Annex 6.3
Cost Benchmarking

Northern Powergrid: our business plan for 2023-28

Contents

This annex provides more details on the econometric cost benchmarking results we report in the cost section of this plan. It is primarily aimed at stakeholders with some understanding of efficiency benchmarking for regulatory purposes but we have tried to make it as accessible as possible for other stakeholders with an interest.

Our existing costs are the starting point of our business plan, to which we apply the additional efficiencies described in our business plan section on costs. We show, in this annex, that our existing cost base is efficient. In the rest of the annexes supporting the cost section of our plan, we demonstrate that we have built in even further efficiencies into our costs. We are therefore confident that our comparable forecast costs for the 2023-28 period will also be efficient.

Assessing whether the costs of a business are efficient is not straightforward. To do so, regulators of utility companies frequently use econometric comparisons of the total costs of similar businesses, accounting for size and other relevant factors using the explanatory variables in the calculations.

These tools can be applied in different ways and to different cost categories. Total cost benchmarking is the only approach to benchmarking that fully accounts for trade-offs and synergies across different parts of the cost base. In contrast, granular disaggregated benchmarking of different sub-categories of costs does not capture these trade-offs and synergies and so can present a misleading picture of the efficiency of different companies in the sector being benchmarked.

Variations in the different methods of benchmarking are not purely an academic concern, the distorted outcomes from granular disaggregated benchmarking can be especially costly to customers. We have recently calculated that Ofgem's use of disaggregated benchmarking models for the 2015-23 price control review has cost energy consumers approximately £1bn. These models were so complex and lacking in robustness and transparency that it is possible that no one properly understood this at the time.

In the remainder of this annex, we back up our conclusion that our existing costs, the starting point for our business plan for 2023-28, are efficient.

- We first provide some context on some of the detailed tools that regulators have designed to evaluate the costs of regulated utilities.
- We set out more details on the approach we have used, which has been specifically designed to maintain clear objectivity.
- Northern Powergrid's totex costs are consistently close to an upper quartile benchmark. We are either the most efficient group or compete closely with one or two other distribution network operator (DNO) groups, depending on the specification.
- Each of our licensees has totex costs at or below the efficiency benchmark on at least one of the two cost drivers used, demonstrating that they each have efficient costs.
- Our track record of maintaining low totex costs over the longer term is unparalleled. Other DNOs have seen their efficiency fluctuate, but only we have maintained efficient costs over more than 10 years.
- Our business support costs and the more specialist indirect costs involved in supporting the functioning of the network are the most efficient across all DNO groups.
- Overall, disaggregated benchmarking of the three major parts of our cost base supports all the same conclusions as the total cost benchmarking.
- We face some region specific factors that add to our direct costs, such as operating in sparse areas and also with unique network configurations, which could become relevant later in the 2023-28 price control review.

We set out more on each of these points below.

Context

Regulators have developed detailed tools to evaluate the costs of regulated utilities, including econometric cost benchmarking of total costs or more disaggregated pools of costs

Econometric benchmarking is now commonly used by regulators to compare the efficiency of the companies they regulate. Since no two companies will be identical in every way, regression techniques have been developed to account for differences in size, product mix, mix of customers, the operating environment the companies face, and other relevant factors. This enables, as far as is practicable, a like for like comparison of the efficiency of the different companies. For example the water regulator, and the Competition and Markets Authority (CMA), recently relied on this approach when setting a price control for the water industry:

- In some parts of the water value chain this involved setting billions of pounds in allowances for the companies based on the results of a single, carefully designed and selected, regression.
- In other parts of the value chain, the average result across two regressions was used.

Ofgem also used a totex approach to setting cost allowances for the gas distribution sector in its 2021-26 price control review, concluded last year.

Other very granular approaches have also been developed. For example, at the 2015-23 price control review for electricity distribution Ofgem developed a highly detailed set of unit cost benchmarking (which was given a weighting of 50 per cent in its final results, alongside totex regression analysis). However we have observed many issues with this disaggregated type of cost benchmarking:

- Granular data often relies on allocations of costs to different activities, and individual unit costs can be badly distorted.
- Applying a different level of scrutiny to volumes (or no scrutiny at all) will mean there is no challenge to the biggest potential inefficiency i.e. doing something that is not necessary.
- The results of individual models, such as for fault costs, have been proven to have extremely poor predictive power.

As we set out in our business plan, total cost benchmarking is the only approach to benchmarking that fully accounts for trade-offs between different parts of the cost base. Doing so avoids the risk of these trade-offs distorting the outcome.

We have therefore focussed on total cost benchmarking in the results presented in our plan and this annex. We have also developed a set of cost pool models that apply econometric benchmarks to quite large sub-sets of our costs, in the same way econometric benchmarks can be applied to total costs.

However, we have not been able to update Ofgem's disaggregated models from the 2015-23 electricity distribution price control review. The extremely complex nature of those models, the large number of subjective adjustments necessary in their evaluation, and the lack of transparency means it is not possible to update them or draw any definitive conclusions from them.

Totex Benchmarking Results

To provide an entirely neutral read out on our efficiency, we have presented the totex benchmarking analysis in our plan using the top down approach that our regulator used at the 2015-23 price control review.[1] Taking this approach means that the results are transparent and readily comparable to Ofgem's analysis.

We have supplemented this assessment with a handful of additional sensitivities on the regression results:

- We have presented results using a customer centric cost driver that was externally endorsed at the 2015-23 price control review, as well as the cost driver Ofgem used.[2]
- We have presented the results with and without Ofgem's adjustment for labour cost differences in London and the South East, which may not be necessary at all (and which was overstated).[3]
- We have provided an efficiency score for the period 2010-15, as well as the 2015 onwards efficiency scores that Ofgem used at the 2015-23 price control review, since this historical efficiency score is an important indicator of track record and our long term approach to maintaining efficient costs.

We set out more on the results below.

Northern Powergrid's totex costs are consistently close to an upper quartile benchmark, and we are either the most efficient group or compete closely with one or two other DNO groups, depending on the specification

Tables 1 and 2 below show Northern Powergrid's results for our totex benchmarks. The headlines are that:

- Our efficiency scores are consistently close to an upper quartile benchmark, depending on the specification, and to the extent we are outside this, it is within a reasonable margin for error (of ca. 1-2 percentage points).
- Our position is consistently amongst one of the top DNO groups, based on a standard upper quartile efficiency benchmark.
    - Over 2010-15, we were the most or second most efficient DNO group, depending on the cost driver.
    - Over 2015-21 we are the second most efficient group on one specification and compete closely with one or two other DNO groups UK Power Networks (UKPN) and Electricity North West (ENW)) for the most efficient position.
- We benchmark well even with the full regional labour (and company specific) adjustments applied by Ofgem at the 2015-23 price control review – although as set out above the regional labour adjustments are too large and may be unnecessary.

