNO groups (ENWL, NGED and SSEN) increased their score under the Stakeholder Engagement and Consumer Vulnerability (SECV) Incentive compared to 2021-22, while the remaining DNO groups had lower scores compared to 2021-22. Despite a lower score in 2022-23, UKPN retained the highest overall score among all DNO groups for the SECV (*datafile: 'Ch2 outputs – cust sat', rows 59–94*).

The combined reward received by DNO groups under the three components of the Broad Measure of Customer Satisfaction (CSS, SECV & complaints) in 2022-23 was £69.5m. This was higher than the performance recorded in the previous reporting year (£60.8m).

Figure 2: Annual Customer Satisfaction Score by DNO group

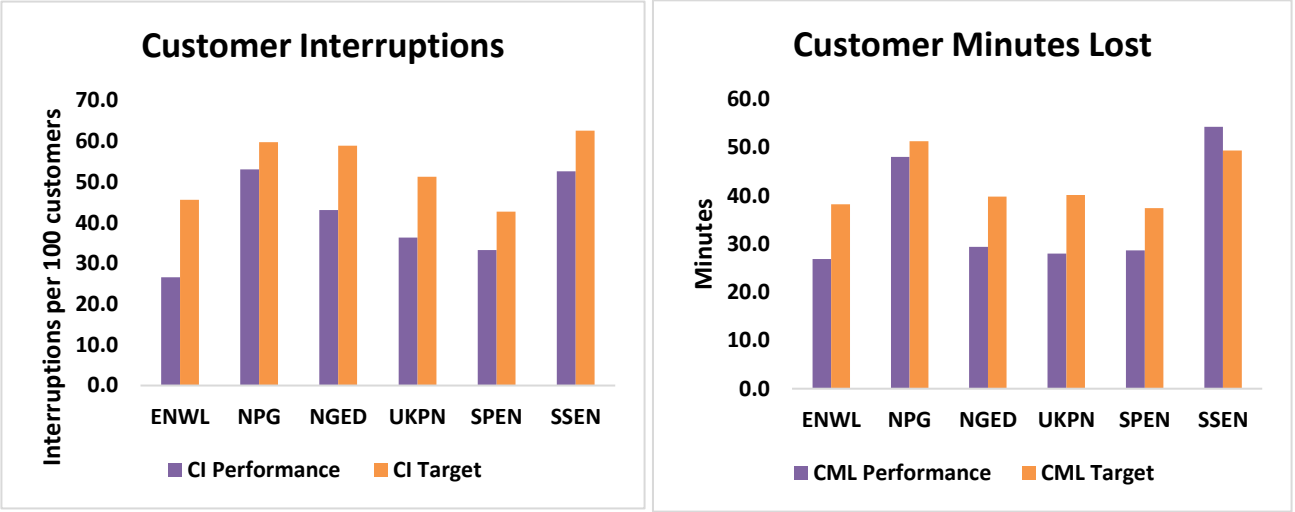


Reliability and Availability

Eight individual DNOs failed to meet their Interruptions Incentive Scheme (IIS) targets for planned interruptions in 2022-23. One DNO group (SSEN) failed to meet its targets for unplanned interruptions in 2022-23. Over RIIO-ED1, customer interruptions fell by 19% whilst the duration of interruptions reduced by 12% (*datafile: 'Ch2 outputs – reliability', rows 12–203*). Based on their performance against the annual targets, DNO groups earned £155.7m under the IIS in 2022-2023. This was lower than the performance recorded in the previous reporting year (£196.4m).

New, tougher performance targets under the IIS were introduced for the RIIO-ED2 price control, recognising the improvements in network reliability recorded through RIIO-ED1.

Figure 3: Annual Interruption Incentive Scheme performance by DNO group in 2022-23 (Planned and Unplanned)



In 2022-2023 DNO groups:

- Spent £144.7m on resilience, bringing the total spent over RIIO-ED1 to £1,345.4m (under the allowance of £1,474.8m); and
- Spent £2.0m improving service provision for the worst-served customers, bringing the total spent over RIIO-ED1 to £15.5m.

