NORTHERN
POWERGRID

Regulatory Financial Performance Report

2022/23

CONTENTS

Note

1. *All financial figures within this document are rounded to 1 decimal place and quoted in 2012/13 prices (unless otherwise stated). As such, there may be variances in total figures due to rounding.*

1. EXECUTIVE SUMMARY

a. CEO foreword

Delivered on our promise of 'more for less' for our customers

I'm pleased to report that we closed out the 2015-2023 period ahead of output targets and delivered on the commitment we made to our customers to do that whilst meeting the cost targets that Ofgem set. I'm proud that our team exceeded many of the commitments and targets we set despite the impact of the global pandemic and the largest storm to hit our region in the last 20 years.

In addition, we have progressed well with the £53m green investment programme that we agreed in 2021, to help accelerate progress to net zero and provide vital regional economic stimulus in the North of the UK.

Our output performance continues to be strong

We continue to drive improvement in our business and have exceeded our targets in many areas. Our customers experience 26% shorter and 24% fewer power cuts[1], customer satisfaction has improved by six percentage points since the start of the period, and our safety record remains one of the best in the industry.

Our strategic investments in resilience continue to feature prominently in our plans. We have completed our stakeholder-led flood defence programme with 270 of our sites made more resilient to flooding and our £19.4m investment in cyber security has positioned us well to meet the requirements of both the regulations and industry best practice. All of this has laid strong foundations for us to go even further in the 2023-28 period.

Storm response remains a priority

We are now 18 months on from Storm Arwen, which was one of the most challenging situations that we and our customers have had to face. We have delivered the actions arising from the Ofgem and DESNZ reviews and implemented our own broader improvement plan. That included improving our web and telephony resilience, improving the way we keep our customers informed, increasing our resources during a major incident, and increasing our ability to deploy temporary generators. We will keep on driving improvements in this vital area as we work with our local stakeholders to help the communities we serve be more resilient to extreme weather events.

Facilitating the decarbonisation transition in our region

Our network will play a crucial role in the decarbonisation of our region and stakeholders have made it clear that this is their top priority. In addition to reducing our carbon footprint by more than 40%, we are making good progress in facilitating and preparing for greater use of low carbon technologies, such as electric vehicles, and we have already started to see demand from customers increase.

We have delivered a £75m investment in smart grid enabling infrastructure in the 2015-23 period. This flagship programme has upgraded our network monitoring, control capability and telecoms network to support the deployment of smart grid solutions. The programme installed 2,700 LV monitors across our network to provide data for improvements in forecasting and targeting of investment. We're routinely examining flexibility as an alternative to reinforcement, offering tenders to the market for flexibility services and have four fully active network management zones, which are providing 433 MW of contracted flexibility. Our Distribution System Operation plan in 2023-28 is set to build on this progress.

Encouraging sustainable and long-term investment

Our investor's long-term outlook provides financial stability that our stakeholders deserve. Throughout ED1 we have consistently been one of the most financially resilient companies in the sector. Our owner looks for a fair and balanced settlement that delivers for customers for the long term. As part of our plan for 2023-28, we are projecting an increase in investment to support decarbonisation across our region.

I am proud of what our team has achieved which reinforces our track record as a company that makes good on its commitments. We are well positioned to deliver on the ambitious plan for 2023-28.

Phil Jones

Chief Executive

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1. Based on 4 year average to 2023 since the time we wrote our business plan

b. ED1 business plan delivery and strategic priorities

Key Strategic Priorities	ED1			Key initiatives
	Target	2022/23	4-yr average[1]	
COSTS & OUTPUTS: Efficiently deliver our £3bn ED1 investment programme				
Total Costs – ED1 to date *(Variance to allowances)*	£3,035m	£3,040m *(+0.1%)*	-	• ED1 cost efficiency programme
Outputs – ED1 to date *(Variance to target)*	100%	101.7% *(+1.7%)*	-	
SAFETY & SECURITY: Reduce our accident rate by 50% and enhance our cyber security defences				
OSHA accident rate[2]	0.22 *(-50%)*	0.38 *(-12%)*	0.24 *(-44%)*	• Safety engagement, training and audits • Vehicle telematics to improve driver safety • Cyber security investment in ED1 including delivering NIS-D requirements
CUSTOMER SERVICE: Improve customer satisfaction to become a leader in the industry				
Overall BMCS *(Improvement in period)*	82%	88.3% *(+6.0pp)*	89.0% *(+6.7pp)*	• Customer Relationship Management technology across core service lines • Proactive communication and web services
Day+1 complaint resolution *(Improvement in period)*	85%	76.4% *(+22.6pp)*	77.8% *(+24.0pp)*	
CONNECTIONS: Improve connections customer satisfaction, whilst reducing routine lead times by 30%				
Connections BMCS *(Improvement in period)*	82%	86.1% *(+7.4pp)*	87.4% *(+8.7pp)*	• Face-to-face services • Quotations-on-site for small works connections • AutoDesign self-service for connection budget estimates including LCTs • Flexible connections
Small works lead time improvement *(LVSSA & LVSSB lead times)*	-30%	-25% *(54.6 days)*	-14% *(62.0 days)*	
ICE penalty	Nil	Nil	Nil	
RELIABILITY AND AVAILABILITY: Increased network resilience, 20% shorter and 8% fewer unplanned power cuts				
Customer minutes lost[3]	-20%	-16.8%	-26%	• Regional operations • Network automation and remote control • Trialling fault prediction technology • Flood defence investment programme
Customer interruptions[3]	-8%	-18.7%	-24%	
Flood defence upgrades	156	210[4]	-	
ENVIRONMENTAL PROTECTION: Minimise our impact on the environment				
Oil/fluid lost to ground	-15%	-61%	-48%	• Fluid filled cable replacement • Roll-out of innovative solutions such as PFT tagging of fuel filled cables and trials with self-healing cables.
Business Carbon Footprint	-10%	-42%	-44%	
SOCIAL OBLIGATIONS: Extend our range of differentiated services for our vulnerable customers				
SECV rank	2nd	6th	-	• Partnerships that support the most vulnerable in our region • Enhanced use of data to provide tailored services
DSO AND SMART NETWORKS: Transition to DSO and support the national smart meter roll-out				
Renewable generation connected	*No target set*	3.2GW	-	• Green recovery investment • Smart grid enabling investment • Market testing for flexibility services • 433MW of Active Network Management flexibility

KEY RISKS & UNCERTAINTIES

Risk	Description	Risk Mitigation
NETWORK RESILIENCE	**Widespread loss of network from weather, asset failure or physical attack**	• Physical security upgrades • Targeted network investment • Major incident management plans
CYBER	**Successful cyber-attack on our IT or OT network**	• Investment in cyber security defences • NIS-R CAF compliance
DECARBONISATION	**The network becoming an obstacle to the decarbonisation objectives and energy transition.**	• Increase in network information provisions. • Connections framework reform

Figure 1.1 Northern Powergrid ED1 performance summary

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1 Four-year average 2019-2023, consistent with Ofgem benchmark methodology.
2. Reduction relative to business plan baseline – 2013 calendar year
3. Unplanned, excluding exceptional events - reduction is relative to business plan baseline, 2012/13
4. Surveys have revealed defences at an additional 60 sites already meet required flood defence standards

2. KEY FINANCIAL PERFORMANCE MEASURES

a. Explaining our financials

Our overall Return on Regulatory Equity (RoRE) forecast for the ED1 period is 9.8% based on Ofgem's notional gearing calculation[1] (8.2% based on actual gearing) which we believe is a reasonable return on equity for a company which has over-delivered on its business plan

Northern Powergrid RoRE	Notes[2]	Notional gearing ED1 period	Actual gearing ED1 period
Allowed Equity Return	1	6.0%	5.2%
Totex outperformance	2	(0.0)%	(0.0)%
IQI Penalty	3	(0.1)%	(0.1)%
Broad Measure of Customer Service	4	0.4%	0.3%
Interruptions-related quality of service	5	1.5%	1.3%
Incentive on Connections Engagement	6	-	-
Time to Connect Incentive	7	0.0%	0.0%
Losses Discretionary Reward scheme	8	0.0%	0.0%
Network Innovation unrecoverable expenditure	9	(0.0)%	(0.0)%
Penalties and fines	10	(0.2)%	(0.2)%
RoRE - Operational performance		**7.5%**	**6.4%**
Debt performance	11	2.1%	1.6%
Tax performance	12	0.3%	0.2%
RoRE - including financing and tax		**9.8%**	**8.2%**
RoRE - Excluding Holdco debt[3]		**10.2%**	**6.8%**
Northeast		*10.4%*	*7.1%*
Yorkshire		*10.0%*	*6.5%*

Figure 2.1: Northern Powergrid RoRE summary table

RoRE measures how much a company has earned on its investment in regulatory assets that have been funded by shareholders. This starts with the base return that Ofgem allows to reflect the cost of equity in capital markets and is adjusted for the value earned from any incentive schemes to reflect performance, and any difference between the company's debt finance costs and Ofgem's assumption. In setting the base return in ED1, Ofgem assumes notional gearing of 65%, (i.e. 65% of regulatory assets are funded by debt and 35% by equity) however a company's actual gearing level will be different to this, which impacts shareholder returns.

Our RoRE for the ED1 period is 8.2%, taking into account our actual level of gearing (i.e. debt to equity ratio) and debt held by our holding company, Northern Powergrid Holdings Company (Holdco), outside of our two regulatory licensees (Northeast and Yorkshire). When Ofgem views our regulatory returns, it uses the 65% notional assumption for gearing. On this basis, our RoRE for the ED1 period (including Holdco debt) is 9.8%[4]. This is 3.8 percentage points above the 6.0% base return set by Ofgem for the ED1 period.

The main contribution to operational outperformance is incentive revenue from the interruptions quality of service incentive (IIS), generating a 1.5% return. In addition, we have achieved around 52% of the available Broad Measure of Customer Service (BMCS) reward generating a return of 0.4%.

Partially offsetting our incentive performance is the cost of Storm Arwen in 2021/22, £33.2m (£26.2m when converted to 2012/13 prices), which has reduced operational RoRE performance by 0.3 percentage points, due to a combination of network repairs expenditure (£12.7m), compensation payments (£12.8m), and a £7.7m voluntary charitable contribution.

Operational outperformance is supplemented by a 2.1% outperformance on debt financing, driven by high inflation in 2021/22 and 2022/23. It should be noted that Ofgem's calculation of debt performance in the RFPR at notional gearing uses the notional gearing assumption of 65% but the licensee's proportion of fixed nominal and index-linked debt. This

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1. Including holding company debt
2. See section 2b for detail
3. Including financing and tax
4. This does not fully reflect the ED1 notional capital structure, which assumes 25% index-linked debt. Reflecting the 25% index-linked debt assumption, in addition to notional gearing, would reduce RORE to 9.3%

does not fully reflect the ED1 notional capital structure, which assumes 25% index-linked debt. As we have 100% fixed nominal debt, this overstates the RORE impact of debt outperformance at notional gearing (compared with the impact for the notional capital structure) by approximately 0.5 percentage points.

As our actual level of gearing is 60% on average for ED1 (lower than Ofgem's 65% notional assumption), this reduces equity returns as our shareholder has contributed more equity than the notional calculation assumes. This means that while the financial rewards remain the same in absolute terms, as a percentage of our investment the return reduces. This accounts for the majority of the 1.6 percentage point difference between the 9.8% ED1 forecast using Ofgem's notional gearing (including Holdco debt) and the ED1 forecast RoRE of 8.2% using actual gearing (including Holdco debt).

Excluding Holdco debt, the gearing of our two licensees is around 49%. When viewed in isolation, our forecast RoRE for our Northeast and Yorkshire licensees is 7.1% and 6.5% respectively based on actual gearing.

There has been significant scrutiny on network company returns in recent years. Our returns remain at the lower end of the range of UK network companies and we continue to see our outcome as fair and appropriate for a company delivering significantly improved outputs for customers against a challenging price control settlement.

FORECAST/ACTUAL RoRE – year-on-year variance

Northern Powergrid RoRE – ED1 forecast/actual Notional Gearing	2021/22 ED1 forecast	2022/23 ED1 actual	Variance
Allowed Equity Return	6.0%	6.0%	-
Totex Outperformance	(0.1)%	(0.0)%	0.1%
IQI Reward	(0.1)%	(0.1)%	-
Broad Measure of Customer Satisfaction	0.4%	0.4%	-
Interruptions-related quality of service	1.6%	1.5%	(0.1)%
Incentive on connections engagement	-	-	-
Time to Connect Incentive	0.1%	0.0%	(0.0)%
Losses discretionary reward scheme	0.0%	0.0%	-
Network Innovation	(0.0)%	(0.0)%	-
Penalties and Fines	(0.2)%	(0.2)%	-
RoRE – Operational Performance	**7.6%**	**7.5%**	**(0.1)%**
Debt performance – at notional gearing	1.0%	2.1%	1.1%
Tax performance – at notional gearing	0.2%	0.3%	0.0%
RoRE – Including financing and tax	**8.8%**	**9.8%**	**1.0%**

Figure 2.2: Northern Powergrid RoRE forecast/actual year-on-year variance

Our overall ED1 RoRE forecast has increased to 9.8%, from 8.8% reported in 2021/22 due to debt performance improvement resulting from higher inflation in 2022/23, partially offset by minor changes in totex and incentive performance.