[1] In terms of technical details: (1) we have used the same econometric techniques as our regulator used at the 2015-23 electricity distribution price control review; (2) our cost data maintains the same exclusions (3) we have used cost driver data which is consistent over time and incorporates all improvements companies have identified to their data, to reduce "noise" in the dataset; and (4) we estimate regressions (and efficiency scores) for 2010-15 and 2015-23 separately, since the actual dataset shows evidence of a "structural break" between the two price control periods which was not present in the dataset our regulator evaluated at the 2015-23 price control review.

[2] This variable was judged to be of importance in the study on totex benchmarking undertaken by Frontier Economics at the 2015-23 price control review initially on behalf of four DNO groups (UK Power Networks (UKPN), Scottish Power Electricity Networks (SPEN), Scottish and Southern Electricity Networks (SSEN) and Northern Powergrid) and then subsequently on behalf of Ofgem. We have used it within the specification developed by Ofgem for comparability.

[3] Expanding on these two points: (1) The water regulator (and the appeal body for the water sector, the CMA) has concluded these types of adjustment can be unnecessary, depending on the cost driver used. Customer numbers, for example, may be correlated with some factors associated with urbanity that can act to reduce costs; (2) Even if a regional labour adjustment is warranted, the data used by Ofgem at the 2015-23 price control review materially overstates it, relative to several reliable alternative data sources (including regional wage uplifts applied by comparator utility companies like National Grid or Network Rail). If a lower value was used, reflective of these other evidence sources, the results would be somewhere between the scores reported with and without the adjustment.

	2015-23 price control review top down cost driver							
	Costs over 2010-15				Costs over 2015-21			
	Regional labour cost adjustment				Regional labour cost adjustment			
	Not applied		Ofgem 2015-23 level		Not applied		Ofgem 2015-23 level	
	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank
Northern Powergrid	99.89%	2	101.38%	2	100.83%	2	102.27%	3
ENW	*107.00%*	*3*	*108.81%*	*4*	*99.91%*	*1*	*101.43%*	*2*
WPD	*113.86%*	*6*	*115.64%*	*6*	*112.92%*	*5*	*114.60%*	*6*
UKPN	*109.85%*	*4*	*106.53%*	*3*	*100.88%*	*3*	*98.14%*	*1*
SPEN	*110.32%*	*5*	*111.81%*	*5*	*112.94%*	*6*	*114.46%*	*5*
SSEN	*92.21%*	*1*	*91.67%*	*1*	*105.44%*	*4*	*104.69%*	*4*

Table 1: Total cost regression benchmarks using the 2015-2023 price control review top down cost driver (by DNO group)

	Customer Numbers cost driver							
	Costs over 2010-15				Costs over 2015-21			
	Regional labour cost adjustment				Regional labour cost adjustment			
	Not applied		Ofgem 2015-23 level		Not applied		Ofgem 2015-23 level	
	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank
Northern Powergrid	99.68%	1	101.98%	1	102.68%	3	102.47%	3
ENW	*104.37%*	*2*	*107.23%*	*3*	*99.69%*	*1*	*99.83%*	*2*
WPD	*113.31%*	*6*	*116.02%*	*6*	*114.43%*	*4*	*114.26%*	*5*
UKPN	*107.51%*	*3*	*105.57%*	*2*	*101.73%*	*2*	*97.77%*	*1*
SPEN	*110.62%*	*5*	*112.94%*	*5*	*114.62%*	*5*	*114.19%*	*4*
SSEN	*108.33%*	*4*	*108.09%*	*4*	*122.72%*	*6*	*119.36%*	*6*

Table 2: Total cost regression benchmarks using customer numbers as a cost driver (by DNO group)

Our track record of maintaining low total costs over the longer term is unparalleled, whilst other DNO groups have seen their efficiency performance fluctuate but only we have maintained consistently efficient costs over more than 10 years

One striking feature of the results set out in Tables 1 and 2 above is that our efficiency position has been consistently strong, at around the benchmark, over the period 2010 to 2015 as well as over 2015 to 2021.

This is not a new pattern. Our efficiency has been in evidence at price control reviews undertaken in 2004 and 1999 as well.

No other DNO group has matched this strong long-term efficiency position:

- Over 2010-15, SSEN competed with us closely, showing either stronger efficiency or trailing us by a clear margin, depending on the cost driver used; the other DNO groups trailed by some distance.

- Over 2015-21, other DNO groups, in particular ENW and UKPN, have improved their efficiency to match the benchmarks we have been setting, while some other DNO groups have drifted away.

Low costs can be achieved either on a temporary or a sustainable basis (since low costs in some areas might need to be 'caught up'). The fact that we have consistently demonstrated low costs over the long term demonstrates that our efficiency is sustainable. Other DNO groups have yet to prove this.

Both Northeast and Yorkshire have totex costs at or below the efficiency benchmark on at least one of the two cost drivers used, demonstrating that they each have efficient costs

Our efficiency scores for Northeast and Yorkshire, the licensees, which the Northern Powergrid scores are based on, also show consistency at or near to the benchmark.

Tables 3 and 4 below show the relevant results. Our licensees' results vary slightly depending on the cost driver:

- Yorkshire's costs for 2015-21 are at or below the benchmark using the 2015-23 price control review top down cost driver (Table 3), with Northeast performing slightly worse.

- Northeast's costs are below or close to the benchmark using a customer numbers cost driver (Table 4), with Yorkshire performing slightly worse at about 4 percentage points outside the benchmark.

In short, our licensees perform consistently at or around the benchmark, and there is evidence to demonstrate that the recent costs of each are efficient.