All individual DNOs made progress to meeting or exceeding their targets under Network Asset Secondary Deliverables to maintain and improve their equipment. Their performance ranged from 96% (SPMW) to 126% (EMID) of their targets. Overall, the industry achieved delivery of 109% for RIIO-ED1 (*datafile: 'Ch2 – Network Asset SDs', rows 9–25*).

Environment

In 2022-2023, DNOs' Business Carbon Footprint (excluding losses and contractors) decreased by 14.6% from 2021-22. An overall decrease of 28% was reported since the start of RIIO-ED1 (*datafile: 'Ch2 outputs – environment', rows 55–90*).

Compared with the start of RIIO-ED1, reported levels of sulphur hexafluoride[1] emissions decreased by 11.0% (*datafile: 'Ch2 outputs – environment', rows 93–130*).

[1] Sulphur hexafluoride is a gas used to insulate high-voltage circuit breakers, switchgear, and other electrical equipment. It is an inorganic, extremely potent greenhouse gas.

Safety

DNOs reported that they continued to comply with the legislation enforced by the HSE. Overall, DNO groups stated that they performed well in this area and responded appropriately to notices issued by the HSE.

3. Innovation

The Network Innovation Allowance (NIA) is designed to fund smaller scale research, development and demonstration projects. Each individual DNO receives an allowance for innovation projects in line with the NIA Governance Document. In 2022-23 DNO groups spent £21.6m (68% of that year's allowances), which was an increase on the £18.9m spent at the start of RIIO-ED1 (53% of that year's annual allowances) (*datafile: 'Ch3 – innovation', rows 3–12*). Across the entirety of RIIO-ED1, companies spent £209.1m against a total allowance of £280.8m.

The RIIO-1 Network Innovation Competition (NIC) was an annual competition that provided funding to a small number of large-scale innovation projects. The aim was to encourage DNO groups to innovate in the design, build, development and operation of their networks. These projects generated learning for all DNOs and were also made available to interested third parties. In 2022-23 one distribution project received a total of £12.5m funding from NIC (*datafile: 'Ch3 innovation', rows 15–64*).[2]

Building on the NIC, the Strategic Innovation Fund (SIF) was introduced under RIIO-2 to support ambitious innovation that contributes to the transition to net zero while delivering measurable net benefits to consumers and network companies. Jointly delivered by Ofgem and Innovate UK (part of UK Research and Innovation), the SIF takes a more strategic, challenge-led approach, targeting projects that address key system needs. It also promotes greater alignment between consumer-funded innovation and wider government-funded initiatives, with coordination across public funding bodies where appropriate.

[2] Further information is available in the project documentation published on our website: https://www.ofgem.gov.uk/publications/network-innovation-competition-2022-decision-document

4. Totex Performance and Drivers

Over the RIIO-ED1 period, DNO Groups spent a total of £34.7 billion against a total allowance of £35.8 billion, representing an underspend of 3%. Performance varies across DNO groups, with half of the DNO groups underspending; ranging from a 4.5% overspend to a 10.9% underspend (see table 1). The position in reporting year 2022-23 is summarised in table 2.

DNO group performance against totex and the associated sub-categories is summarised below.

