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RIIO-ED1
Annual Report
2016-17

Associated documents

DNO Business Plan Commitment reports 2016-17

ENWL: https://www.enwl.co.uk/globalassets/about-us/regulatory-information/documents/business-plan-committments-report/business-plan-commitments-report-2017
NPg: http://www.northernpowergrid.com/asset/0/document/3768.pdf
WPD: https://www.westernpower.co.uk/docs/About-us/Stakeholder-information/Performance-reporting-RIIO-ED1/2017/WPD-RIIO-ED1-Business-Plan-Commitments-Report-2016.aspx
UKPN: http://www.ukpowernetworks.co.uk/internet/en/about-us/documents/6955%20ED1%20report%202017%2010%20INT%20final.pdf?track=ED-final
SPEN: https://www.spenergynetworks.co.uk/userfiles/file/Distribution_Report_2016_17.pdf
SSEN: https://www.ssepd.co.uk/WorkArea/DownloadAsset.aspx?id=14469

DNO Environment Reports

ENWL: https://www.enwl.co.uk/globalassets/about-us/regulatory-information/documents/environment-report/2016-17-report/enw-environment-report-2016-17.pdf
NPg: http://www.northernpowergrid.com/asset/0/document/2724.pdf
WPD: https://www.westernpower.co.uk/docs/About-us/Our-business/Environment/Environment-Innovation-Report-2016-17.aspx
UKPN: http://www.ukpowernetworks.co.uk/internet/en/about-us/documents/UKPN%20environment%20report%20v1.0%20PXM&GC%202017-10-27.pdf
SPEN: https://www.spenergynetworks.co.uk/userfiles/file/SPEN_ED1_Environmental_and_Innovation_Report.pdf
SSEN: https://www.ssen.co.uk/EnvironmentReport2017Evidence/

Previous Annual Reports

RIIO electricity distribution annual report 2015-16:
https://www.ofgem.gov.uk/publications-and-updates/riio-electricity-distribution-annual-report-2015-16

Supplementary data file

https://www.ofgem.gov.uk/publications-and-updates/riio-electricity-distribution-annual-report-2016-17

Contents

Executive Summary

The current price control for the 14 electricity distribution network operators (DNOs) under the RIIO framework runs from 1 April 2015 to 31 March 2023. In RIIO, the focus is on incentives, innovation and outputs as well as total expenditure (totex).

This report outlines our key findings of the DNOs' performance in the second year of the price control, known as RIIO-ED1. It also outlines totex forecasts for the whole period.

Output performance and drivers

After the second year, DNOs continue to perform strongly against five of the six output categories: reliability and availability, environment, customer service, social obligations and safety. There is scope for improvement for the connections output. Various financial incentives, as well as reputational incentives, such as public reporting on delivery, encourage strong output performance.

Under reliability and availability, DNOs have been investing in their networks in order to deliver improved network performance for customers and to continue earning rewards under the Interruptions Incentive Scheme (IIS). Both the number of customer interruptions and the duration of interruptions have fallen by 11% on average since the start of RIIO-ED1.

Customer service has also been improving, with all DNOs exceeding overall customer service targets. All DNOs actively engage with stakeholders, and in particular vulnerable customers, (ie meet their social obligations), although there is scope for improvement.

There have been environmental improvements across the industry, with reductions in business carbon footprint, harmful emissions and oil leakage. DNOs are also broadly on track to underground the overhead lines that they committed to in their business plans. Reputational incentives, including establishing environmental league tables, will help to encourage continued strong performance.

All DNOs continue to be compliant with standards set by the Health and Safety Executive (HSE), protecting their staff and the public and avoiding HSE action.

Despite the possible financial rewards, eight DNOs failed to meet the targets on the time taken to connect new customers to the network. For these DNOs we expect improvements to be made, learning lessons from those meeting the targets. All of the DNOs met targets for the time taken to quote customers for a connection.

Financial performance and drivers

Collectively, DNOs were set allowances of £26.7bn over the price control to deliver their outputs. They are forecasting to spend £25.4bn, 5% less than their allowances. In the first two years of RIIO-ED1, the DNOs spent £6.6bn managing their network; 7% less than the allowances. Any underspend compared to allowed expenditure is shared between the DNO and its customers (reflected in customer bills), through the Totex Incentive Mechanism (TIM). Underspend, both to date and forecast, is lower than in previous price controls.

We present the financial performance of the DNOs using the Return on Regulatory Equity (RoRE) measure. The forecast eight-year RoRE for individual DNOs ranges from 6.8% to 11.8%. The forecast eight-year average RoRE across DNOs is 9.4%, up on last year's figure of 9.0%. This estimate depends on current expenditure forecasts, and future delivery of outputs may change during the remaining years of RIIO-ED1.

For eight DNOs the biggest contributor to RoRE outperformance against the baseline cost of equity is the financial rewards from the IIS; for the other six DNOs it is underspend on totex allowances.

Totex underspend is driven by three capex cost categories – replacement and refurbishment of assets, network reinforcement and other operational capex costs (eg resilience and re-routing). Across the three cost categories, some underspend is explained by external factors outside the DNOs' control, for example changing economic conditions have dampened demand for electricity and resulted in lower growth than forecast. Efficiencies being reported by the DNOs will also be contributing, for example through improved working practices and innovation. Timing is also a factor, with expenditure being re-profiled to later years in the price control where DNOs report they will be able to negotiate better contracts, embed new delivery strategies, benefit from new innovation techniques, and improve decision making based on better data and information.

Conversely, there are two main cost categories with relatively high levels of overspend: faults and operational support, which reduce the overall totex underspend. External factors have driven the fault costs including the impact of Storm Doris in February 2017 and DNOs investing in storm preparedness following the Christmas storms of 2013. Operational support is due to timing with DNOs reporting higher spend on project planning and engineering design in the first two years to support improved delivery in later years.

These findings are based on only two years of an eight-year price control. In addition, the overall underspend does not take account of reopener mechanisms which can reduce DNO allowances, and therefore the revenue they can collect from customers via bills.

Customer bill impact

The output and financial performance of the DNOs affects the allowed revenue that they can collect through customer bills. The performance in 2016-17 will impact allowed revenue, and therefore customer bills, in 2018-19. We estimate that the average GB domestic customer will pay £83 per annum in 2018-19 to cover electricity distribution network costs, down 3.5% from £86 in 2017-18, whilst at the same time receiving an improved service.

1. Introduction and context

1.1.   This report reviews the activities of the 14 electricity distribution network operators (DNOs) in 2016-17, the second year of the current RIIO-ED1 price control, which runs from April 2015 until March 2023.

1.2.   DNOs are responsible for carrying electricity from the high voltage transmission network to industrial, commercial and domestic users and for carrying the power generated directly onto their networks. There are 14 DNOs operating in Great Britain managed by six companies.
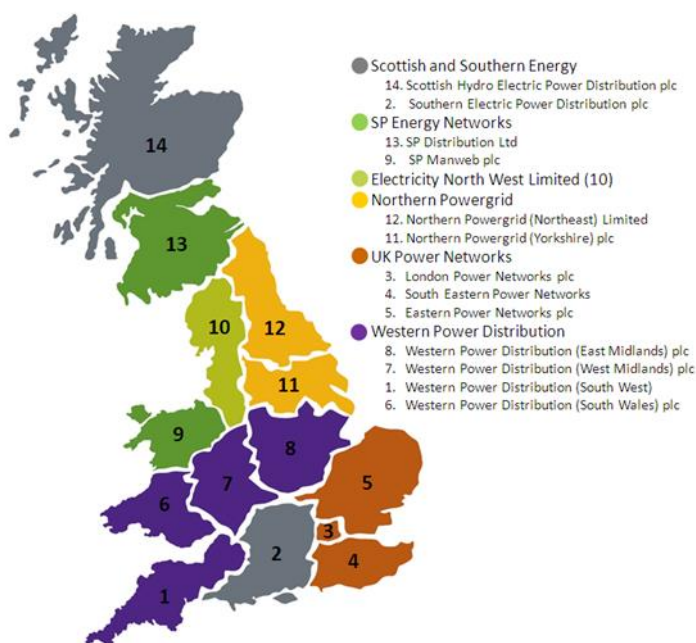
Table 1.1: DNO names and abbreviations

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

1.3.   To ensure value for money for consumers, we regulate DNOs through periodic price controls that determine the amount of revenue that can be earned by the DNOs, and that stipulate levels of performance.

1.4.   To set our price controls we use the RIIO (Revenue = Incentives + Innovation + Outputs) framework.

1.5.   We set the baseline revenues that DNOs can earn at the start of the price control. DNOs decide how to spend their baseline expenditure to manage their networks (Chapter 3), and deliver against the set outputs, associated incentives (Chapter 2), and their wider business plan commitments.[1] These revenues are adjusted year-on-year depending on how efficiently DNOs incur expenditure and how effectively they deliver their outputs (Chapter 3). We provide detail on what drives expenditure performance in Chapter 4.

1.6.   Using data and supporting information submitted by the DNOs, this report reviews performance in terms of output performance and financial performance. We measure companies' financial performance by the Return on Regulatory Equity (RoRE). The RoRE is driven by the level of overspend or underspend against totex allowance (expenditure performance) and the incentives that help deliver some of the primary outputs (output performance).

1.7.   Any underspend compared to allowed totex is shared between the DNO and its customers according to a totex efficiency incentive rate.[2] Therefore, efficient spending leads to better returns for investors and lower network charges for customers. Equivalently, any overspend is shared between investors and customers.

1.8.   To further protect customers, we also ensure that cost efficiencies in one price control are reflected in the baseline in the next. For example, if DNOs can achieve outputs at a lower unit cost in RIIO-ED1, this will inform the benchmark for the next price control, RIIO-ED2.

1.9.   This report provides the headlines on the DNOs' performance to date. More detail is in the supplementary data file (Appendix 1).

1.10.   Unless otherwise stated, all financial values in this report are in 2016-17 prices.

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[1] The Associated documents section provides links to all the DNOs' Business Plan Commitment Reports.

[2] DNOs that submit better forecasts (ie closer to our view of efficient costs when setting the RIIO-ED1 price control) receive a higher Totex incentive strength rate, meaning DNOs receive more of any underspend.

2. Output performance, incentives and innovation

Chapter purpose
A summary of the DNOs' performance for each of the six RIIO primary outputs in the second year of RIIO-ED1, including the red, amber, green (RAG) ratings and ranking of the DNOs across various measures. More detail is in Appendix 2 and the supplementary data file.

Key messages
DNOs are broadly meeting their outputs, delivering a safe and more reliable network, while reducing the environmental impact of their operations. However, they are not connecting customers as quickly as we'd expect.

Outputs and incentives

2.1.   DNOs must deliver a range of outputs during RIIO-ED1. They are incentivised to do so by various financial incentives, as well as reputational incentives, such as public reporting on delivery. Our view of DNO performance against these outputs in the first two years of the price control is summarised at a high level in Table 2.1.[3]

2.2.   After the second year, DNOs continue to perform strongly against five of the six output categories: reliability and availability, environment, customer service, social obligations and safety. There is scope for improvement for the connections output.

2.3.   We have excluded the environment output from the table as performance is not directly comparable across DNOs. DNOs have each committed to different environmental targets and start from different baselines, as reported in each of their Business Plan Commitment Reports (see the related documents section).

2.4.   However, we present a snapshot of annual performance across three areas – business carbon footprint (BCF), SF_6 emissions and oil leakage from fluid-filled cables (see Appendix 2) and will build on this reporting as the price control progresses. This will allow more direct comparisons to be made.

2.5.   Across all incentives, DNOs will earn £220.2m in incentives payments (see Table 2.2).

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[3] For information on how we assigned RAG statuses, see the supplementary data file (Appendix 1).

Table 2.1: DNO output performance, 2016-17

	Reliability and availability	Connections	Customer service[1]	Safety	Social obligations
ENWL					
NPgN		TTC targets missed			
NPgY		TTC targets missed			
WMID					
EMID					
SWALES					
SWEST					
LPN		TTC targets missed			
SPN		TTC targets missed			
EPN		TTC targets missed			
SPD		TTC targets missed			
SPMW	CI target missed (marginal)[2]	TTC targets missed			
SSEH					
SSES		TTC targets missed			

TTC = Time to Connect; CI = Customer Interruptions.
1. The customer service RAG excludes DNOs' performance under the Stakeholder Engagement and Vulnerable Customer (SECV) incentive, which is reflected in the social obligations output.
2. Target was missed by only 0.26%.

Table 2.2: DNO incentive rewards and penalties, 2016-17 (£m)

Primary output	Reliability & availability	Connections		Customer service and social obligations	Environment	
Incentive	Interruptions Incentive Scheme (IIS)	Time to Connect Incentive (TTC)	Incentive on connections engagement (ICE)	Broad measure of customer service (BMCS)[1]	Losses discretionary reward scheme (LDR)	Total incentive payments
ENWL	12.8	1.3	-	1.2	0.8	16.1
NPgN	10.4	0.4	-	2.2	0.2	13.2
NPgY	14.6	0.6	-	2.6	0.2	18.1
WMID	19.2	1.2	-	5.6	0.0	26.0
EMID	18.5	1.4	-	5.9	0.0	25.9
SWALES	5.1	0.7	-	2.7	0.0	8.5
SWEST	3.7	1.0	-	4.1	0.0	8.9
LPN	14.2	0.6	-	2.8	0.3	17.9
SPN	12.2	0.6	-	3.2	0.3	16.4
EPN	21.6	1.1	-	4.0	0.3	27.0
SPD	10.9	0.6	-	2.7	0.4	14.7
SPMW	2.8	0.6	-	3.5	0.4	7.4
SSEH	0.8	0.9	-	1.8	0.5	4.0
SSES	13.1	0.9	-	1.8	0.5	16.2
Total	159.7	-	12.2	44.1	4.1	220.2

1. This reward includes the SECV rewards, which is reflected in the social obligations output.

Reliability and availability

2.6.   The strong reliability and availability output performance has been partly driven by the Interruption Incentive Scheme (IIS), which incentivises DNOs to reduce the frequency and duration of interruptions experienced by their customers.