As noted above, debt performance at notional gearing does not fully reflect the ED1 notional capital structure. This affects the 2022/23 overall position to a greater extent than the forecast reported in 2021/22, contributing 0.2 percentage points to the 1.0% increase in RORE.

b. Step-by-step breakdown of our RoRE

RoRE Components	Comments
1. Allowed Equity Return	*Ofgem's allowed base cost of equity is 6.0%, assuming notional gearing of 65%.* The allowed equity return falls to 5.2% when our actual gearing of 60% is taken into account, as our shareholders have invested a greater amount of equity than Ofgem's assumed 35% i.e. they receive a lower rate of return (Ofgem's assumed cost of debt) on the additional equity[1].
2. Totex outperformance	*The Totex Incentive Mechanism (TIM) incentivises DNOs to outperform their total cost allowances, sharing any under/overspend with investors and customers through adjusted network charges* Our expenditure for the ED1 period is £3,040m, 0.1% above our phased cost allowances, which results in a small RoRE underperformance (0.0%).
3. Information Quality Incentive (IQI)	*The IQI is an ED1 mechanism that provided a company with a reward or penalty depending on how close its forecast was to Ofgem's view of efficient costs.* We incurred an annual penalty averaging £1.3m over the ED1 period, as our totex forecast exceeded Ofgem's view of efficient costs. This has a negative RoRE impact of 0.1%.
4. Broad Measure of Customer Service (BMCS)	*BMCS incentivises DNOs to improve customer satisfaction, deal with complaints quickly and effectively and engage with stakeholders to inform how they run their business.* We have earned approximately 52% of the available rewards under the BMCS incentive by delivering improvements in customer satisfaction, complaints and stakeholder engagement. For the ED1 period, our average annual earnings from this incentive have been £4.2m.
5. Interruptions-related quality of service	*The Interruption Incentive Scheme (IIS) incentivises each DNO to improve performance against their targets for the number of customers interrupted per 100 customers (CI) and the number of customer minutes lost (CML).* We have delivered significant network improvements in the ED1 period, reducing the number of unplanned customer interruptions and minutes lost by 24%[2] and 26%[11] compared to our ED1 Business plan baseline. This is our primary source of operational RoRE, with annual average earnings of £17.9m against this incentive mechanism in the ED1 period.
6. Incentive on Connections Engagement (ICE)	*ICE is a penalty-only mechanism to ensure DNOs continuously improve services for major/large connections customers.* We have received no penalties against this mechanism in ED1.
7. Time To Connect (TTC) Incentive	*TTC incentivises DNOs to reduce connection times for minor/small connections customers.* We have improved the time taken to deliver connections to our customers during the ED1 period. Our average annual earnings under the TTC incentive are £0.4m. Ofgem tightened incentive targets for the second half of ED1 resulting in lower incentive income being earned in these years compared with earlier years in the ED1 period.
8. Losses Discretionary Reward (LDR) scheme	*LDR is a discretionary reward to incentivise DNOs to take additional actions to better understand and manage electricity losses on their network.* The incentive has a minimal impact on our RoRE. We received £0.3m from the first tranche of this reward scheme. No DNOs received a reward in the second or third tranches of the scheme.
9. Network Innovation unrecoverable expenditure	*The Network Innovation Allowance (NIA) is a set allowance received by each DNO to fund smaller technical, commercial or operational innovation projects.* 10% of network innovation expenditure is DNO funded and therefore not recovered from customers. This has a small impact on RoRE.

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1. Adjusting the RoRE calculation from notional to actual gearing also impacts other line items as the same monetary value is divided by a greater amount of equity investment
2. Four-year average (2019-2023)

10.	Penalties and fines	*These are the penalty payments we incur if we fail against the Guaranteed Standards of Performance (GSoP).* This line item generally takes into account the small impact on RoRE of payments we make to customers in respect of GSoP failures. In 2021/22 we included ex-gratia payments and a £7.7m (£6.1m in 2012/13 prices) charitable contribution in this category in order to capture the RoRE impact of all Storm Arwen costs.
11.	Debt performance	*Debt performance (at notional gearing) shows the difference between our actual cost of debt (on a real basis) and Ofgem's allowed cost of debt.* Over the ED1 period, this has a positive impact on RoRE of 2.1% driven by high inflation (RPI) in 2021/22 and 2022/23, partially offset by the impact of low inflation (as measured by RPI) in 2015/16 and 2020/21. Debt performance is influenced by inflation. The cost of debt allowance is not materially affected by short-term increases or decreases in inflation, but the conversion of our nominal cost of debt to a real basis within the RFPR template results in values which vary significantly from year-to-year although nominal debt interest payments remain relatively stable.
12.	Tax performance	*Tax performance shows the difference between our actual tax costs and Ofgem's allowed tax cost.* The RoRE impact of tax performance for the ED1 period is 0.3%, including utilisation of the tax trigger dead band.

Figure 2.3: Explaining our RoRE components

c. RoRE - excluding Holdco debt

In this section we show our RoRE results on a licensee basis and provide explanation where there is a difference in performance between the licensees. The RFPR tables published alongside this report are on a licensee basis and do not include Holdco debt.

RoRE based on notional gearing

On a notional gearing basis, there is no difference to the NPg operational RoRE as set out in figure 2.1 above.

The main differences in performance between the two licensees are 'Totex performance' and 'Penalties and Fines'.

- **Totex performance**: The main difference in totex performance is the greater impact of higher Network Operating Costs on our Northeast licensee, including the cost of network repairs following Storm Arwen in 2021/22.
- **Penalties and Fines**: This is driven by the impact of Storm Arwen, which predominantly affected our Northeast region.

The difference in RoRE including finance and tax to the figures shown in section 2a and 2b is due to the exclusion of Holdco debt. The licensees also have different historical debt books, which is reflected in their differing debt performance.

Notional Gearing	NPgN	NPgY	NPg
Allowed Equity Return	6.0%	6.0%	**6.0%**
Totex performance	(0.3)%	0.1%	**(0.0)%**
IQI Reward	(0.1)%	(0.1)%	**(0.1)%**
Broad Measure of Customer Satisfaction	0.4%	0.3%	**0.4%**
Interruptions-related quality of service	1.4%	1.6%	**1.5%**
Incentive on connections engagement	-	-	**-**
Time to Connect Incentive	0.0%	0.0%	**0.0%**
Losses discretionary reward scheme	0.0%	0.0%	**0.0%**
Network Innovation	(0.0)%	(0.0)%	**(0.0)%**
Penalties and Fines	(0.5)%	(0.1)%	**(0.2)%**
RoRE – Operational Performance	**6.9%**	**7.9%**	**7.5%**
Debt performance – at notional gearing	3.2%	1.9%	**2.5%**
Tax performance – at notional gearing	0.4%	0.2%	**0.3%**
RoRE – Including financing and tax	**10.4%**	**10.0%**	**10.2%**

Figure 2.4: *Eight-year RoRE (notional gearing, excluding Holdco debt)*

RoRE based on actual gearing

When we include actual debt in the licensees (rather than notional), the gearing of our two licensees falls to around 49%. When viewed in isolation, our forecast RoRE for our Northeast and Yorkshire licensees is 7.1% and 6.5% respectively based on actual gearing. The difference in debt performance between the licensees again reflects the historical debt books.

Actual Gearing (%)	NPgN	NPgY	NPg
Allowed Equity Return	4.3%	4.0%	**4.1%**
Totex Outperformance	(0.2)%	0.1%	**(0.0)%**
IQI Reward	(0.1)%	(0.1)%	**(0.1)%**
Broad Measure of Customer Satisfaction	0.3%	0.2%	**0.2%**
Interruptions-related quality of service	1.0%	1.0%	**1.0%**
Incentive on connections engagement	-	-	-
Time to Connect Incentive	0.0%	0.0%	**0.0%**
Losses discretionary reward scheme	0.0%	0.0%	**0.0%**
Network Innovation	(0.0)%	(0.0)%	**(0.0)%**
Penalties and Fines	(0.3)%	(0.0)%	**(0.2)%**
RoRE – Operational Performance	**4.9%**	**5.2%**	**5.1%**
Debt performance – at actual gearing	1.9%	1.1%	**1.5%**
Tax performance – at actual gearing	0.3%	0.1%	**0.2%**
RoRE – Including financing and tax	**7.1%**	**6.5%**	**6.8%**

Figure 2.5: *Eight-year RoRE (actual gearing, excluding Holdco debt)*

d. Overview of our costs and outputs

Our headline ED1 business plan commitment was to deliver more for less for our customers. This means keeping a tight grip on our costs while continuing to invest in the health of our network, improving services to customers and innovating for the future

We controlled our costs to stay inside Ofgem's tough cost allowances…

Our business plan commitment to deliver 'more for less' meant we had to make significant performance improvements in the RIIO-ED1 period at new levels of cost efficiency. The cost reductions imposed by Ofgem in its price control settlement for ED1 increased the scale of that challenge. For that reason, we took time to challenge the engineering content of our plan and to let key service contracts to deliver efficiencies. This meant that we have been operating to a revised plan that included £281m of cost efficiencies over the period. We have continued to update our plans to reflect cost pressures, delivery of efficiencies and changes in stakeholder requirements.

Our ED1 expenditure closed out in line with allowances (see Figure 2.6).

…while investing in improving the health of our network

Our performance has been strong in most areas driven by solid volume delivery and ongoing reprioritisation of our investment programmes in response to emerging risks on the network.

At an overall Northern Powergrid level, our Network Asset Secondary Deliverables (NASD) finished marginally ahead of target for the 2015-23 period at 101.7%. Overall we achieved our agreed risk reduction targets (i.e. 100%) by the end of the period in both licence areas. (see Figure 2.7).

More detail of our cost performance is included in the next section and our output performance is described in section 3.

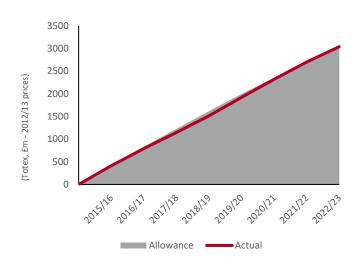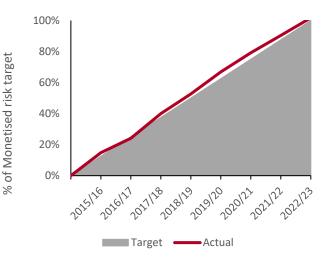**Figure 2.6:** *Total expenditure Vs Ofgem cost allowances (Totex)*

Figure 2.7: *Network Output delivery Vs Ofgem targets (Asset Health and criticality index)*

e. Totex performance summary

ED1 expenditure[1] closed out in line with allowances as per our forecast...

Our ED1 base totex allowances were £2,990m against our original business plan submission of £3,226m. In this report we have updated allowances to account for costs we expect Ofgem to allow through uncertainty mechanisms in the areas of visual amenity, smart meters, streetworks, physical security and green recovery, bringing total allowances to £3,035m.

Our total expenditure in ED1 was £3,040m, representing 100% of the allowances provided by Ofgem.

During the early part of the ED1 period we undertook a significant cost re-engineering exercise in light of Ofgem's challenging final determination to ensure that we could deliver the outputs we committed to our stakeholders in our ED1 business plan at the lower level of allowed costs. This cost re-engineering work, which included re-negotiating key service contracts, meant we were operating to a revised plan that included £281m of cost savings over the period (9% efficiencies relative to our original ED1 business plan). We have continued to update our plans to reflect cost pressures, delivery of efficiencies and changes in stakeholder requirements.
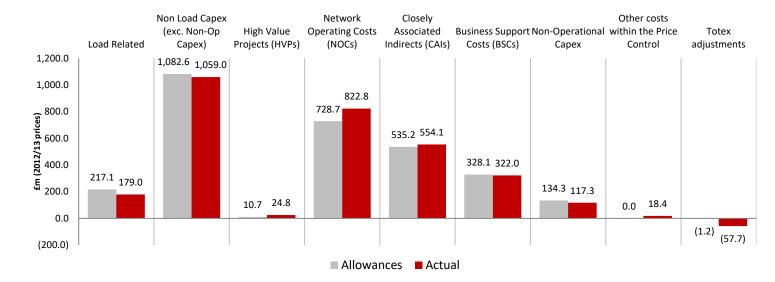

Figure 2.8 ED1 Actual

Figure 2.9 Actual ED1 outturn against allowances by cost category

For the period as a whole, our expenditure was above allowances on network operating costs (£94.1m; 13%) and closely associated indirects (£18.9m; 4%) offset by under spending against allowances in network investment (£47.7m, 4%), non-op capex (£17.0m; 13%) and business support costs (£6.1m; 2%). We were not allowed our ED1 business plan forecast for fault costs in Ofgem's final determination and whilst our cost reduction programme has recognised efficiencies in the period, the delivery of service enhancements through use of generators to improve restoration times and increasing contractor cost pressures meant that we remained significantly underfunded for network operating costs. We were awarded more than our ED1 business plan forecast for business support costs where we were the most efficient company in Ofgem's disaggregated cost assessment and outperformed the allowances we were set even after making additional investments in IT to support improvements in customer service.

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1 Allowing for reinvestment of SECV rewards

We have continued to manage cost pressures and delivered additional investment where required in the period

At the time of writing our ED1 business plan we knew that unforeseen cost pressures would materialise during the longer eight-year price control period. For instance, we have seen pension costs increase (circa £16m more than allowances over the plan period) and the response required to increasing cyber security threats increased our IT costs by £25m.

As reported last year, cost pressure has arisen from changes to the EU's Persistent Organic Pollution (POPs) Regulation that requires removal of PCB contaminated equipment by December 2025. At this stage, based on statistical modelling, we estimate around 8,800 pole mounted transformers will require replacement by this date. We were able to absorb some activity within the envelope of our existing ED1 allowances namely where there were synergies with our reinforcement expenditure.

