Environment Report 2022/23
Annexes 1 to 7

Overview

This file contains Annexes 1 to 7 to the Environment Report 2022/23.
Annexes 1 to 7 and the associated commentary are an edited copy of our annual submission to the regulator*. We have made the format easier to navigate and removed confidential information with agreement from Ofgem. The structure and content of this document reflect their specific purpose, and as a result are not suited for the reader looking for some general information. For that reader, we recommend the Environment Report.

Each Annex consists of two tabs, as they contain information for each of our two licences: Northeast and Yorkshire.
(As an example, tab 1N contains information relating to the Northeast licence and 1Y to Yorkshire.)

Date of publication: October 2023

*We did not apply to Ofgem for the relevant adjustment for the purposes of the Innovation Roll-out Mechanism (IRM), hence we have not had anything to report on this measure.

Navigation

Associated documents:

- Environment Report 2022/23, October 2023
- Detailed Commentary Associated with Annexes 1 to 7 to the Environment and Innovation 2022/23 report, October 2023
- Cost benefit analysis tables, October 2023
- Regulatory Instructions and Guidance (RIGs) for RIIO-ED1, Ofgem, May 2022, available from https://www.ofgem.gov.uk/publications/direction-make-modifications-regulatory-instructions-and-guidance-rigs-riio-ed1-version-70

1Y - Visual Amenity
NPgY
2022/23

Volumes/ Additions

			DPCR5					RIIO-ED1								Total	
			2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	DPCR5	RIIO-ED1
			#	#	#	#	#	#	#	#	#	#	#	#	#	#	#
Volume - Visual Amenity Inside Designated Areas																	
OHL Inside Designated Areas at End of Reporting Year (km)	LV	km	111	109	106	102	102	109	106	104	104	102	102	102	102	**530**	**831**
OHL Inside Designated Areas at End of Reporting Year (km)	HV	km	746	744	744	741	740	740	739	738	733	724	724	724	713	**3,716**	**5,836**
OHL Inside Designated Areas at End of Reporting Year (km)	EHV	km	131	131	131	131	131	131	131	131	131	131	131	131	131	**657**	**1,049**
OHL Inside Designated Areas at End of Reporting Year (km)	132kV	km	23	23	23	23	23	23	23	23	23	23	23	23	23	**115**	**183**
Total OHL Inside Designated Areas at End of Reporting Year (km)		km	1,011	1,008	1,004	998	996	1,003	999	995	991	981	980	980	969	**5,017**	**7,898**
OHL (km) Removed During Year	LV	km	0	1	3	4	0	2	3	2	0	1	0	-	1	**8**	**9**
OHL (km) Removed During Year	HV	km	-	4	-	3	1	6	1	2	4	9	1	-	11	**9**	**33**
OHL (km) Removed During Year	EHV	km	-	-	-	-	-								-	**-**	**-**
OHL (km) Removed During Year	132kV	km	-	-	-	-	-								-	**-**	**-**
Total OHL (km) Removed During Year		km	0	5	3	7	1	8	4	4	4	10	1	-	11	**17**	**42**
UG Cables Installed During Year (km)	LV	km	0	1	3	4	0	2	3	2	0	2	1	-	2	**8**	**11**
UG Cables Installed During Year (km)	HV	km	-	4	-	3	1	6	1	2	5	10	1	-	10	**9**	**35**
UG Cables Installed During Year (km)	EHV	km														**-**	**-**
UG Cables Installed During Year (km)	132kV	km														**-**	**-**
Total UG Cables Installed During Year (km)		km	0	5	3	7	1	8	4	4	6	12	1	-	12	**17**	**46**
Volume - Visual Amenity Outside Designated Areas (10% Allowance)																	
OHL (km) Removed During Year	LV	km														**-**	**-**
OHL (km) Removed During Year	HV	km														**-**	**-**
OHL (km) Removed During Year	EHV	km														**-**	**-**
OHL (km) Removed During Year	132kV	km														**-**	**-**
Total OHL (km) Removed During Year			-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
UG Cables Installed During Year (km)	LV	km														**-**	**-**
UG Cables Installed During Year (km)	HV	km														**-**	**-**
UG Cables Installed During Year (km)	EHV	km														**-**	**-**
UG Cables Installed During Year (km)	132kV	km														**-**	**-**
Total UG Cables Installed During Year (km)			-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**

