Regulatory Financial Performance Report (RFPR)

2018/19

CONTENTS

Note

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

A strong and consistent story of delivery in ED1 – even more for less

In our ED1 business plan we promised our customers we would deliver more for less. That means a better set of outputs across the board with lower spend on a like-for-like basis. Northern Powergrid has definitely made good on that commitment in the first half of the eight-year price control – and we are on track to continue doing so and, in many cases, to go even further than the original commitments we made.

There are no surprises or storyline changes in our ED1 performance. Our cost forecasts continue to show that we expect our expenditure for the period to be in line with the challenging cost allowances that were set, whilst exceeding our output targets by 10-20%. As you would expect, we still have a lot of work to do to deliver on our commitments in the second half of the period, but we remain confident in our delivery plans.

Improving output performance across the board…

Our output measures tell the story of improvement. Keeping the lights on continues to be a top priority for our stakeholders and we are very pleased with our network reliability and availability performance in the period so far. Our 2018/19 performance, in a more challenging year of weather (including storms and a hot summer) represented a 36% reduction in customer minutes lost and 26% reduction in customer interruptions from power cuts relative to the levels at the time we wrote our business plan. We expect to build on this in the second half of the period.

Our customer satisfaction scores have undergone a step-change improvement in the period to date; overall satisfaction rating has improved by 4.5 percentage points since 2015. But we know we still have more to do to achieve our goal of giving our customers the best service in the industry. Achieving the improvements that put us amongst the leaders in the industry is a top priority in the remainder of ED1. We plan to do that by building on the investments we have made in customer-facing enabling technology.

…whilst delivering benefits for the future

Supporting the development of the low carbon economy is at the heart of our ED1 business plan. We are delivering on our promises and expanding our capabilities as a distribution system operation (DSO). One of our key initiatives is our £83m ED1 smart grid enablers programme that is enhancing our capability to control and monitor our network in real time. In parallel we are preparing to make use of flexibility solutions, deploying active network management and using our innovation portfolio to trial new technologies such as vehicle to grid charging.

Reducing risks to security and resilience

Cyber security is still at the top of our risk register with the threat level continuing to grow and change shape every year. So far in the price control period, we have invested £9.6m in cyber defences that was not envisaged in our original ED1 business plan. That investment has put in place protections on behalf of our customers. Wider resilience of our network is also a key risk that we continue to prioritise. Physical security upgrades are a key part of our plans in the remainder of the period along with the completion of our increased, stakeholder-led flood defence programme that will see 254 sites upgraded - 63% more than originally planned.

Ensuring financial stability and attracting investment…

We believe that our customers should expect to be served by companies that are rock solid financially – and we are proud to be such a company. We expect to exceed our output targets whilst living within the cost targets that Ofgem set. That will result in a real equity return to our shareholder of around 7.8%[1], which is at the lower end of the range of regulated network company returns that have attracted so much wider scrutiny in recent times. We see this performance as a fair return commensurate with the strong performance and the ongoing support that our investors continue to show to our region is second to none. As we look towards ED2, we are looking to see our regulator have the confidence to set regulatory price controls that encourage both ongoing investment and efficiency gains at a time when our customers, arguably more than ever, need investors to commit to investment in smart, flexible and high-performing networks.

We are proud to serve our customers and we will continue to work hard to deliver on and outperform our plan.

Phil Jones
Chief Executive

1 - RoRE based on notional gearing (i.e. 65% debt, 35% equity) and including holding company debt

b. ED1 Business plan delivery and strategic priorities

Key Strategic Priorities	KPI	ED1 to date	ED1 Forecast	Key Initiatives
COSTS & OUTPUTS				
• **Efficiently deliver our £3bn ED1 investment programme**	Total Costs – Variance to allowances	**(6%)**	**0%**	• ED1 cost efficiency programme
	Outputs – Variance to target (NOMs)	**+2.6%**	**+10-20%**	
SAFETY & SECURITY				
• **Reduce our accident rate by 50%** • **Enhance our cyber security defences**	OSHA accident rate[1]	**(28%)**	**(50%)**	• Safety engagement, training and audit • Vehicle telematics to improve driver safety • Cyber security investment (£25.6m) in ED1 including delivering NIS-D requirements
CUSTOMER SERVICE				
• **Improve customer satisfaction to become a leader in the industry**	Overall BMCS	**+4.5pp**	**+8.9pp**	• Customer Relationship Management (CRM) technology across core service lines • Proactive communication and web-based services
	Day+1 complaint resolution improvement	**+49%**	**+67%**	
CONNECTIONS				
• **Improve connections customer satisfaction, whilst reducing routine lead times by 30%**	Connections BMCS	**+6.2pp**	**+11.6pp**	• Face-to-face services - quotations-on-site for small works connections
	Small works lead times[2]	**(22%)**	**(30%)**	
	ICE penalty	**Nil**	**Nil**	
RELIABILITY AND AVAILABILITY				
• **Enhance network performance - 20% shorter, 8% fewer power cuts** • **Increase resilience to flooding**	Customer minutes lost[1]	**(36%)**	**(51%)**	• Regional operational delivery teams • Network automation and remote control • Fault prediction technology
	Customer interruptions[1]	**(26%)**	**(35%)**	
	Flood defence upgrades	**162**	**254**	
ENVIRONMENTAL PROTECTION				
• **Minimise our impact on the environment**	Oil/fluid lost to ground	**(14%)**	**(37%)**	• Undergrounding in AONBs • Fluid filled cable replacement • Innovation projects: Thermal imaging cameras for SF6 and self-healing cables
	Carbon Footprint	**(31%)**	**(35%)**	
SOCIAL OBLIGATIONS				
• **Extend our range of differentiated services for PSR customers**	SECV rank	**3rd**	**2nd**	• Partnerships to support vulnerable customers • Enhanced use of data to tailor and target services for PSR customers
SMART & SUSTAINABLE NETWORKS				
• **Transition to DSO** • **Support the national smart meter roll-out**	GW of LCT generation connected	**1.3GW**	**2.6GW**	• £83.4m smart grid enabling investment • Market testing for flexibility services • Active Network Management rollout

Key risks and uncertainties

Risk	Description	Risk Mitigation
CYBER	• **Successful cyber-attack on our IT or OT network**	• £25.6m investment in cyber security defences • NIS-D risk treatment plan implementation
NETWORK RESILIENCE	• **Widespread loss of network from weather, asset failure or physical attack**	• Physical security upgrades • Targeted network investment • Major incident management plans
POLICY	• **Impact of disorderly Brexit on supply chain and/or investor confidence impact of political instability**	• Brexit contingency plan including strategic stocks • Enhanced stakeholder engagement

1 - Relative to business plan baseline – 2012/13
2 - LVSSA/B lead time only

2. KEY FINANCIAL PERFORMANCE MEASURES

a. Explaining our financials

Our overall Return on Regulatory Equity (RoRE) forecast for the ED1 period is 7.8% based on Ofgem's notional gearing calculation[1] (6.9% based on actual gearing) which we believe is a fair and reasonable return on equity for a company expecting to over-deliver on its business plan

Northern Powergrid RoRE	Notes[2]	Notional gearing		Actual gearing	
		ED1 to date	ED1 forecast	ED1 to date	ED1 forecast
Allowed Equity Return	1	6.0%	6.0%	5.3%	5.2%
Totex outperformance	2	(0.3)%	(0.0)%	(0.3)%	(0.0)%
IQI Penalty	3	(0.2)%	(0.1)%	(0.1)%	(0.1)%
Broad Measure of Customer Service	4	0.4%	0.5%	0.3%	0.4%
Interruptions-related quality of service	5	1.9%	1.9%	1.6%	1.7%
Incentive on Connections Engagement	6	-	-	-	-
Time to Connect Incentive	7	0.1%	0.1%	0.1%	0.1%
Losses Discretionary Reward scheme	8	0.0%	0.0%	0.0%	0.0%
Network Innovation unrecoverable expenditure	9	(0.0)%	(0.0)%	(0.0)%	(0.0)%
Penalties and fines	10	(0.0)%	(0.0)%	(0.0)%	(0.0)%
RoRE - Operational performance		**7.8%**	**8.3%**	**6.9%**	**7.2%**
Debt performance	11	(1.2)%	(0.6)%	(0.9)%	(0.4)%
Tax performance	12	0.1%	0.1%	0.1%	0.1%
RoRE - including financing and tax		**6.7%**	**7.8%**	**6.1%**	**6.9%**
RoRE - Excluding holdco debt[3]		**6.9%**	**8.1%**	**5.4%**	**5.9%**
Northeast		*7.9%*	*8.5%*	*5.9%*	*6.2%*
Yorkshire		*6.2%*	*7.7%*	*5.0%*	*5.7%*

Table 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, 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 forecast RoRE for the ED1 period is 6.9% and for the ED1 period to date it is 6.1%, 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 forecast RoRE for the ED1 period (including holdco debt) is 7.8%. This is 1.8% above the 6.0% base return set by Ofgem for the ED1 period.

The main contribution to this outperformance is incentive revenue from the interruptions quality of service incentive (IIS), generating a 1.9% return. In addition, we forecast that we will achieve around 73% of the available Broad Measure of Customer Service (BMCS) reward generating a return of 0.5%. A fall in corporation tax rates generates a further 0.1% as the price control framework allows network companies to retain some of the benefit of any tax rate changes within a specified dead band. The outperformance is offset by a -0.6% underperformance on debt financing as the debt we took out many years ago at prevailing rates at that time is more costly than Ofgem allows.

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 percentage of our investment, the return

1 - Including holding company debt
2 - See section 2b for detail
3 - Including financing and tax

reduces. This accounts for the 0.9% difference between the 7.8% ED1 forecast using Ofgem's notional gearing (including holdco debt) and the actual RoRE figure of 6.9% 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 6.2% and 5.7% 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.

b. Step-by-step breakdown of our RoRE

The table below sets out a step-by-step breakdown of our ED1 forecast 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[4].
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 in ED1 to-date is £1,513m, 6% (£104m) below our phased cost allowances. Whilst our RoRE for the period to-date reflects a small reduction in return, our forecast shows no RoRE impact as we expect this variance to unwind by the end of the price control period and for our expenditure to be in line with Ofgem's allowances for the period as a whole.
3. Information Quality Incentive (IQI)	*The IQI is a mechanism that provides a company with a reward or penalty depending on how close its forecast is 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 forecast to earn approximately 73% of the available rewards under the BMCS incentive by delivering improvements in customer satisfaction, complaints and stakeholder engagement. For the ED1 period to-date, our average annual earnings from this incentive has been £4.2m. Our forecast average annual earnings for the ED1 period as a whole is £5.9m taking into account projected performance improvements.
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 to-date, reducing the number of customer interruptions and minutes lost by 18% and 20% relative since the start of the ED1 period. This is our primary source of RoRE, earning an annual average of £21.3m against this incentive mechanism in the ED1 period to-date, with our forecast annual average earnings at £22.1m for the ED1 period as a whole.
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 to date and we have forecast no penalties for the remainder of the period.