Table 1: DNO group total RIIO-ED1 expenditure against total RIIO-ED1 allowance

2022-23 prices	*Total RIIO-ED1*			
	Allowance	Expenditure	Difference	
	£m	**£m**	**£m**	**%**
ENWL	2,696	2,474	-222	-8.2%
NPg	4,362	4,363	1	0.0%
NGED	10,049	9,844	-204	-2.0%
UKPN	8,636	7,755	-881	-10.2%
SPEN	4,725	4,874	149	3.2%
SSEN	5,292	5,435	143	2.7%
Total	35,759	34,745	-1014	-2.8%

Table 2: DNO group total allowance and expenditure in 2022-23

2022-23 prices	*2022/23 Performance*			
	Allowance	Expenditure	Difference	
	£m	**£m**	**£m**	**%**
ENWL	337	312	-26	-7.6%
NPg	495	486	-9	-1.9%
NGED	1,258	1,227	-31	-2.5%
UKPN	958	960	2	0.2%
SPEN	558	553	-4	-0.8%
SSEN	645	707	61	9.5%
Total	4,251	4,244	-7	-0.2%

The RIIO-ED1 framework ensured that the benefits of any outperformance (total expenditure lower than total allowance) realised across the eight-year period are shared between the individual DNO and its customers through the totex incentive mechanism (TIM). The TIM

incentivises companies to deliver outputs efficiently, allowing them to share the benefit of cost savings with consumers. The TIM also provides some protection to investors from the risk of significant cost over-runs which helps to reduce financing costs. The effect of the TIM during RIIO-ED1 is summarised in Table 3 below.

Table 3: DNO group TIM performance

2022-23 prices	*Total RIIO-ED1*			
	Sharing Factor	Totex Performance	Customer Share	DNO Share
	%	**£m**	**£m**	**£m**
ENWL	58	-222	-93	-129
NPg	56	1.4	0.6	0.8
NGED	70	-204	-61	-143
UKPN	53	-881	-412	-470
SPEN	54	149	69	80
SSEN	56	143	62	81
Total		**-1014**	**-434**	**-580**

Information on our assessment of the Return on Regulated Equity was separately published in July 2022[3].

Total Load Related costs

In 2022-23, there was an overspend of £87m (17.9%) in this category.

Overall, across RIIO-ED1 there was a total expenditure of £2,747m on load related costs, which represents an underspend of £1,011m (26.9%).

The DNOs have cited the following as the key drivers of their outperformance during the price control period:

- **Lower-than-expected demand growth.** Many DNOs had forecast higher load growth at the start of RIIO-ED1, which did not materialise at the expected levels. More challenging economic conditions and slower uptake of low-carbon technologies, which

[3] RIIO-1 Electricity Distribution: Regulatory Performance Data File 2022-23 | Ofgem

some DNOs attributed to changes in Government policy (e.g. EVs, heat pumps), led to reduced demand for new capacity.

- **Deferral or cancellation of schemes.** Some reinforcement projects were deferred or cancelled due to updated demand forecasts or changes in customer requirements. This was particularly common where flexibility services or non-network solutions were used instead of traditional reinforcement.
- **Improved efficiency and delivery methods.** This includes instances where DNOs implemented more cost-effective solutions, such as optimising the use of existing assets, adopting smarter planning approaches, and revising strategies to take a more targeted approach to the delivery of reinforcement works that meet network needs and facilitate customer requirements. These actions contributed to actual costs being lower than originally forecast.
- **Regional factors.** While the underspend was observed across the sector, regional factors influenced both its scale and nature. DNOs operating in high-density urban areas (such as London) typically faced higher reinforcement costs. However, they also had greater flexibility to defer investment, driven by demand uncertainty and the ability to implement more impactful cost-efficiency measures (e.g. increased demand-side response and network interconnection to improve coordination across major projects to reduce costs). In contrast, DNOs with lower population density (e.g. the north of Scotland) or a higher proportion of industrial load (e.g. parts of the Midlands) experienced greater variability in demand forecasts. This led to a more cautious investment approach, contributing to the overall underspend in load-related activities.

Non-Load Related Capex

In 2022-23, there was an underspend of £268m (20.8%) in this category.

Overall, across RIIO-ED1 there has been total expenditure of £10,166m on non-load related capex, which represents an underspend of £1,611m (13.7%).

While the price control framework encourages efficiency by allowing networks to retain a portion of savings and pass the rest on to consumers through lower bills, it is not intended to incentivise cost-cutting at the expense of asset health.