Undergrounding Activity Under ED1 Visual Amenity Allowance

		OHL Inside Designated Areas at End of Reporting Year (km)					**Visual Amenity Inside Designated Areas: OHL (km) Removed During Year**					**Visual Amenity Inside Designated Areas: UG Cables Installed During Year (km)**					**Visual Amenity Outside Designated Areas: OHL (km) Removed During Year**					**Visual Amenity Outside Designated Areas: UG Cables Installed During Year (km)**					**Visual Amenity Outside Designated Areas: Visual Amenity Expenditure (£m) on Visual Amenity Outside Designated Areas by voltage**				
		LV	HV	33kV & 66kV	132kV	**Total**	LV	HV	33kV & 66kV	132kV	**Total**	LV	HV	33kV & 66kV	132kV	**Total**	LV	HV	33kV & 66kV	132kV	**Total**	LV	HV	33kV & 66kV	132kV	**Total**	LV	HV	33kV & 66kV	132kV	**Total**
Peak District	DA1	23.65	137.26	34.69	-	195.60	-	-	-	-	-	-	-	-	-	-					-					-					
Yorkshire Dales	DA2	20.41	193.97	18.62	-	233.00	-	-	-	-	-	-	-	-	-	-					-					-					
Nidderdale	DA3	11.72	95.34	-	-	107.07	-	-	-	-	-	-	-	-	-	-					-					-					
Lincolnshire Wolds	DA4	45.84	286.59	77.79	22.93	433.15	-	-	-	-	-	-	-	-	-	-					-					-					
		45.84	286.59	77.79	22.93	433.15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					

1N - Visual Amenity
NPgN
2022/23

Volumes/ Additions

			DPCR5					RIIO-ED1							Total	
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	DPCR5	RIIO-ED1
		#	#	#	#	#	#	#	#	#	#	#	#	#	#	#
Volume - Visual Amenity Inside Designated Areas																
OHL Inside Designated Areas at End of Reporting Year (km	LV	km	455	451	444	442	434	427	419	414	411	408	405	402	400.9	**2,227**	**3,288**
OHL Inside Designated Areas at End of Reporting Year (km	HV	km	2,942	2,943	2,822	2,822	2,822	2,809	2,808	2,804	2,800	2,800	2,797	2,786	2,784.5	**14,350**	**22,388**
OHL Inside Designated Areas at End of Reporting Year (km	EHV	km	217	217	175	175	175	175	175	175	175	175	175	175	174.7	**958**	**1,398**
OHL Inside Designated Areas at End of Reporting Year (km	132kV	km	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
Total OHL Inside Designated Areas at End of Reporting Year (		km	3,614.29	3,611.77	3,440.76	3,438.22	3,430.69	3,411.45	3,402.29	3,392.30	3,385.37	3,382.16	3,376.78	3,362.79	3,360.13	**17,536**	**27,073**
OHL (km) Removed During Year	LV	km	3.63	7.35	5.57	2.54	7.52	9.11	8.33	5.48	2.59	3.20	2.60	3.03	1.34	**27**	**36**
OHL (km) Removed During Year	HV	km	-	-	-	-	-		0.83	4.52	4.34	0.01	2.78	10.96	1.33	**-**	**25**
OHL (km) Removed During Year	EHV	km	-	-	-	-	-									**-**	**-**
OHL (km) Removed During Year	132kV	km	-	-	-	-	-									**-**	**-**
Total OHL (km) Removed During Year		km	3.63	7.35	5.57	2.54	7.52	9.11	9.16	10.00	6.93	3.21	5.38	13.99	2.67	**27**	**60**
UG Cables Installed During Year (km)	LV	km	3.63	7.39	5.59	2.58	7.65	9.07	7.98	7.08	2.72	3.86	2.68	4.63	1.58	**27**	**40**
UG Cables Installed During Year (km)	HV	km	-	-	-	-	-		0.89	4.95	4.87	0.02	3.79	6.77	6.94	**-**	**28**
UG Cables Installed During Year (km)	EHV	km	-	-	-	-	-									**-**	**-**
UG Cables Installed During Year (km)	132kV	km	-	-	-	-	-									**-**	**-**
Total UG Cables Installed During Year (km)		km	3.63	7.39	5.59	2.58	7.65	9.07	8.88	12.03	7.59	3.88	6.47	11.40	8.52	**27**	**68**
Volume - Visual Amenity Outside Designated Areas (10% Allowance)																	
OHL (km) Removed During Year	LV	km														**-**	**-**
OHL (km) Removed During Year	HV	km														**-**	**-**
OHL (km) Removed During Year	EHV	km														**-**	**-**
OHL (km) Removed During Year	132kV	km														**-**	**-**
Total OHL (km) Removed During Year			-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
UG Cables Installed During Year (km)	LV	km														**-**	**-**
UG Cables Installed During Year (km)	HV	km														**-**	**-**
UG Cables Installed During Year (km)	EHV	km														**-**	**-**
UG Cables Installed During Year (km)	132kV	km														**-**	**-**
Total UG Cables Installed During Year (km)			-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**