4 - 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

7.	**Time To Connect (TTC) Incentive**	*TTC incentivises DNOs to reduce connection times for minor/small connections customers.* We expect to improve the time taken to deliver connections to our customers during the ED1 period. In the period to date, our average annual earnings under the Time to Connect incentive has been £0.8m. Ofgem have tightened incentive targets for the second half of the ED1 period and we have forecast incentive returns of £1.0m in each of the four remaining years based on the proposed targets in Ofgem's consultation.
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 tranche of the scheme and we have not included any forecast returns for the third tranche.
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.
10.	**Penalties and fines**	*These are the penalty payments we incur if we fail against the Guaranteed Standards of Performance (GSoP).* This line item takes into account the small impact on RoRE of payments we make to customers in respect of GSoP failures. In 2018/19, we made payments totalling £0.5m to customers under GSoP.
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 negative impact on RoRE of -0.6%. The underperformance of -1.2% in ED1 to-date is driven by the impact of low inflation (as measured by RPI) in 2015-16 and some historical debt with a relatively high-coupon (i.e. interest rate) that matures later in the ED1 period to be replaced with lower-coupon debt. Debt performance slightly improves when viewed at actual gearing, reflecting the impact of increased equity funding and therefore lower actual debt on which interest is paid. This improvement is however more than offset by the increased equity portion being funded at Ofgem's allowed cost of debt (which is lower than Ofgem's allowed cost of equity).
12.	**Tax performance**	*Tax performance shows the difference between our actual tax costs and Ofgem's allowed tax cost.* The RoRE impact of forecast tax performance is positive at 0.1% and is mainly attributable to the dead-band which licensees are allowed to retain when there are changes in the rate of Corporation Tax.

Table 2.2: *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. The tables below present the ED1 forecast for RoRE from the RFPR tables.

On a notional gearing basis, there is no difference to the NPg operational RoRE as set out above. The main difference in performance between the two licensees is performance on IIS with Yorkshire reaching the incentive cap and Northeast with some headroom remaining within the incentive. 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 and this is reflected in their differing debt performance.

RoRE based on notional gearing

Notional Gearing	NPgN	NPgY	NPg
Allowed Equity Return	6.0%	6.0%	**6.0%**
Totex Outperformance	0.0%	(0.0%)	**0.0%**
IQI Reward	(0.1)%	(0.1)%	**(0.1)%**
Broad Measure of Customer Satisfaction	0.5%	0.5%	**0.5%**
Interruptions-related quality of service	1.7%	2.0%	**1.9%**
Incentive on connections engagement	-	-	**-**
Time to Connect Incentive	0.1%	0.1%	**0.1%**
Losses discretionary reward scheme	0.0%	0.0%	**0.0%**
Network Innovation	(0.0)%	(0.0)%	**(0.0)%**
Penalties and Fines	(0.1)%	(0.0)%	**(0.0)%**
RoRE – Operational Performance	**8.1%**	**8.4%**	**8.3%**
Debt performance – at notional gearing	0.3%	(0.8)%	**(0.3)%**
Tax performance – at notional gearing	0.1%	0.1%	**0.1%**
RoRE – Including financing and tax	**8.5%**	**7.7%**	**8.1%**

Table 2.3: *Eight-year RoRE (notional gearing, excluding holdco debt)*

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 6.2% and 5.7% respectively based on actual gearing. The difference in debt performance between the licensees again reflects the historical debt books.

RoRE based on actual gearing

Actual Gearing (%)	NPgN	NPgY	NPg
Allowed Equity Return	4.2%	4.0%	**4.1%**
Totex Outperformance	0.0%	(0.0)%	**(0.0)%**
IQI Reward	(0.1)%	(0.1)%	**(0.1)%**
Broad Measure of Customer Satisfaction	0.4%	0.3%	**0.3%**
Interruptions-related quality of service	1.2%	1.4%	**1.3%**
Incentive on connections engagement	-	-	**-**
Time to Connect Incentive	0.0%	0.1%	**0.1%**
Losses discretionary reward scheme	0.0%	0.0%	**0.0%**
Network Innovation	(0.0)%	(0.0)%	**(0.0)%**
Penalties and Fines	(0.0)%	(0.0)%	**(0.0)%**
RoRE – Operational Performance	**5.6%**	**5.6%**	**5.6%**
Debt performance – at notional gearing	0.5%	(0.0)%	**0.2%**
Tax performance – at notional gearing	0.1%	0.1%	**0.1%**
RoRE – Including financing and tax	**6.2%**	**5.7%**	**5.9%**

Table 2.4: *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

Controlling 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 has meant that we have been operating to a revised plan that includes £210m of cost reductions over the period. Whilst our cost efficiency plans are well established, risks remain around execution and we continually update our plans to reflect cost pressures, delivery of efficiencies and changes in stakeholder requirements.

At the half way point in the price control, our total expenditure is tracking fractionally behind the profile of allowances (94%) with the primary difference attributable to timing. Our investment programme was slightly front-end loaded in our plan and is in reality tracking on a more even basis through the period. We forecast that our expenditure will be in line with allowances for the ED1 period as a whole (see Figure 2.1).

…while investing in improving the health of our network

We not only intend to deliver the targeted improvement in network health that we committed to in our ED1 business plan, we expect to outperform it.

We are currently 2.6 percentage points ahead of our ED1 annual profile based on our final target for network asset secondary deliverables (i.e. network outputs) and expect to outperform our target by 10-20% by the end of the period (see Figure 2.2).

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

Figure 2.1: *Total expenditure Vs Ofgem cost allowances (Totex)*

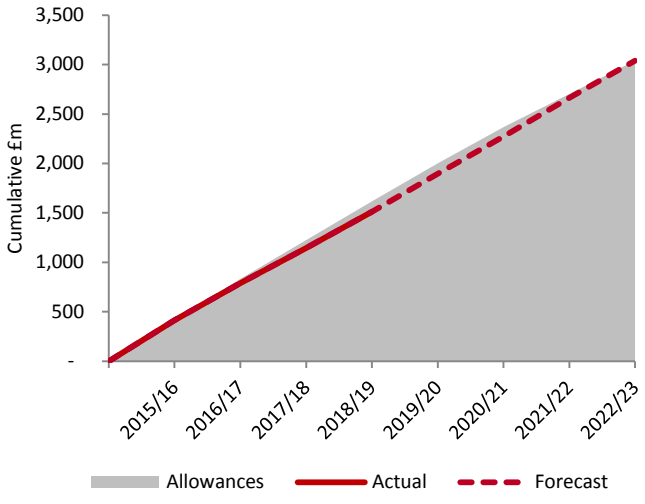
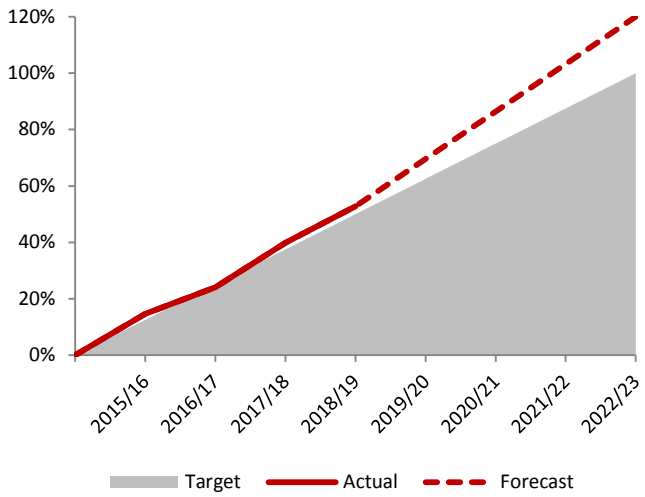


Figure 2.2: *Network Output delivery Vs Ofgem targets (Asset Health and criticality index)*



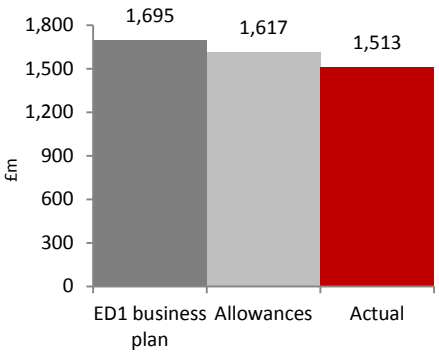
e. Totex performance summary

ED1 to date

Our costs are broadly in line with Ofgem allowances to date, a story that we expect to continue for the remainder of the price control period. The 6% underspend to date, due to phasing of our capital work programmes, will unwind in full over the period to 2023

Our total expenditure in ED1-to-date is £1,513m, 6% (£104m) below our phased allowances of £1,617m, all of which is forecast to unwind by the end of the price control period resulting in spend in line with allowances. Whilst our ED1 allowances (based on the profile of our original ED1 business plan forecast) were front-end loaded, our actual expenditure is tracking on more of a straight-line profile over the eight-year period due to re-phasing of activity for cost reengineering work required at the start of the period. As an illustration, our actual expenditure to-date is 50% of total ED1 allowances, behind the profile of Ofgem allowances (53%) but in line with a straight-line annual profile at the half way point in the eight-year period.

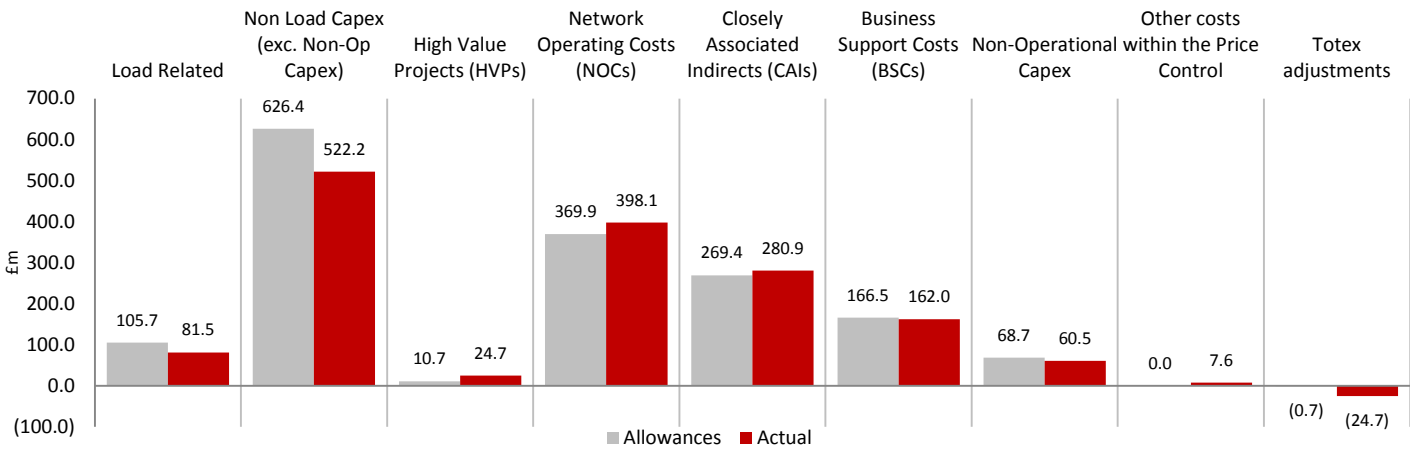
Figure 2.3: *ED1 expenditure to date*



Non-load related capital expenditure (capex) is our largest cost category with spend of £522.2m in ED1 to date. This includes schemes of work to replace and refurbish our network assets and operational buildings and defend our network against flooding. The majority of the underspend against allowances is in this category (£104.2m) due to re-profiling of activity to later years in the period. There is larger re-phasing in Yorkshire due to the deferral of HV primary and EHV/132kV plant projects until later in the ED1 period to allow for re-design and tender activity. We are starting to see our underspend in the period to date unwind. For example, in Yorkshire non-load related expenditure was 28% below allowances after the first three years of the period and is now 23% below allowances after four years.