2.7.   In the first two years of RIIO-ED1 there have been significant improvements in network reliability, currently standing at 99.99%. Customer interruptions have fallen by 11% and the duration of interruptions has also fallen by 11% to 35 minutes on average. All but one DNO (SPMW) met their IIS targets for unplanned interruptions in 2016-17. Investment in network assets can reduce the number of customer interruptions (CIs), and improvements to operational practices (such as fault location and repair) can reduce customer minutes lost (CMLs).

2.8.   We have, however, seen performance slightly deteriorate in the second year compared to the first for many DNOs. This is largely due to poorer weather conditions, including storms. DNOs' targets also get tighter over time, meaning they must continue to make improvements in order to continue earning rewards under the incentive.

2.9.   Based on performance against targets in 2016-17, DNOs will earn £159.7m under the IIS. This compares with £163.9m in 2015-16. In both years, a number of DNOs reached the cap on the rewards that can be earned under the IIS; we introduced a cap at the beginning of RIIO-ED1 so that customers are not exposed to excessive DNO rewards.

Connections

2.10.   DNOs are incentivised to connect customers in a timely and efficient manner through the Time to Connect (TTC) incentive, which sets both quotation and connection time targets for DNOs. The TTC incentive has impacted on performance in the first two years of RIIO-ED1, with incentive payments across all 14 DNOs in 2016-17 totalling £12m. In 2016-17 there were improvements in the time taken to quote for connections, with all DNOs meeting or outperforming their time to quote targets. However, in relation to connection time targets, only six of 14 DNOs met or outperformed these (ENWL, SSEH and all four WPD DNOs). The TTC incentive measures the time between the date that the customer accepts the connection and the date that the work is complete. We are aware that some delays are triggered by issues outside of the DNOs' control and these have been accounted for as part of the targets that were set.

2.11.   The Incentive on Connections Engagement (ICE) was introduced in April 2015 to ensure DNOs meet the needs of larger or more complex connections customers (unmetered, generation and higher-voltage demand customers). If DNOs do not meet the needs they may be subject to a penalty. No penalties were applied in 2016-17.

Environment

2.12.   Under the environment output, reputational incentives are in place to encourage DNOs to manage their impact on the environment including reducing BCF, SF_6 emissions and oil leakage from fluid-filled cables. Since the beginning of RIIO-ED1, there have been sizeable improvements at industry level with reductions in SF_6 emissions (19%) and fluid-filled cable leakages (18%). Comparable data for BCF is only available at the end of the first year of RIIO-ED1, but this has fallen by 3% in 2016-17. At a company level, most DNOs report that they have met or are on track to meet their own targets for BCF, SF_6 emissions and fluid-filled cable leakages. However, not all have explicitly committed to reducing fluid-filled cable leakage and not all targets are equally stretching. We report on these in the DNO group summaries in Appendix 3.

Customer service and social obligations

2.13.   A contributory driver of output performance under customer service has been the Broad Measure of Customer Service incentive (BMCS). The BMCS has three individual incentives: Customer Satisfaction Survey, Complaints Metric and Stakeholder Engagement and Consumer Vulnerability (SECV). All DNOs met or outperformed their Customer Satisfaction Survey targets in the second year of RIIO-ED1, with all but one improving on their performance from last year. SWALES' score was lower than last year, but still ranks 3rd of all 14 DNOs. The current industry average score is 8.8 out of 10. Regarding complaints, all DNOs met or outperformed their targets, and all but one DNO (LPN) improved on their scores compared to last year.

2.14.   The aim of the SECV incentive is to encourage DNOs to engage proactively with stakeholders in order to anticipate their needs and to deliver a consumer-focused, socially responsible and sustainable electricity service. The allocation of a reward for good performance is based on an assessment of each DNO's stakeholder engagement activities by a panel of independent experts, chaired by Ofgem.

2.15.   The SECV incentive straddles the customer service and social obligations outputs. The DNOs' performance under this incentive is recorded in the social obligations column of Table 2.1. The green RAG status for all DNO groups shows that all receive a reward. WPD received the highest score and only UKPN and NPg maintained their scores from last year; to maintain a score requires improvements to have been made. However, the majority of DNOs' scores were lower in 2016-17 compared to 2015-16. The panel found that while stakeholder engagement is becoming increasingly embedded in DNOs' businesses, further improvements can be made. For more information on SECV performance in 2016-17, see our Decision letter.[4]

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[4] https://www.ofgem.gov.uk/publications-and-updates/decision-stakeholder-engagement-and-consumer-vulnerability-incentive-2016-17-electricity-distribution

2.16.   Combining the outcome of the three components - Customer Satisfaction Survey, Complaints Metric and the SECV incentive - gives a total reward of £44.1m for the BMCS in 2016-17, compared to £39.7m in 2015-16.

Safety

2.17.   Regarding performance against the safety output, all DNOs continue to be compliant with standards set by the Health and Safety Executive (HSE).

Innovation

2.18.   Alongside the Totex Incentive Mechanism (TIM), there are specific RIIO innovation schemes that encourage DNOs to achieve our vision of innovation being central to the transition to a low carbon economy. We have two main schemes: the Network Innovation Allowance (NIA) and the Network Innovation Competition (NIC).

2.19.   The NIA is designed to fund smaller scale research, development and demonstration projects. It gives each DNO an allowance to spend on innovation projects in line with the NIA Governance Document.[5] In 2016-17, 132 NIA projects were registered by the DNOs worth £19.5m (71% of annual allowances). This is an increase on the £14m (56% of annual allowances) spent on projects in the first year. If successful, these should bring a wide variety of financial, operational, environmental and safety benefits.

2.20.   The NIC is an annual competition providing funding to a small number of large-scale innovation projects. Its aim is to encourage DNOs to innovate in the design, build, development and operation of their networks. Trials financed through the NIC will generate learning for all DNOs and will be made available to all interested parties. In 2016-17, two electricity distribution projects (UKPN project 'Powerful-CB' and WPD project 'OpenLV') received a total of £9.5m of funding, a fall on the £18.2m awarded in 2015-16. Further information on these projects can be found in our funding brochure[6] and the DNOs' full submissions.[7]

2.21.   In addition to the NIC and NIA, there is the Innovation Roll out Mechanism (IRM) to facilitate the roll out of proven innovations that meet certain requirements into business as usual. The first RIIO-ED1 IRM window opened in May 2017 and we will discuss the outcome in the 2017-18 annual report.

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[5]https://www.ofgem.gov.uk/publications-and-updates/version-30-network-innovation-allowance-governance-documents
[6] https://www.ofgem.gov.uk/publications-and-updates/2016-network-innovation-competitions-brochure
[7] https://www.ofgem.gov.uk/network-regulation-riio-model/network-innovation/electricity-network-innovation-competition

3. Financial performance

Chapter purpose
We report on how the financial performance of the DNOs in RIIO-ED1 translates into the actual revenue they can collect via customer bills. We report total expenditure (totex), a key driver of allowed revenue. We also discuss DNOs' returns, as measured by Return on Regulatory Equity (RoRE).

Key messages
In the first two years of the price control, DNOs spent £6,580m operating and managing the networks. This is 7% (or £531m) lower than allowances, with £274m retained by the companies and £257m returned to customers. We estimate DNOs will collect £5.5bn through customer bills in 2018-19 to cover expenditure and reflect incentive performance, an average of £83 per domestic customer per annum.

Introduction

3.1.   Each year we calculate the allowed revenue that each DNO can collect from customers through their electricity bills. To calculate the allowed revenue the forecast Opening Base Revenue[8] is adjusted for a number of factors (see Figure 3.1, with further detail in the supplementary data file). The main ones are: totex performance, specifically the share of over or underspend borne by the company, discussed below; and incentive payments, as discussed in Chapter 2.

Figure 3.1: Simplified process for calculating allowed revenue

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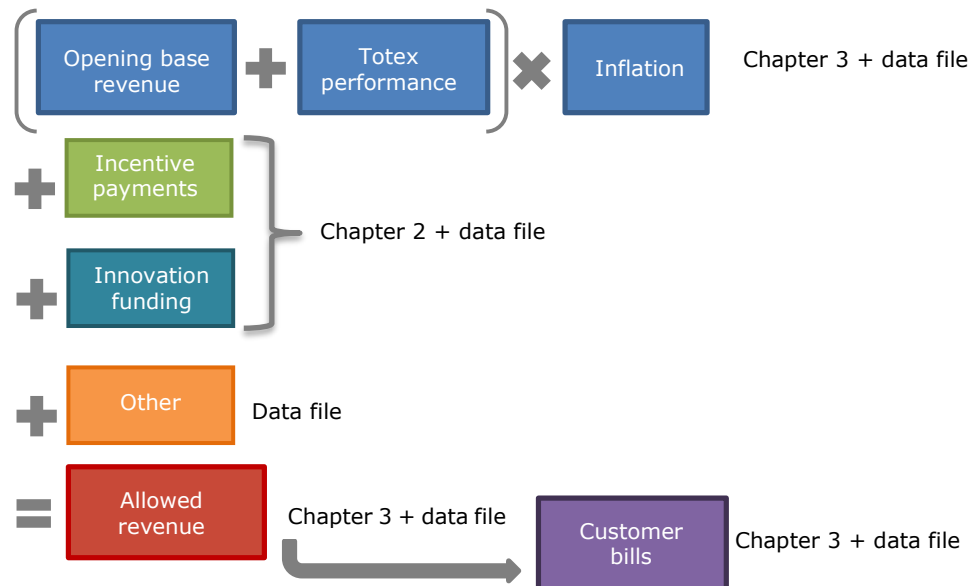
[8] Opening Base Revenue is a best view of the amount of money a DNO needs to earn on its regulated business to recover the efficient cost of carrying out its core activities. It is determined through ex ante forecasts conducted by Ofgem and the DNO prior to the start of the price control.

3.2.   Totex performance and incentive payments are also the key drivers of RoRE performance. This is discussed in paragraphs 3.16 to 3.21.

Totex performance

3.3.   For each year of the price control, we set DNOs' cost allowances making up their allowed totex[9]. This is to enable investment to maintain the existing network, accommodate new infrastructure, and to deliver agreed outputs. DNOs must report their actual totex, explaining their performance compared to the allowed totex annually. They are also required to forecast totex performance to the end of the price control.

3.4.   As totex refers to total controllable expenditure, it comprises both capital expenditure (capex) and operational expenditure (opex). Therefore, DNOs are incentivised to deliver outputs based on total whole life costs, rather than being driven to prefer either capex or opex.[10] This better incentivises them to select the best overall solutions for customers.

3.5.   Table 3.1 details the totex expenditure by DNO in 2016-17, cumulative to date (first two years of the price control) and forecast over the price control.

3.6.   After the first two years, DNOs spent £6,580m (an underspend of £531m or 7% of allowances). To date, 11 DNOs underspent against their totex allowances and three overspent (all WPD DNOs). The three UKPN DNOs continued the pattern of last year and underspent on allowances by the largest percentage. Chapter 4 and the supplementary data file give more detail on the expenditure against allowances for specific cost categories.

3.7.   The total totex allowance for the eight-year price control is £26.7bn. By the end of the price control, a total underspend of £1,239m (5%) is forecast by the DNOs. Eleven DNOs expect to underspend, and three (NPgN, EMID and SPMW) expect to overspend, although this overspend is by no more than 2% for any of the three.

3.8.   It is important to note these forecasts have been provided after only two years of an eight-year price control. Future spending performance and economic conditions are uncertain. We will continue to monitor the DNOs throughout RIIO-ED1 to understand what is driving any over or underspend.

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[9] Includes only controllable costs, excluding uncontrollable costs such as business rates and licence fees.
[10] Historically capex solutions have been preferred, as the cost was capitalised and increased their regulatory asset value (RAV). Under the Totex approach, when a company spends money on a solution the same percentage is capitalised irrespective of whether that solution involves opex or capex. Also, we set the same totex incentive rate (the percentage that the licensee bears of an under or overspend against allowances) for both capex and opex solutions.

Totex Incentive Mechanism

3.9.   DNOs are incentivised to outperform their totex allowance. DNOs that submit better forecasts in their price control business plans (ie closer to our view of efficient cost) receive a higher totex efficiency incentive rate, meaning DNOs get to keep more of any underspend.[11] Therefore, efficient spending leads to better returns for investors and lower network charges for customers. Equivalently, any overspend is shared between investors and customers.

3.10. To date DNOs have underspent by £531m (7%). This is the gross figure, with a net benefit to DNOs following the application of the totex efficiency incentive rate of £274m; £257m is returned to customers. As reported in Chapter 4, we believe a proportion of the underspend to date is likely due to efficiencies, which will have the effect of driving down costs when we set the RIIO-ED2 price control. Current forecasts over the price control period are for a gross 5% underspend (£1,239m) and a net benefit to the DNOs following the application of the totex efficiency incentive rate of £683m (3% of the price control value); £556m is forecast to be returned to customers. This figure is prior to any further adjustments following the close out of the RIIO-ED1 price control. The close out of the previous price control – DPCR5 – returned circa £200m to customers.

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[11] The efficiency incentive rate is used to calculate the revenue adjustment the DNO receives as a result of overspend or underspend versus its allowed expenditure. It is symmetric and fixed for the duration of the price control period. The higher the efficiency incentive rate, the more of any over-spend is borne by the company and the more of any underspend is retained by them.