	2015-23 price control review top down cost driver							
	Costs over 2010-15				Costs over 2015-21			
	Regional labour cost adjustment				Regional labour cost adjustment			
	Not applied		Ofgem 2015-23 level		Not applied		Ofgem 2015-23 level	
	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank
NPg Northeast	105.2%	7	105.6%	7	104.3%	8	104.8%	9
NPg Yorkshire	97.3%	3	98.3%	3	99.1%	2	100.3%	5
ENW	*107.7%*	*8*	*108.8%*	*9*	*100.4%*	*5*	*101.4%*	*6*
WMID	*123.9%*	*14*	*125.4%*	*14*	*117.7%*	*12*	*119.3%*	*12*
EMID	*114.2%*	*11*	*115.8%*	*12*	*109.4%*	*11*	*111.0%*	*11*
SWALES	*103.0%*	*5*	*102.8%*	*6*	*99.2%*	*3*	*99.1%*	*2*
SWEST	*111.2%*	*10*	*111.7%*	*11*	*125.1%*	*14*	*126.1%*	*14*
LPN	*119.3%*	*12*	*109.3%*	*10*	*108.2%*	*9*	*100.2%*	*4*
SPN	*105.1%*	*6*	*101.3%*	*5*	*91.3%*	*1*	*88.6%*	*1*
EPN	*108.9%*	*9*	*108.3%*	*8*	*103.8%*	*7*	*103.5%*	*7*
SPD	*99.0%*	*4*	*99.6%*	*4*	*103.4%*	*6*	*104.2%*	*8*
SPMW	*123.6%*	*13*	*124.5%*	*13*	*123.8%*	*13*	*125.0%*	*13*
SSEH	*96.2%*	*2*	*95.8%*	*2*	*100.0%*	*4*	*100.0%*	*3*
SSES	*91.4%*	*1*	*89.9%*	*1*	*109.1%*	*10*	*107.1%*	*10*

Table 3: Total cost regression benchmarks using the 2015-2023 distribution price control review top down cost driver (by DNO)

	Customer Numbers cost driver							
	Costs over 2010-15				Costs over 2015-21			
	Regional labour cost adjustment				Regional labour cost adjustment			
	Not applied		Ofgem 2015-23 level		Not applied		Ofgem 2015-23 level	
	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank
NPg Northeast	99.3%	3	101.1%	5	100.9%	5	100.2%	5
NPg Yorkshire	99.9%	4	102.7%	6	104.1%	7	104.4%	7
ENW	*104.4%*	*8*	*107.2%*	*8*	*99.7%*	*4*	*99.8%*	*4*
WMID	*121.1%*	*13*	*124.8%*	*13*	*119.0%*	*9*	*119.5%*	*10*
EMID	*120.8%*	*12*	*124.6%*	*12*	*119.1%*	*10*	*119.7%*	*11*
SWALES	*94.5%*	*2*	*95.3%*	*2*	*91.7%*	*2*	*90.1%*	*3*
SWEST	*106.8%*	*9*	*108.7%*	*9*	*121.4%*	*12*	*120.8%*	*13*
LPN	*100.6%*	*5*	*95.1%*	*1*	*96.0%*	*3*	*89.1%*	*2*
SPN	*101.8%*	*6*	*99.9%*	*4*	*90.7%*	*1*	*87.3%*	*1*
EPN	*117.1%*	*10*	*118.6%*	*11*	*115.2%*	*8*	*113.9%*	*8*
SPD	*94.1%*	*1*	*96.2%*	*3*	*101.7%*	*6*	*101.4%*	*6*
SPMW	*129.4%*	*14*	*132.0%*	*14*	*128.6%*	*14*	*127.9%*	*14*
SSEH	*118.4%*	*11*	*118.5%*	*10*	*121.0%*	*11*	*118.2%*	*9*
SSES	*104.3%*	*7*	*104.0%*	*7*	*123.6%*	*13*	*119.9%*	*12*

Table 4: Total cost regression benchmarks using customer numbers as a cost driver (by DNO)

Disaggregated Benchmarking Results

To supplement the totex benchmarking results, and provide some insights into the 'shape' of our efficiency position below the top line, we have developed a set of disaggregated benchmarking models that consider:

- our business support costs, like having finance and human resource (HR) functions;
- the more specialist indirect costs we incur, like network control or network designers. These are called closely associated indirects (CAIs) in Ofgem's reporting; and
- the costs we incur while working on the assets. These are called direct costs.

These disaggregated models follow exactly the same technical approach as the totex modelling we explain above, except that they are estimated for each of these three sub-sets of cost in turn – with an upper quartile benchmark applied once all of the costs are summed to form totex.

This approach is rooted in the approach Ofgem used for total cost benchmarking at the 2015-23 price control review and gives us no opportunity to make changes that could improve our efficiency performance.

Our business support costs are the most efficient across all DNO groups…

The following costs are included within the business support cost pool:

- core business support costs e.g. our HR department, non-operational training, insurance, finance, regulation, and chief executive officer (CEO) costs;
- Information technology (IT) and telecoms (business support);
- property management (business support);
- non-operational capital expenditure - IT and telecoms; and
- non-operational capital expenditure - property.

Tables 5 and 6 show:

- We are the most efficient DNO group in the sector on business support costs.
- Our strong performance is robust to the cost driver, time period, and application of regional labour adjustments.

	2015-23 price control review top down cost driver							
	Costs over 2010-15				Costs over 2015-21			
	Regional labour cost adjustment				Regional labour cost adjustment			
	Not applied		Ofgem 2015-23 level		Not applied		Ofgem 2015-23 level	
	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank
Northern Powergrid	93.51%	2	93.65%	2	99.00%	1	99.11%	1
ENW	*173.58%*	*6*	*174.15%*	*6*	*134.01%*	*5*	*134.24%*	*5*
WPD	*108.99%*	*3*	*109.12%*	*3*	*104.29%*	*2*	*104.43%*	*2*
UKPN	*135.92%*	*5*	*135.27%*	*5*	*111.53%*	*3*	*111.19%*	*3*
SPEN	*127.36%*	*4*	*127.52%*	*4*	*134.40%*	*6*	*134.54%*	*6*
SSEN	*89.05%*	*1*	*89.07%*	*1*	*125.10%*	*4*	*125.03%*	*4*

Table 5: Business support cost regression benchmarks using the 2015-2023 price control review top down cost driver (by DNO group)

	Customer Numbers cost driver							
	Costs over 2010-15				Costs over 2015-21			
	Regional labour cost adjustment				Regional labour cost adjustment			
	Not applied		Ofgem 2015-23 level		Not applied		Ofgem 2015-23 level	
	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank
Northern Powergrid	94.33%	1	94.34%	1	98.18%	1	98.18%	1
ENW	*170.74%*	*6*	*171.10%*	*6*	*131.66%*	*4*	*131.78%*	*4*
WPD	*109.58%*	*3*	*109.57%*	*3*	*102.92%*	*2*	*102.95%*	*2*
UKPN	*132.58%*	*5*	*131.86%*	*5*	*110.52%*	*3*	*110.10%*	*3*
SPEN	*129.83%*	*4*	*129.80%*	*4*	*132.72%*	*5*	*132.69%*	*5*
SSEN	*101.35%*	*2*	*101.21%*	*2*	*137.41%*	*6*	*137.09%*	*6*

Table 6: Business support cost regression benchmarks using customer numbers as a cost driver (by DNO group)

Our business support efficiency as shown in Tables 7 and 8 is also strong across our two licensees;

- both rank within the top five DNOs consistently, across cost drivers and time periods; and
- each of them is inside the benchmark on at least one cost driver.

