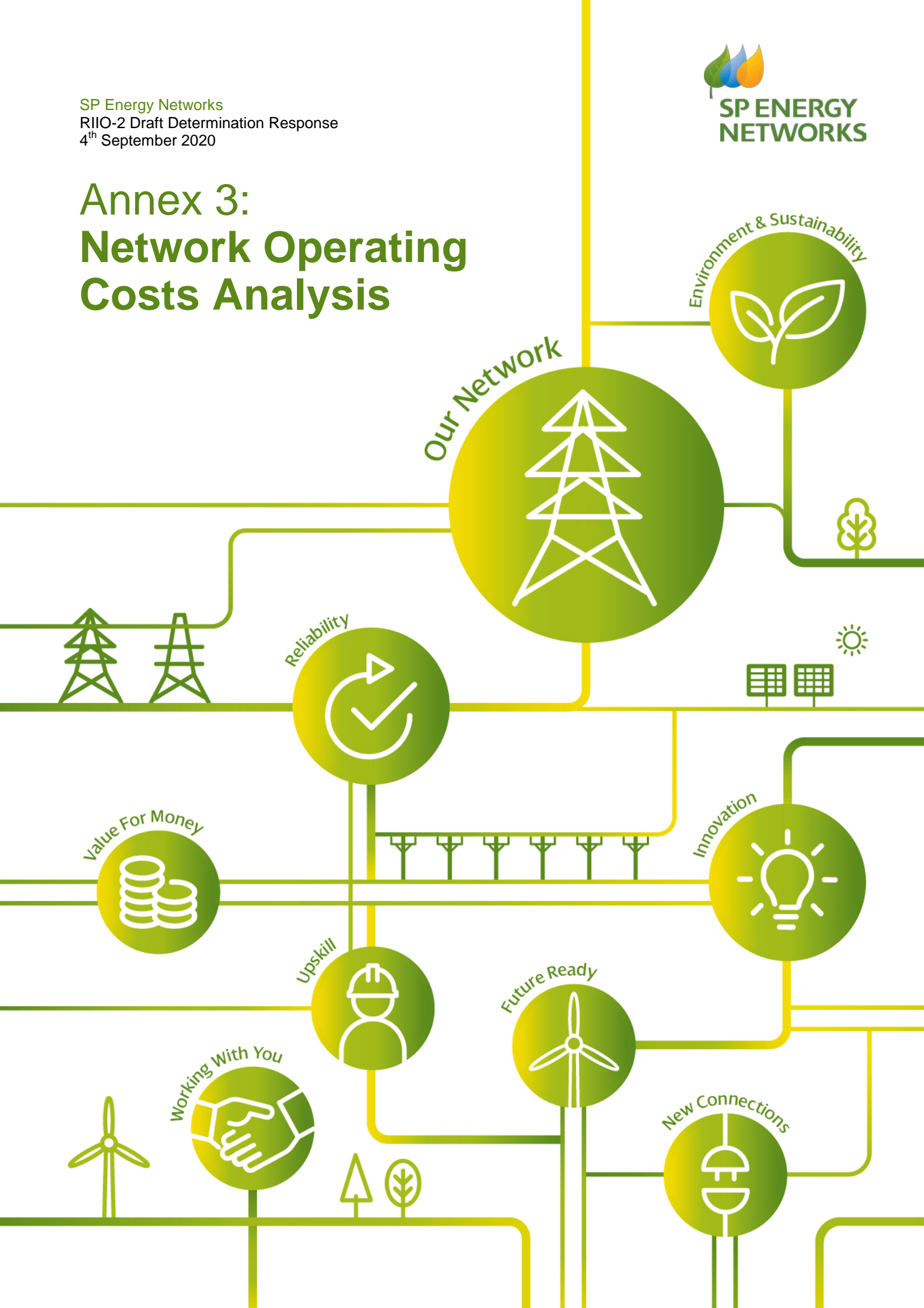


Annex 3: Network Operating Costs Analysis



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Chapter 1: Introduction

1.1 SP Transmission ("SPT") have ongoing network operating costs associated with the safe and reliable operation of the electrical transmission network in our licence area. In Ofgem's draft determination of SPT's RIIO-T2 Business Plan costs, we have had costs equalling 22% of the submission disallowed. We have responded to this in Chapter 2 Expenditure and Outputs of our draft determination response to SPT Q14." Do you agree with the proposed allowances in relation to network operating costs? If not, please outline why". This analysis discusses the network operating cost tables and the cost reduction applied by Ofgem when applying unit cost models and discusses why areas of expenditure have necessarily increased between RIIO-T1 and RIIO-T2 and outlines why this expenditure should not be disallowed.