Undergrounding Activity Under ED1 Visual Amenity Allowance

		OHL Inside Designated Areas at End of Reporting Year (km)					**Visual Amenity Inside Designated Areas: OHL (km) Removed During Year**					**Visual Amenity Inside Designated Areas: UG Cables Installed During Year (km)**					**Visual Amenity Outside Designated Areas: OHL (km) Removed During Year**					**Visual Amenity Outside Designated Areas: UG Cables Installed During Year (km)**					**Visual Amenity Outside Designated Areas: Visual Amenity Expenditure (£m) on Visual Amenity Outside Designated Areas by voltage**				
		LV	HV	33kV & 66kV	132kV	**Total**	LV	HV	33kV & 66kV	132kV	**Total**	LV	HV	33kV & 66kV	132kV	**Total**	LV	HV	33kV & 66kV	132kV	**Total**	LV	HV	33kV & 66kV	132kV	**Total**	LV	HV	33kV & 66kV	132kV	**Total**
Howardian Hills	DA1	17.85	199.18	39.10	-	256.13	-	-	-	-	-	-	-	-	-	-					-					-					-
Nidderdale	DA2	87.66	363.32	13.19	-	464.17	1.34	1.33	-	-	2.67	1.58	6.94	-	-	8.52					-					-					-
North Pennines	DA3	98.65	580.81	30.13	-	709.58	-	-	-	-	-	-	-	-	-	-					-					-					-
Northumberland Coast	DA4	11.63	71.50	-	-	83.13	-	-	-	-	-	-	-	-	-	-					-					-					-
Northumberland	DA5	21.91	297.21	23.21	-	342.33	-	-	-	-	-	-	-	-	-	-					-					-					-
North Yorks Moors	DA6	112.38	975.69	69.07	-	#####	-	-	-	-	-	-	-	-	-	-					-					-					-
Yorkshire Dales	DA7	50.82	296.92	-	-	347.63	-	-	-	-	-	-	-	-	-	-					-					-					-
		400.90	#####	174.70	-	#####	1.34	1.33	-	-	2.67	1.58	6.94	-	-	8.52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

2Y - Environmental Reporting
NPgY
2022/23

	Unit	Costs															Volumes/ Additions													
		DPCR5					RIIO-ED1								Total		DPCR5					RIIO-ED1								Total	
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	DPCR5	RIIO-ED1	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	DPCR5	RIIO-ED1
		£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#
Environmental costs and volumes																														
Undergrounding for Visual Amenity	km removed	0.01	-	-	-	-					-	-			**0**	**-**	0.5									-	-			**1**	**-**
Non-Undergrounding Visual Amenity Schemes	# interventions										-	-			**-**	**-**										-	-			**-**	**-**
Oil Pollution Mitigation Scheme - Cables	#										-	-			**-**	**-**										-	-			**-**	**-**
Oil Pollution Mitigation Scheme - Operational Sites	#	0.11	0.09	0.06	0.23	0.18	0.34	0.31	0.06	0.17	0.07	0.12	0	0.12	**0.7**	**1.2**	11.0	6.0	2.0	27.0	22.0	112.0	86.0	4.0	25.0	33.0	-			**68**	**260**
Oil Pollution Mitigation Scheme - Non Operational Sites	#										-	-			**-**	**-**							-	-	-	-	-			**-**	**-**
Persistent Organic Pollutant asset changes	#	0.15	0.24	-	-	-					-	-														-	-				
Persistent Organic Pollutant oil changes	#										-	-														-	-				
Persistent Organic Pollutant oil testing	#										-	-														-	-				
SF6 Emitted Mitigation Schemes	#										0.01	-		0	**-**	**0**							-	-	-	1.0	-		1.0	**-**	**2**
Noise Pollution	# Interventions	0.01	-	0.04	0.13	0.22	0.13	0.19	0.03	0.03	0.00	0.07	0		**0.4**	**0.5**	-	-	2	2.0	8.0	4.0	4.0	1.0	2.0	2.0	3.0	1.0	-	**12**	**17**
Contaminated Land Clean Up	#							0.15	0.21	0.05	0.11	-	0	0	**-**	**0.6**							3.0	3.0	1.0	1.0	-	15.0	13.0	**-**	**36**
Environmental Civil Sanction	#										-	-			**-**	**-**	20.0	22.0	18.0	14.0	9.0	5.0	6.0	7.0	6.0	7.0	6.0		6.0	**83**	**43**
Total		**0.3**	**0.3**	**0.1**	**0.4**	**0.4**	**0.5**	**0.6512**	**0.3**	**0.3**	**0.2**	**0.2**	**0.1**	**0.2**	**1.5**	**2.3**															
Fluid-Filled Cables																														
Fluid-Filled Cables in service	Circuit km																607	591	481	461	451	438	421	418	407	379	359	345	325		
Oil in Service in Cables	Fluid ltrs																1,576,581	1,558,529	1,425,357	1,398,926	1,362,751	1,145,692	1,089,978	1,078,596	1,042,745	974,315	914,406	870,045	803,691		
Fluid Used to Top Up Cables	Fluid ltrs																31,250	33,788	51,905	42,951	28,113	18,732	18,150	17,438	19,567	24,267	20,224	19,383	10,754	**188,007**	**148,515**
Fluid Used to Top Up Cables as a percentage of volume in service	%																2%	2%	4%	3%	2%	2%	1.67%	2%	2%	2%	2%	2%	1.34%		
Fluid Recovered from Fluid-Filled Cables	Fluid ltrs																-	-	-	9,344	11,370	2,361	6,928	2,699	1,810	7,229	8,143	6,032	17,695	**20,714**	**52,897**
SF6																														
SF6 Bank	kg																9,089	12,825	16,401	17,281	17,817	18,304	18,638	19,101	19,487	19,605	19,679	20,193	20,526		
SF6 Emitted	kg																47	97	36	98	79	84	99	62	47	48	49	87	107	**357**	**584**
SF6 Emitted as a percentage of SF6 Bank	%																1%	1%	0%	1%	0%	0%	0.53%	0%	0%	0%	0%	0%	0.52%		
Noise Pollution																														
Total complaints received	#																	7	19	17	26	11	18	27	16	19	39	26	26	**69**	**182**