Table 3.1: Totex performance

	Annual (2016-17)				Two year cumulative (2015-16 + 2016-17)				Forecast RIIO-ED1 (2015-16 to 2022-23)			
	Allowance £m	Actual £m	Difference £m	%	Allowance £m	Actual £m	Difference £m	%	Allowance £m	Forecast £m	Difference £m	%
ENWL	244	211	-33	-13%	500	461	-40	-8%	1,966	1,909	-57	-3%
NPgN	195	189	-6	-3%	393	381	-12	-3%	1,388	1,398	9	1%
NPgY	246	220	-26	-11%	507	475	-32	-6%	1,853	1,849	-4	-0.2%
WMID	283	320	37	13%	565	638	73	13%	2,282	2,326	44	2%
EMID	302	316	14	5%	610	630	20	3%	2,286	2,249	-36	-2%
SWALES	161	150	-10	-6%	320	295	-24	-8%	1,218	1,160	-57	-5%
SWEST	233	261	27	12%	466	488	23	5%	1,857	1,821	-35	-2%
LPN	263	207	-56	-21%	530	400	-131	-25%	1,917	1,642	-275	-14%
SPN	264	205	-60	-23%	506	382	-124	-25%	1,865	1,601	-264	-14%
EPN	372	311	-62	-17%	733	597	-135	-18%	2,749	2,377	-372	-14%
SPD	221	213	-8	-4%	443	408	-35	-8%	1,650	1,650	-1	-0.0%
SPMW	265	257	-9	-3%	520	500	-19	-4%	1,805	1,819	14	1%
SSEH	176	174	-2	-1%	349	327	-21	-6%	1,304	1,215	-88	-7%
SSES	338	309	-29	-9%	670	596	-74	-11%	2,523	2,406	-117	-5%
Total	3,562	3,340	-223	-6%	7,111	6,580	-531	-7%	26,662	25,423	-1,239	-5%

Table 3.2: Totex efficiency incentive rate impact

	Totex efficiency incentive rate	Annual (2016-17) £m			Two year cumulative (2015-16 + 2016-17) £m			Forecast RIIO-ED1 (2015-16 to 2022-23)£m		
		Totex performance	Customer share	DNO share	Totex performance	Customer share	DNO share	Totex performance	Customer share	DNO share
ENWL	58%	-33	-14	-19	-40	-17	-23	-57	-24	-33
NPgN	56%	-6	-3	-3	-12	-5	-7	9	4	5
NPgY	56%	-26	-12	-15	-32	-14	-18	-4	-2	-2
WMID	70%	37	11	26	73	22	51	44	13	31
EMID	70%	14	4	10	20	6	14	-36	-11	-25
SWALES	70%	-10	-3	-7	-24	-7	-17	-57	-17	-40
SWEST	70%	27	8	19	23	7	16	-35	-11	-25
LPN	53%	-56	-26	-30	-131	-61	-70	-275	-128	-146
SPN	53%	-60	-28	-32	-124	-58	-66	-264	-124	-141
EPN	53%	-62	-29	-33	-135	-63	-72	-372	-174	-198
SPD	54%	-8	-4	-4	-35	-16	-18	-1	0	0
SPMW	54%	-9	-4	-5	-19	-9	-10	14	7	8
SSEH	56%	-2	-1	-1	-21	-9	-12	-88	-38	-50
SSES	56%	-29	-13	-16	-74	-32	-42	-117	-51	-66
Total		-223	-112	-111	-531	-257	-274	-1,239	-556	-683

Allowed revenue

3.11.   Allowed revenue is the total amount of money that DNOs can collect from customers through Distribution Use of System charges (DUoS). Actual totex and rewards and penalties through other incentives mechanisms, particularly the IIS, affect the allowed revenue a DNO can collect.

3.12.   DNOs will collect £5.6bn in nominal terms (or 2018/19 prices) through customer bills in 2018-19. This covers expenditure incurred in 2016-17 and reflects incentive performance in 2016-17.

3.13.   The process of reaching final allowed revenue was explained in detail in last year's annual report.[12]

Table 3.3: Allowed revenue (2018-19 prices)

	Opening base revenue (£m)	Allowed revenue (£m)
ENWL	414	414
NPgN	286	295
NPgY	374	384
WMID	479	497
EMID	481	485
SWALES	244	248
SWEST	347	334
LPN	452	436
SPN	395	370
EPN	589	564
SPD	401	422
SPMW	361	349
SSEH	298	297
SSES	549	544
Total	5,672	5,639

Customer bill impact

3.14.   Our Supplier Cost Index[13] provides an estimate of the overall cost of domestic energy bills. This includes estimates of the contribution made by DNOs to the overall energy cost. Our methodology uses an average electricity demand applied uniformly across all regions and over time.[14] Actual customer bills are sensitive to geographic region, consumption volume and the timing and duration of contracts.

3.15.   Our latest bill estimates using this methodology are reported in Figure 3.2 and in Table 3.4. We estimate that the average GB customer will pay £83 per annum in nominal terms in 2018-19 for electricity distribution costs. Charges differ

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[12] Appendix 2 of the report explains the allowed revenue process and Appendix 3 provides definitions of financial terms - https://www.ofgem.gov.uk/publications-and-updates/riio-electricity-distribution-annual-report-2015-16

[13] We used the November 2017 Supplier Cost Index model: https://www.ofgem.gov.uk/electricity/retail-market/retail-market-monitoring/understanding-trends-energy-prices

[14] Using median domestic consumption behaviour (volume and timing of use) for a 12-month fixed price contract

considerably depending on the region that a domestic consumer resides in: from £66 in London and up to £126 in North Scotland, see Table 3.4 for details.

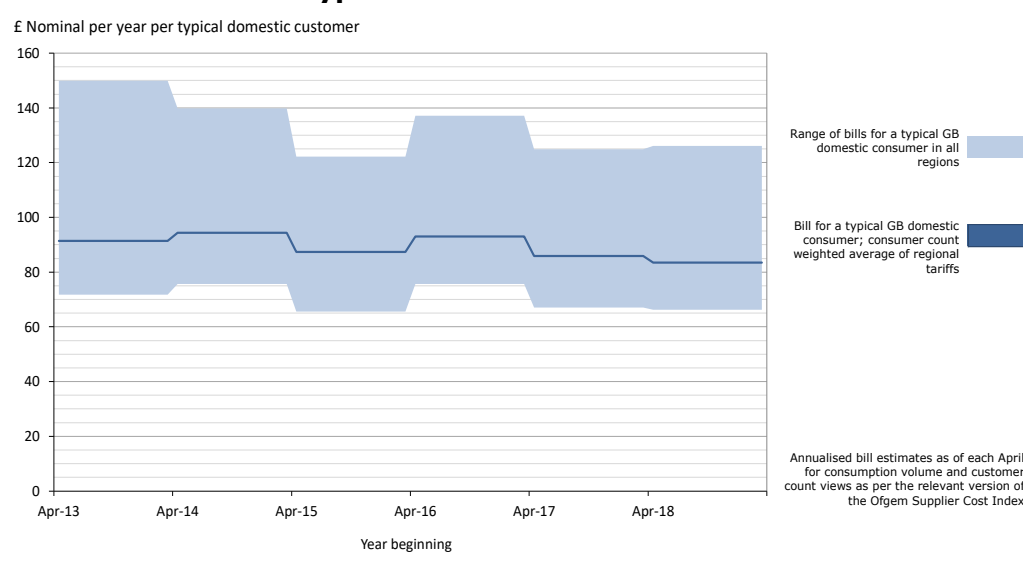**Figure 3.2: Estimates of typical GB consumer costs to meet allowed revenue**

Table 3.4: Regional estimates of typical GB consumer cost to meet allowed revenue (£ nominal prices per typical domestic consumer)

Year Beginning[1]		Apr-13	Apr-14	Apr-15	Apr-16	Apr-17	Apr-18
GB consumer count weighted average		91	94	87	93	86	83
Region	**Licensee**						
North West	ENWL	102	101	89	92	79	80
North East[2]	NPgN	93	104	97	97	91	88
Yorkshire[2]	NPgY	81	87	84	80	76	75
Midlands	WMID	85	81	80	93	83	82
East Midlands	EMID	75	76	76	83	76	72
South Wales	SWALES	119	117	96	112	102	101
South West	SWEST	119	118	107	122	113	102
London	LPN	77	80	66	76	67	66
South East	SPN	86	96	86	103	91	84
East Anglia	EPN	72	79	76	79	79	78
South Scotland	SPD	90	89	96	95	91	93
Merseyside and N Wales	SPMW	121	136	121	108	104	101
North Scotland	SSEH	150	140	122	137	125	126
Southern	SSES	85	85	80	86	81	76

1. Data in this table is inclusive of adjustments for a Government rebate surcharge: https://www.enwl.co.uk/site-search/?q=enwl-notice-to-amend-tariffs#!?page=1; https://www.westernpower.co.uk/docs/system-charges/Schedule-of-charges-and-other-tables-and-addendums/5rebate.aspx; http://www.ukpowernetworks.co.uk/internet/en/about-us/duos/; http://www.northernpowergrid.com/downloads/system.cfm
2. The April 2014 figures for NPgN and NPgY do not reflect the impact of the domestic customer rebate. The then Department for Energy and Climate Change (DECC) requested DNOs to take voluntary action with a view to reduce future network costs in 2014-15. In doing so it allowed energy suppliers to reduce domestic bills for households by, on average, around £5. NPg's approach to the giving of the rebate was not do so by reducing use of system tariffs, instead they offset December 2013 supplier bills by an amount equivalent to the then forthcoming price increase in 2014-15 (NPgN £7, NPgY £11) on the basis suppliers were to pass it on. Therefore, this table shows an increase in 2015-16 for NPgN and NPgY recovering the rebate, but does not show the lower amount in 2013-14 where they issued it.
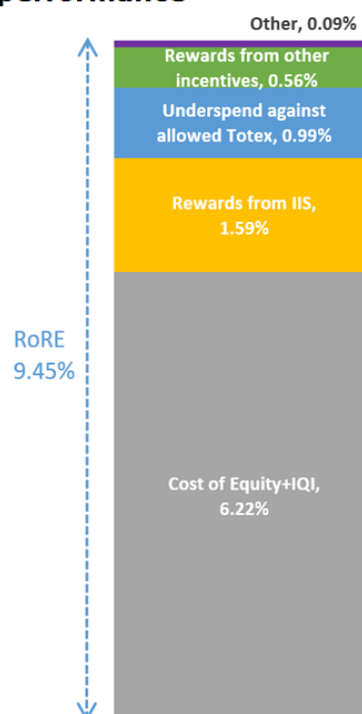
Return on Regulatory Equity (RoRE)

3.16.   We assess the overall financial performance of DNOs using a measure called the Return on Regulatory Equity (RoRE)[15]. Our RoRE in Figure 3.4 should be compared to the cost of equity allowed at the start of the price control. The four WPD DNOs were allowed a 6.4% cost of equity as part of their fast-track settlement. The remaining 10 DNOs were allowed a cost of equity of 6.0%. Each company was also given an ex ante reward or penalty based on business plan quality. Further drivers of RoRE include spending against total expenditure (totex) allowances and performance against incentives. Totex underspending and incentive rewards increase companies' return, while overspending and penalties decrease their return.

3.17.   Based on current forecasts[16], the RoRE across the sector is 9.45%[17]. The three UKPN DNOs have the highest RoRE figures and the two SPEN DNOs have the lowest. No companies are forecast to earn returns below their assumed cost of equity.

3.18.   Figure 3.3 shows that the industry returns are predominately driven by the IIS rewards and totex underspends (see Figure 3.4 also).[18] We outline our view of totex underspend drivers in Chapter 4. All DNOs have also gained through the other incentive mechanisms (see Table 2.2).

3.19.   There are a number of factors not reflected in our RoRE calculations, which may affect the return realised by shareholders by the end of RIIO-ED1. The largest of these are the potential end of period rewards for over-delivery and penalties for under delivery on Network Asset Secondary Deliverables.[19] The current calculation assumes they will be

Figure 3.3: Simplified RoRE to show key drivers of industry performance

Other, 0.09%
Rewards from other incentives, 0.56%
Underspend against allowed Totex, 0.99%
Rewards from IIS, 1.59%
RoRE 9.45%
Cost of Equity+IQI, 6.22%

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[15] RoRE is the financial return achieved by shareholders in a licensee during a price control period from its actual performance under the price control. RoRE is calculated post-tax and is estimated using certain regulatory assumptions, such as the assumed gearing ratio of the companies, to ensure comparability across the sector. We use a mix of actual and forecast performance to calculate eight-year average returns. These returns may not equal the actual returns seen by shareholders.

[16] DNOs have made their own assumptions on the treatment of uncertain expenditure and allowances. We will be working with the companies in the future to standardise some of the assumptions made in forecasting and to align more closely with the various uncertainty mechanisms in RIIO-ED1. For the incentive rewards we have used actual post-tax values where known. We have assumed a simple average of known (pre-tax) rewards for the remaining years, taxed at future Corporation Tax rates. Note that in some cases, holding rewards constant assumes that the underlying performance will increase over time.

[17] The industry RoRE is RAV-weighted. To calculate this, all individual DNO RoRE figures are weighted by the value of their assets – their Regulatory Asset Value (RAV) – and then summed together.