Chapter 2: C2.20 Faults

2.1 We submitted a Business Plan which requires investment of £19.8m to carry out activities recorded in the faults table which has been reduced in the Draft Determination to a proposed allowance of £12.3m. However, we would make the following observations and comments:

Costs and volumes

2.2 The cost and volumes submitted for RIIO-T1 are our actual costs associated with faults and the volumes are in line with RIIO-T1 Faults and Failures tables.

2.3 The costs submitted for RIIO-T2 are our costs for all activities covered by reactive capital costs, which include faults. We have recorded all our reactive capital costs for RIIO-T2 in table C2.20 Faults, as these activities go beyond the Glossary definition of repairs and maintenance and therefore cannot be recorded in table C2.22 of the BDPT (Repairs and Maintenance), and also do not readily reconcile with the other capital expenditure tables.

2.4 The RIIO-T2 volumes in the main have been recorded as a notional value due to the unpredictable nature of these events preventing forecasts with any confidence. Therefore, we forecast our RIIO-T2 costs on an annualised basis and not based on volumes.

2.5 We have also considered our reactive capital costs for our network as a whole and not by voltage level based on historical levels, again due to the unpredictability of this activity. The division of these costs into voltage levels has been proportional, based on the number of assets in each category at that voltage level. When considering these costs, they should be considered on an annualised basis by asset type and not split into voltages as the unpredictability of faults and related activity invalidates the perceived accuracy of greater disaggregation.

Cable Faults

2.6 Our costs submitted for cables in RIIO-T2 have reduced when compared to the costs recorded as faults in RIIO-T1. In RIIO-T1 we suffered from a number of XLPE cable termination failures which increased the faults costs significantly. We have a RIIO-T2 project with a price control deliverable for replacement of XLPE cable terminations alongside increased maintenance activities. We have taken this into account and removed these costs from our analysis allowing us to reduce our costs.

Switchgear Faults

2.7 Our costs submitted for switchgear in RIIO-T2 has increased significantly when compared to our costs recorded as faults in RIIO-T1. This is based on our annualised reactive capital costs throughout RIIO-T1. This includes activities that would not be considered faults, for example there have been numerous issues with a certain manufacturer's disconnectors and earth switches which led us to carry out ad hoc refurbishment and therefore activities which will improve the health score of these non-NARM assets. We have also had to intervene on circuit breakers and carry out interventions that address issues likely to lead to a fault but go beyond the definition of repairs and maintenance.

Transformer faults

2.8 Our cost submitted for transformers in RIIO-T2 has had a small increase when compared to our costs recorded as faults in RIIO-T1. Our additional costs are not considered as faults because the interventions are identified and undertaken to prevent faults occurring but go beyond the definition of repairs and maintenance. These activities include, but are not limited to, replacement of transformers' cooling systems, bushing replacement due to oil leaks and extensive remediation of transformer tap changers.

Substation "other costs" faults

2.9 Our costs submitted for substation "other costs" in RIIO-T2 have increased when compared to costs for faults in RIIO-T1. This increase is due to civil reactive capital costs being included under substation "other costs". Due to the nature of these costs they would not have been recorded as faults in RIIO-T1 and therefore significantly distort the comparison to RIIO-T1 costs. These activities include, but are not limited to, the replacement of substation roofs following damage, the replacement of sections of substation fencing and unplanned repairs of transformer bunds beyond the scope of the glossary definition of repairs.

Costs for protection and control faults

2.10 In the first 6 years of RIIO-T1 we did not record any costs for protection and control against faults. This is due to the replacement components required to resolve these issues being sourced from strategic spares recovered during decommissioning and, separately, the fact that installation costs were covered by our indirect engineering expenditure. We have included a small cost each year in faults to cover the replacement of faulty protection and control equipment.

Costs for overhead lines faults

2.11 In the first 6 years of RIIO-T1 we did not record any costs for overhead lines against faults, we have recorded these costs against our minor overhead line refurbishment programme. We recorded costs in this manner as typically repairs of this nature may lead to larger volumes of work. Our RIIO-T2 overhead line minor refurbishment programme is much more targeted and defined in detail therefore reactive capital costs have been recorded in this table in the absence of a specific category. Our RIIO-T2 costs are forecast from RIIO-T1 costs and also consider that the enhanced tower foundation inspection programme will lead to additional expenditure, evident from observed condition in RIIO-T1.