	2015-23 price control review top down cost driver							
	Costs over 2010-15				Costs over 2015-21			
	Regional labour cost adjustment				Regional labour cost adjustment			
	Not applied		Ofgem 2015-23 level		Not applied		Ofgem 2015-23 level	
	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank
NPg Northeast	99.2%	4	99.2%	4	104.4%	5	104.4%	5
NPg Yorkshire	89.2%	2	89.3%	2	94.7%	1	94.8%	1
ENW	*173.8%*	*14*	*174.2%*	*14*	*134.1%*	*13*	*134.2%*	*13*
WMID	*109.6%*	*7*	*109.6%*	*7*	*106.5%*	*6*	*106.6%*	*6*
EMID	*102.9%*	*6*	*102.9%*	*6*	*96.0%*	*2*	*96.1%*	*3*
SWALES	*98.8%*	*3*	*98.7%*	*3*	*98.5%*	*4*	*98.5%*	*4*
SWEST	*125.6%*	*10*	*125.6%*	*10*	*117.8%*	*8*	*117.9%*	*8*
LPN	*152.5%*	*13*	*150.4%*	*13*	*117.2%*	*7*	*116.1%*	*7*
SPN	*123.9%*	*9*	*123.2%*	*9*	*96.3%*	*3*	*95.9%*	*2*
EPN	*134.1%*	*11*	*134.0%*	*11*	*119.5%*	*9*	*119.4%*	*9*
SPD	*120.1%*	*8*	*120.1%*	*8*	*130.9%*	*12*	*130.9%*	*12*
SPMW	*135.5%*	*12*	*135.5%*	*12*	*138.5%*	*14*	*138.5%*	*14*
SSEH	*102.7%*	*5*	*102.6%*	*5*	*123.7%*	*10*	*123.7%*	*10*
SSES	*81.7%*	*1*	*81.6%*	*1*	*126.2%*	*11*	*125.9%*	*11*

Table 7: Business support cost regression benchmarks using the 2015-2023 price control review top down cost driver (by DNO)

	Customer Numbers cost driver							
	Costs over 2010-15				Costs over 2015-21			
	Regional labour cost adjustment				Regional labour cost adjustment			
	Not applied		Ofgem 2015-23 level		Not applied		Ofgem 2015-23 level	
	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank
NPg Northeast	97.7%	4	97.6%	4	99.6%	4	99.5%	4
NPg Yorkshire	91.6%	2	91.6%	2	97.0%	3	97.0%	3
ENW	*170.7%*	*14*	*171.1%*	*14*	*131.7%*	*11*	*131.8%*	*11*
WMID	*108.2%*	*6*	*108.2%*	*6*	*106.1%*	*7*	*106.2%*	*7*
EMID	*106.9%*	*5*	*107.0%*	*5*	*101.3%*	*5*	*101.3%*	*5*
SWALES	*97.1%*	*3*	*96.9%*	*3*	*89.9%*	*1*	*89.9%*	*1*
SWEST	*125.3%*	*9*	*125.2%*	*9*	*112.6%*	*8*	*112.6%*	*8*
LPN	*135.0%*	*11*	*133.4%*	*11*	*104.9%*	*6*	*104.1%*	*6*
SPN	*122.0%*	*8*	*121.4%*	*8*	*94.4%*	*2*	*94.1%*	*2*
EPN	*138.9%*	*12*	*138.8%*	*12*	*128.8%*	*10*	*128.8%*	*10*
SPD	*117.4%*	*7*	*117.4%*	*7*	*127.0%*	*9*	*127.0%*	*9*
SPMW	*144.3%*	*13*	*144.2%*	*13*	*139.1%*	*14*	*139.0%*	*14*
SSEH	*126.5%*	*10*	*126.2%*	*10*	*137.1%*	*12*	*136.8%*	*12*
SSES	*89.1%*	*1*	*89.0%*	*1*	*137.6%*	*13*	*137.3%*	*13*

Table 8: Business support cost regression benchmarks using customer numbers as a cost driver (by DNO)

… and our closely associated indirect costs also benchmark as the most efficient across all DNO groups

The following costs are included within the closely associated indirects cost pool:

- core closely associated indirects; this includes our spending on network design and engineering, project management and clerical support, system mapping, network policy, call centre and control centre costs;
- wayleaves;
- operational training;
- vehicles and transport;
- non-operational capital expenditure - vehicles and transport;
- non-operational capital expenditure - small tools and equipment; and
- operational IT and telecoms.

Tables 9 and 10 below show:

- We are the most efficient DNO group in the sector on indirects. Our indirect costs are consistently the lowest in the sector, relative to the benchmark.
- Like business support, our strong performance on indirect cost efficiency is robust to the cost driver, time periods, and application of regional labour adjustments.

	2015-23 price control review top down cost driver							
	Costs over 2010-15				Costs over 2015-21			
	Regional labour cost adjustment				Regional labour cost adjustment			
	Not applied		Ofgem 2015-23 level		Not applied		Ofgem 2015-23 level	
	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank
Northern Powergrid	85.23%	1	85.93%	1	85.49%	1	86.21%	1
ENW	*100.27%*	*3*	*101.42%*	*3*	*98.52%*	*2*	*99.66%*	*2*
WPD	*122.98%*	*6*	*124.33%*	*6*	*113.11%*	*5*	*114.28%*	*6*
UKPN	*113.25%*	*4*	*110.76%*	*4*	*116.65%*	*6*	*113.87%*	*5*
SPEN	*121.78%*	*5*	*123.05%*	*5*	*107.25%*	*3*	*108.25%*	*4*
SSEN	*94.31%*	*2*	*94.03%*	*2*	*107.58%*	*4*	*107.16%*	*3*

Table 9: Indirect cost regression benchmarks using the 2015-2023 price control review top down cost driver (by DNO group)

	Customer Numbers cost driver							
	Costs over 2010-15				Costs over 2015-21			
	Regional labour cost adjustment				Regional labour cost adjustment			
	Not applied		Ofgem 2015-23 level		Not applied		Ofgem 2015-23 level	
	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank
Northern Powergrid	85.94%	1	87.57%	1	88.72%	1	88.47%	1
ENW	*99.00%*	*2*	*101.37%*	*2*	*99.88%*	*2*	*100.09%*	*2*
WPD	*123.64%*	*6*	*126.34%*	*6*	*116.81%*	*4*	*116.70%*	*5*
UKPN	*112.01%*	*4*	*111.07%*	*4*	*119.54%*	*5*	*115.75%*	*4*
SPEN	*123.41%*	*5*	*125.96%*	*5*	*110.91%*	*3*	*110.62%*	*3*
SSEN	*110.51%*	*3*	*111.05%*	*3*	*128.12%*	*6*	*125.84%*	*6*

Table 10: Indirect cost regression benchmarks using customer numbers as a cost driver (by DNO group)

Tables 11 and 12 set out licensee level results.