The smart meter roll-out has regained momentum following the impact of the COVID pandemic, with activity levels since returning closer to pre-pandemic levels. However, by the close of ED1 this activity was not fully recovered. We have still seen a high volume (>10k) of MOP-driven interventions where we are yet to be informed of a smart meter being installed at the property and so have not claimed the related variant allowance.

We have delivered both a more resilient network and additional outputs to our customers that exceed the original commitments in our ED1 business plan. In delivering our plan, we have upgraded flood defences at a further 54 sites (in line with the outcome of the National Flood Resilience Review and updated flood map analysis) beyond the 156 sites we set out as part of our original commitment, invested an additional £1.6m beyond our visual amenity allowance cap and removing an additional 90km of fluid filled cable risk from our network. We have also invested £1.7m on improving the safety of our link box population by installing fire suppression blankets at locations with significant foot traffic.

The costs set out in this report also include investment related to Ofgem's Green Recovery scheme. Costs of £15.3m have been incurred in ED1 across our 14 approved projects with a forecast in the region £30m to be delivered in ED2.

Over the period as a whole we expected to generate 9% of efficiency savings - being the savings we needed to make from our ED1 business plan forecast to meet allowances and further efficiency savings realised in the ED1 period (4%). Efficiencies realised in ED1 relative to allowances are reflected in the table below (Figure 2.10) on a total expenditure basis and have enabled us to absorb cost pressures and deliver service enhancements.

TOTEX	Unit	Efficiency	Service Enhancements	External Factors	Provision in the Price control settlement	Re-phasing of timing of work	Other	Total
Northeast	£m	(51.6)	28.9	(6.7)	44.8	-	0.2	**15.6**
	%	*(4%)*	*2%*	*(1%)*	*3%*	*-*	*0%*	*1%*
Yorkshire	£m	(69.5)	54.5	(57.3)	47.1	-	13.8	**(11.4)**
	%	*(4%)*	*3%*	*(3%)*	*3%*	*-*	*1%*	*(1%)*
NPg Total	**£m**	**(121.1)**	**83.4**	**(64.0)**	**91.9**	**-**	**14.0**	**4.2**
	%	*(4%)*	*3%*	*(2%)*	*3%*	*-*	*0%*	*0%*

Figure 2.10 Cost driver allocation for Totex variance to allowance in the ED1 period

Totex performance summary

Northern Powergrid	RIIO-ED1 Total		RIIO-ED1 Total Actuals *minus* Allowance	
	Allowance £m	Actual £m	£m	%
Load Related	£217.1	£179.0	(£38.0)	(18%)
Non Load Capex (exc. Non-Op Capex)	£1,082.6	£1,059.0	(£23.6)	(2%)
High Value Projects (HVPs)	£10.7	£24.8	£14.0	131%
Network Operating Costs (NOCs)	£728.7	£822.8	£94.1	13%
Closely Associated Indirects (CAIs)	£535.2	£554.1	£18.9	4%
Business Support Costs (BSCs)	£328.1	£322.0	(£6.1)	(2%)
Non-Operational Capex	£134.3	£117.3	(£17.0)	(13%)
Other costs within the Price Control	£0.0	£18.4	£18.4	N/A
Totex adjustments	(£1.2)	(£57.7)	(£56.5)	N/A
Totex	£3,035.4	£3,039.6	£4.2	0%

Figure 2.11 Totex performance summary - Northern Powergrid

Northeast	RIIO-ED1 Total		RIIO-ED1 Total Actuals *minus* Allowance	
	Allowance £m	Actual £m	£m	%
Load Related	£112.6	£87.7	(£24.9)	(22%)
Non Load Capex (exc. Non-Op Capex)	£455.3	£451.4	(£3.9)	(1%)
High Value Projects (HVPs)	£0.0	£0.0	£0.0	0%
Network Operating Costs (NOCs)	£282.4	£334.5	£52.1	18%
Closely Associated Indirects (CAIs)	£239.4	£261.4	£22.0	9%
Business Support Costs (BSCs)	£153.2	£150.8	(£2.4)	(2%)
Non-Operational Capex	£60.6	£58.6	(£2.1)	(3%)
Other costs within the Price Control	£0.0	£6.5	£6.5	N/A
Totex adjustments	(£1.1)	(£32.9)	(£31.8)	N/A
Totex	£1,302.4	£1,318.0	£15.6	1%

Figure 2.12 Totex performance summary - Northeast

Yorkshire	RIIO-ED1 Total		RIIO-ED1 Total Actuals *minus* Allowance	
	Allowance £m	Actual £m	£m	%
Load Related	£104.5	£91.4	(£13.2)	(13%)
Non Load Capex (exc. Non-Op Capex)	£627.3	£607.6	(£19.7)	(3%)
High Value Projects (HVPs)	£10.7	£24.8	£14.0	131%
Network Operating Costs (NOCs)	£446.3	£488.3	£42.0	9%
Closely Associated Indirects (CAIs)	£295.8	£292.7	(£3.1)	(1%)
Business Support Costs (BSCs)	£174.9	£171.2	(£3.7)	(2%)
Non-Operational Capex	£73.7	£58.7	(£15.0)	(20%)
Other costs within the Price Control	£0.0	£11.8	£11.8	N/A
Totex adjustments	(£0.1)	(£24.9)	(£24.7)	N/A
Totex	£1,733.0	£1,721.7	(£11.4)	(1%)

Figure 2.13 Totex performance summary - Yorkshire

3. KEY OPERATIONAL PERFORMANCE

a. Primary Output Performance

Output	Licensee	RAG[1]	DNO Group RAG[1]	Comments
Safety	**Northeast**	●	●	• Accident rate performance in 2022/23 was challenging compared to our stretching target but over ED1[2] we have seen a 44% reduction in our incident rate.
	Yorkshire	●		• No HSE enforcement notices for either licensee.
Reliability & Availability	**Northeast**	●	●	• Unplanned CI and CML have reduced by 19% and 17% respectively in ED1, relative to our business plan baseline. • In 2022/23 we met three of our four Ofgem reliability and availability targets - Customer Interruptions (CI) and Customer Minutes Lost (CML) in Northeast and CI in Yorkshire. We were just 0.3 minutes behind our CML target for Yorkshire. • We are increasing our investment in network technology to automatically restore customer supplies. • We upgraded flood defences at an additional four sites in the year, taking our ED1 total to 210 with a further 60 sites being assessed as being already resilient to flooding.
	Yorkshire	●		
Environment	**Northeast**	●	●	• We have had a mixed year of performance across our key environmental measures – exceeding our targets for Business Carbon Footprint and oil leakage but falling short of our internal target for SF_6 emissions. • We set more stretching targets that went beyond our original plan following engagement with our stakeholders, achieving a greater than 50% reductions for oil loss and reducing our business carbon footprint by 42% (compared to our original 2015-23 targets of 15% and 10% respectively).
	Yorkshire	●		
Connections	**Northeast**	●	●	• Connections BMCS performance in 2021/22 represented a 7.4 percentage point improvement since the start of ED1. • We successfully launched our new self-serve quotation system, building upon our AutoDesign innovation project. • We missed time to quote and deliver targets for LVSSA and LVSSB lead times in both licensees because of high volumes and customers requesting face-to-face site visits. • We are seeing increased LVSSA volumes for the connection of LCTs and fibre telecoms cables (c.36% increase in delivery volumes). • Zero ICE penalty in ED1 to date. For 2022/23, we delivered all 11 actions in our plan.
	Yorkshire	●		
Customer Satisfaction	**Northeast**	●	●	• Overall satisfaction has improved by 6.0pp since the start of ED1. • Customer satisfaction improved by 0.1 percentage points in the year, ranking 5th (out of 6). • Complaints resolution is improved by 22.6pp for Day+1 resolution in ED1 to date at 76.4%.
	Yorkshire	●		
Social Obligations	**Northeast**	●	●	• Disappointing provisional SECV score of 3.30, ranking 6th in the 2022/23 incentive against our DNO peers. • Stakeholders continued to inform the delivery of our plan with a broad range of engagement activities in the year.
	Yorkshire	●		

Figure 3.1 *Northern Powergrid output performance*

1. For details of RAG assessment, see Annex 1: Output Performance Assessment
2 Four-year average 2019-2023, consistent with Ofgem benchmark methodology.

b. Safety

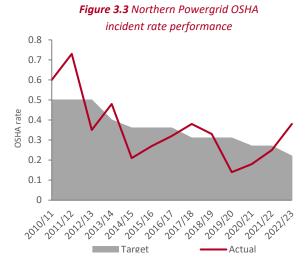| Measure	DNO	2022/23			Comments
		Target[1]	Actual	RAG	
HSE compliance	NPg[2]	✓	✓	●	No HSE non-compliance raised
OSHA[3] Rate	NPg[2]	0.22[4]	0.38	●	Nine recordable incidents in the year
RIDDOR[5] Rate	NPg[2]	0.10[4]	0.16	●	Four recordable incidents in the year

Figure 3.2 Northern Powergrid Safety performance

We remain one of the leading performers in our sector despite a disappointing year in 2022/23, our long-term performance in ED1 represents a 44% reduction in our accident rate[6].

- Our OSHA accident rate in 2022/23 was disappointing with nine incidents in the year. The majority of these incidents were minor, but we did have two incidents resulting from electrical flashover during low voltage cable jointing works. Our colleagues were wearing the correct personal protective equipment which prevented more serious injuries.

- Our performance in 2022/23 again saw no HSE non-compliance issues.

- Our long-term OSHA rate is strong at 0.24[6]. We have made significant progress in making sure all our people go home safe at the end of each day, with a reduction in OSHA rate of 44% on our baseline at the start of ED1[6].

- We successfully retained ISO45001 accreditation for our occupational health and safety management system after the completion of an independent re-certification audit at the end of 2022.

Figure 3.3 Northern Powergrid OSHA incident rate performance

- During 2022/23 we engaged with our field staff on improving processes and safety protocols on low voltage cable jointing recordable incidents at the start of the year. This has been a priority and we established a programme of improvements focused on conducting briefings for all jointing staff, improving tools & equipment and conducting more frequent practical refresher courses.

- We achieved an Ofsted "Outstanding" grade for our apprenticeship programmes with comments noting that our apprentices enjoy their learning and demonstrate exceptional commitment to all aspects of their programmes.

- Our workforce drove 15.4 million miles in 2022/23. This is around 0.4 million miles more than in 2021/22 yet the number of preventable vehicle accidents (PVAs) we incurred decreased by 28% to 26 accidents. During 2015-23 we have upgraded our fleet with on-board reversing cameras and driver safety assistance packages alongside a new telematics system to equip our drivers to be safer on the roads. We have used the enhanced telematics to develop our drivers alongside an increased use of regular practical driver training to improve performance.

- We have continued to use our adapted safety engagement programmes that were developed during the pandemic. We used social media to target agriculture and road haulage via our 'Look Up It's Live' programme as well as getting the message out to the 140,000 attendees of the Great Yorkshire Show. We have adapted our school age children programme to provide online videos, resources, and planning content for use by teachers. We estimate that our Youtube content alone reached ca36,000 pupils this year.

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1. Ofgem targets unless otherwise stated. For details of target setting, forecasting and RAG assessment, see Annex 1: Output Performance Assessment
2. Our key safety targets are agreed and reported at a group level to our shareholder
3. The Operational Safety and Health Administrators (OSHA) is a US based measure of reportable work-related accidents (per 200,000man hours). It includes major incidents leading to absence and less severe injuries leading to restricted duties or the prescription of drugs as treatment or therapy. See www.OSHA.gov
4. Northern Powergrid target
5. The major accident rate measures the number of accidents we have that are reported under the UK's Reporting of Injuries, Disease and Dangerous Occurrences Regulations 2013 (RIDDOR). These accidents are reportable to the Health and Safety Executive (HSE) and include fatal, major injury and lost-time accidents resulting in over seven days' absence from work. See www.hse.gov.uk/riddor/index.html
6. Based on 4 year average from 2019-2023

c. Reliability & Availability

Measure	DNO	2022/23 Target[1]	2022/23 Actual	2022/23 RAG	Comments
Customer Interruptions[2] (CI)	**NPg**	**60.0**	**54.2**	🟢	Unplanned customer interruptions reduced by 24%[3,4] compared to our ED1 business plan baseline
	Northeast	58.6	46.9	🟢	
	Yorkshire	60.9	59.3	🟢	
Customer Minutes Lost[2] (CML)	**NPg**	**51.4**	**48.8**	🟢	Unplanned customer minutes lost reduced by 26%[3,4] compared to our ED1 business plan baseline
	Northeast	50.9	44.0	🟢	
	Yorkshire	51.8	52.1	🟡	
Cumulative health index[5] (% of monetised risk)	**NPg**	**100%**	**101.7%**	🟢	During 2022/23 we were able to deliver the milestone of achieving 100% of our Network Asset Secondary Deliverables.
	Northeast	100%	100.5%	🟢	
	Yorkshire	100%	103.0%	🟢	
Non-connections GSoP failures[6] (Count)	**NPg**	**3,048[7]**	**9,226**	🔴	Over the course of 2022/23 the network faced a number of significant weather events which fell marginally short of severe weather exemption criteria. As a result, we encountered an increased volume of EGS2 failures over the period.
	Northeast	2,002[7]	3,611	🔴	
	Yorkshire	1,046[7]	5,615	🔴	
Non-connections GSoP (Payments, £)	**NPg**	**N/A**	**853,985**	**N/A**	
	Northeast	N/A	378,535	N/A	
	Yorkshire	N/A	475,450	N/A	

Figure 3.4 *Northern Powergrid Reliability & Availability Performance*

We hit the majority of our Ofgem reliability and availability targets in 2022-23 and our customers experienced significantly fewer and shorter interruptions as a result.