Network operating costs, which include costs of faults repairs, inspections, maintenance and tree cutting activity is our second largest cost category with spend of £398.1m in ED1 to date. Our spend in this category is £28.2m above Ofgem allowances and we expect to spend more than allowances set by Ofgem for the period as a whole as the regulatory settlement in this category was insufficient, particularly in respect of faults. Also in this category is smart meter interventions, where we have seen lower than anticipated smart meter installations at this stage of the smart roll-out programme but we are experiencing much higher intervention rates. In the period to date the intervention rate is 3.3%, significantly higher than Ofgem's assumption of 2%, the impact of which is seen in our network operating costs.

Figure 2.4: *Cumulative ED1 to date actuals and allowances by cost category*

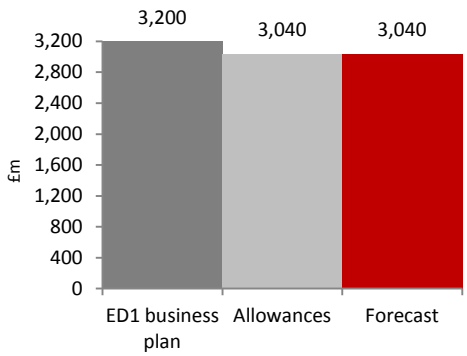


ED1 forecast

We forecast our expenditure for the ED1 period as a whole to be in line with Ofgem allowances whilst delivering outputs in excess of our targets

Our ED1 base totex allowances were £2,990m against our original business plan submission of £3,200m. 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 and physical security, bringing total allowances to £3,040m. Our latest ED1 expenditure forecast remains in line with allowances at £3,040m for the eight-year period, an increase of £15m relative to our prior year forecast due to the changes in costs subject to uncertainty mechanisms.

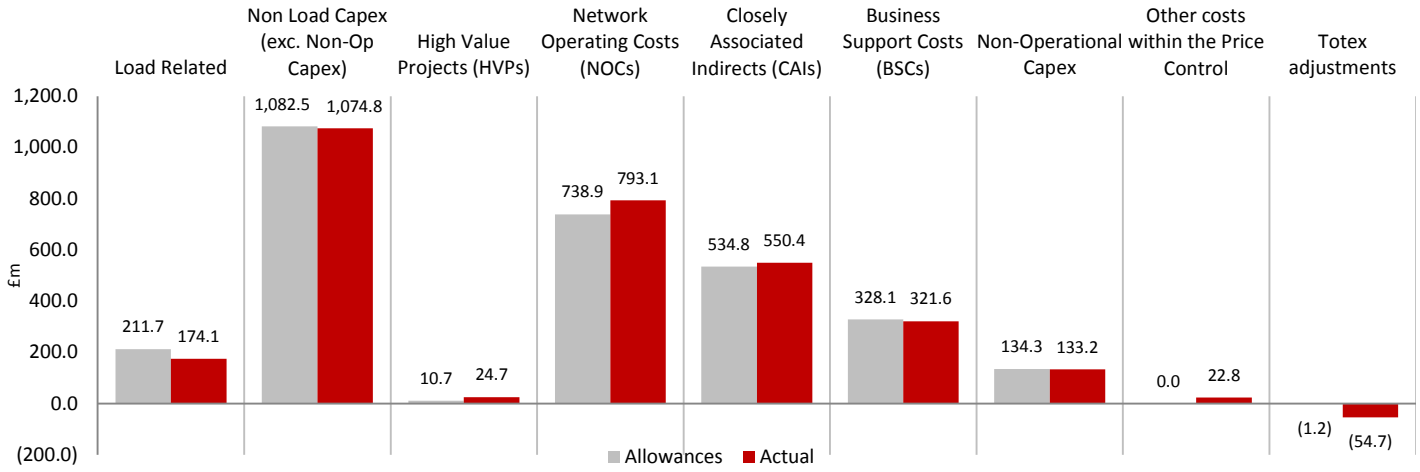
Figure 2.5: *ED1 forecast*



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 has included re-negotiating key service contracts, has meant we are operating to a revised plan that includes £210m of cost savings over the period (i.e. 6.5% efficiencies relative to our original ED1 business plan).

Whilst our cost efficiency plans are well established, risks remain around realisation and execution and we continually update our plans to reflect cost pressures, delivery of efficiencies and changes in stakeholder requirements.

Figure 2.6: *Forecast ED1 outturn against allowances by cost category*



In ED1 we expect to spend more than allowances on network operating costs (£54.2m; 7%) and closely associated indirects (£15.6m; 3%). This will be offset by under spending against allowances for network investment[5] (-£31.3m; -2%), non-op capex (-£1.2m; -1%) and business support costs (-£6.5m; -2%).

Ofgem's allowances for fault costs in ED1 were insufficient to cover the real costs of fault repair, even when we allow for some efficiency savings we are targeting in the period. This means that despite our cost reduction programme enabling us to outperform our forecasts, we do not expect to be able to operate within allowances for network operating costs. Conversely, we were awarded more than our RIIO-ED1 business plan forecast for business support costs, where we were the most efficient company in Ofgem's analysis, and we expect to outperform the allowances that were set.

At the time of writing our ED1 business plan we were aware that unforeseen cost pressures would materialise during the longer eight-year price control period. For instance, we have seen pension costs increase (£15.6m more than allowances over the plan period) and the response required to increasing cyber security threats will increase our IT costs by £25.6m.

5 - Load and non-load capex and high value projects

More recently, cost pressure has arisen from changes to the EU's Persistent Organic Pollution (POPs) Regulation which mandated the removal of Polychlorinated Biphenyl (PCBs) from equipment (e.g. transformers) containing more than 0.05dm^3 of PCBs as soon as possible but no later than 31 December 2025. We are able to absorb some, but not all, of this activity within the envelope of our existing ED1 programme of work. We will need to spend at least an additional £2.9m in ED1 that was not included in our business plan to comply with the regulation.

The smart meter roll-out continues to face significant delays. Suppliers have continued to install a higher proportion of early generation (SMETS1) meters than planned and the communications systems for the later generation of meters is not yet functioning in the North of the country. Based on the progress and the number of smart meter installations to date, we do not believe the roll-out programme will complete by 2020/21 as originally planned at allowance setting. We have forecast the roll-out programme continuing into the last two years of ED1 and in line with Ofgem guidance and we have treated these costs as part of Network Operating Costs (ONIs[6]) at this point.

We have included in our forecasts the costs and allowances for the two ED1 reopener submissions we have made. Firstly, to claim costs associated with street-works (£15.5m) as a result of Local Authorities implementing new permit schemes and a volume driven allowance for lane rental costs (where we have forecast £5.6m in costs in 2021-23) and secondly to claim for enhanced physical site security investment (£3.0m). We are currently awaiting the outcome of that reopener process in respect of the associated allowances.

Overall, evidence in ED1 to-date strongly supports the view that we will deliver both a more resilient network and outputs to our customers that exceed those originally envisaged in our ED1 business plan. As part of our plan, we expect to accommodate an additional investment of £11.1m in flood defence work upgrading a further 98 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, invest an additional £2.1m beyond our visual amenity allowance cap and a further £27m on 72km of EHV cables, removing fluid and gas filled cable risk from our network.

We will keep our forecast under review to ensure we deliver the best outcome for our customers.

Totex performance summary

Northern Powergrid[7]	**Cumulative ED1 to date** Actuals *minus* Allowance		**Forecast** Actuals *minus* Allowance for whole of RIIO-ED1	
	£m	**%**	**£m**	**%**
Load Related	(24.2)	*(23%)*	(37.6)	*(18%)*
Non Load Capex (exc. Non-Op Capex)	(104.2)	*(17%)*	(7.7)	*(1%)*
High Value Projects	14.0	*131%*	14.0	*131%*
Network Operating Costs	28.2	*8%*	54.1	*7%*
Closely Associated Indirects	11.6	*4%*	15.6	*3%*
Business Support Costs	(4.5)	*(3%)*	(6.5)	*(2%)*
Non-Operational Capex	(8.2)	*(12%)*	(1.2)	*(1%)*
Other costs within the Price Control	7.6	*N/A*	22.8	*N/A*
Totex adjustments	(24.0)	*N/A*	(53.4)	*N/A*
Totex	**(103.8)**	***(6%)***	**0.0**	***0%***

Table 2.5: *Totex performance summary - Northern Powergrid*

6 - Occurrences Not Incentivised
7 - A glossary of our key cost categories can be found in Annex B3

Northeast	Cumulative ED1 to date Actuals *minus* Allowance		Forecast Actuals *minus* Allowance for whole of RIIO-ED1	
	£m	%	£m	%
Load Related	(18.0)	*(29%)*	(22.2)	*(21%)*
Non Load Capex (exc. Non-Op Capex)	(19.4)	*(7%)*	7.4	*2%*
High Value Projects	0.0	*0%*	0.0	*0%*
Network Operating Costs	14.2	*10%*	23.9	*8%*
Closely Associated Indirects	9.8	*8%*	14.4	*6%*
Business Support Costs	(0.8)	*(1%)*	(1.5)	*(1%)*
Non-Operational Capex	(0.3)	*(1%)*	(0.7)	*(1%)*
Other costs within the Price Control	1.9	*N/A*	8.3	*N/A*
Totex adjustments	(13.2)	*N/A*	(29.6)	*N/A*
Totex	**(25.9)**	***(4%)***	**(0.0)**	***(0%)***

Table 2.6: *Totex performance summary – Northeast*

Yorkshire	Cumulative ED1 to date Actuals *minus* Allowance		Forecast Actuals *minus* Allowance for whole of RIIO-ED1	
	£m	%	£m	%
Load Related	(6.2)	*(14%)*	(15.4)	*(15%)*
Non Load Capex (exc. Non-Op Capex)	(84.8)	*(23%)*	(15.2)	*(3%)*
High Value Projects	14.0	*131%*	14.0	*131%*
Network Operating Costs	14.0	*6%*	30.2	*7%*
Closely Associated Indirects	1.8	*1%*	1.1	*0%*
Business Support Costs	(3.7)	*(4%)*	(5.0)	*(3%)*
Non-Operational Capex	(7.9)	*(21%)*	(0.4)	*(1%)*
Other costs within the Price Control	5.7	*N/A*	14.6	*N/A*
Totex adjustments	(10.8)	*N/A*	(23.9)	*N/A*
Totex	**(77.9)**	***(8%)***	**0.0**	***0%***