[18] The totex incentive mechanism component of RoRE uses company provided forecasts for the entire control period.
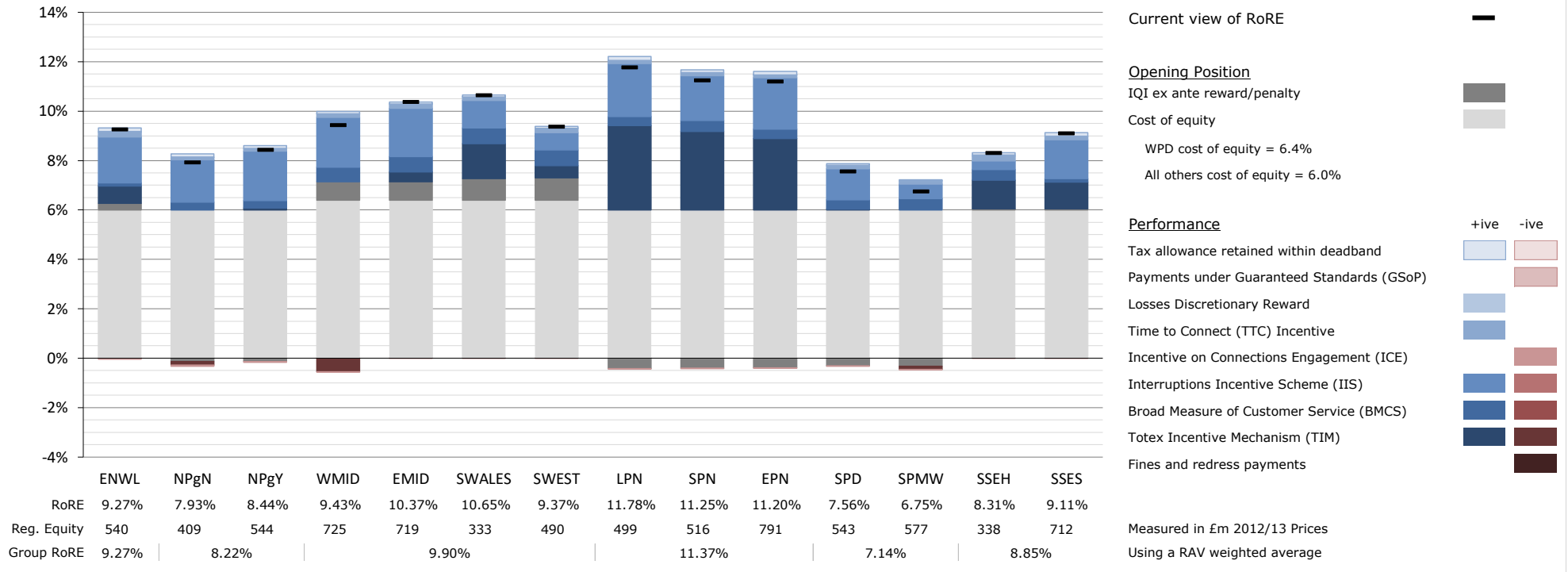
[19] These are known as Network Output Measures in other sectors.

14

delivered. It also doesn't account for the RIIO-ED1 close out process.

3.20. Our RoRE analysis also excludes companies' actual debt costs relative to our regulatory assumptions, innovation funding, legacy adjustments from prior control periods and unfunded pension deficits. We may include some of these items in the future as we continue to refine the RoRE model.

3.21. Finally, we apply an arithmetic mean to calculate our 8-year average RoRE, rather than applying a geometric mean or weighted mean. While other averaging methodologies may better represent a long-term investment in a single company, our approach is consistent with how we informed our judgement on return on equity. For our RIIO-ED1 cost of capital decisions, we used the Capital Asset Pricing Model (CAPM) framework, which expresses the cost of capital as the amount needed to attract investment from a diversified investor that invests every year. The arithmetic average more accurately reflects this, and we are not considering a project return from a long-term investment in one particular company.

Figure 3.4: Forecast eight-year average RoRE (real, post-tax)

	ENWL	NPgN	NPgY	WMID	EMID	SWALES	SWEST	LPN	SPN	EPN	SPD	SPMW	SSEH	SSES
RoRE	9.27%	7.93%	8.44%	9.43%	10.37%	10.65%	9.37%	11.78%	11.25%	11.20%	7.56%	6.75%	8.31%	9.11%
Reg. Equity	540	409	544	725	719	333	490	499	516	791	543	577	338	712

| Group RoRE | 9.27% | 8.22% | | 9.90% | | | | 11.37% | | | 7.14% | | 8.85% | |

Legend:

Current view of RoRE

Opening Position
- IQI ex ante reward/penalty
- Cost of equity
  - WPD cost of equity = 6.4%
  - All others cost of equity = 6.0%

Performance   +ive -ive
- Tax allowance retained within deadband
- Payments under Guaranteed Standards (GSoP)
- Losses Discretionary Reward
- Time to Connect (TTC) Incentive
- Incentive on Connections Engagement (ICE)
- Interruptions Incentive Scheme (IIS)
- Broad Measure of Customer Service (BMCS)
- Totex Incentive Mechanism (TIM)
- Fines and redress payments

Measured in £m 2012/13 Prices

Using a RAV weighted average

4. Totex performance drivers

Chapter purpose
We report on what is driving DNOs' expenditure performance to date. It considers whether efficiencies, external factors, the RIIO-ED1 settlement and/or timing issues are responsible for totex performance.

Key messages
Total underspend to date is £531m (7%) less than allowances. The most significant driver of underspend is external factors outside the DNOs' control, followed by timing, where expenditure is being re-profiled to later years in the price control. Any overspend on certain cost categories is also largely due to external factors and a particularly challenging settlement for operational support costs.

Introduction

4.1.   We note in Chapter 3 that DNO returns, as measured by RoRE, are driven largely by the baseline cost of equity and performance against the IIS and TIM. The impact of the IIS on network reliability is discussed in Chapter 2. This chapter looks in more detail at drivers of totex performance.

4.2.   It is important to set our views in context, notably:

- we only have two years of actual data, the remaining six years of data are forecasts;
- underspend varies between DNOs and not all DNOs are underspending (to date this ranges from 13% overspend to 25% underspend); and
- underspend does not take account of reopener mechanisms where allowances can be adjusted downwards (eg the load-related reopener).

4.3.   The TIM incentivises DNOs to outperform the RIIO-ED1 allowances as they retain a share of any underspend, with customers receiving a share. Underspend also has the effect of driving down costs as we look to set the next price control.

4.4.   In seeking to understand the high level drivers of totex underspend or overspend, we have used three categories:

- **Efficiency**: an improvement in how things are being done, eg resulting from innovation and more efficient working practices.
- **External factors**: windfall gains or losses achieved by external factors outside of the control of DNOs.
- **Provision in price control settlement**: assumptions made within the RIIO-ED1 settlement that have varied against the actual position.

4.5.   It is also worth noting that timing, or profiling expenditure, will impact on underspend in the early period of a price control. Delays are common at the start of a

price control as DNOs re-profile their expenditure in light of final allowances and take time to negotiate and implement delivery contracts.

4.6. In the section below we discuss what we think are likely to be the drivers in each of the key categories of under or over performance.

Expenditure categories

4.7. Figure 4.1 provides a breakdown of the expenditure in the first two years of the price control, split into 15 cost categories.

Figure 4.1: Cost categories of expenditure to date[20]
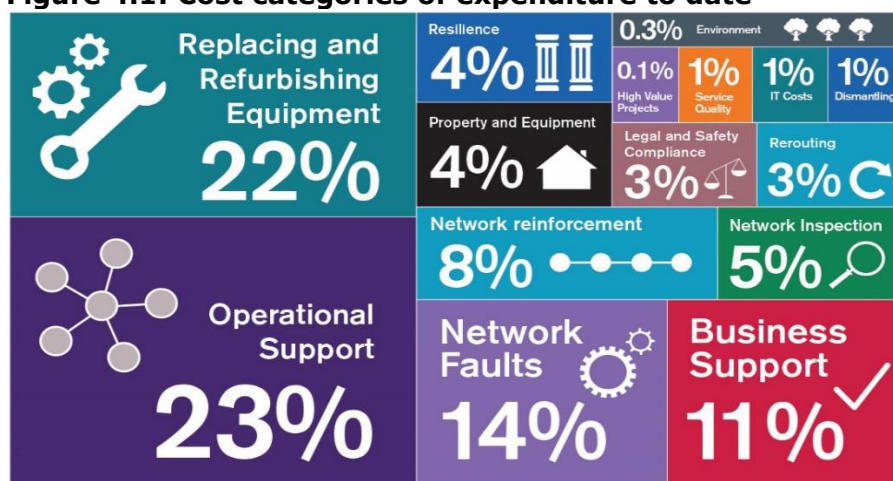
4.8. The most significant cost categories are:

- **Operational support:** 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.
- **Replacing and refurbishing equipment:** the cost of maintaining the existing network by replacing and refurbishing network assets.
- **Network faults:** the cost of repairing faults on the network.
- **Business support:** the cost of running the DNO business, such as those associated with HR, finance and the CEO and non-operational training.
- **Network reinforcement:** 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.
- **Other operational capex costs.** This combines eight single cost categories detailed in Figure 4.1 - resilience (excluding tree cutting), legal and safety, rerouting, IT, dismantling, service quality, high value projects and environment.

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[20] Due to rounding the figures do not add to 100%.

4.9. Collectively these six cost categories account for just 88% of the allowances and 87% of the expenditure to date. Below reviews the over and underspend of these.

Drivers of totex underspend and overspend to date

4.10. The £6.6bn spent to date is £531m less than the allowances. Two single cost categories largely drive this underspend: replacing and refurbishing equipment (£370m) and network reinforcement (£267m). A combination of several other operational capital cost categories also makes a significant contribution to the overall underspend (£102m). This is partly offset by overspend in two cost categories: network faults (£107m) and operational support (£99m).

Figure 4.2: Six largest cost categories: underspend and overspend to date[21]
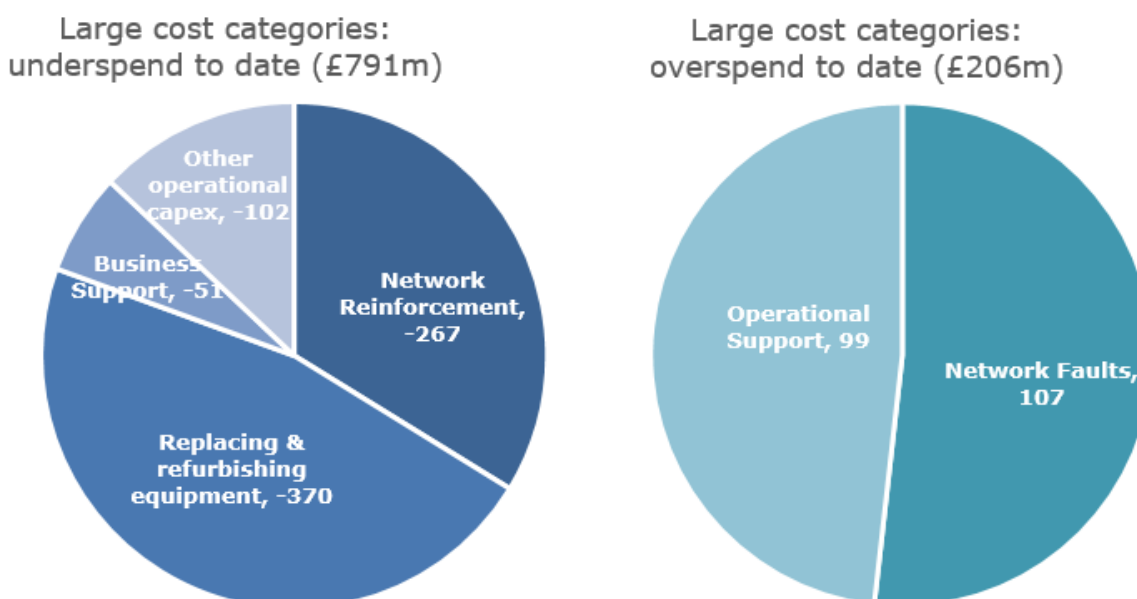
4.11. The remainder of this section looks at each of the main categories in turn.

Asset replacement and refurbishment

4.12. To date, 12 of the 14 DNOs underspent on replacing and refurbishing equipment; for five DNOs, the underspend is greater than 25% of allowances. We believe timing is the main driver of this. Underspend is forecast to fall to 7% by the end of the price

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[21] This is the collective industry picture of spend. It does not necessarily reflect the expenditure pattern for individual DNOs.

control. DNOs report that they have temporarily delayed expenditure compared to their original business plan to:

- negotiate and put in place contracts with strong commercial incentives to deliver efficiencies;
- gather more robust data to make better investment decisions in light of the outputs set, particularly the risk-based health index part of the Network Asset Secondary Deliverables. Under this, DNOs have a target level of risk reduction on their network assets to meet by the end of the price control. Many are taking time to get it right over the period to reduce risk on the network, with the delays at some DNOs disproportionally affecting the largest and most expensive investment projects, such as 132kV replacement;
- test innovative techniques before adopting more widely, particularly where they seek to refurbish rather than replace assets; and
- embed new delivery strategies, for example focusing on regional contracts to deliver asset health.

4.13. Alongside this, DNOs are reporting some efficiencies already being realised. This includes negotiating contracts that provide strong commercial incentives to deliver efficiently, and innovative techniques being used to reduce costs. An example of rolling out innovation to date includes learning from techniques used in Germany to replace a gas insulated cable by using the existing pipework to install a new cable and reduce excavation costs.

Network reinforcement

4.14. Ten of the 14 DNOs underspent on network reinforcement to date, and for seven of the DNOs underspend is greater than 25% of their allowances.

4.15. External circumstances are likely to have largely driven this. Economic conditions dampening the demand for electricity, a greater impact from energy efficiency measures and uncertainty in the actual take up of low carbon technologies have all contributed to underspend. Electric vehicles and heat pumps for example have not yet been as widespread as expected when we set the price control, but DNOs expect EV uptake to be substantial in the remaining years of RIIO-ED1.

4.16. DNOs have also provided evidence of innovation driving efficiencies. There is increased use of non-traditional solutions and flexibility services to alleviate constraints in the network, including active network management (ANM) and in the future constrained managed zones (CMZ). Another example is using dynamic rating techniques for transformers, which increased the available capacity to supply demand, deferring the need to invest in larger capacity transformers at this time.

4.17. There is also a timing issue. Uncertain economic forecasts, heightened by Brexit, and DNOs ensuring that they have the right skills to identify flexible approaches before committing investment, have resulted in delayed investment.

Other operational capex costs

4.18.   For other operational capex costs, the issue is largely one of timing, for similar reasons to those noted above for replacement and refurbishment and network reinforcement. Forecasts show that underspend for this category of costs will largely diminish by the end of the price control period.

Real Price Effects (RPEs)

4.19.   When setting the totex allowances for the price control we acknowledged that several key input costs may not necessarily change in line with the Retail Price Index (RPI) measure of economy-wide inflation. The difference between the RPI and inflation on inputs specific to the DNOs is known as the Real Price Effects (RPEs). To account for this differential, we provided an ex ante allowance based on RPE forecasts.