These show that our indirect cost efficiency is also strong across our two licensees, both rank within the top three DNOs consistently, across cost drivers and time periods.

	2015-23 price control review top down cost driver							
	Costs over 2010-15				Costs over 2015-21			
	Regional labour cost adjustment				Regional labour cost adjustment			
	Not applied		Ofgem 2015-23 level		Not applied		Ofgem 2015-23 level	
	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank
NPg Northeast	93.5%	3	93.5%	3	92.7%	2	93.5%	2
NPg Yorkshire	80.1%	1	80.4%	1	79.6%	1	80.7%	1
ENW	*100.9%*	*5*	*101.4%*	*5*	*98.2%*	*3*	*99.7%*	*4*
WMID	*137.3%*	*14*	*138.4%*	*14*	*119.1%*	*12*	*121.1%*	*13*
EMID	*124.6%*	*12*	*125.6%*	*12*	*106.0%*	*7*	*107.8%*	*8*
SWALES	*105.4%*	*6*	*105.0%*	*6*	*103.9%*	*6*	*104.5%*	*6*
SWEST	*118.1%*	*10*	*118.3%*	*10*	*121.2%*	*13*	*122.6%*	*14*
LPN	*119.8%*	*11*	*112.4%*	*9*	*127.8%*	*14*	*120.3%*	*12*
SPN	*111.5%*	*7*	*108.5%*	*7*	*101.4%*	*5*	*99.6%*	*3*
EPN	*111.9%*	*8*	*111.3%*	*8*	*118.9%*	*11*	*119.3%*	*11*
SPD	*117.9%*	*9*	*118.5%*	*11*	*99.5%*	*4*	*100.8%*	*5*
SPMW	*127.6%*	*13*	*128.0%*	*13*	*114.9%*	*10*	*116.4%*	*10*
SSEH	*100.3%*	*4*	*100.0%*	*4*	*109.0%*	*9*	*109.8%*	*9*
SSES	*92.3%*	*2*	*91.2%*	*2*	*106.3%*	*8*	*105.8%*	*7*

Table 11: Indirect cost regression benchmarks using the 2015-2023 price control review top down cost driver (by DNO)

	Customer Numbers cost driver							
	Costs over 2010-15				Costs over 2015-21			
	Regional labour cost adjustment				Regional labour cost adjustment			
	Not applied		Ofgem 2015-23 level		Not applied		Ofgem 2015-23 level	
	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank
NPg Northeast	89.7%	2	91.1%	2	92.1%	2	91.5%	2
NPg Yorkshire	83.0%	1	84.8%	1	86.0%	1	86.0%	1
ENW	*99.0%*	*4*	*101.4%*	*5*	*99.9%*	*4*	*100.1%*	*4*
WMID	*135.8%*	*14*	*139.5%*	*14*	*123.4%*	*11*	*123.8%*	*12*
EMID	*132.6%*	*12*	*136.2%*	*12*	*118.7%*	*8*	*119.2%*	*8*
SWALES	*98.4%*	*3*	*99.4%*	*3*	*98.6%*	*3*	*97.4%*	*3*
SWEST	*115.0%*	*9*	*117.1%*	*9*	*120.7%*	*9*	*120.2%*	*9*
LPN	*103.5%*	*5*	*99.9%*	*4*	*115.5%*	*7*	*108.5%*	*7*
SPN	*109.4%*	*7*	*108.5%*	*7*	*103.2%*	*6*	*100.2%*	*5*
EPN	*120.8%*	*10*	*122.5%*	*10*	*135.4%*	*13*	*134.3%*	*13*
SPD	*113.8%*	*8*	*116.3%*	*8*	*100.4%*	*5*	*100.2%*	*6*
SPMW	*134.9%*	*13*	*137.5%*	*13*	*123.1%*	*10*	*122.6%*	*11*
SSEH	*122.0%*	*11*	*122.8%*	*11*	*136.5%*	*14*	*134.6%*	*14*
SSES	*105.4%*	*6*	*105.8%*	*6*	*124.0%*	*12*	*121.6%*	*10*

Table 12: Indirect cost regression benchmarks using customer numbers as a cost driver (by DNO)

Our direct costs are higher than the benchmark but we are not outliers

The direct cost pool includes costs associated with maintaining and enhancing our network:

- asset replacement, refurbishment and reinforcement;
- fault costs, including severe weather costs and un-incentivised faults;
- inspections, repairs and maintenance; and
- a long list of additional direct costs, such as diversions, connections, civil works, black start, BT's next generation communications network (BT21CN), legal and safety, flood mitigation, overhead clearances, environmental reporting, losses, tree cutting, other network operating costs and high value projects.

Tables 13 and 14 show our costs are higher than the benchmark for direct activity on the network, but we are not outliers. The sector is, in effect, split into two parts. We have the best efficiency scores of the set of DNOs spending more money directly on their networks.

These results do not mean we are inefficient on our direct cost base.

- If expenditure on our asset base appears high when benchmarked against some other DNO groups, this may simply reflect asset cycles, or could be because we are taking steps earlier to address issues that could affect decarbonisation pathways.
- We take a long term approach to efficiency, and choices between operating and capital costs. We optimise our expenditure on this basis, which other DNO groups may not have mirrored.
- We think we use contractors more than other DNO groups,[4] meaning that our direct costs contain more embedded business support and indirect costs than other DNO groups, worsening our efficiency scores on direct costs.

[4] Ofgem's regulatory reporting only captures contractor costs that are not itemised on an invoice as being for materials. It therefore does not provide a definitive answer on the use of contactors (since two DNOs making the same use of contractors may report different figures if one receives an itemised invoice). However, our reported data shows a markedly higher share of costs in the contractor category for us than any other DNO. We think this at least partly reflects us making greater use of contractors.