Table 2.7: *Totex performance summary - Yorkshire*

3. KEY OPERATIONAL PERFORMANCE MEASURES

a. Primary output summary

Output	DNO	RAG[1]	DNO Group RAG[1]	Comments
Safety	**Northeast**	●	●	• Performance in 2018/19 represented a 28% reduction in our OSHA rate since we set our business plan targets and keeps us firmly on track to meet our business plan target to halve our OSHA rate by 2023. • No HSE enforcement notices for either licensee.
	Yorkshire	●		
Reliability & Availability	**Northeast**	●	●	• In 2018/19 we met all four Ofgem reliability and availability targets - Customer Interruptions (CI) and Customer Minutes Lost (CML) in Northeast and Yorkshire, exceeding the Interruptions Incentive scheme (IIS) cap in Yorkshire for the fourth consecutive year. • CI and CML have reduced by 26% and 36% respectively, relative to our business plan baseline – 2012/13.
	Yorkshire	●		
Environment	**Northeast**	●	●	• Another strong year across all of our key environmental measures – we met or exceeded all of the targets we set in our business plan. • We have set new, more stretching targets that go beyond our original plan following engagement with our stakeholders.
	Yorkshire	●		
Connections	**Northeast**	●	●	• Connections BMCS performance in 2018/19 represents a 0.62 (7.9%) improvement since the start of ED1. • We hit three of the four Ofgem lead time targets in 2018/19, missing only LVSSB time to quote in the Yorkshire licensee. • Zero ICE penalty in ED1 to date. For 2018/19, we delivered all 22 actions in our plan.
	Yorkshire	●		
Customer Satisfaction	**Northeast**	●	●	• Overall customer satisfaction improved by 0.05 in the year, ranking 5th, which represents a 0.45 (5.5%) improvement since the start of ED1. • Complaints resolution improved significantly in 2018/19, with a 12% improvement in Day+1 resolution; a 49% improvement since the start of ED1.
	Yorkshire	●		
Social Obligations	**Northeast**	●	●	• Achieved a provisional SECV score of 7.01, ranking 3rd in the 2018/19 incentive. • Stakeholders continued to inform the delivery of our plan with a broad range of engagement activities in the year. • We further expanded our understanding of consumer vulnerability in our region via a web based vulnerability data model, in partnership with Experian. This enabled us to improve the services we offer and develop our existing partnerships to provide enhanced support.
	Yorkshire	●		

Table 3.1: *Northern Powergrid Output performance*

1 - For details of RAG assessment, see Annex 1: Output Performance Assessment

b. Safety

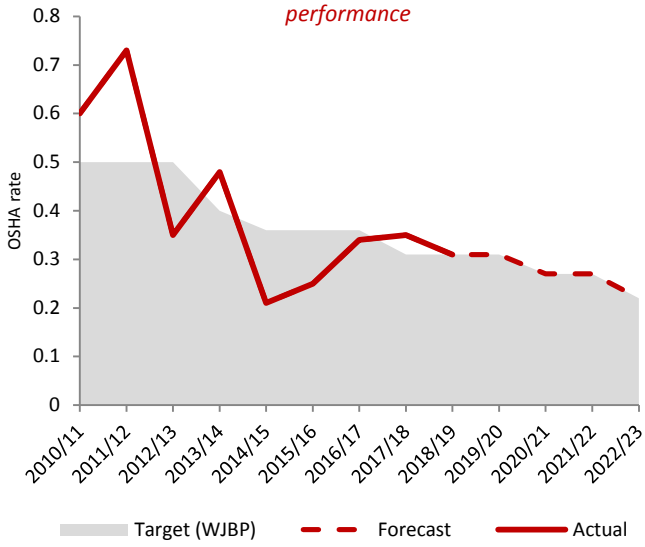
Measure	DNO	2018/19			Comments
		Target[1]	Actual	RAG	
HSE compliance	**NPg**[2]	✓	✓	●	Full HSE compliance in the year
OSHA[3] **Rate**	**NPg**[2]	**0.31**[4]	**0.31**	●	Seven reportable incidents in the year
RIDDOR[5] **Rate**	**NPg**[2]	**<0.10**[4]	**0.12**	●	Three reportable incidents in the year

Table 3.2: *Northern Powergrid Safety performance*

Safety continues to be our number one priority and we are pleased to report that our accident rate[6] has reduced by 28% since we set our business plan

- Our performance in 2018/19 was strong against both OSHA and RIDDOR accident rate measures, maintaining our long-term improvement trajectory and reinforcing our place amongst the leaders in the industry.
- We incurred only seven incidents in 2018/19 which equates to an OSHA rate of 0.31, meeting our target for the year and only narrowly missing our RIDDOR target. This performance represents a 28% reduction since we set out business plan targets and keeps us firmly on track to achieve our commitment to halve our incident rate by 2023[6].

Figure 3.1: *Northern Powergrid OSHA incident rate performance*



- Our focus on the driving standards of our workforce continues. During the year we incurred only 40 preventable vehicle accidents (PVAs) across a fleet covering over 17 million miles, traversing difficult terrain in testing conditions. During the year we expanded our classification of PVAs to help further reinforce positive driving behaviour. On a like-for-like basis; we incurred four fewer incidents in the year. We will continue to utilise new technologies such as vehicle telematics and on board cameras to deliver further improvements in the remainder of the period.
- Our broad range of community engagement activities continued to grow in the year as we seek to raise public awareness of the dangers of electricity, including targeted campaigns for agriculture and road haulage as well as continuing to invest in our schools programme.

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 - OSHA rate: Baseline of target set in our business plan was 2013 calendar year performance.

c. Reliability & Availability

Measure	DNO	2018/19			Comments
		Target[1]	Actual	RAG	
Customer Interruptions[2] (CI)	**NPg**	**63.6**	**51.4**	●	Customer interruptions have reduced by 18.1% since the start of ED1
	Northeast	61.4	54.3	●	
	Yorkshire	65.2	49.3	●	
Customer Minutes Lost[2] (CML)	**NPg**	**58.4**	**42.4**	●	Customer minutes lost have reduced by 19.6% since the start of ED1
	Northeast	59.1	47.6	●	
	Yorkshire	57.9	38.8	●	
Cumulative health index[3] (% of monetised risk)	**NPg**	**50.0%**[4]	**52.6%**	●	2.6% ahead of our phased HI targets for the ED1 period to date at NPg level
	Northeast	50.0%[4]	59.6%	●	
	Yorkshire	50.0%[4]	44.7%	●	
Non-connections GSoP failures[5] (Count)	**NPg**	**3,048**[6]	**4,550**	●	Our Yorkshire GSoP performance took a step back as a result of adverse weather conditions (none of which were deemed severe weather events)
	Northeast	2,002[6]	2,657	●	
	Yorkshire	1,046[6]	1,893	●	
Non-connections GSoP (Payments, £)	**NPg**	**N/A**	**335,099**	**N/A**	
	Northeast	N/A	197,703	N/A	
	Yorkshire	N/A	137,396	N/A	

Table 3.3: *Northern Powergrid Reliability & Availability Performance*

We hit all Ofgem reliability and availability targets and remain firmly on track to deliver our business plan commitments to reduce the number of power cuts by 8% and shorten their duration by 20%

- Weather conditions were challenging during the year with four severe weather incidents in the Northeast and a higher number of outages in Yorkshire compared to 2017/18. Our network performance measures took a minor step back in the year as a result. Despite the weather, we met all four of Ofgem's targets, exceeding the incentive cap in Yorkshire for the fourth year running.
- Overall our reliability and availability performance in the period to date has been strong. At the halfway point of the ED1 period we have achieved a 26% reduction in customer interruptions and a 36% reduction in customer minutes lost since we set our business plan targets in 2012/13.
- We are progressing well against our overall ED1 plan for improving the health of our network. We are ahead of the straight-line profile in the Northeast and slightly behind in Yorkshire, but we expect to outperform our target by 10%-20% by the end of the period.
- Our flood defence programme remains on track. We have upgraded defences at 162 sites in ED1 to date, investing £24.7m, and we have expanded our original commitment to stakeholders from 156 to 254 sites following new analysis and the introduction of the revised ETR 138 standard.

Figure 3.2: *ED1-to-date Average CI/CML Outperformance vs. Ofgem targets*

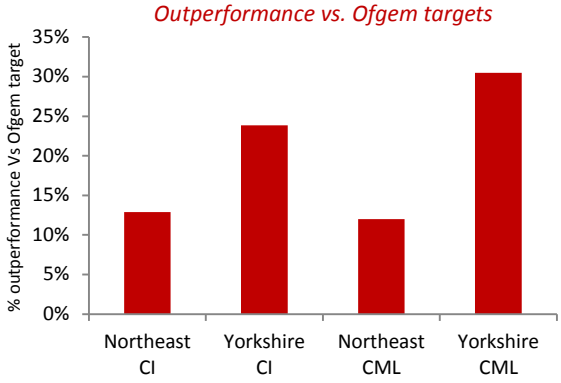
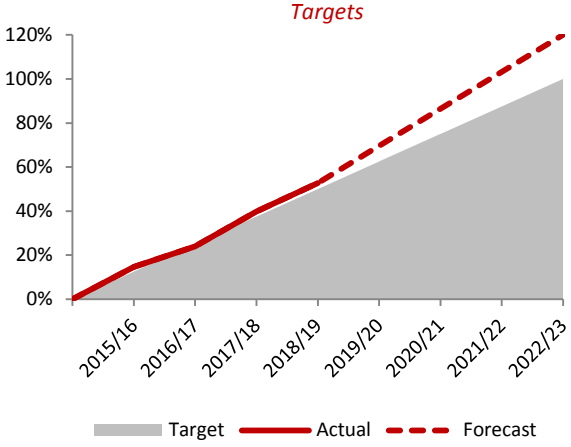


Figure 3.3: *Cumulative Network Outputs vs. Targets*



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 - Cumulative health index for ED1 period
4 - Annual targets were not set. This is an illustrative target reflective of 12.5% for each year of ED1
5 - Guaranteed Standards Payments (GSoP) reflects the number of failures after exemptions
6 - Northern Powergrid target

d. Environmental Protection

Measure	DNO	2018/19			Comments
		Target[1]	Actual	RAG	
Business Carbon Footprint - Exc. losses, Inc. contractors (tCO_2e)	**NPg**	**57,713**	**35,673**	●	31% reduction since the start of ED1
	Northeast	26,737	15,826	●	
	Yorkshire	30,976	19,847	●	
SF_6 emissions (kg)	**NPg**	**112**	**65**	●	32% reduction since the start of ED1
	Northeast	36	18	●	
	Yorkshire	76	47	●	
Oil Leakage (Litres)	**NPg**	**49,822**	**37,736**	●	14% reduction since the start of ED1
	Northeast	16,301	16,343	●	
	Yorkshire	33,521	21,393	●	
Undergrounding in AONBs (km, cumulative ED1)	**NPg**	**49.0**	**55.1**	●	11.4km undergrounded in 2018/19. We are on track to underground 120km in ED1
	Northeast	31.4	35.2	●	
	Yorkshire	17.6	19.9	●	

Table 3.4: *Northern Powergrid Environmental Performance*

Continued improvement in environmental performance keeps us on track to meet or exceed business plan targets

- We have reduced our Business Carbon Footprint (BCF) by 31% in the period to date, exceeding our business plan commitment of a 10% reduction in ED1. We continue to innovate across the business, to reduce our BCF, including investigating new insulating mediums in the equipment we purchase, reducing our fleet mileage by leveraging vehicle telematics technology and introducing electric vehicles into our fleet.
- SF_6 emissions are a significant contributor to carbon footprint and we are pleased with our performance levels, which represent a 32% reduction in ED1 to date. This is driven in part by the use of innovative thermal imaging technology to detect leaking switchgear.
- Despite an increase in oil leakage in the year, due to dry ground conditions following the warm summer weather, we achieved our NPg-level business plan target for the year with performance marking a 14% reduction in ED1 to date. A combination of continued investment in standard engineering solutions to lessen the risk of oil loss, such as cable replacement and installing oil containment bunds at substations sites, along with innovative solutions, such as PFT[2] tracers and self-healing cable fluid additives, will drive further improvements in the remainder of the period.
- Our programme to underground overhead lines in National Parks and Areas of Outstanding Natural Beauty (AONB) continues to make good progress. We undergrounded 11.4km of overhead lines in 2018/19, remaining on track to deliver our original ED1 programme two years earlier than planned and deliver on our expanded business plan commitment to underground 120km (an additional 20km) by 2023.