4.20.   We have now updated the indices used in the price control, replacing two years of forecast indices with actual indices, and retaining the forecasts as per the price control for the remaining six years to understand the impact on allowed totex. To date, we estimate that eight-year totex allowances would have been £204m lower had we used indexation for RPEs as opposed to setting ex ante RPE allowances. We place this underspend under the driver of "external factors" due to lower than expected RPEs.

Drivers of overspend

4.21.   DNOs overspent on two major cost categories: network faults and operational support costs. The overspend on fault costs is largely due to external factors, ie the impact of storms. For operational support this is due to tight price control settlements. Many DNOs put forward ambitious forecasts for these costs, and for some it has proven difficult to realise these efficiencies.

4.22.   Ten DNOs have overspent on allowances for faults. This is largely due to the impact of Storm Doris in February 2017. DNOs have invested and continue to invest significantly on storm preparedness on the back of the winter storms of December 2015 (Storm Desmond and Storm Eva), which was not accounted for in the baseline allowances. A significant outlier is SSEH, which traditionally experienced greater impact from storm weather. As a result, in setting the RIIO-ED1 allowance we reflected the adverse weather conditions in the north of Scotland. However, SSEH has not yet been affected by storms to the same level as in the past.

4.23.   Ten DNOs have also overspent on allowances for operational support. Cost efficiencies have been more difficult to achieve in operational support. We put this largely down to the tight settlement for operational support costs and DNOs investing in operational support to achieve wider totex efficiencies.

4.24.   This has also been affected by upward pressures on these costs due to insourcing of groundworks staff, implementing regionalisation models and business transformation programmes. The aforementioned are intended to provide wider efficiencies, and therefore overspend in operational support is expected to result in overall efficiencies at

the totex level in the longer term. There are also unexpected external factors at play here, including resources deployed to work on the DNO to DSO (distribution system operator) transition.[22]

4.25. Most DNOs are expecting to make efficiency savings on operational support in the remainder of the price control through, for example, cheaper pension scheme arrangements when staff are replaced in the coming years. IT investment early in the price control is also expected to improve cost efficiencies through better data capture, recording, reporting and analysis.

Areas for future consideration

4.26. In the current reporting year, DNOs are forecasting to underspend totex allowances for the RIIO-ED1 period by £1,239m (5%); the underspend forecast has increased from 3% since last year. UKPN is one DNO group where we see high levels of underspend.

4.27. DNOs break down these forecasts into cost categories and we will pay particular attention to those categories, where material overspend or underspend is expected, as well as to totex, as this price control progresses.

4.28. Current forecasts show that both asset replacement and refurbishment, and network reinforcement are expected to continue to drive the majority of the underspend at the end of the period, while other operational capex is forecast to be close to allowances. Business support costs are expected to play a greater role in the underspend than they have to date. As they account for 10% of totex allowances we will be working with the DNOs to better understand this. At this stage we consider that this is most likely the result of the price control settlement.

4.29. Finally, as we move further through the price control we will have more data to test our assumptions when setting the next price control. We intend to re-run our modelling in years 3 and 4 to understand better the role that this may have played in overall underspend. Obvious areas for consideration include the cost assessment drivers (such as customer numbers and MEAV[23]) and the normalisations we make to submitted costs before they are put into our benchmarking models.[24]

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[22] A transition to a DSO will see the scope of services DNOs provide expand to incorporate areas such as flexibility services and grid resilience improvements.
[23] MEAV, modern equivalent asset value, is the value of a modern asset with the same service capability. Combining all asset values gives a value of all assets on a DNO's network.
[24] Our draft and final determinations on our expenditure assessment provide more detail.
https://www.ofgem.gov.uk/publications-and-updates/riio-ed1-draft-determinations-consultation-slow-track-electricity-distribution-companies

Protecting customers from excessive underspend and overspend

4.30. In addition to the TIM and adopting learning for RIIO-ED2, we take further steps to protect customers in relation to particular cost categories to ensure underspend or overspend is not excessive or unjustified.

4.31. For network reinforcement, we have a reopener mechanism, which allows us to effectively "reopen" that part of the price control at the end of the period where any material levels of underspend can be returned to consumers.[25] This is similar to the mechanism we had for the previous price control – DPCR5 – where we returned approximately £70m to consumers where load demand on the networks did not materialise.[26] Similarly, if there was material overspend, allowances can be adjusted upwards to ensure appropriate investment by the DNOs to meet the demands on the network.

4.32. For asset replacement and refurbishment, while we do not have a similar reopener mechanism, investment here is linked to the health index Network Asset Secondary Deliverables.[27]

4.33. Through the Common Network Asset Indices Methodology (CNAIM), each DNO has a target to deliver a risk delta on its network through the replacement or refurbishment of network assets. We will continue to monitor output performance during the price control and we expect DNOs to appropriately manage network risk over RIIO-ED1.

4.34. We are currently working with DNOs as well as Gas Distribution Network companies (GDNs) and gas and electricity Transmission Operators (TOs) on the methodology for evaluating under/over delivery of Network Asset Secondary Deliverables. At the end of the price control there will be a process to evaluate actual outturns for the entire period, with the potential for all companies to be financially rewarded or penalised depending on the levels of risk reduction they deliver and the extent to which the levels of risk reduction are judged to be in consumers' interests. We intend to publish for consultation further details on our proposed approaches to assessing delivery and determining the value of any reward or penalty due to network companies in early 2018.

4.35. We will also periodically analyse asset management decisions taken by the DNOs over RIIO-ED1. For example, we may pick a number of asset categories and require DNOs to describe the decisions taken (eg justifying asset refurbishment over replacement), review scheme papers and undertake site visits with our engineers.

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[25] This is an area that is difficult to predict at the start of a price control so there need to be protection for customers (and companies) if actual costs are materially lower or materially higher than allowances.
[26] https://www.ofgem.gov.uk/system/files/docs/2017/09/dpcr5_closeout_decision_0.pdf
[27] Network Asset indices are equivalent to Network Output Measures (NOMs) in the other sectors: Electricity Transmission, Gas Transmission and Gas Distribution.

Appendices

Appendix 1 - Supplementary data file

The supplementary data file provides detailed information on expenditure and performance. Its contents and the associated chapter is provided below. It is found https://www.ofgem.gov.uk/publications-and-updates/riio-electricity-distribution-annual-report-2016-17

Chapter title	Tab in data file	Contents
Chapter 1 Introduction and context	No data included	N/A
Chapter 2 Output performance, incentives and innovation	RAG and ranking	Reliability RAG, Customer satisfaction RAG and ranking, SECV RAG and ranking, Connections RAG and ranking, and Safety ranking
	Ch2 – incentive payments	Incentive payments for Interruption Incentive Scheme (IIS), Broad Measure of Customer Service (BMCS), Incentive on Connections Engagement (ICE), Time to Connect Incentive (TTC) and Losses Discretionary Reward (LDR)
	Ch2 outputs – reliability	Interruption Incentive Scheme (IIS), Guaranteed Standards of Performance (GSoP), Worst Served Customers, and Resilience
	Ch2 – network Asset Indices	Network Asset Secondary Deliverables
	Ch2 outputs – environment	Losses Discretionary Reward (LDR), Business Carbon Footprint (BCF), Sulphur hexafluoride emissions (SF_6), Leakages from fluid-filled cables, Undergrounding in designated areas, Distributed Generation, Electric Vehicles, and Noise complaints
	Ch2 outputs – connections	Distributed Generation (DG), Time to connect incentive, Connections Guaranteed Standards of Performance (GSoP)
	Ch2 outputs – cust sat	Customer satisfaction survey, Complaints metric, Stakeholder Engagement and Consumer Vulnerability Incentive, Broad Measure of Customer Service (BMCS)
	Ch2 - innovation	Network Innovation Allowance (NIA), Network Innovation Competition (NIC)
Chapter 3 Financial performance	Ch3 – financial performance	Total controllable expenditure (totex) , Allowed revenue Incentives, Customer Bills Impact, Regulatory Asset Value (RAV), Distribution of allowances and expenditure per cost category, Distribution of overall allowances and expenditure, and Baseline allowances and actual expenditure by cost category
Chapter 4 Totex performance drivers	Ch 4-expenditure drivers & Ch 4-expenditure drivers 2	Distribution of allowances and expenditure per cost category, Distribution of overall allowances and expenditure, and Baseline allowances and actual expenditure by cost category

Appendix 2 - Detailed output performance

Appendix summary

More detail on the output performance of the DNOs across the six primary output categories. We provide red, amber and green (RAG) ratings and rank where appropriate. Details on how we assign RAG ratings and rank DNOs can be found in the supplementary data file.

Reliability and availability

GB customers continue to benefit from reduced interruptions since the beginning of RIIO-ED1. Customer interruptions have fallen by 11% and the duration of interruptions has also fallen by 11% to 35 minutes on average. However, we have seen performance drop in the second year compared to the first for many DNOs.

Interruption Incentive Scheme (IIS)

A2.1.   The IIS sets targets for the number of customers interrupted (CIs) and duration (CMLs) of both planned and unplanned interruptions. DNOs are rewarded if they meet or exceed these targets and are penalised if they fail to meet them.[28]

A2.2.   DNOs continued to perform well under the IIS in year 2 of the price control, with all DNOs receiving a financial reward for overall CI and CML performance. SPMW narrowly missed their target for unplanned CIs. The data file provides the targets.

Table A2.1: Reliability RAG status, 2016-17

	Customer Interruptions (CIs)[1]	Customer Minutes Lost (CMLs)[2]		Customer Interruptions (CIs)[1]	Customer Minutes Lost (CMLs)[2]
ENWL	32.90	33.71	LPN	17.22	19.78
NPgN	53.29	45.00	SPN	47.72	35.06
NPgY	48.54	38.01	EPN	49.37	39.20
WMID	58.96	31.97	SPD	42.89	29.33
EMID	44.13	21.96	SPMW	38.16	37.34
SWALES	41.64	25.73	SSEH	68.11	59.89
SWEST	52.45	39.70	SSES	47.82	43.30

1. CIs are the number of customer interruptions per 100 customers on the network.
2. CMLs are the average length of time customers are without power per interruption.

A2.3.   Based on performance against targets in 2016-17, DNOs will earn £159.7m. This compares with £163.9m in 2015-16. In both years several DNOs reached the cap on

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[28] See the RIIO-ED1 Annual Report 2015-16 for detailed information on how IIS targets for interruptions are calculated, https://www.ofgem.gov.uk/publications-and-updates/riio-electricity-distribution-annual-report-2015-16.

revenue that can be earned under the IIS; we introduced a cap at the beginning of RIIO-ED1 so that customers are not exposed to excessive rewards.

Guaranteed Standards of Performance (GSoP)

A2.4.   Statutory regulations set GSoP for the reliability of supply.[29] They specify a minimum level of service expected of the DNOs in a range of circumstances. If a DNO fails those standards they must make an inconvenience payment to each affected customer.

A2.5.   Performance against the GSoP is strong overall, and in the majority of cases DNOs are making the required payments if any standards are not met. In the case of some standards, however, performance against GSoP requirements differ from our expectations.

A2.6.   In 2016-17, DNOs paid out just over £1.8m under the GSoP.. Mandatory payments averaged around £59 per affected customer, and voluntary payments averaged around £64.

Worst-served customers

A2.7.   DNOs have a use-it-or-lose-it allowance to improve network reliability for customers who have a significantly poor service. For RIIO-ED1, we provided an allowance of £75m across the DNOs in line with the number of qualifying customers in each region. DNOs have to demonstrate that they have delivered a set level of service improvement to these customers in order to receive the funding.[30]

A2.8.   The DNOs spent £2.5m on improving service provision for worst-served customers in 2016-17 and have spent a total of £3.7m since the beginning of the price control. As eligibility for funding can only be determined once improvement schemes are complete, we are not yet in a position to state how much of company expenditure will be funded through the price control.

Resilience

A2.9.   DNOs are required to design and operate their networks in accordance with relevant legislation, codes and standards. They were provided allowances to improve

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[29] The Electricity (Standards of Performance) Regulations 2015, Statutory Instrument (SI) No. 699, http://www.legislation.gov.uk/uksi/2015/699/pdfs/uksi_20150699_en.pdf
[30] Each scheme has to result in an agreed percentage reduction in power cuts (25% for slow-track DNOs and 20% for fast-track). Expenditure is provided on the basis of a cap per worst-served customer affected (£1,000 for slow-track DNOs except SSES for whom it is £2,000 and £800 for fast-track DNOs – all Figures in 2012-13 prices).

network resilience, covering flood protection, black start[31], physical site security and the protection of overhead lines through tree cutting

A2.10. DNOs spent £143m of the £150m allowances for resilience in 2016-17, and a total of £275m of the £302m in the price control to date. While only half of total flood protection allowances were spent in 2016-17, five DNOs spent more than their allowances. Since the start of RIIO-ED1, there has been investment to mitigate the flood risk at 134 sub-station sites across all the DNOs. Investment in flood protection measures are partly a response to severe weather events and the UK Government publishing its National Flood Resilience Review in September 2016.[32] Another focus of DNO investment in 2016-17 was tree cutting. Almost all of the tree cutting allowances were spent, with six DNOs overspending. This reflects investment in LiDAR[33] and other tree cutting programmes that DNOs expect to generate cost efficiencies later in the price control.

Network Asset Secondary Deliverables

A2.11. DNOs have committed to deliver agreed outputs in respect of reductions in monetised risk based upon asset health and criticality by the end of the RIIO-ED1 period; there are no annual targets. Nevertheless, after the second year, all DNOs have contributed significantly to their agreed health and criticality targets and have delivered levels of monetised risk as a percentage of their total ED targets of between 18% (NPgN) and 43% (EMID) (see Figure A2.1).