	2015-23 price control review top down cost driver							
	Costs over 2010-15				Costs over 2015-21			
	Regional labour cost adjustment				Regional labour cost adjustment			
	Not applied		Ofgem 2015-23 level		Not applied		Ofgem 2015-23 level	
	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank
Northern Powergrid	112.50%	5	114.93%	5	118.08%	4	120.69%	4
ENW	*101.51%*	*2*	*103.82%*	*2*	*100.03%*	*2*	*102.24%*	*2*
WPD	*116.95%*	*6*	*119.48%*	*6*	*124.39%*	*6*	*127.14%*	*6*
UKPN	*108.96%*	*4*	*104.76%*	*3*	*97.70%*	*1*	*94.37%*	*1*
SPEN	*107.62%*	*3*	*109.58%*	*4*	*119.58%*	*5*	*121.95%*	*5*
SSEN	*96.62%*	*1*	*95.87%*	*1*	*107.71%*	*3*	*106.67%*	*3*

Table 13: Direct cost regression benchmarks using the 2015-2023 price control review top down cost driver (by DNO group)

	Customer Numbers cost driver							
	Costs over 2010-15				Costs over 2015-21			
	Regional labour cost adjustment				Regional labour cost adjustment			
	Not applied		Ofgem 2015-23 level		Not applied		Ofgem 2015-23 level	
	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank
Northern Powergrid	112.96%	4	116.24%	5	119.28%	3	118.82%	3
ENW	*99.62%*	*1*	*102.96%*	*1*	*98.86%*	*2*	*98.83%*	*2*
WPD	*117.16%*	*6*	*120.59%*	*6*	*125.05%*	*6*	*124.57%*	*6*
UKPN	*107.70%*	*2*	*104.91%*	*2*	*97.63%*	*1*	*92.47%*	*1*
SPEN	*108.41%*	*3*	*111.08%*	*3*	*120.40%*	*4*	*119.51%*	*4*
SSEN	*115.82%*	*5*	*115.08%*	*4*	*125.03%*	*5*	*119.94%*	*5*

Table 14: Direct cost regression benchmarks using customer numbers as a cost driver (by DNO group)

The underlying results for the individual licensees are set out in Tables 15 and 16.

These further confirm that, although our direct costs are above the benchmark for both our licensees, there are several licensees with significantly higher efficiency scores, so our licensees are by no means outliers.

	2015-23 price control review top down cost driver							
	Costs over 2010-15				Costs over 2015-21			
	Regional labour cost adjustment				Regional labour cost adjustment			
	Not applied		Ofgem 2015-23 level		Not applied		Ofgem 2015-23 level	
	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank
NPg Northeast	113.8%	10	117.9%	11	117.5%	10	120.1%	9
NPg Yorkshire	108.0%	9	112.9%	10	117.4%	9	121.2%	10
ENW	*99.6%*	*4*	*103.8%*	*5*	*99.5%*	*4*	*102.2%*	*5*
WMID	*124.4%*	*14*	*130.2%*	*14*	*127.5%*	*12*	*131.6%*	*12*
EMID	*115.1%*	*12*	*120.5%*	*12*	*121.7%*	*11*	*125.8%*	*11*
SWALES	*105.0%*	*6*	*107.8%*	*7*	*103.4%*	*6*	*104.5%*	*6*
SWEST	*107.5%*	*8*	*111.3%*	*9*	*137.7%*	*14*	*141.1%*	*14*
LPN	*114.9%*	*11*	*105.4%*	*6*	*102.2%*	*5*	*93.8%*	*2*
SPN	*101.2%*	*5*	*99.1%*	*4*	*90.6%*	*1*	*88.1%*	*1*
EPN	*105.8%*	*7*	*108.1%*	*8*	*98.4%*	*3*	*99.4%*	*4*
SPD	*89.1%*	*1*	*92.4%*	*1*	*105.1%*	*7*	*107.7%*	*7*
SPMW	*122.2%*	*13*	*127.0%*	*13*	*132.5%*	*13*	*136.0%*	*13*
SSEH	*94.5%*	*2*	*96.8%*	*3*	*94.5%*	*2*	*95.6%*	*3*
SSES	*94.9%*	*3*	*95.5%*	*2*	*113.5%*	*8*	*112.1%*	*8*

Table 15: Direct cost regression benchmarks using the 2015-2023 price control review top down cost driver (by DNO)

	Customer Numbers cost driver							
	Costs over 2010-15				Costs over 2015-21			
	Regional labour cost adjustment				Regional labour cost adjustment			
	Not applied		Ofgem 2015-23 level		Not applied		Ofgem 2015-23 level	
	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank
NPg Northeast	110.1%	7	112.5%	7	113.9%	7	112.5%	8
NPg Yorkshire	115.1%	9	119.1%	9	123.7%	9	124.0%	10
ENW	*99.6%*	*4*	*103.0%*	*5*	*98.9%*	*4*	*98.8%*	*4*
WMID	*125.7%*	*12*	*130.5%*	*12*	*129.0%*	*10*	*129.6%*	*11*
EMID	*126.8%*	*13*	*131.7%*	*13*	*133.0%*	*12*	*133.8%*	*13*
SWALES	*98.0%*	*2*	*98.8%*	*4*	*95.6%*	*3*	*93.1%*	*3*
SWEST	*106.0%*	*6*	*108.2%*	*6*	*133.7%*	*13*	*132.6%*	*12*
LPN	*98.9%*	*3*	*91.8%*	*2*	*90.6%*	*2*	*82.1%*	*1*
SPN	*101.1%*	*5*	*98.3%*	*3*	*90.0%*	*1*	*85.2%*	*2*
EPN	*119.1%*	*10*	*120.8%*	*10*	*109.5%*	*6*	*107.8%*	*6*
SPD	*87.2%*	*1*	*89.4%*	*1*	*103.4%*	*5*	*102.8%*	*5*
SPMW	*132.0%*	*14*	*135.2%*	*14*	*138.0%*	*14*	*136.7%*	*14*
SSEH	*121.6%*	*11*	*121.3%*	*11*	*116.2%*	*8*	*111.8%*	*7*
SSES	*113.8%*	*8*	*112.9%*	*8*	*129.2%*	*11*	*123.7%*	*9*

Table 16: Direct cost regression benchmarks using customer numbers as a cost driver (by DNO)

Taking the sum of these three cost pools shows that we compete for most efficient position at the total cost level

The disaggregated analysis reported above is a helpful indicator of the 'shape' of our business, and the choices we make. However, to make sense of this analysis from an efficiency perspective they need to be aggregated. We have taken the sum of our modelled costs across the above three cost pools, to give a view of efficiency at the totex level, including an upper quartile benchmark to set a strict efficiency challenge.

Tables 17 to 20 show that when these results are combined, and an upper quartile challenge applied, our overall efficiency is similar to the totex results. We are consistently within the top three DNOs overall.

Table 17 shows that when using the top down cost driver our regulator used at the 2015-23 price control review, our costs over the 2010 to 2015 period were around the benchmark (within a margin for error). On a Northern Powergrid group basis we were second in the sector. Over 2015 to 2020, our costs were again around the benchmark, and we are either second or third in the sector depending on the specification.