Figure 3.4: *Business Carbon footprint (Including contractors)*

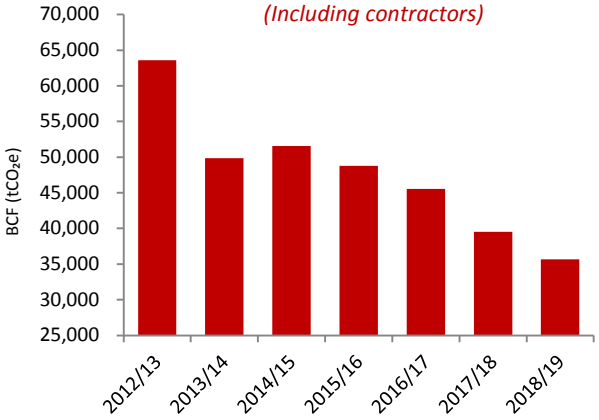
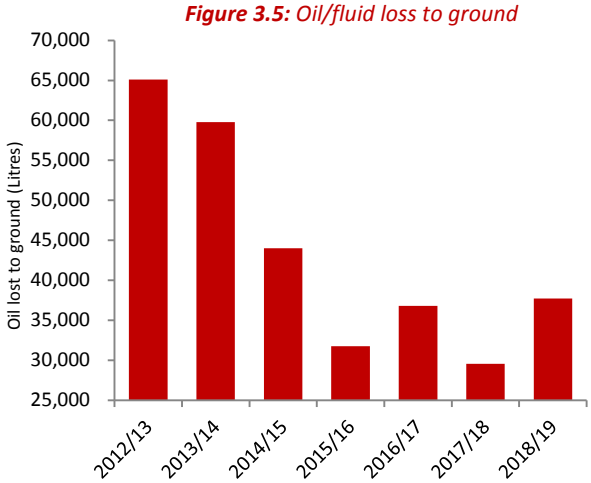


Figure 3.5: *Oil/fluid loss to ground*



1 - Northern Powergrid business plan target. For details of target setting, forecasting and RAG assessment, see Annex 1: Output Performance Assessment

2 - Perfluorocarbon(PFT) tracers 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	2018/19			Comments
		Target[1]	Actual	RAG	
Time to quote: LVSSA (Days)	**NPg**	**8.2**	**6.6**	●	Target achieved in all four years of ED1
	Northeast	8.2	6.3	●	
	Yorkshire	8.2	6.8	●	
Time to quote: LVSSB (Days)	**NPg**	**11.7**	**13.8**	●	Improvement in the year despite missing the Ofgem target in Yorkshire (due to a high volume of jobs requiring site visits)
	Northeast	11.7	11.4	●	
	Yorkshire	11.7	15.1	●	
Time to connect: LVSSA (Days)	**NPg**	**42.1**	**41.3**	●	We achieved all time to connect targets in 2018/19 showing significant improvement on previous years
	Northeast	42.1	41.2	●	
	Yorkshire	42.1	41.4	●	
Time to connect: LVSSB (Days)	**NPg**	**52.7**	**49.1**	●	
	Northeast	52.7	50.8	●	
	Yorkshire	52.7	48.0	●	
ICE Penalty (£)	**NPg**	**£0**	**TBC**	**N/A**	Zero penalty under ICE in ED1 to date
	Northeast	£0	TBC	N/A	
	Yorkshire	£0	TBC	N/A	
GSoP failures (Count)	**NPg**	**110**[2]	**275**	●	Connections guaranteed standard failures reduced by 20% year-on-year however we missed our internal target on the absolute number of failures
	Northeast	45[2]	94	●	
	Yorkshire	65[2]	181	●	
GSoP failures (% of cases)	**NPg**	**2%**	**0.6%**	●	
	Northeast	2%	0.5%	●	
	Yorkshire	2%	0.7%	●	
GSoP failures (£)	**NPg**	**N/A**	**51,585**	**N/A**	
	Northeast	N/A	18,994	N/A	
	Yorkshire	N/A	32,591	N/A	

Table 3.5: *Northern Powergrid Connections Performance*

We achieved a significant performance improvement in connections in 2018/19. So far in ED1, connections customer satisfaction scores have improved by 7.9% (+0.62)[3]

- Connections performance remains a key improvement area for us, despite the significant improvement we have made in the period to date. Our connections customer satisfaction results continued to improve in 2018/19 as the organisational changes we made to positively uplift our customers' satisfaction have continued to bed in. We hit three of our four lead time targets, just missing time to quote for LVSSB in Yorkshire due to the high volume of site visits required for requested works.
- Our offer of a site visit is receiving positive feedback from customers. In 2019/20, we will implement a quote-on-site service to further improve our customer service offering and drive greater efficiency in our connections quotation processes.
- We delivered all 22 actions in our 2018/19 Incentive on Connections Engagement (ICE) plan, including EV connections workshops, the provision of constraint and curtailment information and improved upfront engagement. We have 12 actions in our plan for 2019/20 in response to stakeholder feedback.
- We established an independent connections input services team at the start of the ED1 period which continues to improve our non-contestable services. In the year we ran workshops for Independent Connections Providers (ICPs), published further guidance for ICPs and continued our independent quality assurance visits for ICP contestable work.

Figure 3.6: *Small works connections time-to-quote performance*

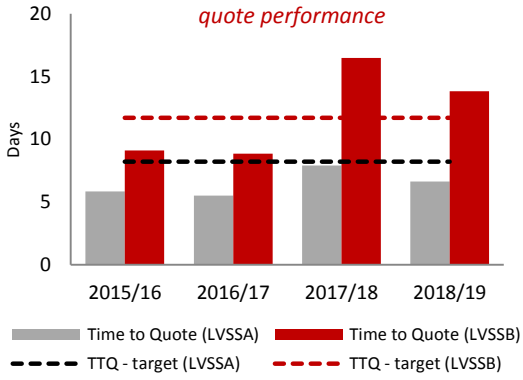
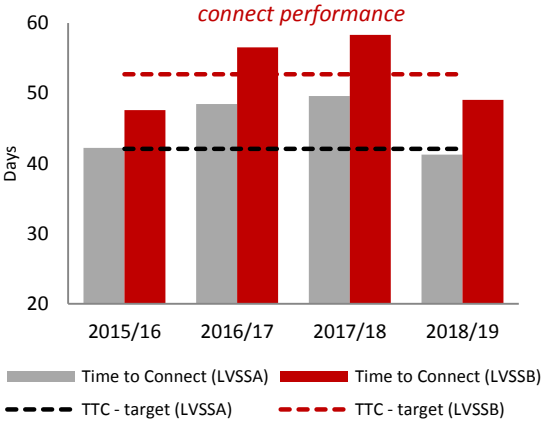


Figure 3.7: *Small works connections time-to-connect performance*



1 - Ofgem targets unless otherwise stated. For details of target setting, forecasting and RAG assessment, see Annex 1: Output Performance Assessment
2 - Northern Powergrid target
3 - Improvement in score out of 10

f. Customer Satisfaction

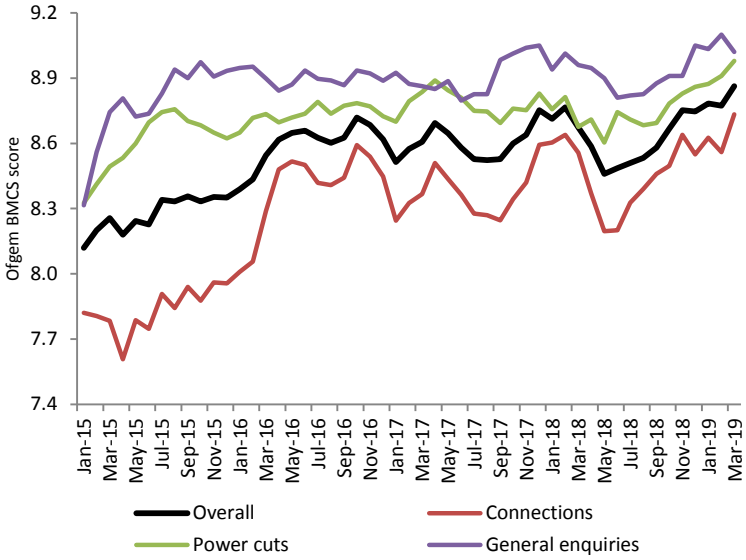
Measure	DNO	2018/19			Comments
		Target[1]	Actual	RAG	
Interruptions survey	**NPg**	**8.20**	**8.81**	●	4.5% improvement (+0.38) since the start of ED1
	Northeast	8.20	8.84	●	
	Yorkshire	8.20	8.79	●	
Connections survey	**NPg**	**8.20**	**8.49**	●	7.9% improvement (+0.62) since the start of ED1
	Northeast	8.20	8.55	●	
	Yorkshire	8.20	8.44	●	
General enquiries survey	**NPg**	**8.20**	**8.93**	●	4.4% improvement (+0.38) since the start of ED1
	Northeast	8.20	9.07	●	
	Yorkshire	8.20	8.80	●	
Overall survey	**NPg**	**8.20**	**8.68**	●	5.5% improvement (+0.45) since the start of ED1
	Northeast	8.20	8.74	●	
	Yorkshire	8.20	8.62	●	
Complaints metric	**NPg**	**8.33**	**3.08**	●	59% improvement (-4.48) compared to 2015/16 performance
	Northeast	8.33	3.53	●	
	Yorkshire	8.33	2.66	●	

Table 3.6: *Northern Powergrid Customer Satisfaction Performance*

Since the start of ED1 we have delivered a 5.5% (+0.45)[2] improvement in overall customer satisfaction

- In 2018/19 we improved our overall customer satisfaction performance, achieving an overall score of 8.68.
- In the year, the spread of satisfaction scores in the industry tightened once again meaning that our improved performance ranked fifth in the industry, albeit only 0.3 behind fourth and 1.0 behind third.
- Whilst we are pleased with our performance during the first half of ED1, the second most improved of all DNO groups; our aim is to rank amongst the leaders in the industry. As such we are targeting further significant improvements in the remainder of the period, improving consistency across all measures, with a particular focus on connections services.

Figure 3.8: *Overall Customer satisfaction (Rolling quarter)*



- Technology plays a vital role in our outbound customer communications strategy. During the year we upgraded our Customer Relationship Management (CRM) system, adding functionality for unplanned power cuts and disconnections quotations, and we have further developments planned for the year ahead.
- We also continue to focus on training and development for all of our frontline colleagues to ensure that our customers benefit from high-quality interactions when they need to contact us.
- Day+1 complaint handling improved significantly for the fourth year running with a 12% year-on-year improvement, marking a 49% improvement for ED1 to date. We received no repeat or ombudsman complaints in the year.