Figure A2.1: Delivery of monetised risk as percentage of RIIO-ED1 target

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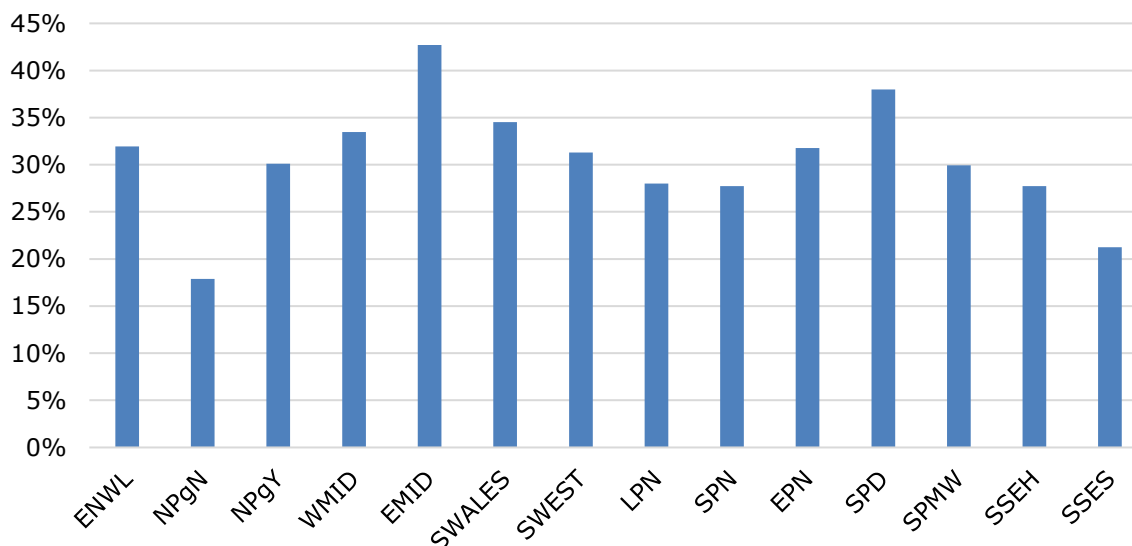
[31] This is the cost of restoring electricity supplies to customers following a total or widespread partial shutdown of the GB Transmission System.

[32] https://www.gov.uk/government/publications/national-flood-resilience-review

[33] LiDAR is a surveying method that measures distance to a specific target using lasers. It helps DNOs identify distance of trees to overhead lines, limiting the need for ground inspections.

Environment

Since the beginning of RIIO-ED1, there have been environmental improvements at the industry level with reductions in BCF, SF$_6$ emissions and oil leakage from fluid-filled cables. At a company level however, performance is mixed.

Table A2.2: Environment performance – change since end of DPCR5 baseline

	BCF (excl. losses) (tCO2e)		SF$_6$ emissions (Kg)		Oil leakage (litres)[34]	
	2017	Change since 2015/16[1]	2017	Change since 2014/15	2017	Change since 2014/15
ENWL	21,012	-9%	55	53%	21,096	-26%
NPgN	33,402	59%	15	-8%	18,641	17%
NPgY	30,563	10%	99	25%	18,150	-35%
WMID	24,622	-17%	52	-16%	9,421	-52%
EMID	26,434	-8%	35	151%	7,220	-22%
SWALES[2]	15,854	-10%	78	-45%	400	NA
SWEST	18,675	-15%	63	-51%	210	-89%
LPN	18,087	0%	16	-22%	137,086	-17%
SPN	19,648	-9%	17	9%	52,068	-27%
EPN	30,903	8%	99	53%	42,306	-10%
SPD[3]	16,880	1%	1	-98%	NA	NA
SPMW	16,095	23%	47	-62%	9,315	162%
SSEH	16,397	-28%	4	-72%	612	-62%
SSES	28,315	-17%	132	30%	21,199	13%
Total	316,889	-3%	713	-19%	337,724	-18%

1. There are two key issues with BCF data. First, it is not comparable to data collected before the start of RIIO-ED1. Therefore, the end of the previous price control cannot be used as the baseline. Second, there are ongoing inconsistencies across DNOs on reporting of BCF (ie some are including contractors in full and others are not). We are currently working with the DNOs to resolve this.
2. SWALES had zero oil leakage in 2014/15.
3. SPD has no oil filled cables.

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[34] Leakages from fluid-filled cables (litres) are measured as the amount of fluid used by DNOs to top up cables in their network as a percentage of oil in service in cables. Top up is a proxy for oil leakage.

Table A2.3: Environment performance

	BCF (excl. losses)		SF$_6$ emissions		Oil leakage	
	BCF as % of size[1]	Rank (based on BCF as % of size)[1]	SF$_6$ emissions as % of SF$_6$ bank[2]	Rank (based on % change in SF$_6$ as % of SF$_6$ bank)	Oil leakage as a % of oil in service	Rank (based on % of oil in service)
ENWL	18.8%	7	0.4%	10	1.6%	7
NPgN	41.3%	14	0.1%	5	1.3%	5
NPgY	28.9%	13	0.5%	13	1.7%	8
WMID	19.6%	10	0.2%	7	1.0%	3
EMID	18.5%	5	0.2%	6	1.0%	4
SWALES	22.9%	11	0.4%	11	0.2%	2
SWEST	19.1%	9	0.5%	12	0.1%	1
LPN	24.8%	12	0.0%	2	4.4%	13
SPN	19.0%	8	0.1%	4	2.6%	11
EPN	16.3%	2	0.3%	8	2.2%	10
SPD[3]	14.9%	1	0.0%	1	-	-
SPMW	17.7%	3	0.3%	9	1.3%	6
SSEH	17.9%	4	0.1%	3	1.9%	9
SSES	18.5%	6	0.5%	14	3.1%	12
Total	20.4%	-	0.2%	-	2.3%	-

1. Network length and customer numbers are used as a proxy for size.
2. SF$_6$ gas is used as an insulator for switchgear and DNOs record the total amount they use in their switchgear. The total amount is known as the SF$_6$ bank.
3. SPD has no oil filled cables.

Business Carbon Footprint (BCF)

A2.12. BCF, ie the amount of carbon emitted as a result of the DNOs' business operations and the operations of their contractors, has decreased at an industry level since the first year of the price control, however performance was mixed among companies. Currently the two NPg DNOs have the highest BCF (relative to company size), and SPD and EPN the lowest. NPg noted in its Business Plan Commitment Report that it is still on track to meet its target to reduce BCF by 10% by 2023, and also raised concerns on inconsistencies in the reporting of BCF (see footnote 1 in Table A2.2). The challenge has been reducing contractors BCF which has increased mainly due to the use of mobile generation in fault restoration.

Sulphur hexafluoride (SF$_6$)

A2.13. SF$_6$ is used in the electricity industry as an electrical insulator for high-voltage circuit breakers, switchgear and other electrical equipment, but it is an inorganic and extremely potent greenhouse gas.

A2.14. The total amount of SF$_6$ emitted has declined since the start of the price control, although there are differences in the level of emissions across DNOs with six recording higher levels.

Leakages from fluid-filled cables

A2.15. DNOs use oil-based fluids as electrical insulators on older types of higher voltage cables (33kV and above). Any leakage from these cables can be detrimental to the environment.

A2.16. The total amount of oil leakage has declined since the start of the price control, although, like BCF and SF_6 emissions there are differences across DNOs, with three (NPgN, SPMW and SSES) recording increases in oil leakage since the start of RIIO-ED1.

A2.17. For all three of the above environment metrics, we will continue to publish annual progress to build up a picture across the price control on absolute and relative DNO performance.

Losses

A2.18. When electricity is transported through wires, some of the energy is lost. Since electricity is mainly generated using fossil fuels, reducing electricity losses will reduce greenhouse gas emissions. Losses are the largest component of a DNO's carbon footprint.

A2.19. DNOs do not pay for lost electricity, as the cost is borne by customers. DNOs therefore have no inherent incentive to manage losses efficiently. As part of RIIO-ED1 we have a losses reduction mechanism which requires each DNO group to produce a losses strategy and to report annually on their performance. We also have the Losses Discretionary Reward (LDR), worth up to £32m across all DNO groups spread over three tranches during RIIO-ED1. Tranche 1 rewarded £4.1m of a possible £8m, Ofgem made this decision in 2016-17 and the funding will be received in 2017-18.

Table A2.4: Reward allocated for Tranche 1 of the LDR (2016-17)

DNO Group	Reward (£)
ENWL	£752,710
NPg	£379,063
WPD	£173,286
UKPN	£1,023,470
SPEN	£833,938
SSEN	£985,563
Total	**£4,148,030**

A2.20. The submissions showed that the DNO groups are taking the kind of actions that the LDR is intended to encourage. For example, enhanced losses modelling and increased stakeholder engagement on losses. However, we did not consider any of the DNO groups to have excelled in their submissions.

A2.21. Tranche 2 of the LDR is in 2018-19, and a total of £10m is available across all DNOs. The LDR Guidance Document[35] sets out our expectations for Tranche 2.

Noise pollution

A2.22. There were 132 noise complaints made against DNOs in 2016-17. We have been working with the DNOs to improve data collection on noise pollution and have data for all except SPD. Seven DNOs could provide comparative figures for 2015-16 and based on those seven alone the number of noise complaints have fallen, from 116 to 92. With better data going forward, we will report more comprehensively on the DNOs' ability to manage noise pollution effectively.

Undergrounding

A2.23. The objective of the undergrounding scheme is to ensure the DNOs improve visual amenity in designated areas. In RIIO-ED1, each DNO except LPN is able to recover a defined amount of funding to pay for undergrounding of overhead lines (OHL) in Areas of Outstanding Natural Beauty, National Parks and National Scenic Areas.

A2.24. Approximately 42km of OHL were removed and 47km of underground lines were installed by the DNOs at a total cost of £6.7m. These volumes are similar to undergrounding activities in 2015-16.

Connections

Many connection customers are not receiving connections within target timeframes. While all DNOs met their time to quote targets for 2016-17, there are challenges in meeting the targets for time to connect.

A2.25. Getting a new connection to the local distribution network is crucial; it allows new businesses to begin trading, new homes to be inhabited and renewable energy to start producing and exporting to the grid.

A2.26. In 2016-17, a total of 152,923 distribution network connections were completed by the DNOs. The total amount charged to connection customers for completing this work was £475m. The number of connections in 2016-17 are similar to the number of connections made by the DNOs during 2015-16, but the total amount charged to consumers is higher.[36] The amount charged to customers depends on the type of

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[35] https://www.ofgem.gov.uk/system/files/docs/2017/09/ldr_tranche_2_decision_clean_copy.pdf

[36] Information on the total of connections and total amount charged to customers in 2015-16 can be found here: https://www.ofgem.gov.uk/system/files/docs/2017/02/riio-ed1_annual_report_2015-16.pdf.
The total number of metered, generation and unmetered exit points connected during DPCR5 can be found in the 'CH3 DPCR5 Delivery' tab of the DPCR5 performance report 2010-15 data tables, which can be found here: https://www.ofgem.gov.uk/sites/default/files/docs/dpcr5_performance_report_2010-2015_data_table.xlsx

connection and the amount of work required to make the connection. A different mix of connection requirements naturally leads to different costs.

A2.27. During 2016-17, 2,784 MW of generation was connected to the distribution network. This is an increase in MW volume from 2015-16 when approximately 1,750 MW of generation was connected.[37] This annual variance is a result of the completion of large projects.

Time to Connect (TTC) incentive

A2.28. The TTC incentive was introduced for RIIO-ED1 to encourage DNOs to reduce connection times for smaller and less complex connections. Connection time is measured from the point at which a DNO receives the initial application, to them issuing a quotation and the time from the customer accepting the quotation to the connection being completed.

A2.29. DNOs made significant improvements in the time taken to quote for LVSSA and LVSSB connections. Collectively they are now issuing quotations in half the amount of time compared to when the target was set in 2013.

A2.30. Since the target was set, the average time to connect has improved by two to three working days for LVSSA connections, and by three to four working days for LVSSB connections. However, the average time to connect has deteriorated by eight working days for LVSSA connection and by ten working days for LVSSB connections since last year. Over half of the DNOs did not meet their targets in 2016-17, with just six DNOs meeting or outperforming their time to quote and TTC targets for both LVSSA and LVSSB connections, reflecting their green RAG status (all WPD DNOs, ENWL and SSEH).

A2.31. The total incentives payments for connections in 2016-17 across all 14 DNOs was £12.2m (see Table 2.2).

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[37] See Figure 3.1 in the end of DPCR5 report
https://www.ofgem.gov.uk/sites/default/files/docs/electricity_distribution_company_performance_201
0- 2015.pdf

Table A2.5: Time to Quote and Time to Connect performance, 2016-17 (working days)

	LVSSA[1]		LVSSB[2]		RAG	Rank
	Average Time to Quote	Average Time to Connect	Average Time to Quote	Average Time to Connect		
ENWL	3.0	31.9	7.9	31.7	Green	3
NPgN	5.6	50.6	9.4	57.7	Amber	12
NPgY	5.4	47.3	8.5	55.9	Amber	10
WMID	4.5	37.2	6.1	47.5	Green	6
EMID	3.5	34.4	4.7	45.8	Green	1
SWALES	4.3	33.8	5.8	42.6	Green	1
SWEST	5.2	36.5	5.9	43.4	Green	5
LPN	5.4	59.6	8.4	57.9	Amber	12
SPN	5.6	52.9	6.5	66.4	Amber	11
EPN	6.1	54.2	9.8	67.4	Amber	14
SPD	4.9	51.1	6.3	64.0	Amber	9
SPMW	5.3	45.3	6.8	59.8	Amber	8
SSEH	3.6	30.0	7.2	40.4	Green	3
SSES	2.7	44.3	7.2	63.7	Amber	7
Industry Average	4.6	43.5	7.2	53.1		
Target	8.2	42.1	11.7	52.7		

1. A LVSSA connection is a very small, low voltage (LV) demand connection (ie approximately the size of a single domestic household).
2. A LVSSB connection is a small, LV demand connection (ie approximately the size of one to four domestic households).