2N - Environmental Reporting
NPgN
2022/23

	Unit	Costs															Volumes/ Additions													
		DPCR5					RIIO-ED1								Total		DPCR5					RIIO-ED1								Total	
		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	DPCR5	RIIO-ED1	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	DPCR5	RIIO-ED1
		£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#
Environmental costs and volumes																														
Undergrounding for Visual Amenity	km removed	-									-	-			**-**	**-**										-	-	-	**-**	**-**
Non-Undergrounding Visual Amenity Schemes	# interventions										-	-			**-**	**-**										-	-	-	**-**	**-**
Oil Pollution Mitigation Scheme - Cables	#										-	-			**-**	**-**										-	-	-	**-**	**-**
Oil Pollution Mitigation Scheme - Operational Sites	#	0.10	0.06	0.13	0.09	0.19	0.16	0.26	0.05	0.10	0.06	0.04	0.02	-0.000	**1.3**	**1.3**	11.0	8.0	4.0	14.0	18.0	34.0	45.0	4.0	23.0	22.0	-		2.0	**55**	**130**
Oil Pollution Mitigation Scheme - Non Operational Sites	#										-	-		-	**-**	**-**							-	-	-	-	-	-	**-**	**-**
Persistent Organic Pollutant asset changes	#	-	-	-	-	-					-	-			**-**											-	-	-	**-**	
Persistent Organic Pollutant oil changes	#										-	-		0.069												-	-	17.0		
Persistent Organic Pollutant oil testing	#										-	-		0.003												-	-	20.0		
SF6 Emitted Mitigation Schemes	#								0.08	0.08	0.04	-		-	**-**	**0.2**							-	6.0	5.0	2.0	-		-	**-**	**13**
Noise Pollution	# Interventions	0.07	0.08	0.16	0.30	0.11	0.03	0.06	0.56	0.00	0.02	0	0	0.071	**1.7**	**1.7**	6	1	4	2.0	3.0	3.0	3.0	3.0	-	3.0	-	1.0	1.0	**16**	**14**
Contaminated Land Clean Up	#							-	-		-	-	0	0.028	**-**	**0.0**							-			-	-	6.0	8.0	**-**	**14**
Environmental Civil Sanction	#										-	-			**-**	**-**	20.0	15.0	6.0	7.0	2.0	4.0	4.0	1.0	6.0	-	-		3.0	**50**	**18**
Total		**0.2**	**0.1**	**0.3**	**0.4**	**0.3**	**0.2**	**0.3**	**0.7**	**0.2**	**0.1**	**0.1**	**0.25**	**0.2**	**1.3**	**2.0**															
Fluid-Filled Cables																														
Fluid-Filled Cables in service	Circuit km																583	575	567	554	529	522.011	520	494	479	456	444	441	431		
Oil in Service in Cables	Fluid ltrs																1,544,752	1,530,109	1,501,323	1,469,599	1,419,147	1,433,538	1,429,192	1,347,254	1,305,156	1,240,009	1,211,779	1,202,394	1,177,057		
Fluid Used to Top Up Cables	Fluid ltrs																21,995	20,461	13,214	16,837	15,890	13,021	18,641	12,124	14,747	9,543	7,831	8,979	9,864	**88,397**	**94,750**
Fluid Used to Top Up Cables as a percentage of volume in service	%																1.4%	1.3%	0.9%	1.1%	1.1%	0.9%	1.3%	0.9%	1.1%	0.8%	0.6%	0.7%	0.8%		
Fluid Recovered from Fluid-Filled Cables	Fluid ltrs																3,985	10,512	7,088	5,572	4,205	3,235	1,846	1,350	4,203	559	1,927	2,293	4,566	**31,362**	**19,979**
SF6																														
SF6 Bank	kg																9,089	9,960	13,832	14,530	15,125	15,259	15,393	16,174	16,357	16,590	16,621	17,059	17,258		
SF6 Emitted	kg																47	33	36	25	16	24	15	36	18	15	24	15	22	**157**	**168**
SF6 Emitted as a percentage of SF6 Bank	%																0.5%	0.3%	0.3%	0.2%	0.1%	0.2%	0.1%	0.2%	0.1%	0.1%	0.1%	0.1%	0.13%		
Noise Pollution																														
Total complaints received	#																	7	18	13	17	14	16	17	23	16	28	21	21	**55**	**156**