1 - Ofgem targets unless otherwise stated. For details of target setting, forecasting and RAG assessment, see Annex 1: Output Performance Assessment
2 - Improvement in score out of 10

g. Social Obligations

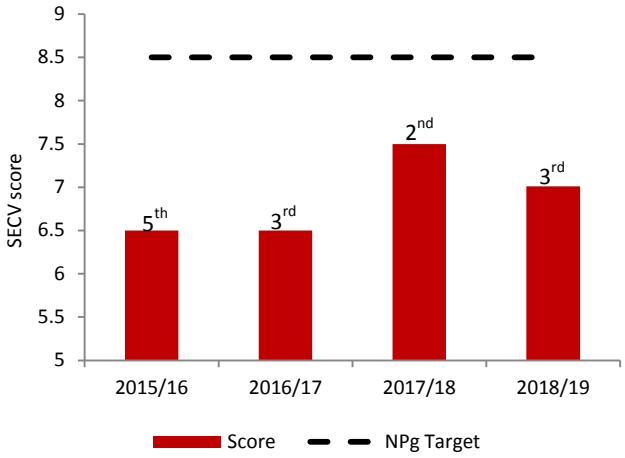
Measure	DNO[1]	2018/19			Comments
		Target[2]	Actual	RAG	
Stakeholder Engagement and Consumer Vulnerability score	**NPg**	**8.50**	**7.01**	🟡	Provisional 3rd place ranking for 2018/19
Supporting Measures					
Power cuts Customer satisfaction (PSR)	**NPg**	**8.20**	**9.06**	🟢	We are delivering against our own standards for those who need extra support during power cuts – this is reflected in our satisfaction scores
Power cuts *Restoration within 6 hours*	**NPg**	**95%**	**95.5%**	🟢	
Power cuts *Restoration within 9 hours*	**NPg**	**95%**	**98.1%**	🟢	
School pupils engaged through safety education	**NPg**	**40,000**	**59,364**	🟢	Our schools programme continues to grow

Table 3.7: *Northern Powergrid Social Obligations Performance*

Our focus in 2018/19 has been on gaining a better understanding of the breadth and depth of vulnerability in our region and developing our range of services and partnerships to provide enhanced support

- We achieved a provisional score of 7.01 in the 2018/19 Stakeholder Engagement and Consumer Vulnerability (SECV) Incentive, achieving 3rd place overall (down one place from 2nd in 2017/18).
- During the year, we developed a web based vulnerability data model to inform decision making, improve services and target resources at our most vulnerable customers. As a result we have been able to more efficiently identify and target areas in our regions with higher numbers of vulnerable customers.
- The number of customers who registered for our priority service register (PSR) increased by 27% in 2018/19 to 902,000. We hold a primary and alternative contact for over 90% of those on the register and we ensure that all records are reviewed at least every two years as part of our PSR refresh process.

Figure 3.9: *ED1 SECV performance*



- We developed new partnerships in line with the growth of our PSR and our vulnerability data project. We began working with 70 new community partners in the year, expanding our coverage and capabilities by a further 246,000 customers. These partnerships extend our reach, allowing us to provide proactive information and enhanced support across our region.
- We also ran a suite of business priority sessions with our stakeholders in the year as part of our annual business planning process. These valuable interactions ensure that the voice of our stakeholders continues to shape our business plans and that we are continuing to be flexible and responsive to their needs.
- In parallel we are establishing our Customer Engagement Group (CEG) in preparation for the development of our RIIO-ED2 Business plan. We are preparing an induction course for the group members to allow them to be able to meaningfully challenge and scrutinise our business plan proposals from day one.

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

h. Innovation

	Awarded to date in ED1 (£m)[1]	Spent to date in ED1 (£m)	Number of projects[2]
Network Innovation Allowance (NIA)	15.0	10.0	31
Network Innovation Competition (NIC)	-	-	-
Low Carbon Network (LCN) Fund	-	-	-

Table 3.8: *Innovation Performance*

Our vision is 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

We continue to see innovation as vital in responding to external changes and new demands, improving services for our customers and responding to emerging risks. Our ultimate objectives of reducing costs and improving services for customers drive our four core innovation priorities in ED1, which remain unchanged;

- developing a smarter and more flexible power grid;
- delivering benefits from smart meters;
- continuing to enhance our web-based and digital-enabled services; and
- addressing issues of affordability.

In order to ensure that we at the forefront on innovative thinking, we continue to invest in developing our innovation partnerships. We have strong relationships with Russell Group academic research institutions, such as Newcastle University, as well as businesses, such as our formal partnership with Nissan on electric vehicles. We also work closely with other companies in the Berkshire Hathaway Energy group to develop innovative solutions and access international best practice.

Another strong year of innovation activity in 2018/19 reflects our balanced, forward-looking approach that fully utilises our stimulus funding

For the second consecutive year we spent all of our £3.7m Network Innovation Allowance (NIA) across our innovation portfolio consisting of 31 NIA projects. In addition to our NIA investment, we have partnered with Innovate UK to fund our large-scale vehicle to grid demonstrator project and we have had two projects, Gendrive and Barnsley Domestic DSR, funded by United Kingdom Research and Innovation (UKRI) and Department for Business, Energy and Industrial Strategy (BEIS) respectively. We also self-fund a range of innovation activities in our business including projects exploring network losses and machine learning.

The energy sector is changing and our innovation portfolio is changing with it

Our innovation portfolio is influenced by changes in customer requirements, technology and the evolution of the sector as a whole. Most notably our innovation portfolio is increasing its focus on techniques to support distribution system operation.

Our £83.4m flagship ED1 smart grid programme is building new capabilities on our network and we have a number of smart meter projects in progress to realise customer benefits from new smart meter data when it becomes available. In parallel, our Customer Led Distribution System (CLDS) innovation project is delivering whole system insights on the interaction between network services and wider energy markets. We are also pursuing other projects that underpin various aspects of technical functionality behind future commercial offerings, notably MicroResilience, SilentPower, Vehicle to Grid, e4Future and ResilientHomes.

Innovation Activity in Primary Output areas

The benefits of our innovation activities can be seen across our primary output areas. A summary of some of our key projects is set out below;

Safety

- **Vehicle Telematics** continues to improve driver safety in our fleet helping us incur only 40 accidents across a fleet covering over 17 million miles in 2018/19.

1 - This reflects the maximum available allowance

2 - NIA funded projects in ED1 to date - a brief description of our key projects can be found in the 'Innovation Activity in Primary Output areas' section, pages 18-19

- Inexpensive **fault current measurement** of wooden poles has been developed to address electrical safety issues associated with broken insulators on overhead lines. Testing will start this year.
- Our **Centralock** project (NIA funded, £88k total project investment[3]), which registers and controls access to substations, not only helps to prevent unauthorised access but also ensures authorised access is better coordinated.
- Our **Lightning Prediction Tool** (NIA funded, £202k total project investment[3]) will go live later this year, using present and historical data to improve lightning-related safety and reduce potential asset damage.

Reliability & Availability

- In addition to our baseline network automation programmes of APRS[4] and LV smart fuses, our **Foresight** fault prediction project (NIA funded, £4m total project investment[3]) represents a revolution in LV cable fault management. So far, the project has made over 14 pre-fault identifications prior to them becoming permanent faults. Our aim is to use this information to repair the network before a fault occurs.
- We are using **drones** to carry out inspections of our overhead line assets to drive cost efficiencies.
- We have invested £6.5m in advanced **cyber security** infrastructure to defend against the increasing threat of cyber-crime.
- Our **MicroResilience** project (NIA funded, £2.7m total project investment[3]) will allow us to keep customers on supply even after faults have taken out higher voltage circuits with the use of a 'micro grid' that can seamlessly move from operating on our network to operating on a standalone basis and back again.

Environment

- Use of **Perfluorocarbon tracers** (PFT) tracer additives has sped up cable oil leak detection, contributing to a 27,400 litre reduction in oil/fluid loss since 2012/13.
- We expect **self-healing cable additive** (a series of collaborative Innovation Funding Incentive (IFI) and NIA funded projects, circa £750k total project investment[3]) that solidifies leaking cable fluid will reduce leakage even further.
- In collaboration with other DNOs, we are exploring a **new credible 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 thereby reducing the environmental impact.
- Our **distributed storage and solar study** (NIA funded, £275k total project investment[3]) is creating an understanding of how PV generation and behind the meter storage can reduce costs for customers and their carbon footprint.

Customer Satisfaction

- Our **SilentPower** project (NIA funded, £420k total project investment[3]) is deploying an Electric Vehicle (EV) based, mobile battery generator in the event of power cuts, replacing diesel generators that are noisy and high in CO_2 and other emissions.
- 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.
- **Customer Relationship Management (CRM)** is transforming our customer interactions from reactive, inbound contacts to largely proactive and outbound 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 (completed in 2014) have released over 3GW of capacity for multiple small scale generators to connect to our local network.
- Our **AutoDesign** project (NIA funded, £1.1m total project investment[3]) is creating a web-based, self-service design tool that provides customers looking to connect EV chargers access to high-quality designs, in real-time, at a lower cost.

Social Obligations

- Our **Resilient Homes** project, rolling out in 2019, remains our key project for vulnerable customers. The project is examining a domestic battery solution for ensuring that medically electrically dependent customers remain on supply if a fault occurs on the network.