Connections Guaranteed Standards of Performance (GSoP)

A2.32. Statutory regulations set minimum standards of performance for connections.[38] The Connections GSoP covers a range of activities, from the issuing of a budget estimate through to the energisation of a connection.[39] Customers are entitled to a fixed payment from the DNO if these standards are not met.

A2.33. All DNOs performed well under the Connections GSoP in 2016-17 with all receiving a green RAG status as they met or exceeded our annual report target of 98% Connections GSoP compliance (although it should be noted that the licence requires only 90% compliance).

A2.34. In the second year of the price control, the DNOs paid out a total of £182,510 to customers under the Connections GSoP. The total paid in 2016-17 is a reduction from the £257,645 paid to customers in 2015-16.

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[38] The Electricity (Connection Standards of Performance) Regulations 2015 Statutory Instrument (SI) No. 698 http://www.legislation.gov.uk/en/uksi/2015/698/contents/made

[39] When we refer to the Connections GSoP we also include DG connection customers that are not within the scope of these regulations, but are within the scope of our DG Standards Direction https://www.ofgem.gov.uk/publications-and-updates/distributed-generation-standards-direction-guidance-document

Table A2.6: Connections GSoP, 2016-17

	% of total cases when standard not met	Rank
ENWL	0.92%	14
NPgN	0.31%	10
NPgY	0.17%	8
WMID	0.00%	1
EMID	0.00%	1
SWALES	0.00%	1
SWEST	0.00%	1
LPN	0.14%	7
SPN	0.51%	13
EPN	0.47%	12
SPD	0.38%	11
SPMW	0.11%	6
SSEH	0.06%	5
SSES	0.19%	9

Incentive on Connections Engagement (ICE)

A2.35. The ICE was introduced in April 2015 to ensure DNOs meet the needs of larger or more complex connections customers (unmetered, generation and higher-voltage demand customers).

A2.36. Under the ICE, each DNO publishes a 'Looking Forward' report at the start of the year, presenting their high-level strategy for engagement, work plan of activities and key performance outputs for the forthcoming year. At the end of the year they publish a 'Looking Back' report evaluating their performance. We also seek feedback from customers on the 'Looking Forward' reports and the DNOs efforts in delivering against this. If a DNO fails to demonstrate that it has engaged with stakeholders or delivered its work plan or performance outputs, we can apply a penalty.[40]

A2.37. This year was the second year of the incentive. Overall, we were satisfied with the quality and detail of ICE submissions, but had some concerns across a range of topics. These covered: how DNOs had delivered their commitments; whether they had engaged with their customers sufficiently; and whether they incorporated stakeholder feedback.[41] We consulted on these concerns and following additional evidence from stakeholders and the DNOs on specific areas, we deemed that all DNOs had met the assessment criteria.[42] However, we did note some areas where more could have been done to address stakeholder needs.

A2.38. We are pleased a majority of stakeholders consider that the DNOs' quality of services and engagement are leading to improvements in their connection services. Nevertheless, it is important that the DNOs continue to ensure they are engaging with

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[40] More information on how the ICE works can be found in the ICE guidance document.

[41] https://www.ofgem.gov.uk/publications-and-updates/consultation-penalties-distribution-network-operators-under-incentive-connections-engagement

[42] https://www.ofgem.gov.uk/system/files/docs/2017/10/outcome_of_our_assessment_under_the_2017_riio-ed1_incentive_on_connection_engagement.pdf

and meeting the needs of a broad and inclusive range of stakeholders and that they continue to respond as the needs of these stakeholders evolve.

Customer service

Customer service has continued to improve with all DNOs exceeding the target scores for customer satisfaction and customer complaints, resulting in an industry reward of £44.1m. Industry-level customer satisfaction and complaints scores improved in 2016-17 compared to 2015-16.

A2.39. For most customers, a good service from the DNO means receiving a safe and reliable electricity supply. Other customers have more interaction with the DNO, meaning specific incentives are needed.

A2.40. Our customer service incentives aim to ensure that customers requiring a new connection, seeking or being provided with information from the DNOs in the event of an interruption, or making general enquiries receive good customer service. DNOs should also deal with complaints quickly and effectively. Finally, we want the DNOs to engage with a wide range of stakeholders and use the information and insight gained to shape how they run their businesses.

Broad Measure of Customer Service (BMCS)

A2.41. The purpose of the BMCS is to drive the DNOs to deliver good customer service. It aims to replicate the sorts of measures typically used by customer-facing businesses in a competitive environment. The BMCS has three components:

- A customer satisfaction survey that incorporates the views of customers who have made a general enquiry, experienced an interruption or required a connection;
- A complaints metric, measuring the effectiveness of the DNO in resolving complaints; and
- A reward based on an assessment of each DNO's stakeholder engagement and activities to support vulnerable customers.

A2.42. The total maximum reward or penalty is equivalent to +/- 1.5% of annual base revenues in RIIO-ED1. In 2016-17 each DNO received a reward. Combining the outcome of the three components gives DNOs a total reward of £44.1m.

Table A2.7: Customer service performance, 2016-17

	Customer satisfaction		Complaints	
	Score (out of 10) *Target: minimum score of 8.2*	Rank	Score *Target no greater than 8.33*	Rank
ENWL	8.32	14	3.45	9
NPgN	8.68	8	7.08	14
NPgY	8.59	12	5.40	12
WMID	8.86	4	1.43	1
EMID	8.96	1	1.74	2
SWALES	8.89	3	2.61	5
SWEST	8.91	2	2.29	4
LPN	8.63	10	5.71	13
SPN	8.69	7	5.29	11
EPN	8.61	11	5.06	10
SPD	8.65	9	2.85	7
SPMW	8.82	6	2.83	6
SSEH	8.82	5	2.18	3
SSES	8.37	13	3.33	8
Industry Average	8.70		3.66	

Customer satisfaction survey

A2.43. The customer satisfaction survey is intended to capture customers' experience of the interruption, minor connection and general enquiry services delivered by the DNOs.

A2.44. All DNOs met or exceeded the industry-wide target of 8.2 out of 10 with scores ranging from 8.32 (ENWL) to 8.96 (EMID). Thirteen of the 14 DNOs improved their customer satisfaction score in 2016-17.

Complaints metric

A2.45. The complaints metric measures performance against four key indicators to assess the quality of the DNOs' complaints handling procedures. Performance against each indicator is weighted to calculate an overall score.[43]

A2.46. In a commercial environment, DNOs risk losing customers and revenue by handling complaints badly but would not necessarily gain customers and revenue by handling complaints well. Therefore, the incentive is penalty only. DNOs can be penalised up to 0.5% of base revenue for poor performance.

A2.47. A low score is a good score. All DNOs were below the target of 8.33 in 2016-17, and therefore no penalties were applied. However, performance varied significantly

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[43] The weighting is as follows: % of total complaints outstanding after one day makes up 10%; % of total complaints outstanding after 31 days makes up 30%; % of total complaints that are repeat complaints makes up 50%; the number of Energy Ombudsman (EO) decisions that go against the DNO as a % of the total complaints makes up the final 10%.

across the DNOs, with WMID having the lowest complaint metric score (1.43) and NPgN having the highest (7.08).

Stakeholder Engagement and Customer Vulnerability

A2.48. The third element of the BMCS – the SECV incentive is discussed under the social obligations output below.

Social obligations

Stakeholder Engagement and Customer Vulnerability Incentive

A2.49. The SECV incentive encourages DNOs to engage effectively with a wide range of stakeholders and use their insight to inform business planning. This should help ensure that DNOs deliver a customer-focused, socially responsible and sustainable energy service. DNOs also have an important role to play in helping customers in vulnerable situations. As part of the SECV incentive, DNOs are required to show evidence of the work they are doing to address consumer vulnerability issues.

A2.50. DNOs have to submit a report on their SECV activities annually. We assess all reports against a set of minimum criteria to ensure that they are eligible for the incentive. The companies that meet the minimum criteria are forwarded to an independent expert panel that assess the companies against criteria and awards an overall score for each DNO. The financial reward is based on this score and is up to 0.5% of each DNO's allowed base revenue. Detailed information about how the submissions are assessed is in the SECV incentive document.[44]

A2.51. In 2016-17, scores ranged between 5.23 and 8.53 out of 10, with just one DNO group (WPD) scoring above 8. The panel felt that although DNOs had a good understanding of how varied vulnerability can be, some DNOs could be doing more in this area. For example, some companies only presented to the panel consumer vulnerability activities relating to the Priority Services Register[45] but we would expect a wider scope of outcomes to be delivered.

A2.52. Four DNOs' scores worsened from last year. Two DNOs maintained last years' scores (NPg and UKPN) and to maintain a score requires the DNO group to make improvements on last year. The panel found that while stakeholder engagement and activities to support consumer vulnerability is becoming increasingly embedded in DNOs' businesses, there is still a long way to go for some companies.

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[44] https://www.ofgem.gov.uk/publications-and-updates/decision-stakeholder-engagement-and-consumer-vulnerability-incentive-2016-17-electricity-distribution

[45] The Priority Services Register (PSR) is a free service provided by suppliers and network operators to customers in need. More information on the PSR can be found here: https://www.ofgem.gov.uk/consumers/household-gas-and-electricity-guide/extra-help-energy-services/priority-services-register-people-need

Table A2.8: SECV performance, 2016-17

DNO Group	Score (out of 10)	Rank
ENWL	6.38	4
NPg	6.50	3
WPD	8.53	1
UKPN	7.53	2
SPEN	6.28	5
SSEN	5.23	6

Safety

A2.53. The DNOs must operate safe networks. The Electricity Safety, Quality and Continuity Regulations, 2002 require the DNOs to ensure their equipment is safe and protected, and that the public are aware of any dangers. The DNOs are also subject to general health and safety legislation. These are enforced and regulated by the Health and Safety Executive (HSE).

A2.54. Under RIIO, the primary output for health and safety is compliance with the relevant legislation. Ofgem imposes no direct financial incentive as we do not want to duplicate the HSE's functions. For the annual report next year, we will work with the Energy Networks Association (ENA) and the HSE to agree appropriate comparative measures on safety performance.

A2.55. The Network Asset Secondary Deliverables on asset health and criticality consider safety as part of establishing risk values. This helps to ensure that the DNOs do not take decisions in RIIO-ED1 that risk their compliance with safety requirements in the future.

Appendix 3 - Summary by DNO Group

Appendix purpose
Summary of each DNO group's expenditure and output performance in the second year of RIIO-ED1.

Note: The output performance in the summary tables for reliability and availability, connections, customer service and safety show the RAG rating for each DNO within the DNO group; under each table we explain the order in which the individual DNOs are represented. The social obligations output is presented at a group level, as the SECV incentive is awarded for the group. Environment is also presented at a group level as it is taken from each DNOs' Business Plan Commitment Reports and this is largely reported at a group level.

Electricity North West (ENWL)

Expenditure and financial performance				
2016-17	**To date**	**RIIO-ED1**	**Totex efficiency incentive rate**	**Forecast 8-year RoRE**
£211m -£33m or -13% of allowance	£461m -£40m or -8% of allowance	£1,909m -£57m or -3% of allowance	58%	9.27%
Outputs performance					
Reliability & availability	**Connections**	**Customer service**	**Safety**	**Environment**	**Social obligations**
✓ number of interruptions ✓ duration of interruptions	✓ time to quote & connect ✓ connections GSoP	✓ BMCS ✓ complaints	✓ compliance with HSE obligations	✓ BCF ✓ oil leakage ✓ visual amenity	✓ stakeholder engagement
Innovation					
Spent all of NIA allowance.					

A3.1.   ENWL spent a total of £461m in the first two years of RIIO-ED1, underspending by £40m (8%) against allowances. This is explained largely by underspend in the cost categories of replacing and refurbishing equipment and network reinforcement for similar reasons to those presented in Chapter 4 at an industry level. It has also underspent on operational support costs which bucks the industry trend. This is due to savings in overheads from efficiency measures, such as resource redeployment. ENWL forecast it will underspend by £57m (3%) by the end of the RIIO-ED1 price control, the same as the forecast last year. Customers will see 42% of this returned to them via the TIM.

A3.2.   The forecast eight-year average RoRE for ENWL is 9.27%, slightly up on 9.22% of last year, and 3.27% above its allowed cost of equity of 6.0%, ENWL sits in the middle of the RoRE figures for all six DNO groups.

A3.3.   ENWL is performing well against the RIIO primary outputs.

A3.4.   It exceeded all reliability targets and provided connection quotes and connections to customers in the quickest time of all the DNOs, as it did last year. However, like last year it had the greatest number of cases where it failed to meet the Connections GSoP.

A3.5.   ENWL met all targets set for the BMCS and complaints handling, improving on last year, but still ranks 14 of all the DNOs.

A3.6.   There were environmental improvements with BCF and oil leakage from fluid-filled cables declining from levels at the end of the previous price control. ENWL committed to reduce its BCF by 10% on 2014-15 levels by 2020; it achieved a 13.9% reduction in 2016-17. ENWL also committed to reduce losses (measured in Gigawatt hours (GWh) saved) by installing low loss transformers. It has saved 3GWh per annum in 2016-17 and ENWL is on track to meet the target of 11GWh by 2021. Finally, it committed to remove 80km of overhead lines in National Parks and Areas of Outstanding Natural Beauty (AONB) by 2023; it has removed 15km to date and is on track to meet its target.

A3.7.   In terms of innovation, ENWL spent all of its NIA allowance.

Northern Powergrid (NPg)

Expenditure and financial performance				
2016-17 £408m -£32m or -7% of allowance	**To date** £856m -£44m or -5% of allowance	**RIIO-ED1** £3,246m £5m or 0.2% of allowance	**Totex efficiency incentive rate** 56%	**Forecast 8-year RoRE** 8.22%
Outputs performance				
Reliability & availability ✔✔ number of interruptions ✔✔ duration of interruptions	**Connections** ‼ time to quote & connect ✔✔ connections GSoP	**Customer service** ✔✔ BMCS ✔✔ complaints	**Safety** ✔✔ compliance with HSE obligations	**Environment** ! BCF ! SF$_6$ ✔ oil leakage ✔ visual amenity	**Social obligations** ✔ stakeholder engagement
Innovation				
Spent 34% of NIA allowance.				