3Y - BCF
NPgY
2022/23

Volumes/ Additions

	Units	DPCR5 2011 #	2012 #	2013 #	2014 #	2015 #	RIIO-ED1 2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	Total DPCR5 #	RIIO-ED1 #
Total BCF (excl. losses)	tCO2e	**35,809**	**24,364**	**28,185**	**26,495**	**28,807**	**27,728**	**23,188**	**22,083**	**19,847.14**	**17,471.77**	**16,492.30**	**16,398.94**	**19,464**	**143,660**	**162,674**
TOTAL BCF (incl. losses)	tCO2e	**923,620**	**791,920**	**757,206**	**693,568**	**773,145**	**619,093**	**543,658**	**503,841**	**368,920.74**	**369,145.98**	**######**	**315,576.57**	**274,132**	**######**	**######**

DNO Emissions:

Buildings Energy Usage

	Units	2011 #	2012 #	2013 #	2014 #	2015 #	2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	DPCR5 #	RIIO-ED1 #
Buildings - Electricity	tCO2e	1,644	1,542	1,460	1,456	1,845	1,679.32	1,485	1,398.30	1,127.01	1,022.09	934.63	899.71	767.18	**7,947**	**9,313**
Buildings - Other fuels	tCO2e	9	8	5	10	6	43.26	38	35.04	36.41	42.95	47.47	43.17	21.30	**38**	**308**
Substation Electricity	tCO2e	8,024	7,905	7,699	7,124	7,303	6,798.43	6,105	5,161.61	4,055.97	3,661.20	3,342.88	2,669.98	2,321.94	**38,055**	**34,117**
	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
Total		**9,677**	**9,455**	**9,164**	**8,589**	**9,154**	**8,521.01**	**7,628**	**6,594.95**	**5,219.40**	**4,726.25**	**4,324.98**	**3,612.86**	**3,110.42**	**46,040**	**43,738**

Operational Transport

	Units	2011 #	2012 #	2013 #	2014 #	2015 #	2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	DPCR5 #	RIIO-ED1 #
Road	tCO2e	13,174	8,251	9,939	9,250	10,612	2,595.03	2,548	2,576.18	2,409.75	2,209.79	2,037.57	2,003.86	1,935.28	**51,226**	**18,315**
Rail	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
Sea	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
Air	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
Total	tCO2e	**13,174**	**8,251**	**9,939**	**9,250**	**10,612**	**2,595.03**	**2,548**	**2,576.18**	**2,409.75**	**2,209.79**	**2,037.57**	**2,003.86**	**1,935.28**	**51,226**	**18,315**

Business Transport

	Units	2011 #	2012 #	2013 #	2014 #	2015 #	2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	DPCR5 #	RIIO-ED1 #
Road	tCO2e	1,202	1,222	1,291	1,273	1,371	1,338.16	1,322	1,282.90	1,262.25	1,260.36	819.80	832.45	918.07	**6,359**	**9,036**
Rail	tCO2e	16	16	20	24	27	25.65	21	32.57	31.93	27.78	0.59	1.97	9.37	**103**	**151**
Sea	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
Air	tCO2e	48	20	46	162	210	153.63	103	211.42	154.24	112.19	-	2.64	64.29	**486**	**801**
	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
Total	tCO2e	**1,266**	**1,258**	**1,357**	**1,459**	**1,608**	**1,517.45**	**1,446**	**1,526.89**	**1,448.42**	**1,400.33**	**820.39**	**837.06**	**991.73**	**6,949**	**9,988**