3 - Nominal prices
4 - Automated Power Restoration System

ANNEX A1(a): NPg PERFORMANCE

NPg			Unit	2017/18 Actual	2018/19 Actual	2018/19 Target[1]	RAG	2022/23 Forecast	Trend[2]
Revenue (and key financial metrics)									
Total annual revenue			£m	£571.8m	**£568.1m**	N/A	N/A	£598.4m	N/A
Customer bill			£	£72.83	**£69.27**	N/A	N/A	£72.62	N/A
RoRE[3]			%	8.3%	**7.8%**	N/A	N/A	N/A	N/A
RAV	Opening balance		£m	£2,718m	**£2,742m**	N/A	N/A	N/A	N/A
	Closing value		£m	£2,742m	**£2,770m**	N/A	N/A	N/A	N/A
Totex	Allowance[4]		£m	£392.3m	**£391.7m**	N/A	N/A	£3,040m[5]	N/A
	Actual		£m	£354.0m	**£368.4m**	N/A	N/A	£3,040m[5]	N/A
	Difference		£m	£38.3m	**£23.2m**	N/A	N/A	£0.0m[5]	N/A
			%	9.8%	**5.9%**	N/A	N/A	0.0%[5]	N/A
Incentives[6]									
IIS			£m	£22.3m	**£19.3m**	£23.5m	N/A	£23.5m	▼
TTC			£m	£0.1m	**£0.7m**	£2.0m	N/A	£1.0m	▲
ICE *(penalty only)*			£m	NIL	**TBC**	NIL	N/A	NIL	—
BMCS			£m	£4.9m	**£4.9m**	£5.4m	N/A	£7.8m	—
Total			£m	£27.2m	**£24.9m**	£30.9m	N/A	£32.3m	▼
Innovation									
NIA Expenditure			£m	£3.7m	**£3.7m**	£3.7m	●	£3.7m	▲
NIC Expenditure			£m	£0.0m	**£0.0m**	£0.0m	N/A	£0.0m	—
Primary Outputs									
Safety	HSE Compliance		Hit/miss	×[7]	✓	✓	●	✓	▲
Environmental	Oil Leakage		Litres	29,562	**37,736**	49,822[8]	●	27,800	▼
	Business Carbon Footprint[9]		tC02e	39,535	**35,673**	57,713[8]	●	33,500	▲
	SF_6 emissions		Kg	98	**65**	112[8]	●	48	▲
Customer service	Overall survey		Score	8.63	**8.68**	8.20	●	9.12	▲
	Interruptions survey		Score	8.75	**8.81**	8.20	●	9.13	▲
	Connections survey		Score	8.43	**8.49**	8.20	●	9.03	▲
	General enquiries survey		Score	8.94	**8.93**	8.20	●	9.33	—
	Complaints metric		Score	4.83	**3.08**	8.33	●	3.50	▲
Connections	Time to quote (LVSSA)		Days	7.9	**6.6**	8.2	●	5.0	▲
	Time to quote (LVSSB)		Days	16.5	**13.8**	11.7	●	7.0	▲
	Time to connect (LVSSA)		Days	49.6	**41.3**	42.1	●	32.0	▲
	Time to connect (LVSSB)		Days	58.3	**49.1**	52.7	●	32.0	▲
Reliability	Customer interruptions	Northeast	CI	51.8	**54.3**	61.4	●	47.1	▼
		Yorkshire	CI	48.1	**49.3**	65.2	●	43.4	▼
	Length of interruptions	Northeast	CML	44.6	**47.6**	59.1	●	33.6	▼
		Yorkshire	CML	36.4	**38.8**	57.9	●	31.7	▼
Social obligations	SECV		Score	7.50	**7.01**	8.50[8]	●	8.50	▼
Secondary Deliverables									
Asset health and criticality index	**HI** Score		Points	8.0m	**10.5m**	10.0m[10]	●	22.0 - 24.0m	—
	HI % of Monetary Risk Target		%	39.9%	**52.6%**	50.0%	●	110 - 120%	—
	LI Risk Score		Points	7.1m	**TBC**[11]	N/A	TBC	6.5m	—

Table A1.1 *Northern Powergrid performance overview*

1 - Ofgem targets unless otherwise stated. For details of target setting, forecasting and RAG assessment, see Annex A2: Output Performance Assessment
2 - Based on 2018/19 performance compared to prior year. ▲Trending positively; ▼Trending Negatively; — No/negligible movement
3 - RoRE forecast for the ED1 period based on notional gearing and including holdco debt – in line with our 2017/18 Annual Stakeholder Report
4 - 2017/18 allowances have been updated to reflect re-opener claims for 'Specified Street Works' and 'Enhanced Physical Site Security' expenditure
5 - Cumulative ED1 Period forecast (2015-2023)
6 - Incentive targets reflect maximum rewards against the relevant Ofgem Incentive mechanism
7 - We received a minor enforcement notice for the Yorkshire licensee in 2017/18 as a result of two excavations carried out by a contractor organisation
8 - Northern Powergrid target
9 - Business Carbon Footprint including contractors
10 - Annual targets were not set; this figure is illustrative based on an equal 12.5% of the 2023 target being delivered each year
11 - 2018/19 actual performance not reported until September 30, 2019

ANNEX A1(b): LICENSEE PERFORMANCE (NORTHEAST)

Northeast		Unit	2017/18 Actual	2018/19 Actual	2018/19 Target[1]	RAG	2022/23 Forecast	Trend[2]
Revenue (and key financial metrics)								
Total annual revenue		£m	£249.1	**£242.7m**	N/A	N/A	£267.4m	N/A
Customer bill		£	£80.67	**£75.91**	N/A	N/A	£82.42	N/A
RoRE[3]		%	8.8%	**8.5%**	N/A	N/A	N/A	N/A
RAV	Opening balance	£m	£1,175m	**£1,184m**	N/A	N/A	N/A	N/A
	Closing value	£m	£1,184m	**£1,193m**	N/A	N/A	N/A	N/A
Totex	Allowance	£m	£168.0m	**£165.5m**	N/A	N/A	£1,301m[4]	N/A
	Actual	£m	£157.3m	**£161.5m**	N/A	N/A	£1,301m[4]	N/A
	Difference	£m	£10.7m	**£4.0m**	N/A	N/A	£0.0m[4]	N/A
		%	6.4%	**2.4%**	N/A	N/A	0.0%[4]	N/A
Incentives[5]								
IIS		£m	£8.8m	**£5.8m**	£10.0m	N/A	£10.0m	▼
TTC		£m	£0.0m	**£0.3m**	£0.8m	N/A	£0.4m	▲
ICE *(penalty only)*		£m	NIL	**TBC**	NIL	N/A	NIL	—
BMCS		£m	£2.3m	**£2.2m**	£2.3m	N/A	£3.3m	—
Total		£m	£11.2m	**£8.3m**	£13.1m	N/A	£13.7m	▼
Innovation								
NIA Expenditure		£m	£1.6m	**£1.6m**	£1.6m	●	£1.6m	▲
NIC Expenditure		£m	£0.0m	**£0.0m**	£0.0m	N/A	£0.0m	—
Primary Outputs								
Safety	HSE Compliance	Hit/miss	✓	✓	✓	●	✓	—
Environmental	Oil Leakage	Litres	12,124	**16,343**	16,301[6]	●	12,200	—
	Business Carbon Footprint[7]	tC02e	17,452	**15,826**	26,737[6]	●	15,100	▲
	SF_6 emissions	Kg	36	**18**	36[6]	●	12	▲
Customer service	Overall survey	Score	8.72	**8.74**	8.20	●	9.12	▲
	Interruptions survey	Score	8.77	**8.84**	8.20	●	9.13	▲
	Connections survey	Score	8.55	**8.55**	8.20	●	9.03	—
	General enquiries survey	Score	9.05	**9.07**	8.20	●	9.33	▲
	Complaints metric	Score	5.08	**3.53**	8.33	●	3.50	▲
Connections	Time to quote (LVSSA)	Days	8.0	**6.3**	8.2	●	5.0	▲
	Time to quote (LVSSB)	Days	15.9	**11.4**	11.7	●	7.0	▲
	Time to connect (LVSSA)	Days	53.8	**41.2**	42.1	●	32.0	▲
	Time to connect (LVSSB)	Days	63.0	**50.8**	52.7	●	32.0	▲
Reliability	Customer Interruptions	CI	51.8	**54.3**	61.4	●	47.1	▼
	Length of Interruptions	CML	44.6	**47.6**	59.1	●	33.6	▼
Social obligations	SECV	Score	7.50	**7.01**	8.50[6]	●	8.50	▼
Secondary Deliverables								
Asset health and criticality index	**HI** Score	Points	4.7m	**6.3m**	5.3m[8]	●	11.6-12.7m	—
	HI % of Monetary Risk Target	%	44.7%	**59.6%**	50.0%	●	110-120%	—
	LI Risk Score	Points	2.4m	**TBC**[9]	N/A	TBC	2.5m	—

Table A1.2: *Northern Powergrid (Northeast) performance overview*

1 - Ofgem targets unless otherwise stated. For details of target setting, forecasting and RAG assessment, see Annex A2: Output Performance Assessment
2 - Based on 2018/19 performance compared to prior year. ▲Trending positively; ▼Trending Negatively; — No/negligible movement
3 - RoRE forecast for the ED1 period based on notional gearing and excluding holdco debt – in line with our 2017/18 Annual Stakeholder Report
4 - Cumulative ED1 Period forecast (2015-2023)
5 - Incentive targets reflect maximum rewards against the relevant Ofgem Incentive mechanism
6 - Northern Powergrid target
7 - Business Carbon Footprint including contractors
8 - Annual targets were not set; this figure is illustrative based on an equal 12.5% of the 2023 target being delivered each year.
9 - 2018/19 actual performance not reported until September 30, 2019

ANNEX A1(c): LICENSEE PERFORMANCE (YORKSHIRE)

Yorkshire		Unit	2017/18 Actual	2018/19 Actual	2018/19 Target[1]	RAG	2022/23 Forecast	Trend[2]
Revenue (and key financial metrics)								
Total annual revenue		£m	£322.7m	**£325.4m**	N/A	N/A	£331.0m	N/A
Customer bill		£	£67.28	**£64.65**	N/A	N/A	£68.71	N/A
RoRE[3]		%	8.4%	**7.7%**	N/A	N/A	N/A	N/A
RAV	Opening balance	£m	£1,543m	**£1,558m**	N/A	N/A	N/A	N/A
	Closing value	£m	£1,558m	**£1,578m**	N/A	N/A	N/A	N/A
Totex	Allowance[4]	£m	£224.3m	**£226.2m**	N/A	N/A	£1,739m[5]	N/A
	Actual	£m	£196.7m	**£206.9m**	N/A	N/A	£1,739m[5]	N/A
	Difference	£m	£27.6m	**£19.2m**	N/A	N/A	£0.0m[5]	N/A
		%	12.3%	**8.5%**	N/A	N/A	0.0%[5]	N/A
Incentives[6]								
IIS		£m	£13.4m	**£13.5m**	£13.5m	N/A	£13.5m	—
TTC		£m	£0.1m	**£0.4m**	£1.2m	N/A	£0.6m	▲
ICE *(penalty only)*		£m	NIL	**TBC**	NIL	N/A	NIL	—
BMCS		£m	£2.6m	**£2.7m**	£3.1m	N/A	£4.5m	▲
Total		£m	£16.1m	**£16.5m**	£17.8m	N/A	£18.6m	▲
Innovation								
NIA Expenditure		£m	£2.1m	**£2.1m**	£2.1m	●	£2.1m	▲
NIC Expenditure		£m	£0.0m	**£0.0m**	£0.0m	N/A	£0.0m	—
Primary Outputs								
Safety	HSE Compliance	Hit/miss	×[7]	✓	✓	●	✓	▲
Environmental	Oil Leakage	Litres	17,438	**21,393**	33,521[8]	●	15,600	▼
	Business Carbon Footprint[9]	tC02e	22,083	**19,847**	30,976[8]	●	18,400	▲
	SF_6 emissions	Kg	62	**47**	76[8]	●	36	▲
Customer service	Overall survey	Score	8.56	**8.62**	8.20	●	9.12	▲
	Interruptions survey	Score	8.73	**8.79**	8.20	●	9.13	▲
	Connections survey	Score	8.34	**8.44**	8.20	●	9.03	▲
	General enquiries survey	Score	8.84	**8.80**	8.20	●	9.33	—
	Complaints metric	Score	4.64	**2.66**	8.33	●	3.50	▲
Connections	Time to quote (LVSSA)	Days	7.8	**6.8**	8.2	●	5.0	▲
	Time to quote (LVSSB)	Days	16.9	**15.1**	11.7	●	7.0	▲
	Time to connect (LVSSA)	Days	47.1	**41.4**	42.1	●	32.0	▲
	Time to connect (LVSSB)	Days	55.5	**48.0**	52.7	●	32.0	▲
Reliability	Customer Interruptions	CI	48.1	**49.3**	65.2	●	43.4	—
	Length of Interruptions	CML	36.4	**38.8**	57.9	●	31.7	—
Social obligations	SECV	Score	7.50	**7.01**	8.50[8]	●	8.50	▼
Secondary Deliverables								
Asset health and criticality index	**HI** Score	Points	3.3m	**4.2m**	4.7m[10]	●	10.3-11.3m	—
	HI % of Monetary Risk Target	%	34.5%	**44.7%**	50.0%	●	110-120%	—
	LI Risk Score	Points	4.7m	**TBC**[11]	N/A	TBC	4.0m	—

Table A1.3 *Northern Powergrid (Yorkshire) performance overview*

1 - Ofgem targets unless otherwise stated. For details of target setting, forecasting and RAG assessment, see Annex A2: Output Performance Assessment
2 - Based on 2018/19 performance compared to prior year. ▲Trending positively; ▼Trending Negatively; — No/negligible movement
3 - RoRE forecast for the ED1 period based on notional gearing and excluding holdco debt – in line with our 2017/18 Annual Stakeholder Report
4 - 2017/18 allowances have been updated to reflect re-opener claims for 'Specified Street Works' and 'Enhanced Physical Site Security' expenditure
5 - Cumulative ED1 Period forecast (2015-2023)
6 - Incentive targets reflect maximum rewards against the relevant Ofgem Incentive mechanism
7 - We received a minor enforcement notice for the Yorkshire licensee as a result of two excavations carried out by a contractor organisation
8 - Northern Powergrid target
9 - Business Carbon Footprint including contractors
10 - Annual targets were not set; this figure is illustrative based on an equal 12.5% of the 2023 target being delivered each year.
11 - 2018/19 actual performance not reported until September 30, 2019

ANNEX A2: 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 2018/19 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.