As shown in Table 18, our results are similar if customer numbers are used as a cost driver. Over the 2010 to 2015 period our costs were first in the sector on a Northern Powergrid group basis. Over the 2015 to 2020 period we compete closely with two other DNO groups, ranking third.

This consistent pattern strengthens the credibility of our totex and disaggregated benchmarking results.

	2015-23 price control review top down cost driver							
	Costs over 2010-15				Costs over 2015-21			
	Regional labour cost adjustment				Regional labour cost adjustment			
	Not applied		Ofgem 2015-23 level		Not applied		Ofgem 2015-23 level	
	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank
Business support costs								
Northern Powergrid	93.51%	2	93.65%	2	99.00%	1	99.11%	1
ENW	*173.58%*	*6*	*174.15%*	*6*	*134.01%*	*5*	*134.24%*	*5*
WPD	*108.99%*	*3*	*109.12%*	*3*	*104.29%*	*2*	*104.43%*	*2*
UKPN	*135.92%*	*5*	*135.27%*	*5*	*111.53%*	*3*	*111.19%*	*3*
SPEN	*127.36%*	*4*	*127.52%*	*4*	*134.40%*	*6*	*134.54%*	*6*
SSEN	*89.05%*	*1*	*89.07%*	*1*	*125.10%*	*4*	*125.03%*	*4*
Indirect costs								
Northern Powergrid	85.23%	1	85.93%	1	85.49%	1	86.21%	1
ENW	*100.27%*	*3*	*101.42%*	*3*	*98.52%*	*2*	*99.66%*	*2*
WPD	*122.98%*	*6*	*124.33%*	*6*	*113.11%*	*5*	*114.28%*	*6*
UKPN	*113.25%*	*4*	*110.76%*	*4*	*116.65%*	*6*	*113.87%*	*5*
SPEN	*121.78%*	*5*	*123.05%*	*5*	*107.25%*	*3*	*108.25%*	*4*
SSEN	*94.31%*	*2*	*94.03%*	*2*	*107.58%*	*4*	*107.16%*	*3*
Direct costs								
Northern Powergrid	112.50%	5	114.93%	5	118.08%	4	120.69%	4
ENW	*101.51%*	*2*	*103.82%*	*2*	*100.03%*	*2*	*102.24%*	*2*
WPD	*116.95%*	*6*	*119.48%*	*6*	*124.39%*	*6*	*127.14%*	*6*
UKPN	*108.96%*	*4*	*104.76%*	*3*	*97.70%*	*1*	*94.37%*	*1*
SPEN	*107.62%*	*3*	*109.58%*	*4*	*119.58%*	*5*	*121.95%*	*5*
SSEN	*96.62%*	*1*	*95.87%*	*1*	*107.71%*	*3*	*106.67%*	*3*
Sum of costs (totex) at an upper quartile benchmark								
Northern Powergrid	99.84%	2	101.37%	2	100.84%	2	102.33%	3
ENWL	*107.05%*	*3*	*108.90%*	*4*	*99.93%*	*1*	*101.51%*	*2*
WPD	*113.77%*	*6*	*115.60%*	*6*	*112.91%*	*5*	*114.65%*	*6*
UKPN	*109.89%*	*4*	*106.57%*	*3*	*100.87%*	*3*	*98.17%*	*1*
SPEN	*110.20%*	*5*	*111.73%*	*5*	*112.93%*	*6*	*114.51%*	*5*
SSEN	*92.14%*	*1*	*91.64%*	*1*	*105.40%*	*4*	*104.71%*	*4*

Table 17: Sum of cost pools (totex) regression benchmarks using the 2015-23 price control review top down cost driver (by DNO group)

	Customer Numbers cost driver							
	Costs over 2010-15				Costs over 2015-21			
	Regional labour cost adjustment				Regional labour cost adjustment			
	Not applied		Ofgem 2015-23 level		Not applied		Ofgem 2015-23 level	
	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank
Business support costs								
Northern Powergrid	94.33%	1	94.34%	1	98.18%	1	98.18%	1
ENW	*170.74%*	*6*	*171.10%*	*6*	*131.66%*	*4*	*131.78%*	*4*
WPD	*109.58%*	*3*	*109.57%*	*3*	*102.92%*	*2*	*102.95%*	*2*
UKPN	*132.58%*	*5*	*131.86%*	*5*	*110.52%*	*3*	*110.10%*	*3*
SPEN	*129.83%*	*4*	*129.80%*	*4*	*132.72%*	*5*	*132.69%*	*5*
SSEN	*101.35%*	*2*	*101.21%*	*2*	*137.41%*	*6*	*137.09%*	*6*
Indirect costs								
Northern Powergrid	85.94%	1	87.57%	1	88.72%	1	88.47%	1
ENW	*99.00%*	*2*	*101.37%*	*2*	*99.88%*	*2*	*100.09%*	*2*
WPD	*123.64%*	*6*	*126.34%*	*6*	*116.81%*	*4*	*116.70%*	*5*
UKPN	*112.01%*	*4*	*111.07%*	*4*	*119.54%*	*5*	*115.75%*	*4*
SPEN	*123.41%*	*5*	*125.96%*	*5*	*110.91%*	*3*	*110.62%*	*3*
SSEN	*110.51%*	*3*	*111.05%*	*3*	*128.12%*	*6*	*125.84%*	*6*
Direct costs								
Northern Powergrid	112.96%	4	116.24%	5	119.28%	3	118.82%	3
ENW	*99.62%*	*1*	*102.96%*	*1*	*98.86%*	*2*	*98.83%*	*2*
WPD	*117.16%*	*6*	*120.59%*	*6*	*125.05%*	*6*	*124.57%*	*6*
UKPN	*107.70%*	*2*	*104.91%*	*2*	*97.63%*	*1*	*92.47%*	*1*
SPEN	*108.41%*	*3*	*111.08%*	*3*	*120.40%*	*4*	*119.51%*	*4*
SSEN	*115.82%*	*5*	*115.08%*	*4*	*125.03%*	*5*	*119.94%*	*5*
Sum of costs (totex) at an upper quartile benchmark								
Northern Powergrid	99.59%	1	101.96%	1	102.69%	3	102.29%	3
ENW	*104.39%*	*2*	*107.32%*	*3*	*99.69%*	*1*	*99.68%*	*2*
WPD	*113.20%*	*6*	*115.98%*	*6*	*114.42%*	*4*	*114.05%*	*5*
UKPN	*107.56%*	*3*	*105.65%*	*2*	*101.69%*	*2*	*97.58%*	*1*
SPEN	*110.44%*	*5*	*112.82%*	*5*	*114.60%*	*5*	*113.96%*	*4*
SSEN	*108.15%*	*4*	*107.98%*	*4*	*122.61%*	*6*	*119.05%*	*6*

Table 18: Sum of cost pools (totex) regression benchmarks using customer numbers as a cost driver (by DNO group)

Our efficiency is also strong across our two licensees, once the cost pools are aggregated.