- The 2022/23 regulatory year was challenging for our reliability performance in the Yorkshire area after periods of significant storms and extreme heat. However, we still managed to exceed most of our targets for the year, most noticeably for Northeast Customer Interruptions, where our customers experienced 20% fewer power cuts than target. We missed our 2022/23 target for Yorkshire Customer Minutes Lost by only 0.6%.

- Overall, our underlying average performance for the 2015-23 period was good, representing a 24%[4] reduction in unplanned customer interruptions and a 26%[4] reduction in unplanned customer minutes lost.

- We achieved 100% of our Network Asset Secondary Deliverables in the 2015-23 period, closing out with a modest over-delivery of 100.5% for NPgN and 103.0% for NPgY.

- Our flood defence programme exceeded our original target to upgrade 156 sites. During 2015-23 we upgraded defences at 210 sites, investing £41.9m. With 60 further sites being assessed as already meeting flood defence standards, we ensured a total of 270 sites were protected in line with ETR 138.

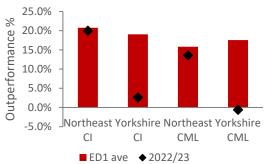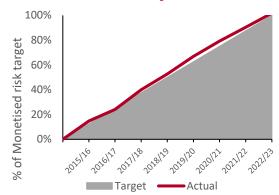*Figure 3.5* *CI/CML Outperformance vs. Ofgem targets (in year and ED1 average)*

Figure 3.6 *Cumulative Network Outputs vs. Targets*

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1. Ofgem targets unless otherwise stated. For details of target setting, forecasting and RAG assessment, see Annex 1: Output Performance Assessment
2. Planned and unplanned, excluding exceptional events
3. Reduction relative to our ED1 business plan baseline - 2012/13
4. Four-year average 2019-2023, consistent with Ofgem benchmark methodology.
5. Cumulative health index for ED1 period
6. Guaranteed Standards Payments (GSoP) reflects the number of failures after exemptions
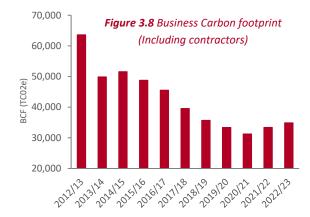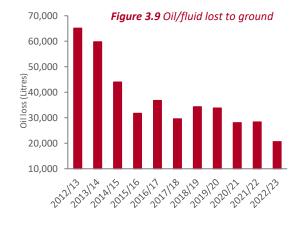7. Northern Powergrid target

d. Environment

Measure	DNO	2022/23			Comments
		Target[1]	Actual	RAG	
Business Carbon Footprint[2] (tCO₂e)	**NPg**	**53,730**	**34,868**	🟢	42% reduction compared to our ED1 business plan baseline[3] – ahead of our 10% reduction target
	Northeast	24,892	15,404	🟢	
	Yorkshire	28,838	19,464	🟢	
SF₆ emissions (kg)	**NPg**	**112.0**	**129.1**	🔴	16% reduction in our ED1 annual average emissions compared to our ED1 business plan baseline[4].
	Northeast	36.5	21.9	🟢	
	Yorkshire	75.5	107.2	🔴	
Oil Leakage (Litres)	**NPg**	**45,258**	**20,618**	🟢	61% reduction compared to our ED1 business plan baseline[5] – ahead of both our original 15%, and stetch 50%, reduction target
	Northeast	14,808	9,864	🟢	
	Yorkshire	30,450	10,724	🟢	
Visual Amenity – removing overhead lines from AONBs (km, cumulative ED1)	**NPg**	**97.9**	**102.6**	🟢	14km removed in 2022/23 which helped us exceed our original target of 100km in ED1.
	Northeast	63.1	60.4	🔴	
	Yorkshire	34.9	42.2	🟢	

Figure 3.7 Northern Powergrid Environmental Performance

Another solid year of environmental performance the ensured we exceeded our business plan targets

- We have reduced our Business Carbon Footprint (BCF) by 42%[3] in the 2015-23 period, exceeding our business plan commitment of a 10% reduction in ED1.

- We've consistently delivered improvements in our emissions, the increase in the last two years of the period was largely down to the relaxation of COVID-19 restrictions which reduced emissions in 2020/21, specifically for business travel. As we emerged from the pandemic, we embedded enduring benefits from agile working arrangements. We have also introduced telematics that will help improve fuel efficiency and introduced more ULEV/ZEV vehicles onto our fleet.

- SF₆ emissions are a significant contributor to carbon footprint – during the 2015-23 period, these have reduced by 16%[4]. Year-on-year we saw an increase of ca. 27kg due to four switchgear assets which lost ca. 68kg; two have been repaired and the other two have now been removed from the network. We continue to utilise advanced thermal imaging technology to detect leaking switchgear whilst trialling SF₆ alternatives for switchgear at different voltage levels.

- Our performance improvement on oil leakage continued into 2022/23 and we achieved a 61%[5] reduction in the 2015-23 period, exceeding both our original 15% and stretch 50% reduction target. Our performance in this area is reflective of a combination of cable replacement, installing oil containment bunds at substations sites and use of PFT[6] technology to locate leaks. We are also trialling self-healing cable fluid additives.

Figure 3.8 Business Carbon footprint (Including contractors)

Figure 3.9 Oil/fluid lost to ground

- Our programme to underground overhead lines in National Parks and Areas of Outstanding Natural Beauty (AONB) exceeded our original plan target. We removed an additional 14km of overhead lines from AONBs in 2022-23, taking our total replacements in ED1 to 102.6km

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1. Northern Powergrid ED1 business plan targets. For details of target setting, forecasting and RAG assessment, see Annex 1: Output Performance Assessment
2. Excluding losses and inclusive of our contractors
3. ED1 business plan baseline of 59,700 TCO2e
4 ED1 business baseline of 112kg.
5. ED1 business plan baseline of 53,425 litres
6. Perfluorocarbon tracers (PFT) are an additive put into fluid filled cables so we can detect leaks by 'sniffing' the specific chemical structure of the tracer in the ground above the leak
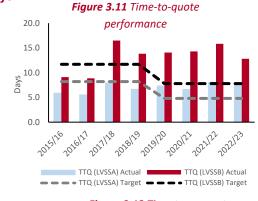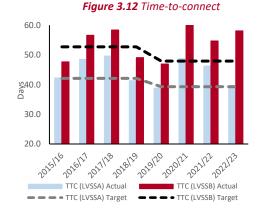
e. Connections

Measure	DNO	2022/23			Comments
		Target[1]	Actual	RAG	
Time to quote: LVSSA (Days)	**NPg**	**4.8**	**7.5**	●	Time to quote targets missed in both licensees impacted by the continued high volumes of customers requesting site visits
	Northeast	4.8	8.4	●	
	Yorkshire	4.8	6.9	●	
Time to quote: LVSSB (Days)	**NPg**	**7.8**	**12.8**	●	
	Northeast	7.8	13.1	●	
	Yorkshire	7.8	12.6	●	
Time to deliver: LVSSA (Days)	**NPg**	**39.3**	**39.5**	●	Time to deliver targets missed in both licensees due to a number of long running jobs at customers' requests and/or requiring wayleaves
	Northeast	39.3	44.9	●	
	Yorkshire	39.3	35.7	●	
Time to deliver: LVSSB (Days)	**NPg**	**47.9**	**58.1**	●	
	Northeast	47.9	71.1	●	
	Yorkshire	47.9	49.2	●	
ICE Penalty (£)	**NPg**	**£0**	**£0**	●	Zero penalty under ICE in ED1 to date
GSoP failures[2] (Count)	**NPg**	**110**[3]	**1,412**	●	Significant increase in the number of enquiries for modifications to connections at existing premises to facilitate the installation of low carbon technologies has led to an increase in the number of quotations provided outside the prescribed timescale of the guaranteed standards
	Northeast	45[3]	799	●	
	Yorkshire	65[3]	613	●	
GSoP failures[2] (% of cases)	**NPg**	**2.0%**	**3.3%**	●	
	Northeast	2.0%	4.6%	●	
	Yorkshire	2.0%	2.4%	●	
GSoP failures[2] (£)	**NPg**	**N/A**	**406,950**	N/A	
	Northeast	N/A	234,255	N/A	
	Yorkshire	N/A	172,695	N/A	

Figure 3.10 Northern Powergrid Connections Performance

Small works connections customer satisfaction is up by 7.4 percentage points in the 2015-23 period and our major works customers continue to give positive feedback for the tailored services we offer.

- We saw quotation and delivery volumes increase, particularly in LVSSA where they increased by 5% and 6% respectively driven by the continued uptake of LCTs and the telecoms fibre rollout. Time to quote has been impacted by high numbers of customers that continue to prefer site visits prior to receiving a quotation, increasing lead times but improving satisfaction. Delivery lead times have also been impacted by a small number of long-running jobs that require wayleaves or where customers have requested delayed connection dates. We launched a new self-service quotation offering during the year and have recruited additional resource in preparation for higher volumes of LCT uptake in the 2023-28 period.

- For our major works connections customers, we delivered all 11 actions in our 2022/23 Incentive on Connections Engagement (ICE) plan.

- AutoDesign, our web-based, self-service design tool, continues to facilitate a smooth process for customers to generate their own budget estimates for low voltage connections including the connection of EV chargers. In 2022/23, over 2,900 estimates were created in the system.

- Our connections input services team (non-contestable works) continued to pursue service improvements, enhancing our legal/wayleave interactions.

- We have engaged with transmission owners and the ESO on individual projects and on longer-term plans for RIIO-2, with the aim of securing improved lead times for connections for generation and storage customers.

Figure 3.11 Time-to-quote performance

Figure 3.12 Time-to-connect

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1. Ofgem targets unless otherwise stated. For details of target setting, forecasting and RAG assessment, see Annex 1: Output Performance Assessment
2. Excluding ECGS11 (Quotation Accuracy Scheme) and ECGS12 (failure to make payment), which is on the same basis as the 2% Ofgem target
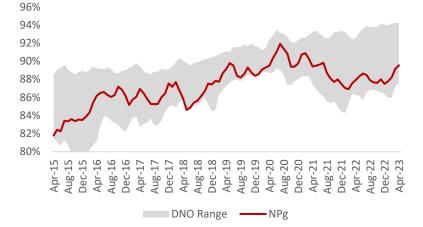3. Northern Powergrid target

f. Customer Satisfaction

Measure	DNO	2022/23			Comments
		Target[1]	Actual	RAG	
Interruptions survey	**NPg**	**8.20**	**8.81**	●	3.8 percentage point improvement since the start of ED1
	Northeast	8.20	8.85	●	
	Yorkshire	8.20	8.78	●	
Connections survey	**NPg**	**8.20**	**8.61**	●	7.4 percentage point improvement since the start of ED1
	Northeast	8.20	8.60	●	
	Yorkshire	8.20	8.62	●	
General enquiries survey	**NPg**	**8.20**	**9.40**	●	8.5 percentage point improvement since the start of ED1
	Northeast	8.20	9.46	●	
	Yorkshire	8.20	9.34	●	
Overall survey	**NPg**	**8.20**	**8.83**	●	6.0 percentage point improvement since the start of ED1
	Northeast	8.20	8.85	●	
	Yorkshire	8.20	8.81	●	
Complaints metric	**NPg**	**8.33**	**5.21**	●	31% improvement (2.4 reduction) compared to 2015/16 performance
	Northeast	8.33	5.18	●	
	Yorkshire	8.33	5.23	●	

Figure 3.13 Northern Powergrid Customer Satisfaction Performance

We have delivered a 6.0 percentage point[2] improvement in overall customer satisfaction since the start of RIIO-ED1

- In 2022/23 we achieved an overall customer satisfaction score of 8.83, in line with our prior year. There are signs that some of the system improvements we brought in during the regulatory year are having a positive impact, with the overall satisfaction for the final quarter of 2022/23 standing at 8.92.

- Our performance ranked 5th in the year with a gap of 1.1pp to 4th and 1.6pp to 3rd. In quarter 4 of 2022/23 this had fallen to 0.7pp and 1.0pp respectively. Our aim is to rank amongst the leaders in the industry. Our focus is on leveraging technology solutions to improve the experience for our customers when subject to a power cut or applying for new connections, as well as supporting our technology offering with a personal service from our key customer-facing functions.

Figure 3.14 Overall Customer satisfaction (Rolling quarter)

- We have improved the ways we communicate with our customers, including launching a 'preferred agent' system that allows return callers to speak to the agent who dealt with their call previously and implementing an outbound dialler to contact vulnerable customers quickly and easily via landline during supply interruptions.

- To improve the service to our customers during interruptions, we have recruited a dedicated Priority Service team as well as a team dedicated to providing on-site customer facing support during longer duration faults.

- We rolled out weekend appointments for general enquiries and service alteration jobs in 2022/23 and launched a call back facility to our telephony platform so that customers do not need to wait on the line in a queue during busy periods.

- Our complaint handling improved again in 2022/23 – current levels of day+1 resolution are now at 76.4%, representing a 22.6 percentage point improvement in the 2015-23 period. We received no repeat complaints or adverse ombudsman decisions in the year.