In addition, on pages 21-23 of the report we have included our 2022/23 forecast for key output measures indicating our targeted out-turn position by the end of the ED1 price control period.

RAG rating guidance/approach

The tables over the page set out the RAG rating approach applied in Section 3 of the document (Key Operational Performance Measures).

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 Both red = Red overall Any other combination – Amber 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	
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. For DNOs' overall Customer satisfaction RAG status: Both green = Green overall Both red = Red overall Any other combination – Amber overall
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)	
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 Three or more red = Red overall Any other combination = Amber overall
Connection GSOPs	0% to <=2% of total connections standards missed	>2% and <=5% of total standards missed	>5% of total standards missed	

Table 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[1]	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 >=95% of Northern Powergrid internal target	Performance is <95% 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 PSR Powercuts: < 6 hours PSR Powercuts: < 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	
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	

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

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

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 to date, 95% of our allowed Network Revenue is base revenue. Incentive mechanism revenues account for the majority of the remainder for both licensees in 2017/18 and 2018/19, 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.

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. This DPCR4 incentive will not affect allowed revenue in future ED1 years.

For further information on 2018/19 incentive revenues earned, see annex A1(a – c).

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

Northeast

In the ED1 period to date we have underspent against allowances by £25.9m (after taking into account expected allowance updates affecting those years, which are not yet reflected in the price control financial model (PCFM). We attribute £32.9m of this underspend to rephasing or timing differences which we expect to unwind over the ED1 period, with some offset (£7.0m) from additional costs incurred (in particular, fault costs).

After making an enduring value adjustment to remove the effect of the rephasing/timing differences, the £7.0m additional cost shows as a small underperformance against the totex incentive mechanism (TIM) for the period to date, which translates into an average RoRE impact of -0.2%.

Our forecast expectation is to spend in line with allowances over the ED1 period. We forecast that our efficiency savings and the impact of external factors will cover the additional costs incurred to date and fund service enhancements such as additional EHV cable replacement, cyber security and flood defence work.

After taking into account enduring value adjustments, the profile of our 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 the ED1 period to date we have underspent against allowances by £77.9m (after taking into account expected allowance updates affecting those years, which are not yet reflected in the PCFM). We attribute £91.9m of this underspend to re-phasing or timing differences which we expect to unwind over the ED1 period, offset by additional costs of £14.0m. These additional costs include £14.0m expenditure on our Doncaster high value project, the majority of which is covered by allowances awarded in DPCR5.

After making an enduring value adjustment to remove the effect of the re-phasing/timing differences, the £14.0m additional cost shows as a TIM underperformance for the period to date, equating to an average RoRE impact of -0.4% at notional gearing and -0.3% at actual gearing.

Our forecast expectation is to spend in line with allowances over the ED1 period. We forecast that our efficiency savings and the impact of external factors will cover the additional costs incurred to date and fund service enhancements such as additional EHV cable replacement, cyber security and flood defence work.

After taking into account enduring value adjustments, the profile of our 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. 2015/16 shows the most significant underperformance, due to expenditure on our Doncaster high value project for which allowances were provided in DPCR5.

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

Innovation (Table R6): ***See section 3h***

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 been relatively stable in the ED1 period to date, there is significant volatility in the real cost of debt. Actual inflation was low in 2015/16 (1.08% using Ofgem's methodology) and 2016/17 (2.14%), resulting in an underperformance against the allowance at notional gearing in these years.

Real Cost of Debt	*Actual*				*Forecast*			
	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%	1.95%	1.47%	0.99%	1.56%
Allowed	2.55%	2.42%	2.29%	2.09%	1.94%	1.82%	1.72%	1.63%
Difference	1.20%	0.32%	-1.19%	-0.64%	0.01%	-0.35%	-0.73%	-0.07%

Table 4.1: *Cost of debt (Northeast)*

For notional gearing, Table R7 shows us outperforming the cost of debt allowance both for the ED1 period to date and the overall ED1 forecast. It should be noted that, because this table is at a licensee level, higher-coupon debt held at holdco level is excluded.

For actual gearing we show a much higher outperformance against the cost of debt allowance, as our gearing (at 50% on average) is significantly below the notional level. 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, as noted in section 2.

Yorkshire

As actual inflation was particularly low in 2015/16 (1.08% using Ofgem's methodology), this year shows a more significant underperformance against the allowance than in the following years in the ED1 period to date, even though our nominal actual cost of debt was lower in this year than any other year in the ED1 period to date.

Real Cost of Debt	*Actual*				*Forecast*			
	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%	3.03%	1.72%	1.27%	0.82%
Allowed	2.55%	2.42%	2.29%	2.09%	1.94%	1.82%	1.72%	1.63%
Difference	2.28%	1.41%	0.06%	0.78%	1.09%	-0.10%	-0.45%	-0.81%

Table 4.2: *Cost of debt (Yorkshire)*

At notional gearing, Table R7 shows us underperforming the cost of debt allowance both for the ED1 period to date and the overall ED1 forecast. Yorkshire has a bond with a coupon rate of 9.25%, which does not mature until 2020, after which we forecast outperformance in the remaining years of ED1. It should be noted that, because this table is at a licensee level, higher-coupon debt held at holdco level is excluded.

At actual gearing we show an overall ED1 forecast outperformance against the cost of debt allowance, as our gearing (at 48% on average) is significantly below the notional level. 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, as noted in section 2.

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 falls during the period (giving an average of approximately 50%). Yorkshire's gearing starts at 51% and falls during the period (giving an average of approximately 48%).

Our dividend policy during the ED1 period is aligned to Ofgem's PCFM assumption that 5% of the equity element of RAV is paid as a dividend annually. As this is lower than the cost of equity allowance provided (6%), the actual level of gearing during the ED1 period reduces.

RAV (Table R9)

'Closing RAV per latest published PCFM' reported in row 11 of Table R9 is effectively a hybrid - being based on a combination of opening allowances (for the forecast years) and actual expenditure/allowances in the ED1 period to date.

Northeast's ED1 closing RAV forecast is approximately 1% higher than the closing RAV value per the latest PCFM (row 11) and Yorkshire's forecast is approximately 2% higher, due to a combination of the re-profiling of expenditure into later years of the period and expected additional allowances.

Taxation (Table R10)

Over the ED1 period, both licensees have a small RoRE outperformance (0.1%) relating to tax. As described in section 2, this relates primarily to the dead-band applied to tax rate changes, which allows us to keep some benefit of tax rate decreases.

Dividends paid and current policy (Table R11)

Our current dividend policy is aligned to Ofgem's PCFM assumption that 5% of the equity element of RAV is paid as a dividend annually. 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.

DATA ASSURANCE STATEMENT

We have applied Ofgem's Data Assurance Guidance (DAG) methodology. Data inputs are predominately from well-established existing sources of information (the first two of 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 2016 triennial valuation;
- our 10 year business plan

Our forecast is based on our annual 10-year business plan that is prepared for our shareholder. The plan is signed-off by the Chief Executive, the Board and ultimately formally approved by our shareholder in November of each year. We use the latest approved plan (in this case the 2018 plan) as the basis for our annual RRP and RFPR forecast reflecting any significant changes that are known at the time of preparation, for example changes in costs subject to uncertainty mechanisms.

The internal process for preparing the business plan is extensive and has significant Executive and management oversight. Business managers prepare local budgets based on guidance around key assumptions and targeted levels of expenditure (for example holding costs below RPI) whilst identifying cost pressures and new cost saving initiatives. Iterative reviews of the plan are then undertaken to ensure that the plan meets the requirements of our stakeholders.

Capital and direct costs are largely forecast based on volumes of work required to deliver our outputs at planned unit costs (e.g. asset replacement) with certain lines forecasted on a run-rate basis (e.g. faults). Indirect costs budgets are built up at individual cost centre and cost category level.

The assumptions in our planning process are consistent with the parameters of the ED1 settlement.

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.

a) Smart Meter Roll-out updated allowances

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

The expected allowance update for 2018/19 is based on actual interventions in 2018/19. Future years are our best estimate at this time, based on our experience of intervention rates in the ED1 period to date.

The smart meter roll-out continues to face significant delays. Suppliers have continued to install a higher proportion of early generation (SMETS1) meters than planned and the communications systems for the later generation of meters is not yet functioning in the North of the country. Based on the progress and the numbers of smart meter installations to date, we do not believe the roll-out programme will complete by 2020/21 as originally planned at allowance setting. We have forecast the roll-out programme continuing into the last two years of ED1 and in line with Ofgem guidance we have treated these costs as part of network operating costs (ONIs[1]) at this point.

b) Visual Amenity allowances

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

The expected allowance update for 2018/19 is based on actual costs incurred in 2018/19. Future years represent recovery of our planned expenditure up to the maximum total level for ED1 set out in our licence.

c) Enhanced Physical Site Security allowances

We have included allowance updates based on our May 2019 ED1 reopener submission for these costs. We are currently awaiting the outcome of the reopener process.

d) Street Works allowances

We have included allowance updates based on our May 2019 ED1 reopener submission for the costs associated with Local Authorities implementing new permit schemes and a proposed volume-driven allowance for lane rental costs. We are currently awaiting the outcome of the reopener process.

e) Adjustment to remove impact of re-phasing/timing differences

An enduring value adjustment has been made to reverse the value of our underspend in each year of the period to date that we attribute to rephasing/timing and to profile that reversal over the remainder of the ED1 period, giving no total ED1 adjustment. This gives a better view of our underlying performance to date, and future expected performance under the Totex Incentive Mechanism.

1 Occurrences Not Incentivised

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 £25m (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.

Contact us about this report

We believe that our customers and stakeholders are the best judges of our performance. We always want to hear your views and opinions on the services we provide and your ideas for what we could be doing. If you would like to comment, you can contact us in a number of ways:

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