Reactive capital costs

2.12 The absence of a suitable data table in which reactive capital costs could be recorded has led to this incomparability of costs between the RIIO-T1 and RIIO-T2 periods. Our RIIO-T2 cost for table C2.20 Faults containing reactive capital costs was explained in BPDTC additional commentary section (a) for Table C2.20 Faults. Our reactive capital costs, including faults, for RIIO-T2 are forecast from our costs in RIIO-T1. In Table 1 below we have provided our RIIO-T1 reactive capital costs, excluding faults, on a per asset basis for the first 6 years for this price control period. We did not record overhead line or protection costs in this manner, as discussed previously in this document, however we have included the costs for these activities reported in 2020 regulatory reporting on an 18/19 price basis. Table 2 sums the RIIO-T1 fault costs reported in table C2.20 Faults with the reactive capital costs in Table 1 and compares to the RIIO-T2 reactive capital costs, including faults, reported in table C2.20 Faults, on a per asset basis. This demonstrates that our forecast expenditure in RIIO-T2 is in line with our RIIO-T1 expenditure and therefore these costs should be allowed in full.

		2014 (£m)	2015 (£m)	2016 (£m)	2017 (£m)	2018 (£m)	2019 (£m)	2020 (£m)
Substations	Transformers and reactors	0.160	0.150	0.047	0.135	0.006	0.157	-
Substations	Switchgear	0.480	-	0.102	0.416	0.173	0.471	-
Substations	SVC's and MSC's	-	-	-	-	-	-	-
Substations	Protection & control	-	-	-	-	-	-	0.084
Substations	LVAC	-	-	-	-	-	-	-
Substations	Other Costs	0.047	0.273	0.627	1.417	0.834	1.102	-
OHL	Towers and Foundations	-	-	-	-	-	-	-
OHL	Conductors, Insulators, Fittings etc.	-	-	-	-	-	-	0.307
OHL	Other Costs	-	-	-	-	-	-	-
Cables	Gas	-	-	-	-	-	-	-
Cables	Oil	-	-	-	-	-	-	-
Cables	XLPE	-	-	-	-	-	-	-
Cables	Subsea	-	-	-	-	-	-	-
Cables	Other Costs	-	-	-	-	-	-	-

Table 1 RIIO-T1 Reactive Capital Costs

		2014 (£m)	2015 (£m)	2016 (£m)	2017 (£m)	2018 (£m)	2019 (£m)	2020 (£m)	2022 (£m)	2023 (£m)	2024 (£m)	2025 (£m)	2025 (£m)	T1 Total 6 year (£m)	T1 Average (£m)	T2 Total (£m)	T2 Average (£m)
Substations	Transformers and reactors	0.497	0.456	1.044	1.004	0.697	0.157	-	0.574	0.574	0.576	0.580	0.582	3.855	0.64	2.888	0.58
Substations	Switchgear	0.655	0.400	0.384	0.564	0.216	0.518	-	0.574	0.574	0.576	0.580	0.582	2.737	0.46	2.888	0.58
Substations	SVC's and MSC's	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Substations	Protection & control	-	-	-	-	-	-	0.084	0.057	0.057	0.058	0.058	0.058	0.084	0.08	0.289	0.06
Substations	LVAC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Substations	Other Costs	0.272	0.601	1.201	1.462	0.874	1.269	-	0.919	0.919	0.922	0.928	0.932	5.679	0.95	4.620	0.92
OHL	Towers and Foundations	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OHL	Conductors, Insulators, Fittings etc.	-	-	-	-	-	-	0.307	0.574	0.574	0.576	0.580	0.582	0.307	0.31	2.888	0.58
OHL	Other Costs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cables	Gas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cables	Oil	2.880	1.908	1.240	0.507	0.503	1.693	-	1.245	1.245	1.250	1.258	1.262	8.731	1.46	6.260	1.25
Cables	XLPE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cables	Subsea	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cables	Other Costs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 2 RIIO-T1 & RIIO-T2 Reactive Capital Costs including Faults

Chapter 3: C2.21 Inspections

3.1 We submitted a Business Plan which requires investment of £7.4m to carry out inspection activities in line with our statutory duties, the condition of our assets and the increasing need for asset data to inform investment decisions. This has been reduced by Ofgem to an allowance of £5.5m.

3.2 There is an ongoing industry drive to further understand asset condition to ensure network companies are making the right investment at the right time. In order to achieve this, we continually seek to improve our inspection activities. The following discusses areas where we have had our costs reduced by Ofgem and explains either why the analysis set out by Ofgem in the Draft Determination has not captured our costs accurately or why we have increased expenditure in these areas. Ofgem's basic methodology to anchor costs to RIIO-T1 levels fails to address the needs of the asset base, changes in technology and increased focus on data-driven investments.

Inspection of substations

3.3 We record inspection costs of our substation assets as the cost for inspecting a substation and not on an individual asset basis, as required by Ofgem (BPDT Guidance on Business Plan Data Templates Version 1.4). Since we do not record our inspection costs in the manner required by Ofgem, we explained this in the BPDTC additional commentary sections (a) for Table C 2.21 Inspections and advised that to compare the costs for our substation inspection activities, they had to be considered as a whole. This also demonstrated how unit cost assessment could be influenced due to cost allocation. Ofgem has considered our costs asset by asset, not considering our comments in the BPDTC that our costs require to be considered as a whole, by doing so has decreased our expenditure in several areas.