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1. Ofgem targets unless otherwise stated. For details of target setting, forecasting and RAG assessment, see Annex 1: Output Performance Assessment
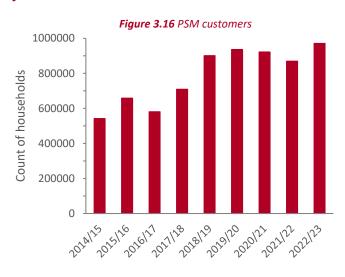2. Based on score out of 100% since the start of ED1

g. Social Obligations

Measure	DNO[1]	2022/23			Comments
		Target[2]	Actual	RAG	
Stakeholder Engagement and Consumer Vulnerability score	NPg	8.00	3.30	●	Provisional 6th place ranking for 2022/23
Supporting Measures					
Power cuts Customer satisfaction (PSM)	NPg	8.20[3]	8.88	●	We are targeting our own standards for those who need extra support during power cuts – this is reflected in our improving PSM satisfaction scores
Power cuts Restoration within 6 hours (PSM)	NPg	95.0%	95.2%	●	
Power cuts Restoration within 9 hours (PSM)	NPg	98.0%	98.1%	●	
School pupils engaged through safety education	NPg	40,000	57,773	●	Our YouTube content, launched in 2021/22, continues to drive high volumes of pupil engagement

Figure 3.15 Northern Powergrid Social Obligations Performance

We have continued to enhance our support for customers in fuel poverty as well as delivering our social legacy programme in deprived areas where we are improving network infrastructure

- Our provisional SECV ranking for 2022/23 is 6th position. As we enter the 2023-28 period, we have already significantly expanded our fuel poverty programme to help those families that are struggling in this cost-of-living crisis. We have triggered our decarbonising homes service for vulnerable customers with a number of trial projects which will provide the blueprint for expansion throughout the ED2 period. There has been a significant step up in our services to proactively reach out to vulnerable customers including a dedicated on-site support team to take care of their needs within prolonged power cuts. We are continuing to drive and enhance our service responding to the needs of our customers, particularly those in vulnerable situations with a clear focus on how to enable a just transition and endure nobody is left behind in this changing energy landscape.

Figure 3.16 PSM customers

- We currently have around 970,000 customers on our PSM register. This year, we worked with BluMilk to run trials using new PSM recruitment media including iVans and targeted online adverts. The campaign, which ran in Q4 of 2022, resulted in a 170% increase in direct sign ups compared to the previous year.

- In 2022-23 we improved our vulnerable customer communication channels including enhancing our vulnerable customer-specific text messages and developing an outbound dialler system to quickly update customers on their landline if we do not hold a mobile number for them.

- There are now more than 460,000 households in our region living in acute fuel poverty. Our focus in 2022-23 was to scale our support services, ensuring that we had full regional coverage by partnering with Citizens Advice Northumberland, Sheffield and Hull & East Riding as well as Energy Saving Trust in north Lincolnshire, reaching over 9000 beneficiaries with direct support and advice either face to face, telephone or online, ensuring as many people as possible could access our support.

- Our Community Partnering Fund offers £100k of funding each year. In 2022 we funded a further 8 organisations working to support those in fuel poverty who have been hardest hit by the cost-of-living crisis. Following the withdrawal of funding from Northern Gas Networks we took the decision to double our own funding to ensure we continued to support the grassroots organisations working with the most vulnerable communities across our region.

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1. Our social obligations targets are agreed and reported at a group level
2. Northern Powergrid target unless otherwise stated. For details of target setting, forecasting and RAG assessment, see Annex 1: Output Performance Assessment
3. Ofgem target

h. Innovation

	Allowances to date in ED1 (£m)[1]	Expenditure to date in ED1 (£m)	Number of projects[2]
Network Innovation Allowance (NIA)	30.2	24.8	44
Network Innovation Competition (NIC)	-	-	1
Low Carbon Network (LCN) Fund	-	-	-

Figure 3.17: Innovation performance

Our vision remains unchanged - to be at the forefront of innovative technology, solutions and thinking in the energy sector; using our innovation activity to provide our customers with world-class, affordable services

Innovation is vital to respond to external changes and new demands, improve services for our customers and respond to emerging risks. These external changes develop over time, and it is essential that our innovation approach evolves to meet them.

Our innovation programme is increasingly focusing on solutions that facilitate a "just transition" towards net zero. Underpinning our objectives, our strategy focuses on:

- **charting the best course to net zero;**
- **achieving next-level energy system dependability;**
- **collaboratively unlocking the value of open data and an increasingly digitalised network; and**
- **ensuring all customers benefit.**

Our innovation plans focus six areas where transformational capabilities are required:

- *Identifying opportunities to accelerate the benefits of flexibility*

- *Maintaining dependability of the energy system as seen by the customer during the energy system transition to decarbonisation*

- *Developing sophisticated data management and analytics to inform energy system forecasting, planning and real time decision making*

- *Removing barriers preventing access to the energy system including access to energy data, particularly for those not currently engaged or informed, vulnerable or less-advantaged*

- *Enhancing the connections process to facilitate higher volumes and different types of connection*

- *Creating capabilities to deliver a next generation local energy network that links up whole system energy sources and vectors, balancing in real time*

We have continued to invest in developing our innovation partnerships to keep us at the forefront on innovative thinking. We have strong relationships with respected academic research institutions, such as Newcastle University, Strathclyde University, Bristol University and Imperial College; with businesses such as our reliability orientated work with Hyperdrive (now Turntide) and connections automation with EA Technology; and with customer interest groups such as National Energy Action. We also leverage being part of the Berkshire Hathaway Energy group to share ideas, collaborate to develop innovative solutions, and access international best practice.

Innovation investment figures recovered in 2022-23

In 2022/23 we invested 73% of our £4.2m Network Innovation Allowance (NIA) across our innovation portfolio consisting of 15 live NIA projects, up from a pandemic-impacted 37% in 2021-22. We were successful in our bid for the £14.5m Network Innovation Competition (NIC) Community DSO for Smart Local Energy Schemes project. The project, which will span the full five years of RIIO-ED2, will help us unlock the use of LV flexibility and enable communities to make best use of locally produced energy. Of the live NIA projects, four are being mobilised, as followed:

- **Readi,** a project which aims to develop a common framework that is intended to facilitate analysis and application of appropriate climate data among all stakeholders to enhance the planning, design, and operation of the power sector.

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1. This reflects the maximum available allowance
2. NIA funded projects in ED1 - a brief description of our key projects can be found in the 'Innovation Activity in Primary Output areas' section, pages 15-16

- **Step Up Transformer,** which is exploring an alternative operational approach to connecting generators to OHLs under emergency outage conditions.
- **Rural Electrification 2,** which is looking at understanding the impact of increasing electrification of the agricultural sector and rural communities / businesses on the distribution network in order to remove barriers, accelerate the transition to net-zero and improve rural network reliability.
- **Pollywood II,** builds on the success of the first phase of the project completed in 2020. This project aims to more fully develop the concept and provide full-sized samples of poles for mechanical and other acceptance testing.

During the year we were advised of our success in the new Strategic Innovation Fund competition. Four out of five project proposals submitted in this round 2 competition were successful in gaining funding, with the discovery phase projects kicking off in April 2023. These each directly support one of our six transformational innovation needs and support delivery of our 2023-28 business plan commitments. These projects are:

- **Inform,** aims to develop Autodesign for large public sites such as hospitals, council and military facilities. This would also present decarbonisation options as part of the enhanced process. Allowing HV connections customers to self- serve enables more focussed allocation of our engineering resources.
- **Artificial Forecasting,** is investigating the use of machine learning/AI to provide fast, accurate load forecasting for DSO. It will predict on short timescales -daily/hourly perhaps - and down to the HV/LV interface.
- **Resilient Customer Response,** seeks to improve overall resilience by making use of the increasing number of behind the meter (BTM) energy assets in consumers' homes, (e.g. batteries, EVs, PV systems, low power systems) and prioritising those without such assets for restoration during outages.
- **Diversified Flexible Queue,** explores re-applying domestic level learning on diversity to large scale energy resources seeking to give customers faster and more efficient connection to the network through considering resources' natural diversity and the dispatchable flexibility services they may provide.

We also self-fund a range of innovation activities in our business, for example projects to reduce network losses and rolling-out machine learning.

In the 2015-23 period, our innovative solutions have delivered benefits to customers in excess of £38.5m and our plans for 2023-28 forecast further benefits upwards of £250m.

Decarbonisation and the transition to DSO are shaping our innovation portfolio

Our Boston Spa Energy Efficiency Trial (BEET) has been examining whether data flows from smart meters can be used to improve voltage control and reduce low voltage energy use by around 5% - assisting decarbonisation and saving customers money. With desktop studies complete, the project has moved into the trial phase. However, delays in the implementation of the OT infrastructure required to facilitate the dynamic set point trials, mean that the start of open loop testing in the production system has been pushed back until later in 2023. The project close has been moved from December 2023 to March 2025.

Our **Customer Led Distribution System** (CLDS) innovation project wrapped up in 22-23, delivering whole system insights into the interaction between network services and wider energy markets, in particular where the value in flexibility lies between the electricity retail and networks sectors.

Other projects that underpin various aspects of technical functionality behind future commercial offerings, include MicroResilience, ResilientHomes3 and SilentPower.

- **MicroResilience** has reached significant milestones in the design, procurement, building and testing of the two functioning units needed to deliver the MicroResilience proposition. Installation is expected to be complete by the end of Q3 2023.
- Our three **SilentPower** vans (NIA funded, £420k total project investment) continue to be deployed as per business-as-usual roll-out.

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3. More information can be found on our innovation webpage: https://www.northernpowergrid.com/innovation

Innovation Activity in Primary Output areas

The benefits of innovation can be seen across the output areas of our business. Some of our key projects are set out below:

Safety

- Vehicle Telematics continues to prove to be a useful tool in improving fleet driver safety in normal driving. We are now seeking solutions to assist in low-speed manoeuvring, site environments and parking to further improve our performance. Extended reality training/ simulation has shown promise in this area, and we are planning to use it for some aspects of training whilst we continue exploring further opportunities with AI.

- Our Centralock project (NIA funded, £88k total project investment), which both registers and controls authorised access and prevents unauthorised access to substations, is in the field trial stage.

Reliability & Availability

- In addition to our network automation programmes of APRS[4] and LV smart fuses, our Foresight fault prediction project (NIA funded, £4m total project investment) represents a revolution in LV cable fault management. So far, the project has made hundreds of thousands of pre-fault identifications prior to them becoming permanent faults. We are learning more about how to use this equipment and our understanding of cable behaviour is improving. This project has now transferred to business-as-usual operations and the aim is to use the technology to target network repairs before faults occur.

- We are using unmanned aircraft systems (UAS), more commonly known as drones, to carry out inspections of our overhead line assets to drive cost efficiencies and we are investigating the use of near-real-time satellite imagery to improve our capability, particularly at times when UAS systems cannot fly.

- We have invested £19.4m in the 2015-23 period in advanced cyber security infrastructure.

- Our MicroResilience project (NIA funded, £3.7m total project investment) will allow us to keep customers on supply even after faults have taken out higher voltage circuits. Work on site to deliver this project is expected to complete this year.

Environment

- Use of Perfluorocarbon tracer (Pft) additives has sped up cable oil leak detection, contributing to a 61% reduction in oil/fluid loss compared to our ED1 business plan baseline.

- Self-healing cable additive that solidifies leaking cable fluid, reducing leakage even further, has completed its NIA funded development (a series of collaborative Innovation Funding Incentive (IFI) and NIA funded projects, circa £750k total project investment) and is now undergoing live field trials.

- In collaboration with other DNOs, we explored a new alternative to traditional wood poles which is not creosote reliant and of a consistent size and strength, allowing multiple poles to be made from one tree, reducing environmental impact.

- Our distributed storage and solar study (NIA funded, £275k total project investment) has created an understanding of how Photovoltaic (PV) generation and behind the meter storage can reduce costs for customers and their carbon footprint, which is being taken forward as a commercial proposition in the energy retail market.

- SilentPower, our battery-based restoration unit that replaces mobile diesel generators, has been used circa 400 times saving around £270k in two years of operation relative to diesel. This is in addition to the CO_2, NOx, particulate and noise reductions and functionality that allows customers to continue to use their solar generation, where they have it, during a fault.

- Pollywood II aims to build on the work undertaken in the original project and to develop a manufacturing process to deliver poles to the field. The first stage of the three-year project is complete, with the relevant standards for Pollywood Utility Pole BS14429 and ENA Technical Specification 43-18 Issue 1 having been reviewed and

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4. Automated Power Restoration System

agreement with Northern Powergrid on requirements. Modifications have been made to the prototype pole manufacturing machine to allow the manufacture of full-scale poles.

Customer Satisfaction

- Our Estimated Time to Restoration (ETR) project is combining historical power cut data with weather, traffic, time, location and resourcing information via a machine-learning tool to forecast more accurate ETRs for customers. Consideration is being given as to whether contextual data (e.g. traffic reports or weather reports) could be worked into the next generation of this tool to further refine the ETRs.

- Our Customer Relationship Management (CRM) system is transforming our customer interactions from reactive, inbound contacts to largely proactive and outbound contacts across a range of integrated communication channels.

- Our expanded range of web-based services such as SafeDig (access to online network records), is allowing our customers to self-serve, accessing more information whilst saving time and cost.

Connections

- Voltage reductions enabled by learnings from our Customer Led Network Revolution (CLNR) project[5] have released over 4.6GW of capacity for multiple small-scale generators to connect to our local network.

- Our AutoDesign project (NIA funded, £1.1m total project investment) has created a web-based, self-service design tool that is live for our customers, providing those looking to connect EV chargers access to high-quality designs, in real-time, at a lower cost. This initiative was enabled by our previous investment in integrated vectorised network and asset records and is enabling us to service increasing LCT connection requests, with over 7,000 automated quotes provided thus far.