Fugitive Emissions

	Units	2011 #	2012 #	2013 #	2014 #	2015 #	2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	DPCR5 #	RIIO-ED1 #
SF6	tCO2e	3,375	2,308	2,202	1,998	2,065	1,926.37	2,252	1,412.69	1,081.86	1,102.84	1,117.43	1,984.85	2,444.16	**11,948**	**13,322**
Gases Other	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	180.32	**-**	**180**
	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
Total	tCO2e	**3,375**	**2,308**	**2,202**	**1,998**	**2,065**	**1,926.37**	**2,252**	**1,412.69**	**1,081.86**	**1,102.84**	**1,117.43**	**1,984.85**	**2,624.48**	**11,948**	**13,502**

Fuel Combustion

	Units	2011 #	2012 #	2013 #	2014 #	2015 #	2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	DPCR5 #	RIIO-ED1 #
Diesel	tCO2e	8,317	3,092	5,523	5,198	5,368	-	-	-	-	-	-	-	-	**27,498**	**-**
Gas Natural	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
Fuels Other	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
Total	tCO2e	**8,317**	**3,092**	**5,523**	**5,198**	**5,368**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**27,498**	**-**

Losses

	Units	2011 #	2012 #	2013 #	2014 #	2015 #	2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	DPCR5 #	RIIO-ED1 #
Losses	tCO2e	887,811	767,556	729,021	667,073	744,338	591,365.08	520,469	481,757.85	349,073.60	351,674.21	330,760.15	299,177.63	254,667.88	**######**	**######**

Contractor emissions:

Buildings energy usage

	Units	2011 #	2012 #	2013 #	2014 #	2015 #	2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	DPCR5 #	RIIO-ED1 #
Buildings - Electricity	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
Buildings - Other fuels	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
Substation Electricity	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
Total							**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Operational Transport

	Units	2011 #	2012 #	2013 #	2014 #	2015 #	2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	DPCR5 #	RIIO-ED1 #
Road	tCO2e						7,898.52	4,590	6,140.30	5,848.64	4,110.43	3,927.38	3,491.01	3,828.67	**-**	**39,835**
Rail	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
Sea	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
Air	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
Total	tCO2e						**7,898.52**	**4,590**	**6,140.30**	**5,848.64**	**4,110.43**	**3,927.38**	**3,491.01**	**3,828.67**	**-**	**39,835**

Business Transport

	Units	2011 #	2012 #	2013 #	2014 #	2015 #	2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	DPCR5 #	RIIO-ED1 #
Road	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
Rail	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
Sea	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
Air	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
Total	tCO2e						**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Fugitive Emissions

	Units	2011 #	2012 #	2013 #	2014 #	2015 #	2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	DPCR5 #	RIIO-ED1 #
SF6	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
Gases Other	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
Total	tCO2e						**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Fuel Combustion

	Units	2011 #	2012 #	2013 #	2014 #	2015 #	2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	DPCR5 #	RIIO-ED1 #
Diesel	tCO2e						5,269.97	4,725	3,832.15	3,839.07	3,922.14	4,264.56	4,469.30	6,973.17	**-**	**37,295**
Gas Natural	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
Fuels Other	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
Total	tCO2e						**5,269.97**	**4,725**	**3,832.15**	**3,839.07**	**3,922.14**	**4,264.56**	**4,469.30**	**6,973.17**	**-**	**37,295**

Conversion factors

Buildings energy usage

	Units	2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	RIIO-ED1 #
Buildings - Electricity	Scalar	0.0005004	0.0004493	0.0003844	0.0003072	0.0002773	0.0002532	0.00023112	0.00021107	
Buildings - Other fuels	Scalar	0.0001845	0.0001840	0.0001842	0.0001840	0.0001839	0.0001839	0.00018316	0.00018254	
Substation Electricity	Scalar	0.0005004	0.0004493	0.0003844	0.0003072	0.0002773	0.0002532	0.00023112	0.00021107	
	Scalar									
	Scalar									
Total										

Operational Transport

	Units	2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	RIIO-ED1 #
Road	Scalar	0.0025823	0.0026114	0.0025962	0.0026218	0.0025934	0.0025450	0.00250821	0.00254404	
Rail	Scalar	-	-							
Sea	Scalar	-	-							
Air	Scalar	-	-							
	Scalar									
	Scalar									
Total	Scalar									

Business Transport

	Units	2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	RIIO-ED1 #
Road	Scalar	0.0002963	0.0002974	0.0002894	0.0002871	0.0002813	0.0002729	0.00027348	0.00027424	
Rail	Scalar	0.0000451	0.0000489	0.0000468	0.0000442	0.0000412	0.0000369	0.00003549	0.00003549	
Sea	Scalar	-	-	-	-	-	-	-	-	
Air	Scalar	0.0002007	0.0001894	0.0001973	0.0002096	0.0001956	-	0.00019309	0.00019053	
	Scalar									
	Scalar									
Total	Scalar									