It is essential that all energy companies continue to maintain their existing assets in good condition while also ensuring they are able to meet new customer needs with the same level of diligence and professionalism.

The DNOs have cited the following as the key drivers of their outperformance during the price control period:

- **Optimised Asset Management Strategies.** DNOs adopted more targeted and risk-based approaches to asset replacement and refurbishment, focusing on health indices, criticality, and probability of failure. This allowed for deferral or scaling back of planned investments.
- **Improved Delivery Efficiency.** Enhanced planning and procurement practices led to lower unit costs and more efficient delivery of non-load related work, such as switchgear, transformers, and underground cables. Common themes across DNOs included the use of condition-based and risk-target asset management, favouring refurbishment over full replacement, insourcing of delivery functions, and improved contracting strategies. We are also aware of instances of lower unit costs being achieved and reduced volumes across a range of asset categories (to the levels originally anticipated), particularly in asset replacement and civils, as DNOs responded to the incentive framework.
- **Economic and demand uncertainty.** Broader economic conditions and slower-than-expected uptake of electrification technologies contributed to reduced urgency for certain non-load investments.
- **COVID-19 Impacts**. In the latter part of RIIO-ED1, the pandemic caused delays and reprioritisation of work programmes, due to resource constraints and contractor availability during and after the pandemic, contributing to underspend in some categories.

The total underspend reported by DNOs across the non-load category was partially offset by increased activity in areas such as Service Enhancements, which aimed to improving network resilience. This included enhancements to quality of supply, flood resilience measures, overhead line clearance, and targeted refurbishment.

We remain firmly committed to protecting consumers and vigilant in recognising the critical role energy companies play in both maintaining the existing asset base of the GB energy networks and ensuring that their expansion and evolution, to support new connections and emerging technologies, are delivered in a way that is safe, timely, and affordable. We expect them to deliver on their obligations and commitments and will hold them to account if they fall short.

To support this, the RIIO regulatory framework includes a range of mechanisms designed to ensure that underspend does not come at the expense of safety or the world-class levels of reliability that the GB network currently delivers (see section 2 for more information). For

example, the Network Asset Risk Methodology (NARM), which was introduced for RIIO-ED2 and replaced the Network Asset Secondary Deliverables, requires DNOs to quantify and report changes in asset health and risk. This allows Ofgem to monitor for signs of underinvestment and ensures that deferrals or cost savings do not come at the expense of long-term network integrity.

Network Operating Costs (NOCs)

In 2022-23, there was an overspend of £85m (9.8%) in this category.

Overall, across RIIO-ED1 there has been total expenditure of £7,899m on NOCs, which represents an overspend of £806m (11.4%). Drivers for this included: responding to faults caused by extreme weather (for example, high winds, floods and high ambient temperature), activities impacted by additional contractor costs to maintain continuity of cover during COVID-19 and increases in activity to safely remove and dispose of old or redundant network assets.

Operational Support Cost/Closely Associated Indirects (CAIs)

In 2022-23, there was an overspend of £103m (12.2%) in this category.

Overall, across RIIO-ED1 there has been total expenditure of £7,774m on CAIs, which represents an overspend of £858m (12.4%). Drivers for this during both 2022-23 and the wider price control period included: increased costs from the transition to Distribution System Operators (DSOs) and supporting other low carbon initiatives, increasing spending on labour, increased training expenditure and higher than expected pension costs.