Social Obligations

- Design work and customer engagement on our Resilient Homes project, a key initiative for vulnerable customers, is now complete and battery installation has begun. The pandemic-delayed battery installations are progressing. The project utilises a domestic battery solution for ensuring that medically electrically dependent customers remain on supply if a fault occurs on the network. A successful outcome may have positive implications more widely for vulnerable and electrically dependent customers, associated commercial offerings that a third party might develop from our work.

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5. Completed in 2014

i. Whole Systems Progress

The energy system is rapidly changing – our DSO use of flexibility and approaches to data and digitalisation are enabling new low carbon energy to flow through an increasingly active system with the customer being central.

Whole energy system solutions have the potential to deliver significant value for our customers. 2022/23 has been a particularly active year at our interface with National Grid; developing lowest cost and technically appropriate solutions that meet our customers' evolving needs. In conjunction with other network and system operators we have been developing co-ordinated solutions to long lead times on connections and communicating with our customers to share information on how transmission system constraints are impacting their projects.

We continued to engage in the development of a cross-industry framework through the ENA Open Networks project to enhance whole electricity system benefits with emphasis on a greater uptake of customer flexibility.

Our Digitalisation Strategy and Action Plan is a platform for whole system dialogue with a range of other parties. We continued our work with the Electricity System Operator (ESO), other DNO/IDNOs and GDNs via the Data and Digitalisation Steering Group to develop proposals for common GB approaches to energy system open data. Implementation of our open data sharing platform has been a key output in the year and provides us with a scalable route to share more in the future.

Engagement and co-development of action plans for regional decarbonisation have increased in the year. In particular, the input and support for local authorities producing Local Area Energy Plans (LAEPs) and for mass installers of low carbon technologies with heat pumps and electric vehicle charging infrastructure. The two-way sharing of data has underpinned this activity.

Customers always benefit from network operators working more closely together to solve issues on their networks – doing so allows us to deliver lower cost and/or lower carbon options

We have been engaged in the year to deliver efficient whole system planning and system development with:

- National Grid, transmission owner (TO) and the ESO through routine interfaces, on individual projects and on longer-term plans for RIIO-2. Congestion on the transmission system has been one of the most significant whole system priorities in the year with the aim of securing improved lead times for connections for generation and storage customers in particular;
- Other electricity distribution networks on specific connection requests;
- Independent Distribution Network Operators (IDNOs) on their development plans for inset networks in our region so that we can factor that into our economic development plans for our upstream network;
- Multiple cross-industry initiatives as part of the ENA Open Networks project including the ongoing standardisation of flexibility services contracts and alignment of DNO/ESO service inter-operability and procurement approaches;
- Partner DNOs and market platforms to continue the development of industry shared digital interfaces to signpost, procure and operate flexibility services as well as to coordinate whole systems solutions on our network (more information is available in our Whole Electricity System Coordination Register);
- Housing Associations seeking to deploy mass low carbon technologies including domestic solar panels, heat pumps, and batteries have been supported through data exchanges, input into a new decarbonisation guide and involvement in prototype systems to allow quicker decisions to be made on mass deployment;
- Local Authorities seeking urgent action on decarbonisation, including those seeking to pursue LAEPs. In the year, supported by our data and expert input, York and North Yorkshire produced four LAEPs setting out how to achieve their decarbonisation plans over a wide geographical area. These interactions are providing a template for our engagement and support for other local authorities with similar objectives. This experience has informed our input into the ENA development of a guide on how network operators can support net zero plans through collaboration with other parties;

- The community energy sector, who we have equipped with additional knowledge and expertise to navigate building effective relationships and establishing their important role in supporting decarbonisation through building their work with Local Authorities across the region. Informed by research, we are working with partners to provide seed corn funding and mentoring opportunities to accelerate the scale of projects gaining traction across the region;
- Transport for the North - where we are an active steering group member offering critical insight for optimum roll-out plans. More generally, close liaison with local authorities including North Yorkshire and the North of Tyne Combined Authority has explored their Local Electric Vehicle Infrastructure (LEVI) funding allocation and how to support the most efficient roll-out;
- Government (Office for Zero Emissions Vehicles) on implementation of the Rapid Charge Fund project to enable motorway service area operators to secure grid capacity through to 2050 including for heavy goods vehicle charging;
- Industrial sectors and gas distribution network operators where the focus is on decarbonisation that could involve hydrogen or electrification. Our engagement with the industrial clusters of Teesside and the Humber is exploring how the electricity network can support these significant decarbonisation projects. On the residential side, our engagement with Northern Gas Networks has focussed on priorities like the hydrogen village project where the gas and electricity system need to work in tandem.

Our engagement with the ESO and TO is delivering whole system benefits

We are actively working on several industry initiatives with National Grid ESO (including its five-point plan) and with National Grid Electricity Transmission (NGET) and other network companies on the ENA Strategic Connections Group to deliver a number of initiatives which will enable transmission system access for the customers whose generation and storage connections are currently facing long lead times. This collaboration has been developing solutions in the year to:

- reduce the connections queue – by removing stalled projects and accelerating projects that are ready to connect;
- improving connections lead times - including defining and applying delegated limits such that we can manage the queue within agreed boundaries; and
- communicate the whole system view – enabling our customers to understand the challenges and opportunities regardless of whether these are based in the distribution or transmission system.

With National Grid, whole system initiatives continue to be managed through our existing interface processes; our routine Joint Technical Planning Meetings (JTPMs) and fortnightly calls to discuss generation connections and their impacts. These forums enable us and the ESO to work together to determine transmission impacts and lowest cost solutions - associated with condition or capacity related projects. The investment decisions arising from these interactions are recorded and alternatives are considered in our options appraisal documents. For example:

- Assessing the operating voltages at grid in-feeds as we seek to optimise voltages on the distribution network to provide more headroom for generation and operational flexibility for system defence measures.
- Involvement in Pennine Area Voltage Pathfinder activities with the ESO, to support whole system planning across National Grid, Electricity North West and Northern Powergrid licence areas. This required us to assess the impact of reactive power injection at certain key points on our network, where the ESO then assessed the distribution and transmission system options to then determine the most appropriate solution.
- Modelling of impacts of the proposed Yorkshire Green NGET project on the Northern Powergrid distribution system, to determine appropriate next steps and possible solutions.
- Considering the impact on the distribution system of transmission connections via the third party works process.
- Modelling of impacts of higher rating Super Grid Transformers (SGTs) – proposed by NGET – on the distribution system, to determine appropriate next steps and possible solutions.

We delivered the Accelerated Loss of Mains Programme (ALoMCP) successfully. This work concluded with a significant reduction of the loss of mains risk resulting in ESO balancing cost savings which will ultimately be passed on to the end customer. Our programme helped our customers confirm compliance for all >1MW generators in our region.

Results of our whole systems approaches are evident in our Whole Electricity System Coordination Register (WESCo)

This year saw the publication of the Whole Electricity System Coordination Register, which records and highlights some of the key joint deliverables and whole systems actions from the past year, that have arisen through engagement with other DNOs, customers and stakeholders. Notably including:

- Planning and coordination with neighbouring network licensees (distribution and transmission);
- Co-ordination of asset rebuild programmes to ensure the most cost-efficient solution is adopted;
- Adjustments to our processes for procuring flexibility services in response to providers' requirements;
- Development of Auto Design to facilitate mass applications for new low carbon technology (LCT) connections. Local working groups have been established to provide clarity to stakeholders on the rules and processes for LCT connections as they evolve. Feedback from stakeholders is paramount to creating a more efficient, simplified process which enables greater volumes of LCTs to connect to our network;
- Network Congestion Steering Group - bi-weekly meetings between Northern Powergrid, NGESO and NGET stakeholders to discuss any high level topics and initiatives concerning network congestion and impacts or mitigation initiatives.

Demonstrating our flexibility first approach

Using flexibility to defer network reinforcement is now standard practice. Our twice-yearly tender events are supported with year-round market engagement to encourage participation and inform the development of our processes and systems to scale up the use of flexibility. This activity in the year has led to our first flexibility contracts being agreed with providers.

ANNEX A1(a): NORTHERN POWERGRID PERFORMANCE

NPg		Unit	2021/22 Actual	2022/23 Actual	2022/23 Target[1]	RAG	ED1 average	Trend [2]
Revenue (and key financial metrics)								
Total annual revenue		£m	£583.3m	**£621.8m**	N/A	N/A	N/A	N/A
Customer bill[3]		£	£69.44	**£88.96**	N/A	N/A	£72.61	N/A
RoRE[4]		%	8.8%	**9.8%**	N/A	N/A	N/A	N/A
RAV	Opening balance	£m	£2,843m	**£2,878m**	N/A	N/A	N/A	N/A
	Closing value	£m	£2,878m	**£2,903m**	N/A	N/A	N/A	N/A
Totex	Allowance	£m	£338.3m	**£343.8m**	N/A	N/A	£3,035.4m[5]	N/A
	Actual	£m	£381.9m	**£338.4m**	N/A	N/A	£3,039.6m[5]	N/A
	Difference	£m	£43.7m	**-£5.4m**	N/A	N/A	£4.2m[5]	N/A
		%	12.9%	**-1.6%**	N/A	N/A	0.1%[5]	N/A
Incentives[6]								
IIS		£m	£13.0m	**£4.8m**	£23.5m	N/A	£17.9m	▼
TTC		£m	£0.0m	**£0.1m**	£2.0m	N/A	£0.4m	▲
ICE *(penalty only)*		£m	£0.0m	**£0.0m**	£0.0m	N/A	£0.0m	—
BMCS *(Including SECV)*		£m	£1.6m	**£3.4m**	£7.8m	N/A	£4.2m	▲
Total		£m	£14.7m	**£8.3m**	£33.3m	N/A	£22.5m	▼
Innovation								
NIA Expenditure		£m	£1.7m	**£3.4m**	£4.2m	●	£3.1m	▲
NIC Expenditure		£m	£0.0m	**£0.0m**	£0.0m	N/A	£0.0m	—
NPg		Unit	2021/22 Actual	2022/23 Actual	2022/23 Target[1]	RAG	4-year average[7]	Trend [2]
Primary Outputs								
Safety	HSE Compliance	Hit/miss	✓	✓	✓	●	✓	—
Environmental	Oil Leakage	Litres	28,362	**20,618**	45,285[8]	●	27,711	▲
	Business Carbon Footprint[9]	tCO2e	33,381	**34,868**	53,730[8]	●	33,213	—
	SF$_6$ emissions	kg	102	**129**	112[8]	●	92	▼
Customer service	Overall survey	Score	8.82	**8.83**	8.20	●	8.90	▲
	Interruptions survey	Score	8.79	**8.81**	8.20	●	8.89	▲
	Connections survey	Score	8.63	**8.61**	8.20	●	8.74	▼
	General enquiries survey	Score	9.34	**9.40**	8.20	●	9.30	▲
	Complaints metric	Score	5.26	**5.21**	8.33	●	3.91	▲
Connections	Time to quote (LVSSA)	Days	8.1	**7.5**	4.8	●	7.4	▲
	Time to quote (LVSSB)	Days	15.8	**12.8**	7.8	●	14.2	▲
	Time to connect (LVSSA)	Days	46.2	**39.5**	39.3	●	43.3	▲
	Time to connect (LVSSB)	Days	54.6	**58.1**	47.9	●	59.5	▲
Reliability	Customer interruptions	Northeast	CI	49.8	**46.9**	58.6	●	47.3	▲
		Yorkshire	CI	51.1	**59.3**	60.9	●	53.4	▼
	Length of interruptions	Northeast	CML	46.3	**44.0**	50.9	●	42.8	▲
		Yorkshire	CML	43.6	**52.1**	51.8	●	44.5	▼
Social obligations	SECV	Score	3.70	**3.30**	8.00[8]	●	4.68	▼
Secondary Deliverables								
Asset health and criticality index	**HI** Score	Points	18.0m	**20.3m**	20m	●	N/A	▲
	HI % of monetary risk target	%	90.3%	**101.7%**	100%	●	N/A	▲

Figure A1(a) Northern Powergrid performance overview

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1. Ofgem targets unless otherwise stated. For details of target setting, forecasting and RAG assessment, see Annex 1: Output Performance Assessment
2. Based on 2022/23 performance compared to prior year. ▲Trending positively; ▼Trending Negatively; — No/negligible movement
3. Based on average domestic consumption of 2,900kWh - https://www.ofgem.gov.uk/electricity/retail-market/monitoring-data-and-statistics/typical-domestic-consumption-values
4. RoRE for the ED1 period based on notional gearing and including holding company debt
5. Cumulative ED1 Period (2015-2023)
6. Incentive targets reflect maximum rewards against the relevant Ofgem Incentive mechanism
7. Four-year average 2019-2023, consistent with Ofgem benchmark methodology.
8. Northern Powergrid target
9. Business Carbon Footprint including contractors

ANNEX A1(b): LICENSEE PERFORMANCE (NORTHEAST)