3.4 When considered as a whole, as discussed in the BPDTC, it can be seen that the unit cost for substation inspection activities has in fact decreased, please Table 3 below.

Asset Class	Name	Voltage	Units	T1 6 Year Costs (£m)	T2 Costs (£m)	T1 6 Year volumes	T2 Volumes
Total	Circuit Breaker	HV	Each	-	-	-	-
Total	Circuit Breaker	33	Each	0.077	0.086	1,839.000	1,830.000
Total	Circuit Breaker	132	Each	0.430	0.560	10,835.000	10,590.000
Total	FACTS	132	Per Installation	-	0.000	-	9.000
Total	Reactor	132	Each	0.000	0.000	12.000	10.000
Total	Transformer	132	Each	0.029	0.034	976.000	870.000
Total	Circuit Breaker	275	Each	0.494	0.278	9,485.000	8,775.000
Total	FACTS	275	Per Installation	0.001	0.000	18.000	25.000
Total	Reactor	275	Each	0.003	0.001	86.000	75.000
Total	Transformer	275	Each	0.017	0.009	566.000	510.000
Total	Circuit Breaker	400	Each	0.220	0.129	4,715.000	4,565.000
Total	FACTS	400	Per Installation	0.001	0.001	27.000	32.000
Total	Reactor	400	Each	0.001	0.001	34.000	70.000
Total	Transformer	400	Each	0.006	0.004	189.000	195.000
			Total	1.279	1.105	28,782.000	27,556.000
			Units cost (£m)	0.000044	0.000040		

Table 3 Substation Inspections

Inspection of overhead line fittings

3.5 Our overhead line fittings costs have increased compared to RIIO-T1 as we have changed the method of our detailed condition-based assessments from helicopter to drones.

3.6 In order to continually strive to better understand our assets we believe that by carrying out our detailed condition assessment by drone, rather than by helicopter, will allow us to capture better quality images of our tower assets and conductor spacers than would be possible by using a helicopter. It will also allow us to gain access to areas for this activity not normally accessible by a helicopter.

3.7 Inspection by drone is a much longer process than inspection by helicopter and therefore comes with commensurately increased costs. However, we believe this increase in cost will be offset by the increased quality of data we will receive which will allow us to better plan our future investment activities thereby lowering costs overall across a longer time horizon.

3.8 We will still extensively use helicopters to inspect our overhead line fittings and they will continue to be used for annual statutory inspections as they allow us to access assets quickly and gather the level of detail that these inspections require.

3.9 Significant changes to generation and demand have taken place throughout RIIO-T1 and we now have a network to which very little large-scale thermal generation is connected. This has caused radical changes to the flows on the interconnected network and the potential impact of a system fault on our overhead line has increased significantly. Our network is typically at most risk in the winter months and as a result we have had some significant faults. We now therefore carry out additional helicopter inspections in the winter months to allow us to pro-actively identify and remedy any potential issues. These supplementary inspections using less expensive helicopters complement the detailed drone condition assessments.

3.10 Due to the requirement of Ofgem Guidance on Business Plan Data Templates Version 1.4, reporting for multiple activities on an asset to only be counted as 1 in any year, the volumes of activities where assets are inspected more frequently will not be recorded. For example, an asset may have a detailed condition-based assessment carried out and in the same year is also subject to a statutory inspection, this would only be recorded as a volume of 1 in line with Ofgem's requirement. However, expenditure will be incurred for both activities artificially inflating the unit cost as the volumes are not representative of activity volume.

Inspection of overhead line conductor

3.11 Our overhead line conductor allowance in the Draft Determination has been incorrectly reduced by Ofgem from the Business Plan submission. As described in the BPDTC additional commentary sections (a) and (c) for Table C 2.21 Inspections, our overhead line conductor costs are made up of our annual thermal inspections and in 2023 a LiDAR survey. The inclusion of the LiDAR survey increases the unit cost for conductor on 132, 275 and 400kV tower lines to above RIIO-T1 levels due to a one-off activity and therefore Ofgem has reduced our costs. When the cost of LiDAR surveys is removed the conductor inspection costs for

2023 would be in line with 2025 and our overall unit cost for conductor would be less than RIIO-T1 levels. Ofgem should have considered the one-off nature of the costs increase in 2023 due the Lidar survey and amended the unit cost assessment accordingly. It is now our policy to carry out a LiDAR survey every 5th year which allows us to accurately measure any potential ground infringements of conductors and the verticality of towers.