Tables 19 and 20 show the licensee level results of the sum of the disaggregated benchmarks. As with the totex benchmarking, each of our licensees is within the benchmark on at least one of the cost drivers.

	2015-23 price control review top down cost driver							
	Costs over 2010-15				Costs over 2015-21			
	Regional labour cost adjustment				Regional labour cost adjustment			
	Not applied		Ofgem 2015-23 level		Not applied		Ofgem 2015-23 level	
	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank
NPg Northeast	105.2%	6	105.5%	7	104.3%	8	104.9%	9
NPg Yorkshire	97.5%	3	98.4%	3	99.1%	2	100.4%	5
ENW	*108.0%*	*8*	*108.9%*	*9*	*100.5%*	*5*	*101.5%*	*6*
WMID	*124.2%*	*14*	*125.6%*	*14*	*117.8%*	*12*	*119.4%*	*12*
EMID	*114.5%*	*11*	*115.9%*	*12*	*109.5%*	*11*	*111.1%*	*11*
SWALES	*102.6%*	*5*	*102.2%*	*6*	*99.2%*	*3*	*99.0%*	*2*
SWEST	*111.2%*	*10*	*111.5%*	*11*	*125.2%*	*14*	*126.2%*	*14*
LPN	*119.4%*	*12*	*109.1%*	*10*	*108.2%*	*9*	*100.2%*	*4*
SPN	*105.3%*	*7*	*101.3%*	*5*	*91.4%*	*1*	*88.7%*	*1*
EPN	*109.2%*	*9*	*108.5%*	*8*	*103.8%*	*7*	*103.6%*	*7*
SPD	*99.1%*	*4*	*99.6%*	*4*	*103.5%*	*6*	*104.3%*	*8*
SPMW	*123.6%*	*13*	*124.4%*	*13*	*123.8%*	*13*	*125.0%*	*13*
SSEH	*95.8%*	*2*	*95.4%*	*2*	*100.0%*	*4*	*99.9%*	*3*
SSES	*91.7%*	*1*	*90.0%*	*1*	*109.1%*	*10*	*107.2%*	*10*

Table 19: Sum of cost pools (totex) regression benchmarks using the 2015-2023 price control review top down cost driver (by DNO)

	Customer Numbers cost driver							
	Costs over 2010-15				Costs over 2015-21			
	Regional labour cost adjustment				Regional labour cost adjustment			
	Not applied		Ofgem 2015-23 level		Not applied		Ofgem 2015-23 level	
	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank	Efficiency	Rank
NPg Northeast	99.1%	3	100.9%	5	100.9%	5	100.0%	5
NPg Yorkshire	99.9%	4	102.8%	6	104.1%	7	104.2%	7
ENW	*104.4%*	*7*	*107.3%*	*8*	*99.7%*	*4*	*99.7%*	*4*
WMID	*121.1%*	*13*	*124.9%*	*13*	*119.0%*	*9*	*119.3%*	*10*
EMID	*120.9%*	*12*	*124.7%*	*12*	*119.1%*	*10*	*119.6%*	*11*
SWALES	*94.1%*	*1*	*94.9%*	*1*	*91.6%*	*2*	*89.9%*	*3*
SWEST	*106.6%*	*9*	*108.5%*	*9*	*121.4%*	*12*	*120.6%*	*13*
LPN	*100.5%*	*5*	*95.1%*	*2*	*95.9%*	*3*	*88.9%*	*2*
SPN	*101.8%*	*6*	*99.9%*	*4*	*90.7%*	*1*	*87.1%*	*1*
EPN	*117.2%*	*10*	*118.8%*	*11*	*115.1%*	*8*	*113.7%*	*8*
SPD	*94.1%*	*2*	*96.2%*	*3*	*101.7%*	*6*	*101.3%*	*6*
SPMW	*129.1%*	*14*	*131.8%*	*14*	*128.5%*	*14*	*127.6%*	*14*
SSEH	*117.5%*	*11*	*117.7%*	*10*	*120.7%*	*11*	*117.7%*	*9*
SSES	*104.4%*	*8*	*104.1%*	*7*	*123.5%*	*13*	*119.7%*	*12*

Table 20: Sum of cost pools (totex) regression benchmarks using customer numbers as a cost driver (by DNO)

Headwinds we face

We face some region specific factors that add to our direct costs, such as operating in sparse areas and also with unique network configurations, which could become relevant later in the 2023-28 price control review

Our efficient cost performance described above does not rely on us making a case that we face a particularly disadvantageous operating environment. Even so, our licensees face a challenging set of circumstances that are more marked than in other parts of the country. For example:

- Northeast faces additional costs associated with serving a sparse region, including for example greater travel distance to work sites, and tougher to maintain assets in exposed locations. To illustrate:
  - it serves four local authority areas within the top 30 for population sparsity, which is more than any other DNO except Scottish Hydro Electric Power Distribution (SSEH) (which serves 10 local authority areas in the top 30); and
  - its' average population sparsity, when the region's urban conurbations are included, is similar to Scottish Power Distribution and Western Power Distribution (South West), with only SSEH's region being materially more sparse.[5]
- Both of our licensees have networks which reflect their heritage of coal mining, early industry and more recent heavy industry, which requires more expensive equipment and can also cause other costs such as being more expensive to interconnect to other voltages. For example:
  - Northeast has a unique network since it accounts for almost 100 per cent of the 20kV assets owned by electricity distributors in Great Britain, it is also home to 40 per cent of 66kV switchgear and 70 per cent of the 66kV overhead tower line; and
  - Yorkshire is one of only four licensees with an extensive 66kV network, accounting for around 25 per cent of 66kV switchgear (more than twice any other network, outside Northeast).
- Yorkshire has a large installed base of a type of aluminium cable which has reduced reliability but which is not recognised in Ofgem's asset breakdown.[6]

In the light of these legacy features that present an ongoing challenge, our efficiency performance is even more impressive. Whether Ofgem chooses to take these explicitly into account is a matter for its consideration. We will review its eventual approach to cost assessment and, if these or any other regional factors which apply to Northern Powergrid could become relevant, we will provide Ofgem with the necessary data to take them into account on the same basis as it is doing for similar factors affecting other DNOs.

[5] Statistics come from Ofgem's assessment of population sparsity at the 2015-23 price control review.
[6] We lack information on whether other DNOs are affected by this particular cable type.

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