Northeast		Unit	2021/22 Actual	2022/23 Actual	2022/23 Target[1]	RAG	ED1 average	Trend [2]
Revenue (and key financial metrics)								
Total annual revenue		£m	£258.1m	**£270.3m**	N/A	N/A	N/A	N/A
Customer bill[3]		£	£76.57	**£93.76**	N/A	N/A	£79.30	N/A
RoRE[4]		%	9.5%	**10.4%**	N/A	N/A	N/A	N/A
RAV	Opening balance	£m	£1,225m	**£1,235m**	N/A	N/A	N/A	N/A
	Closing value	£m	£1,235m	**£1,236m**	N/A	N/A	N/A	N/A
Totex	Allowance	£m	£143.4m	**£144.8m**	N/A	N/A	£1,302.4m[5]	N/A
	Actual	£m	£161.4m	**£126.9m**	N/A	N/A	£1,318.0m[5]	N/A
	Difference	£m	£18.0m	**-£17.9m**	N/A	N/A	£15.6m[5]	N/A
		%	12.6%	**-12.4%**	N/A	N/A	1.2%[5]	N/A
Incentives[6]								
IIS		£m	£4.6m	**£4.7m**	£10.0m	N/A	£7.3m	▲
TTC		£m	£0.0m	**£0.0m**	£0.8m	N/A	£0.2m	—
ICE (penalty only)		£m	£0.0m	**£0.0**	£0.0m	N/A	£0.0m	—
BMCS (including SECV)		£m	£0.7m	**£1.5m**	£3.3m	N/A	£1.9m	▲
Total		£m	£5.3m	**£6.2m**	£14.1m	N/A	£9.4m	▲
Innovation								
NIA Expenditure		£m	£0.7m	**£1.5m**	£1.8m	●	£1.3m	▲
NIC Expenditure		£m	£0.0m	**£0.0m**	£0.0m	N/A	£0.0m	—

Northeast		Unit	2021/22 Actual	2022/23 Actual	2022/23 Target[1]	RAG	4-year average[7]	Trend [2]
Primary Outputs								
Safety	HSE Compliance	Hit/miss	✓	✓	✓	●	N/A	—
Environmental	Oil Leakage	Litres	8,979	**9,864**	14,808[8]	●	9,054	▼
	Business Carbon Footprint[9]	tCO2e	17,109	**15,404**	24,892[8]	●	15,788	▲
	SF$_6$ emissions	kg	14.5	**21.88**	36.5[8]	●	18.8	▼
Customer service	Overall survey	Score	8.88	**8.85**	8.20	●	8.97	▼
	Interruptions survey	Score	8.78	**8.85**	8.20	●	8.92	▲
	Connections survey	Score	8.74	**8.60**	8.20	●	8.83	▼
	General enquiries survey	Score	9.35	**9.46**	8.20	●	9.41	▲
	Complaints metric	Score	5.98	**5.15**	8.33	●	4.14	▲
Connections	Time to quote (LVSSA)	Days	9.3	**8.4**	4.8	●	8.1	▲
	Time to quote (LVSSB)	Days	16.1	**13.1**	7.8	●	14.6	▲
	Time to connect (LVSSA)	Days	50.1	**44.9**	39.3	●	46.8	▲
	Time to connect (LVSSB)	Days	61.6	**71.1**	47.9	●	68.6	▼
Reliability	Customer Interruptions	CI	49.8	**46.9**	58.6	●	47.3	▲
	Length of Interruptions	CML	46.3	**44.0**	50.9	●	42.8	▲
Social obligations	SECV	Score	3.70	**3.30**	8.00[8]	●	4.68	▼
Secondary Deliverables								
Asset health and criticality index	**HI** Score	Points	9.9m	**10.6m**	10.6m	●	N/A	▲
	HI % of monetary risk target	%	94.6%	**100.5%**	100.0%	●	N/A	▲

Figure A1(b): Northern Powergrid (Northeast) performance overview

ANNEX A1(c): LICENSEE PERFORMANCE (YORKSHIRE)

Yorkshire		Unit	2021/22 Actual	2022/23 Actual	2022/23 Target[1]	RAG	ED1 average	Trend [2]
Revenue (and key financial metrics)								
Total annual revenue		£m	£325.2m	**£351.5m**	N/A	N/A	N/A	N/A
Customer bill[3]		£	£64.40	**£85.56**	N/A	N/A	£67.89	N/A
RoRE[4]		%	8.9%	**10.0%**	N/A	N/A	N/A	N/A
RAV	Opening balance	£m	£1,618m	**£1,643m**	N/A	N/A	N/A	N/A
	Closing value	£m	£1,643m	**£1,667m**	N/A	N/A	N/A	N/A
Totex	Allowance	£m	£194.8m	**£199.0m**	N/A	N/A	£1,733.0m[5]	N/A
	Actual	£m	£220.5m	**£211.5m**	N/A	N/A	£1,721.7m[5]	N/A
	Difference	£m	£25.6m	**£12.5m**	N/A	N/A	-£11.4m[5]	N/A
		%	13.1%	**6.3%**	N/A	N/A	-0.7%[5]	N/A
Incentives[6]								
IIS		£m	£8.4m	**£0.1m**	£13.5m	N/A	£10.6m	▼
TTC		£m	£0.0m	**£0.1m**	£1.2m	N/A	£0.2m	▲
ICE (penalty only)		£m	£0.0m	**£0.0m**	£0.0m	N/A	£0.0m	—
BMCS (including SECV)		£m	£0.9m	**£1.9m**	£4.5m	N/A	£2.3m	▲
Total		£m	£9.4m	**£2.1m**	£19.2m	N/A	£13.2m	▼
Innovation								
NIA Expenditure		£m	£1.0m	**£2.0m**	£2.4m	●	£1.8m	▲
NIC Expenditure		£m	£0.0m	**£0.0m**	£0.0m	N/A	£0.0m	—

Yorkshire		Unit	2021/22 Actual	2022/23 Actual	2022/23 Target[1]	RAG	4-year average[7]	Trend [2]
Primary Outputs								
Safety	HSE Compliance	Hit/miss	✓	✓	✓	●	✓	—
Environmental	Oil Leakage	Litres	19,383	**10,754**	30,450[8]	●	18,657	▲
	Business Carbon Footprint[9]	tCO2e	16,272	**19,464**	28,838[8]	●	17,425	▼
	SF_6 emissions	kg	87.1	**107.2**	75.5[8]	●	72.9	▼
Customer service	Overall survey	Score	8.77	**8.81**	8.20	●	8.85	▲
	Interruptions survey	Score	8.79	**8.78**	8.20	●	8.86	▼
	Connections survey	Score	8.54	**8.62**	8.20	●	8.68	▲
	General enquiries survey	Score	9.33	**9.34**	8.20	●	9.19	▲
	Complaints metric	Score	4.57	**5.16**	8.33	●	3.66	▼
Connections	Time to quote (LVSSA)	Days	7.2	**6.9**	4.8	●	6.9	▲
	Time to quote (LVSSB)	Days	15.7	**12.6**	7.8	●	14.1	▲
	Time to connect (LVSSA)	Days	43.7	**35.7**	39.3	●	41.0	▲
	Time to connect (LVSSB)	Days	50.5	**49.2**	47.9	●	53.9	▲
Reliability	Customer Interruptions	CI	51.1	**59.3**	60.9	●	53.4	▼
	Length of Interruptions	CML	43.6	**52.1**	51.8	●	44.5	▼
Social obligations	SECV	Score	3.70	**3.30**	8.00[8]	●	4.68	▼
Secondary Deliverables								
Asset health and criticality index	**HI** Score	Points	8.0m	**9.7m**	9.4m	●	N/A	▲
	HI % of monetary risk target	%	85.5%	**103.0%**	100.0%	●	N/A	▲

Figure A1(c) Northern Powergrid (Yorkshire) performance overview

ANNEX 2: OUTPUT PERFORMANCE ASSESSMENT

Approach to target setting and forecasting for outputs

We seek to achieve continuous improvement through our target setting, moving the performance of the business forward to best-ever levels.

The 2022/23 targets set out in this report include a combination of:

- Ofgem incentive targets where stipulated in RIGs guidance and/or RAG rating guidance; and
- Northern Powergrid targets where Ofgem has not indicated the basis for targets.

We have included footnotes on the outputs tables throughout the document to identify the basis of the targets applied for each measure.

RAG rating guidance/approach

The tables over the page set out the RAG rating approach applied in Section 2 of the document (Output and Incentive Performance).

They include Ofgem's RAG guidance used in its ED1 Annual Reports along with Northern Powergrid's RAG approach for measures where no guidance has been set by Ofgem.

OFGEM RAG GUIDANCE				
Measure	**Green**	**Amber**	**Red**	**Overall RAG (for Section 2a)**
Average duration of interruptions (CML)	Actual performance is lower than or equal to the regulatory target	Actual performance is higher than target but lower than or equal to 105% of regulatory target	Actual performance is higher than 105% of regulatory target	For DNOs' overall Reliability and availability RAG status: Both green = Green overall
Number of interruptions (CI)	Actual performance is lower than or equal to the regulatory target	Actual performance is higher than target but lower than or equal to 105% of regulatory target	Actual performance is higher than 105% of regulatory target	Both red = Red overall Any other combination – Amber overall
Complaints	Performance is lower than or equal to regulatory target of 8.33 (score <=8.33)	Performance is higher than regulatory target, but lower than or equal to 105% of regulatory target (8.33 < score < =8.75)	Performance is higher than 105% of regulatory target (score > 8.75)	Weight performance as follows: 50% connections; 30% interruptions; and 20% general enquiries.
Customer Satisfaction Survey	Performance is higher than or equal to regulatory target (>=8.2)	Performance is lower than regulatory target, but higher than or equal to 95% of regulated target (7.79 <= score < 8.2)	Performance is lower than 95% of regulated target (<7.79)	For DNOs' overall Customer satisfaction RAG status: Both green = Green overall Both red = Red overall Any other combination – Amber overall
Fluid Filled cables (top up as a percentage of oil in service)	None – will build a picture of annual performance over price control *(see next page for Northern Powergrid's approach)*			
SF$_6$ (emissions as percentage of SF$_6$ bank)	None – will build a picture of annual performance over price control *(see next page for Northern Powergrid's approach)*			
BCF (excluding losses) (as a % of network length and customer numbers)	None – will build a picture of annual performance over price control *(see next page for Northern Powergrid's approach)*			
Time to Quote and Time to Connect	Actual time is lower than or meeting regulatory target in all 4 of the categories	Actual time is higher than 105% of regulatory target for no more than 2 categories	Actual time is higher than 105% of regulatory target for 3 or 4 categories	For DNOs' overall Connections RAG status: All five green = Green overall
Connection GSoPs	0% to <=2% of total connections standards missed	>2% and <=5% of total standards missed	>5% of total standards missed	Three or more red = Red overall Any other combination = Amber overall

Figure A2.1: Ofgem RAG guidance/approach

NORTHERN POWERGRID RAG APPROACH				
Measure	**Green**	**Amber**	**Red**	**Overall RAG** (for Section 2a)
INNOVATION				
NIA expenditure	NIA expenditure is >=90% of allowance	NIA expenditure is >=75% but <90% of allowance	NIA expenditure is <75% of allowance	
SAFETY				
HSE compliance	No HSE compliance failures or prohibition notices	No material HSE compliance failures and only minor non-conformances e.g. minor prohibition notice(s)	1 or more material compliance failures or major non-conformances	Overall RAG status for safety based on RAG status for Ofgem's headline measure of HSE compliance (see left)
OSHA RIDDOR	Performance is equal to or less than Northern Powergrid internal target	Performance is >100% but <=110% of Northern Powergrid internal target[10]	Performance is >110% of Northern Powergrid internal target	
RELIABILITY & AVAILABILITY				
Non-connections GSOP (no of failures)	Performance is equal to or less than Northern Powergrid internal target	Performance is >100% but <=105% of Northern Powergrid internal target	Performance is >105% of Northern Powergrid internal target	
ENVIRONMENT				
Oil Leakage / Business Carbon Footprint / SF6 emissions	Performance is equal to or less than Northern Powergrid internal target	Performance is >100% but <=105% of Northern Powergrid internal target	Performance is >105% of Northern Powergrid internal target	Overall RAG status for environment based on oil leakage, business carbon footprint and SF6 emissions: All three green = Green overall Two or more red = Red overall Any other combination = Amber overall
Undergrounding in protected landscape (km)	Performance is equal to or higher than Northern Powergrid internal target	Performance is <100% but >=90% of Northern Powergrid internal target	Performance is <90% of Northern Powergrid internal target	
SOCIAL OBLIGATIONS				
SECV score	Rank is 1st or 2nd *(against our DNO peers)*	Rank is 3rd or 4th *(against our DNO peers)*	Rank is 5th or 6th *(against our DNO peers)*	Overall RAG status for social obligations based on SECV score (ranking): 1st or 2nd = Green 3rd or 4th = Amber 5th or 6th = Red
PSR Powercuts — BMCS / < 6 hours / < 9 hours / School pupils engaged through safety education	Performance is equal to or less than Northern Powergrid internal target	Performance is >100% but <=105% of Northern Powergrid internal target	Performance is >105% of Northern Powergrid internal target	

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10 - Amber RAG range set at 10% given small number of absolute incidents that contribute to target

NORTHERN POWERGRID RAG APPROACH				
Measure	**Green**	**Amber**	**Red**	**Overall RAG** **(for Section 2a)**
SECONDARY DELIVERABLES				
Outputs HI	Performance is >=100% of phased ED1 straight-line profile	Performance is <100% but >=95% of phased ED1 straight-line profile	Performance is <95% of phased ED1 straight-line profile	

Figure A2.2: *Northern Powergrid RAG approach for measures where no guidance is set by Ofgem*

4. OVERVIEW OF REGULATORY PERFORMANCE

We are required by Ofgem's Regulatory Instructions and Guidance to include narrative on a table-by-table basis. Much of this requirement is covered by our narrative in sections 2, 3 and data within Annex A of this report; therefore, we have cross-referenced wherever possible but include further detail in some areas. We have also referenced the relevant table in the RFPR template (published alongside this report) where supporting values can be found.