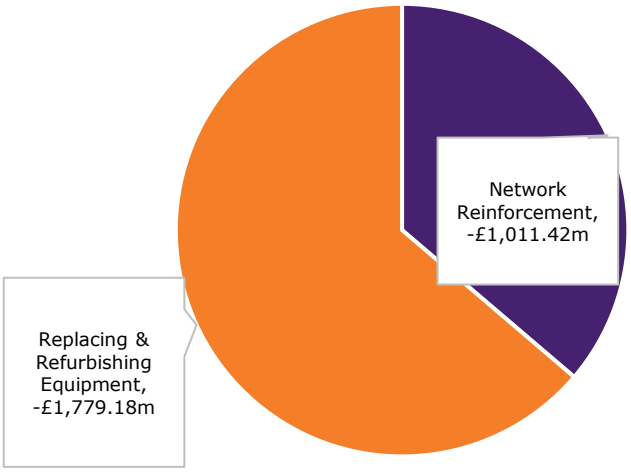
Business Support Costs (BSC)

In 2022-23, there was an overspend of £43m (9.5%) in this category.

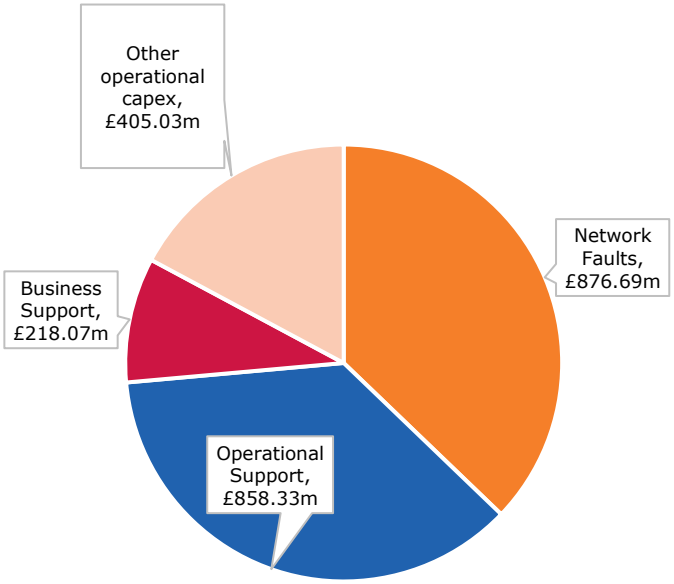
Overall, across RIIO-ED1 there has been total expenditure of £3,962m on BSCs, which represents an overspend of £218m (5.8%). Drivers for this during both 2022-23 and the wider price control period included: higher costs than forecast at the start of RIIO-ED1, higher costs of IT driven by factors such as cyber resilience, and a higher level of insurance settlements due to larger vehicle fleets.

Figure 4: Six largest cost categories: Underspend and overspend across RIIO-ED1[4]

Total Underspend (-£2,790.60m)



Total Overspend (£2,358.12m)



[4] This is the collective industry picture of spend. It does not necessarily reflect the expenditure pattern for individual DNOs. These categories are not necessarily consistent with the five sub-categories detailed above.

Appendix: List of DNO Groups and corresponding DNOs

DNO Group	DNO
Electricity North West (ENWL)	Electricity North West (ENWL)
Northern Powergrid (NPg)	Northern Powergrid Northeast (NPgN)
Northern Powergrid (NPg)	Northern Powergrid Yorkshire (NPgY)
National Grid Electricity Distribution (NGED)	National Grid Electricity Distribution East Midlands (EMID)
National Grid Electricity Distribution (NGED)	National Grid Electricity Distribution West Midlands (WMID)
National Grid Electricity Distribution (NGED)	National Grid Electricity Distribution South Wales (SWALES)
National Grid Electricity Distribution (NGED)	National Grid Electricity Distribution South West (SWEST)
UK Power Networks (UKPN)	Eastern Power Networks (EPN)
UK Power Networks (UKPN)	London Power Networks (LPN)
UK Power Networks (UKPN)	South Eastern Power Networks (SPN)
SP Energy Networks (SPEN)	SP Distribution (SPD)
SP Energy Networks (SPEN)	SP Manweb (SPMW)
Scottish and Southern Electricity Networks (SSEN)	Scottish Hydro Electric Power Distribution (SSEH)
Scottish and Southern Electricity Networks (SSEN)	Southern Electric Power Distribution (SSES)