Fugitive Emissions

	Units	2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	RIIO-ED1 #
SF6	Scalar	22.80	22.80	22.80	22.80	22.80	22.80	22.80	22.80	
Gases Other	Scalar	-	-						3.22	
	Scalar									
	Scalar									
Total	Scalar									

Fuel Combustion

	Units	2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	RIIO-ED1 #
Diesel	Scalar									
Gas Natural	Scalar									
Fuels Other	Scalar									
	Scalar									
	Scalar									
Total	Scalar									

Losses

	Units	2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	RIIO-ED1 #
Losses	Scalar	0.0004622	#######	0.0003516	0.0002831	0.0002556	0.0002331	0.00021233	0.0001934	

Buildings energy usage

	Units	2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	RIIO-ED1 #
Buildings - Electricity	Scalar									
Buildings - Other fuels	Scalar									
Substation Electricity	Scalar									
	Scalar									
	Scalar									
Total										

Operational Transport

	Units	2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	RIIO-ED1 #
Road	Scalar	0.0025807	0.0025468	0.0025968	0.0026216	0.0025846	0.0025344	0.00250453	0.00254791	
Rail	Scalar									
Sea	Scalar									
Air	Scalar									
	Scalar									
	Scalar									
Total	Scalar									

Business Transport

	Units	2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	RIIO-ED1 #
Road	Scalar									
Rail	Scalar									
Sea	Scalar									
Air	Scalar									
	Scalar									
	Scalar									
Total	Scalar									

Fugitive Emissions

	Units	2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	RIIO-ED1 #
SF6	Scalar									
Gases Other	Scalar									
	Scalar									
	Scalar									
	Scalar									
Total	Scalar									

Fuel Combustion

	Units	2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	RIIO-ED1 #
Diesel	Scalar	0.0025839	0.0026116	0.0026002	0.0026269	0.0025941	0.0025460	0.00251233	0.00255784	
Gas Natural	Scalar									
Fuels Other	Scalar									
	Scalar									
	Scalar									
Total	Scalar									

Volume

Buildings Energy Usage

	Units	2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	RIIO-ED1 #
Buildings - Electricity	kWh	3,356,219	3,304,625	3,637,345.50	3,668,667	3,685,871	3,691,406.20	3,892,805.81	3,634,719.89	**28,871,658.00**
Buildings - Other fuels	kWh	234,532	206,564	190,244.26	197,941	233,623	258,173.92	235,703.30	116,669.29	**1,673,451.48**
Substation Electricity	kWh	13,587,079	######	13,426,655.73	13,203,042	13,203,042	13,203,042.36	11,552,352.09	11,000,808.00	**102,763,100.82**
										-
										-
Total										

Operational Transport

	Units	2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	RIIO-ED1 #
Road	Litres	1,004,933	975,685	992,275.87	919,134	852,066	800,617.19	798,921.56	760,714.39	**7,104,346.28**
Rail		-								**-**
Sea		-								**-**
Air		-								**-**
										-
										-
Total										

Business Transport

	Units	2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	RIIO-ED1 #
Road	Miles	4,516,278	4,445,115	4,432,277.00	4,396,390	4,480,667	3,004,182.00	3,043,882.00	3,347,656.00	**31,666,447.00**
Rail	Person Km	569,346	432,076	696,244.90	721,773	675,118	15,917.72	55,475.79	264,101.57	**3,430,052.55**
Sea		-		-	-	-	-	-	-	**-**
Air	Person Km	765,318	541,429	1,071,782.70	735,842	573,431	-	13,677.42	337,420.92	**4,038,900.79**
										-
										-
Total										

Fugitive Emissions

	Units	2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	RIIO-ED1 #
SF6	Kg	84	99	61.96	47	48	49.01	87.06	107.20	**584.29**
Gases Other		-	-						56.00	**56.00**
										-
										-
Total										

Fuel Combustion

	Units	2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	RIIO-ED1 #
Diesel										**-**
Gas Natural										**-**
Fuels Other										**-**
										-
										-
Total										

Losses

	Units	2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	RIIO-ED1 #
Losses	kWh	########	######	1,370,343,185.60	1,233,170,610	##########	1,418,719,020.87	1,409,021,939.40	##########	**10,666,668,504.43**

Buildings Energy Usage

	Units	2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	RIIO-ED1 #
Buildings - Electricity										**-**
Buildings - Other fuels										**-**
Substation Electricity										**-**
										-
										-
Total										

Operational Transport

	Units	2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	RIIO-ED1 #
Road	Litres	3,060,630	1,802,393	2,364,520.81	2,230,942	1,590,346	1,549,654.44	1,393,875.01	1,502,669.65	**15,495,031.78**
Rail										**-**
Sea										**-**
Air										**-**
										-
										-
Total										

Business Transport

	Units	2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	RIIO-ED1 #
Road										**-**
Rail										**-**
Sea										**-**
Air										**-**
										-
										-
Total										