RoRE (Table R1): See section 2a-2c

Revenue (Table R2)

On average for the ED1 period, 91% of our allowed Network Revenue is base revenue. Incentive mechanism revenues account for the majority of the remainder in the years 2017/18 to 2021/22, with the correction factor being more significant in 2015/16 and 2016/17, as it includes the recovery of energy supplier temporary rebates given in DPCR5. Adjustments for pass-through costs are significant in 2022/23, the majority being Supplier of Last Resort Costs.

Table R2 of the RFPR shows the impact of incentives earned in DPCR5 on revenues collected in the ED1 period. Incentives earned are generally allowed into revenue with a 2-year lag, therefore incentive revenue adjustments reported in this table in 2015/16 and 2016/17 mainly relate to incentive performance in DPCR5. The DPCR4 residual distribution losses incentive also affected Northeast allowed revenues in 2015/16 and 2016/17 and Yorkshire allowed revenues in all ED1 years to 2017/18.

For further information on 2022/23 incentive revenues earned, see annex A1(a – c).

Totex performance (Table R4): See section 2d-2e

Northeast

In the ED1 period we have overspent against allowances by £15.6m (1.2%), after taking into account expected allowance updates which are not yet reflected in the price control financial model (PCFM). This overspend reflects the net impact of efficiencies, external factors, and service enhancements such as additional EHV cable replacement, cyber security and flood defence work.

The net overspend shows as an underperformance against the totex incentive mechanism (TIM), with a RoRE impact of -0.3% at notional gearing and -0.2% at actual gearing.

After taking into account enduring value adjustments to remove the effect of re-phasing/timing differences, the profile of TIM performance varies on a year-by-year basis over the period, reflecting the differing timing of efficiency savings, external factors (such as reinforcement requirements) and service enhancements.

Yorkshire

In ED1 period we have underspent against allowances by £11.4m (0.7%), after taking into account expected allowance updates which are not yet reflected in the price control financial model (PCFM). This underspend reflects the net impact of efficiencies, external factors, and service enhancements such as additional EHV cable replacement, cyber security and flood defence work.

The net underspend shows as a TIM outperformance, equating to a RoRE impact of 0.1% at both notional gearing and actual gearing.

After taking into account enduring value adjustments to remove the effect of re-phasing/timing differences, the profile of TIM performance varies on a year-by-year basis over the period, reflecting the differing timing of efficiency savings, external factors (such as reinforcement requirements) and service enhancements.

Output incentive performance (Table R5): See Annex A, 1a-1c

Only the NIA section of Table R6 has an impact on RoRE, albeit an immaterial one, being the unfunded element net of Corporation Tax.

Financing (Table R7)

Northeast

Although the nominal cost of debt has reduced during the ED1 period, it has been relatively stable; however, there is significant volatility in the real cost of debt. Actual inflation was low in 2015/16 (1.08% using Ofgem's methodology), 2016/17 (2.14%) and 2020/21 (1.21%), resulting in an underperformance against the allowance at notional gearing in these years. In contrast, actual inflation was high in 2021/22 (5.78%) and 2022/23 (12.87%) using Ofgem's methodology, resulting in an outperformance against the allowance.

Real Cost of Debt	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Actual	3.75%	2.74%	1.10%	1.45%	1.83%	2.73%	(2.26)%	(8.00)%
Allowed	2.55%	2.42%	2.29%	2.09%	1.94%	1.78%	1.62%	1.44%
Difference	1.20%	0.32%	(1.19)%	(0.64)%	(0.11)%	0.95%	(3.88)%	(9.44)%

Figure 4.1: Cost of debt (Northeast)

At notional gearing, Table R7 shows us outperforming the cost of debt allowance. Overall ED1 forecast outperformance has increased significantly, compared with our 2021/22 RFPR due to higher inflation in 2022/23, which has reduced the real cost of debt because we hold fixed nominal (rather than index-linked) debt. It should be noted that, because this table is at a licensee level, higher-coupon debt held at Holdco level is excluded.

As noted in section 2, Ofgem's calculation of debt performance in the RFPR at notional gearing uses the notional gearing assumption of 65% but the licensee's proportion of fixed nominal and index-linked debt. This does not fully reflect the ED1 notional capital structure, which assumes 25% index-linked debt.

At actual gearing we show a marginally lower outperformance for the ED1 period against the cost of debt allowance. Our gearing (at 51% on average) is significantly below the notional level. This results in lower nominal interest costs in absolute terms and less exposure to the impact of inflation on debt performance. Particularly high inflation in 2022/23 means that the combined effect of these two factors reported in Table R7 is a lower outperformance at actual gearing for the ED1 period overall.

In most ED1 years (2015/16 to 2020/21), Table R7 shows a higher outperformance at actual gearing. It should be noted that, because the additional element funded by equity effectively receives the lower cost of debt allowance, the overall impact on RoRE of having lower than notional gearing is negative.

Yorkshire

As actual inflation was particularly low in 2015/16 (1.08% using Ofgem's methodology), this year shows the most significant underperformance against the allowance. Although actual inflation was also low in 2020/21 (1.21%), the underperformance reported is not as significant because it is partially offset by a reduction in our nominal cost of debt as a bond with a coupon rate of 9.25% matured in 2019/20.

Real Cost of Debt	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Actual	4.83%	3.83%	2.35%	2.87%	2.93%	2.96%	(1.63)%	(8.23)%
Allowed	2.55%	2.42%	2.29%	2.09%	1.94%	1.78%	1.62%	1.44%
Difference	2.28%	1.41%	0.06%	0.78%	0.99%	1.18%	(3.25)%	(9.67)%

Figure 4.2: Cost of debt (Yorkshire)

Our overall ED1 performance has improved, compared with our 2021/22 RFPR due to significantly higher inflation in 2022/23, which has reduced the real cost of debt because we hold fixed nominal (rather than index-linked) debt. It should be noted that, because this table is at a licensee level, higher-coupon debt held at Holdco level is excluded.

As noted in section 2, Ofgem's calculation of debt performance in the RFPR at notional gearing uses the notional gearing assumption of 65% but the licensee's proportion of fixed nominal and index-linked debt. This does not fully reflect the ED1 notional capital structure, which assumes 25% index-linked debt.

At actual gearing we show a higher level of overall ED1 outperformance against the cost of debt allowance, as our gearing (at 48% on average) is significantly below the notional level. This results in lower nominal interest costs in absolute terms and less exposure to the impact of inflation on debt performance - the combined effect of these two factors reported in Table R7 being a higher outperformance at actual gearing for the ED1 period overall. It should be noted that, although this gives a positive result in Table R7, the additional element funded by equity is effectively receiving the lower cost of debt allowance and therefore the overall impact on RoRE of having lower than notional gearing is negative.

Net Debt (Table R8)

As noted above in relation to Financing (Table R7), actual gearing is significantly lower than the notional level. Northeast's gearing starts at 52% and is approximately 51% on average over the period. Yorkshire's gearing starts at 51% and falls during the period (giving an average of approximately 48%).

RAV (Table R9)

As there was no published ED1 PCFM in 2022, we have used the ED1 allowances that we submitted to Ofgem in October 2022 (for use the ED2 Final Determinations PCFM) in place of the those in the last published PCFM.

Northeast's ED1 closing RAV forecast is approximately 1% lower than the closing RAV value per the latest PCFM (row 11), mainly because of lower Green Recovery Scheme expenditure (and associated allowances). Yorkshire's ED1 closing RAV forecast is approximately 1% lower than the closing RAV value per the latest PCFM (row 11), due to a combination of lower expenditure in 2022/23 and lower expected additional allowances (mainly Green Recovery).

Taxation (Table R10)

Over the ED1 period, RoRE performance relating to tax is 0.3%, including utilisation of the tax trigger dead band.

Dividends paid and current policy (Table R11)

Our current dividend policy is aligned to Ofgem's PCFM assumption, which is that 5% of the equity element of RAV is paid as a dividend annually in ED1. Annual values for dividends paid are shown in Table R11.

Pensions (Table R12)

The values on Table R12 do not feed into the RoRE calculations within the RFPR, on the basis that differences between established deficit allowances and the equivalent element of deficit repair payments are timing differences only, and the incremental deficit is assumed to be funded as part of totex.

It should be noted that the disallowed element of the established deficit is not taken into account in the RoRE in Table R1, as it is a cost deemed not to relate to the regulated business.

To the extent that the incremental deficit is greater than that assumed at the time of setting allowances, it will be subject to the TIM incentive rate and therefore will not be fully funded. The incremental deficit is included in the overall TIM performance reported in Table R4. The values included in row 11 of this table represent the amount of the incremental deficit we have included in actual totex for the years concerned, rather than an assessment of the element of this which has been funded via allowances.

The proportion of the deficit attributable to post cut-off-date service (the incremental deficit) increased significantly at the March 2016 triennial valuation, due predominantly to low gilt rates at that time, and remained at a similar level following the March 2019 triennial valuation.

DATA ASSURANCE STATEMENT

We have applied Ofgem's Data Assurance Guidance (DAG) methodology. Data inputs are predominately from well-established existing sources of information, which are subject to data assurance under DAG requirements:

- RRP – Costs and Volumes Reporting pack and Revenue Reporting pack;
- our pension RIGs submission following the March 2019 triennial valuation.

ANNEX B1: ENDURING VALUE METHODOLOGIES

Ofgem requires that we classify any updates to allowances which are not included in the last published PCFM as enduring value adjustments. As there was no published ED1 PCFM in 2022, we have used the ED1 allowances that we submitted to Ofgem in October 2022 (for use the ED2 Final Determinations PCFM) in place of the those in the last published PCFM.

a) *Smart Meter Roll-out updated allowances*

For the first six years of the ED1 period, smart meter roll-out updated allowances updates have already been directed, as this was done on an annual basis as part of the annual iteration process.

The totex allowance in row 13 of R4 was our best estimate at the time of submitting updated ED1 allowances to Ofgem for inclusion in the ED2 Final Determinations PCFM, as there was no annual iteration process in 2022. This included smart meter roll-out allowances for 2021/22 (based on actual interventions) and a forecast for 2022/23.

The expected allowance update for 2022/23 is based on actual interventions in 2022/23.

b) *Visual Amenity allowances*

For the first six years of the ED1 period, visual amenity allowances have already been directed, as this was done on an annual basis as part of the annual iteration process.

The totex allowance in row 13 of R4 was our best estimate at the time of submitting updated ED1 allowances to Ofgem for inclusion in the ED2 Final Determinations PCFM, as there was no annual iteration process in 2022. This included visual amenity allowances for 2021/22 (based on actual costs incurred) and a forecast for 2022/23, subject to the maximum total level for ED1 set out in our licences.

The expected allowance update for 2022/23 is based on actual costs incurred in 2022/23 (subject to the maximum total level for ED1 set out in our licences).

c) *Street Works allowances*

We have included anticipated allowance updates for Northeast based on costs incurred associated with Local Authorities implementing new permit schemes. Although, under Ofgem's assessment, Northeast did not meet the materiality threshold for the May 2019 reopener, we are able to apply again at the end of the ED1 period.

Our view of additional allowances in relation to 2022/23 has been updated, compared with the allowances included in row 13 of R4 (which were our best estimate at the time of submitting updated ED1 allowances to Ofgem for inclusion in the ED2 Final Determinations PCFM).

d) *Adjustment to remove impact of rephasing/timing differences*

An enduring value adjustment has been made to reverse the value of any annual under or over-spend that we attribute to rephasing/timing within the ED1 period. This adjusts annual performance under the Totex Incentive Mechanism but has no overall impact, as the adjustment sums to zero over the ED1 period.

e) *Green Recovery Scheme allowances*

Green Recovery Scheme allowance forecasts have been revised to take into account the re-profiling of expenditure in Northeast into the ED2 period and to recognise that we have not met the overall expenditure condition required to claim additional Green Recovery Scheme allowances in Yorkshire.

ANNEX B2: BASIS OF APPORTIONMENTS AND ALLOCATIONS

The RFPR draws on data from well-established existing sources of information which are subject to data assurance under DAG requirements i.e., the RRP – Costs and Volumes Reporting pack and Revenue Reporting pack.

No further apportionments or allocations between licensees were required in the population of the RFPR.

ANNEX B3: GLOSSARY

Cost Categories

Load Related

The cost of managing the load on the network: for example, the installation of new assets to accommodate changes in the level or pattern of electricity demand and generation.

Non Load Capex (excluding Non-Operational Capex)

Primarily the costs of replacing and refurbishing network assets, including operational buildings, defending our substations against flooding, and the costs of operational IT & telecoms systems/equipment.

High Value Projects

Capital expenditure projects with a particularly high value. For ED1, these are projects expected to cost at least £25.0m (in 2012/13 prices), which may be Load Related or Non Load Related in nature.

Network Operating Costs

Primarily the cost of repairing faults on the network, inspection and maintenance activities and smart meter related expenditure.

Closely Associated Indirects

The cost of supporting direct activity on the network, such as the costs of network design, project management, engineering management, clerical support, operational training, call centres and control centres.

Business Support Costs

The cost of running the DNO business, such as those associated with the CEO, finance, IT and non-operational property running costs, HR and non-operational training.

Non-Operational Capex

Capital expenditure on non-operational IT and telecoms systems/equipment, non-operational property, vehicles, tools and equipment.

Other/Totex Adjustments

Adjustments made to expenditure to remove related party profit margins that are not allowed as totex and deduct other items prescribed by Ofgem, such as proceeds from the sale of assets, in arriving at the overall totex value.