Inspection of towers

3.12 In our Business Plan, we have submitted a marginal increase to the unit cost for inspecting towers which amounts to less than £5 per asset. This is to ensure we have increased time for our tower inspections in line with the industry drive for continuous improvement in asset data to focus capital expenditure, minimising costs to consumers. The disallowance by Ofgem of this marginal increase in unit cost is unjustified.

Inspection of cables

3.13 Our cable inspection costs have increased in RIIO-T2 when compared to RIIO-T1. This is due to the necessary changes we have made to our inspection activities outlined below. The unit cost analysis undertaken by Ofgem has led to these additional costs being disallowed. We believe the changes to our cable inspection activities are required to ensure the health and safety of our staff and members of the public and supports the ongoing industry drive for continuous improvement in asset data. We therefore, disagree with the disallowance of the cost in the Draft Determination and believe these should be reinstated in line with the values in the SPT Business Plan.

3.14 In RIIO-T1 we had a significant number of XLPE cable terminations fail prematurely. These failures were disruptive and led to porcelain fragments being projected up to 50 metres from the failed termination. This represents an unacceptable health and safety risk to SPT staff and members of the public who may be near the substation.

3.15 As described in the BPDTC we have introduced routine partial discharge testing of all our XLPE cable terminations to identify problematic cable terminations prior to failure. More details of failed terminations can be found in EJP_SPT_SPNLT_20113. This EJP and associated investment has been approved by Ofgem in the Draft Determination. The EJP discusses the programme of proactive XLPE cable termination replacement when a failure mechanism has been detected. Cable inspection costs have increased to account for the partial discharge testing to detect these issues. SPT inspect all cables every year.

3.16 Due to the requirement of Ofgem reporting for multiple activities on an asset to only be counted as 1 in any year the volumes of activities where assets are inspected more frequently will not be recorded. For example, we will carry out routine inspection of all our cables and then carry out an additional partial discharge inspection on XLPE terminations, the volume of activity associated with the XLPE partial discharge inspection will not be recorded. However, expenditure will be incurred artificially inflating the unit cost significantly as the volumes are not representative of activity volume.

3.17 Inspection costs for oil filled cables have increased marginally to ensure we have higher quality inspections in line with the industry drive for continuous improvement in asset data to focus capital expenditure, minimising cost.

Chapter 4: C2.22 Repairs and Maintenance

4.1 We submitted a Business Plan which requires investment of £48.6m to carry out maintenance activities in line with Asset-01-028 Issue 1: SPT Plant Maintenance Policy, Asset-01-029 Issue 1: SPT Overhead Line Inspection and Condition Assessment Policy and CAB-01-007 Issue 3: Cable Maintenance and Inspection Policy which has been reduced by Ofgem to an allowance of £41.8m.

4.2 We have reviewed our maintenance practices to take into account new technology, deteriorating asset condition and the industry drive to improve asset data, which results in variance from RIIO-T1 costs in some areas. The following discusses areas where our costs have been reduced in the Draft Determination and

explains either why Ofgem's analysis as part of the Draft Determination has not captured our costs accurately or why increased expenditure in these areas is justified. Ofgem's methodology fails to take in to account the necessary cost increase to repairs and maintenance activities discussed in the SPT Business Plan, associated annexes and the BPDTC commentary.

Cable maintenance

4.3 We have discussed in the BPDTC additional commentary section (a) for Table C 2.22 Repairs and Maintenance our increased expenditure on cable maintenance. In RIIO-T1 our cable maintenance activities have primarily been on our oil filled cable assets and mostly on a reactive basis. As a result of this, we have seen an unanticipated degradation of our cable assets which we are now having to address.

4.4 We therefore have a number of capital programme EJPs included in the Business Plan namely EJP_SPT_SPNLT20112, EJP_SPT_Cable Major Refurbishment Programme and EJP_SPT_SPNLT_20113 associated with the replacement of oil filled cables, refurbishment of oil filled cables and replacement of XLPE cable terminations which have all been approved by Ofgem in the Draft Determination. These EJPs detail the issues that have been experienced and have driven the need for more extensive maintenance of cable assets.

4.5 We carry out some maintenance activities annually on our oil filled cable fleet. However due to the requirement of Ofgem Guidance on Business Plan Data Templates Version 1.4, reporting for multiple activities on an asset to only be counted as 1 in any year the volume of activity recorded does not change when additional activities are undertaken. Such activities include, for example, carrying out non-outage gauge checks, outage-based maintenance and a subsequent repair on an oil filled cable. The costs recorded for the example will be the sum of the costs for all 3 activities, however the volume of activity will be a volume of 1. If we had carried out non-outage gauge checks then the costs would only be for this activity and the volume would be 1. The capping of the reporting of any volume in a year to 1 therefore artificially inflates the unit costs when multiples activities are carried out on the same cable.