Note: the symbols for output performance represent the DNOs in the group as follows: NPgN then NPgY.

A3.8.   The two NPg DNOs spent a total of £856m in the first two years of RIIO-ED1, underspending by £44m (5%) against allowances. As was reported last year, this is largely explained by underspend in replacing and refurbishing equipment, caused mainly by NPg changing its replacement strategy for RIIO-ED1, which now focuses on rebuilding rather than refurbishment. NPg expects to spend in line with its allowance by the end of the price control.

A3.9. The forecast eight-year average RoRE for NPg is 8.22%, up on 8.05% of last year and is 2.22% above its allowed cost of equity of 6.0%. It is the second lowest RoRE of the six DNO groups.

A3.10. NPg is performing well against most RIIO output categories, but there is room for improvement in environment and connections.

A3.11. It exceeded all its reliability and customer service targets. NPg has improved on customer service since last year and met the BMCS complaints metric targets, but its scores are relatively low when compared to the rest of the sector, especially for customer complaints. NPg was one of two DNO groups that maintained its SECV score from last year, which requires the panel to be satisfied that improvements have been made.

A3.12. The time taken to connect customers increased for both DNOs compared with last year, and both failed their time to connect targets. Both made improvements on time to quote.

A3.13. There were environmental improvements, with oil leakage levels down in 2016-17. NPg committed to reducing oil leakage by 15% by the end of RIIO-ED1. Using new leak-tracing technology and a dedicated focus on leaking fluid-filled cables, it is performing significantly ahead of its target and is now aiming for a 60% reduction. Although its own BCF continued to fall, when accounting for contractors the combined BCF increased in the year, primarily due to the use of mobile generators to keep homes and businesses running during power cuts. It still aims to meet the targets of a 10% reduction by 2023. It is also slightly behind on its target to maintain SF_6 losses as the volume of gas in its switchgear assets increases, but again hopes to reach this by 2023.

A3.14. NPg committed to removing 100km of overhead lines in National Parks and AONB cable by 2023 and is on track to remove 120km.

A3.15. In terms of innovation, NPg continues to spend the lowest proportion of its NIA allowance of all the DNOs.

Western Power Distribution (WPD)

Expenditure and financial performance				
2016-17 £1,046m £68m or 7% of allowance	**To date** £2,052m £92m or 5% of allowance	**RIIO-ED1** £7,557m -£84m or -1% of allowance	**Totex efficiency incentive rate** 70%	**Forecast 8-year RoRE** 9.90%
Outputs performance				
Reliability & availability ✓✓✓✓ number of interruptions ✓✓✓✓ duration of interruptions	**Connections** ✓✓✓✓ time to quote & connect ✓✓✓✓ connections GSoP	**Customer service** ✓✓✓✓ BMCS ✓✓✓✓ complaints	**Safety** ✓✓✓✓ compliance with HSE obligations	**Environment** ✓ BCF ✓ SF$_6$ ✓ oil leakage ✓ visual amenity	**Social obligations** ✓ stakeholder engagement
Innovation				
Spent 72% of NIA allowance and successful award of £4.9m via the NIC.				

Note: the symbols for output performance represent the DNOs in the group as follows: WMID, EMID, SWALES, SWEST

A3.16. WPD's four DNOs spent a total of £2,052m in the first two years of RIIO-ED1, overspending by £92m (5%) against allowances. It is the only DNO group that overspent to date. WPD's price control was settled earlier than the other DNO groups as it was fast-tracked and therefore had more time to ensure investment plans were in place for the start of RIIO-ED1.

A3.17. Overspend to date is explained by greater investment in operational support and in the operational costs of faults and tree cutting. WPD has virtually eliminated the number of customers affected by loss of supply for more than 12 hours by deploying more teams to respond, requiring excavation contractors to provide one-hour response and greater use of mobile generation. For tree cutting, WPD note higher contract prices and increased demand from rail companies. The group will revisit efficiencies to attempt to offset these costs especially for EMID and WMID.

A3.18. Last year the WPD group forecast it would overspend on allowances over RIIO-ED1 by 6% by the end of the price control period, it is now forecasting a 1% (£84m) underspend. It changed its approach to forecasting, taking a more detailed bottom up approach, which particularly affected load cost forecasting. Customers will receive 30% of this underspend in future years.

A3.19. The forecast eight-year average RoRE for WPD is 9.90%, a large increase on the 8.10% forecast last year. This is 3.50% above its allowed cost of equity of 6.40% and WPD now has the second highest RoRE figure for all six DNO groups.

A3.20. WPD is performing very well against most outputs. Overall it exceeded all its reliability targets, although the number of interruptions and duration of interruptions were up on last year for EMID and SWEST.

A3.21. The four WPD DNOs were among the six DNOs who met the TTC targets. The WPD DNOs recorded no failures to meet the Connections GSoP across all its DNOs; no other DNOs achieved this.

A3.22. Customer service scores across all elements of the BMCS are the highest in the industry and WPD received the highest ranking under the SECV incentive. WPD was highest last year too, although its score was lower this year.

A3.23. There were also environmental improvements with WPD either on track or already meeting its environmental targets: to reduce BCF by 5%, SF_6 emissions by 17% and oil leakage from fluid-filled cables by 75% by 2023. It has also committed to replace 55km of overhead lines in National Parks and AONBs with underground cables and has replaced 13.6km to date.

A3.24. The group spent 72% of its NIA allowance and were successful in securing £4.9m of NIC funding.

UK Power Networks (UKPN)

Expenditure and financial performance				
2016-17	**To date**	**RIIO-ED1**	**Totex efficiency incentive rate**	**Forecast 8-year RoRE**
£722m	£1,379m	£5,620m		
-£177m or -20% of allowance	-£390m or -22% of allowance	-£911m or -14% of allowance	53%	11.37%
Outputs performance					
Reliability & availability	**Connections**	**Customer service**	**Safety**	**Environment**	**Social obligations**
✓✓✓ number of interruptions ✓✓✓ duration of interruptions	!!! time to quote & connect ✓✓✓ connections GSoP	✓✓✓ BMCS ✓✓✓ complaints	✓✓✓ compliance with HSE obligations	✓ BCF ✓ SF_6 ! oil leakage ✓ visual amenity	✓ stakeholder engagement
Innovation					
Spent 68% of NIA allowance.					

Note: the symbols for output performance represent the DNOs in the group as follows: LPN, SPN, EPN.

A3.25. The three UKPN DNOs spent a total of £1,379m in the first two years of RIIO-ED1, underspending against allowances by £390m (22%). This is the largest underspend of all DNO groups. This is mainly due to significant underspend in replacing and refurbishing equipment and network reinforcement. As noted last year, investment has been delayed until 2017 as UKPN has the taken time to establish an alliance with key contractors where all parties share in efficiencies achieved. It also significantly underspent on managing network reinforcement because the forecast level of loading on the network did not materialise.

A3.26. UKPN is forecasting the largest underspend on allowances over RIIO-ED1: £911m or 14%. Customers will receive 47% of this underspend in future years if its forecast is

accurate. As with all DNOs, as the price control progresses we will better understand what is driving the totex underspend and this will inform our assessment for RIIO-ED2 allowances.

A3.27. The forecast eight-year average RoRE for UKPN is 11.37%, slightly down on last year (11.50%) and 5.37% above its allowed cost of equity of 6.0%. It is the highest RoRE figure for all six DNO groups.

A3.28. UKPN is performing well against most RIIO outputs, although there is room for improvement in connections. Overall it exceeded all its reliability targets.

A3.29. None of the UKPN DNOs reached the TTC targets for connection customers and they rank lowest of all the DNOs in this area. Like all DNOs, the number of times the Connections GSoP were not met was minimal.

A3.30. UKPN's customer service score continues to improve and all three DNOs met the target scores for customer service and complaints. It had the second highest score in the SECV incentive and was one of two DNO groups that maintained its score from last year, which requires the panel to be satisfied that improvements have been made.

A3.31. There were also environmental improvements with UKPN meeting its targets to reduce BCF by 2% per annum, and maintain SF_6 emissions at 0.2% of SF_6 bank. It also committed to reduce cable leakage by 2% per annum, but it is currently below this annual target. A further commitment was to underground the equivalent of 80km of HV overhead line in SPN and 96km of HV overhead line in EPN in Areas of Outstanding Natural Beauty and National Parks. To date, UKPN has removed 8.2km of overhead lines in SPN and 0.5km in EPN and is confident that this commitment will be delivered over the RIIO-ED1 period.

SP Energy Networks (SPEN)

Expenditure and financial performance				
2016-17 £469m -£17m or -3% of allowance	**To date** £909m -£54m or -6% of allowance	**RIIO-ED1** £3,469m £14m or 0.4% of allowance	**Totex efficiency incentive rate** 54%	**Forecast 8-year RoRE** 7.14%
Outputs performance				
Reliability & availability ✓! number of interruptions ✓✓ duration of interruptions	**Connections** ‼ time to quote & connect ✓✓ connections GSoP	**Customer service** ✓✓ BMCS ✓✓ complaints	**Safety** ✓✓ compliance with HSE obligations	**Environment** ✓ BCF ✓ SF$_6$ ✓ oil leakage ✓ visual amenity	**Social obligations** ✓ stakeholder engagement
Innovation				
Spent 86% of NIA allowance, successful award of £4.6m via the NIC and successful award of £8m via the IRM.				

Note: the symbols for output performance represent the DNOs in the group as follows: SPD then SPMW.

A3.32. SPEN's two DNOs spent a total of £909m in the first two years of RIIO-ED1, underspending by £54m (6%) against allowances. This is largely explained by underspend in replacing and refurbishing equipment and in network reinforcement, for similar reasons reported at an industry level in Chapter 4. The deferral of investment in the 132kV network by SMPW was also a factor. This was countered by overspend in operational support and business support. This was due to a structural change introduced by SPEN in that the DNOs are now divided into districts, and also the re-profiling of expenditure across the SPEN group for business support costs.

A3.33. SPEN is forecasting it will spend in line with its allowance by the end of the price control.

A3.34. The forecast eight-year average RoRE for SPEN is 7.14%, lower than the estimate last year of 7.26%, and 1.14% above its allowed cost of equity of 6.0%. It is the lowest RoRE figure for all six DNO groups.

A3.35. SPEN is performing well against most RIIO outputs. SPMW was the only DNO to fail its target for customer interruptions, albeit the failure was marginal. Like the majority of DNOs, both SPD and SPMW failed the TTC targets.

A3.36. All targets under the BMCS have been exceeded, as has the target for complaints. It received a reward under the SECV, but its score could be better.

A3.37. SPEN is also making environmental improvements. It committed to year-on-year reductions in BCF (15% by 2023), SF$_6$ emissions (specifying a maximum leakage rate of 0.1% for all 33kV and 11kV switchgear), oil leakage (reduce leaks by 50% by end of the

period) and losses. It is currently on target to achieve all of these. SPEN also committed to undergrounding 85km of overhead lines in AONB by 2023. There is a risk that this target will not be achieved, but we give a green RAG rating for performance to date.

A3.38. In terms of innovation, SPEN has a number of ongoing projects, spending 86% of its NIA allowance. It was awarded £4.6m of NIC funding, the only DNO group to receive NIC funding for two years running.

Scottish and Southern Electricity Network (SSEN)

Expenditure and financial performance				
2016-17 £483m -£31m or -6% of allowance	**To date** £923m -£95m or -9% of allowance	**RIIO-ED1** £3,622m -£205m or -5% of allowance	**Totex efficiency incentive rate** 56%	**Forecast 8-year RoRE** 8.85%
Outputs performance				
Reliability & availability ✔✔ number of interruptions ✔✔ duration of interruptions	**Connections** ✔! time to quote & connect ✔✔ connections GSoP	**Customer service** ✔✔ BMCS ✔✔ complaints	**Safety** ✔✔ compliance with HSE obligations	**Environment** ✔ BCF ✔ visual amenity	**Social obligations** ✔ stakeholder engagement
Innovation				
Spent 71% of NIA allowance.				

Note: the symbols for output performance represent the DNOs in the group as follows: SSEH then SSES.

A3.39. The two SSEN DNOs spent a total of £923m in the first two years of RIIO-ED1, underspending by £95m (9%) against allowances. This is largely explained by underspend against allowances in replacing and refurbishing equipment and in network reinforcement for similar reasons reported in Chapter 4 at an industry level. This was countered by overspend in operational support. This was due to changing the structure of SSEN to a regional structure with each regional team responsible for addressing planning, construction, repairs and faults, and also due to significant levels of IT investment as part of a wider business transformation project intended to achieve longer-term efficiencies throughout the price control period.

A3.40. SSEN forecast it will underspend by £205m (5%) by the end of the RIIO-ED1 price control. This is a lower underspend than forecast last year. Customers will see 44% of this underspend returned to them via the TIM.

A3.41. The forecast eight-year average RoRE for SSEN is 8.85%, dropping from the 9.42% RoRE forecast last year. It currently stands at 2.85% above its allowed cost of equity of 6.0%.

A3.42. SSEN is performing well against the RIIO outputs. It exceeded all its reliability, customer service and complaints targets.

A3.43. SSEN has focused on two key environmental areas, placing measurable targets on them. The first is to improve visual amenity by reducing 90km (60 miles) of overhead lines and the second is to reduce its BCF by 15% on DPCR5. It has already met the BCF target and on track with undergrounding. It does not place a specific target on oil leakage or SF_6.

A3.44. SSES failed to meet the TTC targets, a common failure across many DNOs this year. Despite receiving a reward, SSEN scored the lowest of all DNO groups for the SECV incentive for the second year.