132kV Pole line conductor and pole maintenance

4.6 We have forecast higher costs for our 132kV pole line conductor and our 132kV poles when compared to RIIO-T1. We anticipate increased expenditure due to a larger network as a result of connecting renewable generation in exposed geographical locations, which will lead to more significant repairs when compared to RIIO-T1. Ofgem have allowed costs in line with our RIIO-T1 units costs, this does not recognise the growth in the SPT network of 132kV pole line conductor and 132kV poles throughout RIIO-T1 and the costs associated with maintaining a larger, ageing, network

Tower maintenance

4.7 Our expenditure on towers is forecast to increase in RIIO-T2 as discussed in BPDTC additional commentary section (a) for Table C 2.22 Repairs and Maintenance. During major overhead line projects in RIIO-T1 we undertook inspections of the associated tower foundations and found in many instances that they had not been installed according to the design. This is detailed in a number of EJP's submitted with the Business Plan to support the non-load overhead line programme, examples of which are EJP_SPT_SPNLT207 and EJP_SPT_SPNLT208. This has led us to introduce investigation and remediation of tower foundations during maintenance activities. This requires us to dig down on tower foundations, carry out dimensional checks, take core samples and remediate where necessary to ensure the integrity of the structure. This is further evidence of us improving our asset data to ensure we focus capital expenditure, minimising cost to consumers. The cost assessment by Ofgem has not taken into account the change to SPT costs as a result of this activity and has assumed year on year the nature of activity between RIIO-T1 and RIIO-T2 will be the same. Network operators need to be able to be flexible in their approach to maintaining their assets and make considered changes to their practices and therefore incur additional, efficient, costs. The unit cost assessment carried out by Ofgem wrongly precludes the network operator from making these necessary changes.

275kV FACTS maintenance

4.8 In RIIO-T1 we have built, and are in the process of placing into service, the first hybrid synchronous compensator. The maintenance requirement of this unit is higher than conventional transmission plant which adds significantly to our maintenance costs for 275kV FACTS as discussed in BPDTC additional commentary section (a) for Table C 2.22 Repairs and Maintenance. In RIIO-T1, we have only needed to carry out minimal maintenance to our 275kV FACTS assets due to them being new and their operating regime initially very light meaning our expenditure in RIIO-T1 has been very low for this asset type. In RIIO-T2 we will need to carry out a full and regular maintenance regime on all assets in this category including the new hybrid synchronous compensator. Although SPT's allowance in the draft determination by Ofgem is in line with RIIO-T1 unit costs, this fails to recognise the increased maintenance costs associated with the hybrid synchronous compensator or the increased costs associated with other FACTS equipment.

132kV Transformer maintenance

4.9 In 2019 the regulations regarding Persistent Organic Pollutants was updated to require all pre-1987 oil filled equipment with an oil volume of 50ml be tested for PCB contamination and assets are considered to be contaminated if the level of PCB exceeds 50ppm. All contaminated equipment must be disposed of by the 31 December 2025. The previous regulations required oil filled assets with an oil volume greater than 5 litres be tested. This has led to us having to introduce a significant testing regime, most notably on transformer bushings, to confirm the PCB levels in previously untested assets. We plan to test all assets in this category to confirm this position by the end of 2023. This has led to an increase in our costs for transformer maintenance in the years 2022 and 2023, most notably on our 132kV transformer fleet. This additional legal requirement and associated expenditure has led to an increase in the RIIO-T2 unit cost for 132kV transformers due to legislative requirements beyond the control of SPT which has wrongly been disallowed by Ofgem. SPT carry out maintenance activities on all 132kV transformers annually, the requirement to carry out additional testing for PCB contamination has led to increased maintenance activities in 2022 and 2023. Due to the requirement as outlined in Ofgem Guidance on Business Plan Data Templates Version 1.4, that multiple maintenance activities in a year are reported as a volume of 1, the increased volume of testing required in 2022 and 2023 is not considered in unit costs analysis which artificially inflates the T2 unit cost.

275kV Transformer maintenance

4.10 Our 275kV transformer costs have increased in RIIO-T2 due to the maintenance costs associated with our gas filled transformers. Gas filled transformers are not common outside of Asia and, as such, the prevalence of maintenance expertise is small and limited to the manufacturer's personnel from Japan. The BPDTC additional commentary section (c) for Table C 2.22 Repairs and Maintenance notes the costs for the maintenance of gas filled transformers as outlying in 2020, 2023 and 2026. The expenditure associated with the maintenance of our gas filled transformers has a significant impact on the unit cost analysis for our 275kV transformer as the significant levels of expenditure required to maintain these assets in 2020, 2023 and 2026 have not yet been experienced in RIIO-T1 (noting that Ofgem's analysis is limited to the first six years of RIIO-T1). The Ofgem analysis has failed to take into account the outlying costs associated with maintaining SPT's gas filled transformers, as identified by SPT, when carrying out unit costs analysis and have therefore disallowed costs based on unit cost analysis not considering the outlying expenditure. When the cost for this maintenance activity is removed from our 275kV maintenance costs our RIIO-T2 275kV transformer maintenance unit cost is less than in RIIO-T1.

33kV Outdoor circuit breaker maintenance

4.11 We currently have a programme to return some of our modern outdoor 33kV circuit breakers to works for issues relating to the bushings and due to SF₆ gas leaks, this has led us to include a small increase in our repair's costs. Ofgem have allowed costs in line with our RIIO-T1 units costs, this does not recognise the increased incidence of repairs that SPT are experiencing on these assets.

Civils costs at 132, 275 and 400kV sites

4.12 Ofgem has calculated our civil costs at 132, 275 and 400kV sites using an annualised cost, due to volumes not being available for this activity. However, volumes have not been provided for these activities by SPT in the BPDT because the table design does not permit it. This therefore does not account for the associated growth of the network in RIIO-T1 and the associated maintenance costs with a larger network. We also have a large installation programme of diesel generators at substations to ensure substations are resilient to a black start event. This leads to significant increased expenditure on generator maintenance in RIIO-T2 when compared to RIIO-T1. The annualised cost approach by Ofgem leading to costs being wrongly disallowed, fails to take into account the network growth leading to an increased number of substations requiring to be maintained in RIIO-T2 or the increased maintenance costs associated with a large diesel generator fleet. We are happy to provide Ofgem volumes to carry out an appropriate unit cost analysis for this activity.

132kV Reactor maintenance

4.13 We have had our proposed allowance for 132kV reactors reduced following Ofgem's unit cost analysis. We only have two 132kV reactors in the SPT fleet and each has a maintenance activity annually. Due to the small number of units, unit cost analysis is not appropriate in this instance as the 5-year unit cost for RIIO-T2 compared to the 6-year unit cost for RIIO-T1 will always be higher. Please see Table 4 below calculating unit cost.

				RIIO T1 6 Year costs (£m)	RIIO T1 5 Year costs (£m)	RIIO T2 Costs (£m)	RIIO T1 6 Year volume	RIIO T1 5 Year volume	RIIO-T2 Volume
Total	Reactor	132	Each	0.008	0.008	0.008	12.000	10.000	10.000
			Unit Cost	0.00069	0.00078	0.00078			

Table 4 Reactor costs

Minor unit cost variances

4.14 We have had reductions to our allowances for protection schemes and 400kV reactor maintenance. The difference in unit cost between RIIO-T1 and RIIO-T2 is less than £20 for protection schemes and less than £13 for 400kV reactors. The disallowance associated with this minimal increase in unit cost and overall cost impact is entirely unjustified.

Chapter 5: C2.23 Vegetation Management

5.1 We submitted a Business Plan which requires investment of £2m for vegetation management activities in line with OHL-01-005 Issue 5: Tree Management Policy for ESQCR Compliance and OHL-03-080 Issue 7: Specification for Overhead Line Vegetation Management Work which has been reduced to a proposed allowance of £1.4m.

5.2 We manage our tree cutting activities on a "managed route km" basis and not on a "number of spans inspected" and "number of span cut" basis as per the Ofgem Guidance on Business Plan Data Templates Version 1.4 requirements. We have therefore had to present our costs in the Business Plan in Ofgem's BPDT format which has taken a degree of interpretation and for which no allowance has been made in Ofgem's analysis. The reporting requirements in the BPDT offer no additional benefit to reporting on costs and volumes on a "managed route km" basis. It requires interpretation of data in a manner not previously required to be considered by SPT. Reporting requirements in line with the companies' recording procedures would lead to more accurate reporting and therefore analysis.

5.3 Our vegetation management costs are made up of planned and reactive tree cutting, with our costs in RIIO-T1 recorded and reported as an overall figure. The RIIO-T2 BPDT requires us to split our cost into spans cut and spans inspected. We therefore reviewed our RIIO-T1 programmes and split the costs proportionally between inspect and cut at each voltage as permitted by the historical data available. For our RIIO-T2 costs we split our planned costs proportionally between "inspect" and "cut" at each voltage in line with RIIO-T1

activity level. However, due to our reactive activities being cutting we allocated these costs to “cut” only as it is possible to allocate forecast costs in the format required. This has made our unit cost for cutting in RIIO-T2 appear artificially higher compared to RIIO-T1.

5.4 When our vegetation management costs and volumes are considered as a whole, our unit cost for RIIO-T1 is £78.08 and the submitted RIIO-T2 unit cost is £79.15. The RIIO-T2 Draft Determination unit cost is £54.95. There is a marginal increase in the RIIO-T2 submission costs as discussed in BPDT additional commentary section (a) for Table C 2.23 Vegetation Management, to allow for network growth however it is not possible to accurately forecast the number of additional spans at this time. The unit cost allowed in the Draft Determination would require us to reduce our tree cutting activities from a planned 25,595 spans to 17,769 spans. This reduction in activity could lead to unplanned system outages and increase the risk to public safety as trees become too close to overhead lines. Unit cost analysis can be seen in Table 5.

Price Control Period	Voltage	Unit	RIIO-T1	RIIO-T2 Submission	RIIO-T2 Draft Detremination
Spans Cut	66kV	Spans	-	-	-
Spans Inspected	66kV	Spans	-	-	-
Spans Cut	132kV	Spans	0.132	0.434	0.133
Spans Inspected	132kV	Spans	0.941	0.561	0.561
Spans Cut	275kV	Spans	0.084	0.239	0.070
Spans Inspected	275kV	Spans	0.549	0.309	0.309
Spans Cut	400kV	Spans	0.043	0.211	0.061
Spans Inspected	400kV	Spans	0.477	0.272	0.272
Total		(£m)	2.225	2.026	1.406
VOLUMES					
Price Control Period	Voltage	Unit	RIIO-T1	RIIO-T2 Submission	RIIO-T2 Draft Detremination
Spans Cut	66kV	Spans	-	-	-
Spans Inspected	66kV	Spans	-	-	-
Spans Cut	132kV	Spans	1,626,000	1,640,000	1,640,000
Spans Inspected	132kV	Spans	11,912,000	10,940,000	10,940,000
Spans Cut	275kV	Spans	1,078,000	900,000	900,000
Spans Inspected	275kV	Spans	7,142,000	6,015,000	6,015,000
Spans Cut	400kV	Spans	561,000	795,000	795,000
Spans Inspected	400kV	Spans	6,178,000	5,305,000	5,305,000
Total			28,497,000	25,595,000	25,595,000
		Unit cost (£)	78.08	79.15	54.95

Table 5 Vegetation Management

5.5 The approach adopted by Ofgem wrongly discounts the effect of introducing new reporting requirements that are incompatible with historical data. It is clear from Table 5 that instead of attempting to be as accurate as possible with forecast costs, had we simply replicated the reporting requirements of RIIO-T1, the unit cost awarded would have been equal to the RIIO-T1 rate. The result is a 30% reduction in this activity which is critical to public safety and network reliability.

Chapter 6: C2.24 Legal and Safety

6.1 We submitted a Business Plan which requires investment of £20.5m to carry out activities reported in the BPDT C2.24 Legal and Safety table which has been reduced by Ofgem to an allowance of £12.9m. The Ofgem BPDT Guidance requires both operational and capital expenditure to be recorded in this table. All the deductions made by Ofgem to our proposed allowance are associated with site security at 132, 275 and 400kV.

6.2 The costs in RIIO-T1 are operational costs only whereas the costs in RIIO-T2 are both operational and capital costs. The unit cost analysis carried out by Ofgem benchmarks RIIO-T2 operational and capital costs against RIIO-T1 operational costs which cannot be considered valid analysis, to truly benchmark these costs then the capital element has to be removed from the RIIO-T2 costs. The proposed capital expenditure of £8.72m is detailed in EJP_SPT_SPNLT_C2.24_Site Security which has been approved by Ofgem in the Draft Determination. When the project capital costs, approved in the EJP, are removed from the proposed RIIO-T2 expenditure, the operational costs are as can be seen in Table 6 below. The RIIO-T2 unit costs are less than RIIO-T1 unit costs.

6.3 Therefore, the reductions in this category are wrong.

Legal & Safety			T1 6 Year Costs (£m)	T2 Costs (£m)	T1 6 Year volumes	T2 Volumes	T1 Unit Costs (£m)	T2 Unit Costs (£m)
Site security	132kV Substations	132kV	1.574	1.045	250.000	250.000	0.006	0.004
Site security	275kV Substations	275kV	1.301	0.731	202.000	175.000	0.006	0.004
Site security	400kV Substations	400kV	0.592	0.376	93.000	90.000	0.006	0.004

Table 6 Legal and Safety (No Capex)

Chapter 7: Conclusion

7.1 SPT have endeavoured to minimise any cost increases associated with network operating costs. In areas where costs have increased this is predominantly due to necessary changes to regimes to ensure the continued safe operation of assets and the need to ensure asset data is gathered at an appropriately granular level to ensure asset condition is fully understood. SPT continually review policies and procedures to ensure that they remain suitable and sufficient for the status of the asset base and the wider prevailing environment, including advances in asset data modelling. These evolving needs result in justified variances from historical rates which should be considered in detail when undertaking cost comparisons. On this basis the costs disallowed, by Ofgem, in the draft determination should be reinstated to original funding level.