Fugitive Emissions

	Units	2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	RIIO-ED1 #
SF6										**-**
Gases Other										**-**
										-
										-
Total										

Fuel Combustion

	Units	2016 #	2017 #	2018 #	2019 #	2020 #	2021 #	2022 #	2023 #	RIIO-ED1 #
Diesel	Litres	2,039,540	######	1,473,813.36	1,461,423	1,511,942	1,674,984.15	1,778,947.39	2,726,195.26	**14,476,096.86**
Gas Natural										**-**
Fuels Other										**-**
										-
										-
Total										

3N - BCF
NPgN
2022/23

Volumes/ Additions

	Units	2011	2012	DPCR5 2013	2014	2015	2016	2017	RIIO-ED1 2018	2019	2020	2021	2022	2023	Total DPCR5	Total RIIO-ED1
		#	#	#	#	#	#	#	#	#	#	#	#	#	#	#
Total BCF (excl. losses)	tCO2e	**23,397**	**20,304**	**35,408**	**23,368**	**22,745**	**21,033**	**22,339**	**17,452**	**15,826**	**15,893**	**14,749**	**####**	**####**	**125,223**	**139,794**
TOTAL BCF (incl. losses)	tCO2e	**538,858**	**536,738**	**499,672**	**487,832**	**498,427**	**386,904**	**338,175**	**287,050**	**206,221**	**214,228**	**183,603**	**####**	**####**	**2,561,528**	**1,920,751**

DNO Emissions:

Buildings Energy Usage

Buildings - Electricity	tCO2e	2,127	1,915	1,953	1,808	1,813	1,495	1,298	1,434	1,073	998	855	865	746.38	**9,616**	**8,766**
Buildings - Other Fuels	tCO2e	73	63	66	74	76	98	95	85	113	250	226	216	185.54	**352**	**1,267**
Substation Electricity	tCO2e	4,266	4,203	4,093	3,787	4,417	4,112	3,692	3,018	2,312.54	2,087	1,906	1,770	####	**20,766**	**20,524**
	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
Total		**6,466**	**6,181**	**6,112**	**5,669**	**6,305**	**5,705**	**5,085**	**4,537**	**3,499**	**3,336**	**2,987**	**2,851**	**2,558**	**30,733**	**30,557**

Operational Transport

Road	tCO2e	8,992	6,599	5,052	9,909	9,628	2,803	2,634	2,400	2,309	2,327	2,149	2,035	1,944	**40,180**	**18,600**
Rail	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
Sea	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
Air	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
Total	tCO2e	**8,992**	**6,599**	**5,052**	**9,909**	**9,628**	**2,803**	**2,634**	**2,400**	**2,309**	**2,327**	**2,149**	**2,035**	**1,944**	**40,180**	**18,600**

Business Transport

Road	tCO2e	1,170	1,169	1,242	1,313	1,359	1,356	1,278	1,240	1,177	1,180	738	808	894	**6,253**	**8,671**
Rail	tCO2e	16	20	30	27	22	20	19	30	27	20	0	1	10	**115**	**126**
Sea	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
Air	tCO2e	48	42	161	89	34	131	58	132	149	134	-	2	79	**374**	**685**
	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
Total	tCO2e	**1,234**	**1,231**	**1,433**	**1,430**	**1,415**	**1,506**	**1,355**	**1,402**	**1,353**	**1,334**	**738**	**811**	**983**	**6,743**	**9,482**

Fugitive Emissions

SF6	tCO2e	1,160	963	855	912	531	542	339	824	404	336	548	331	499	**4,421**	**3,822**
Gases Other	tCO2e	-	-	-	-	-	-	-	0	-	-	-	-	-	**-**	**0**
	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
Total	tCO2e	**1,160**	**963**	**855**	**912**	**531**	**542**	**339**	**824**	**404**	**336**	**548**	**331**	**499**	**4,421**	**3,822**

Fuel Combustion

Diesel	tCO2e	5,545	5,330	21,956	5,448	4,866	-	-	-	-	-	-	-	-	**43,145**	**-**
Gas Natural	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
Fuels Other	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**	**-**
Total	tCO2e	**5,545**	**5,330**	**21,956**	**5,448**	**4,866**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**43,145**	**-**

Losses

Losses	tCO2e	515,461	516,434	464,264	464,464	475,682	365,871	315,836	269,598	190,395	198,335	168,855	####	####	**2,436,305**	**1,780,956**

Contractor emissions:

Buildings energy usage

Buildings - Electricity	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
Buildings - Other fuels	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
Substation Electricity	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
Total							**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Operational Transport

Road	tCO2e						6,013	9,004	4,883	4,946	4,010	3,485	4,216	4,046	**-**	**40,604**
Rail	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
Sea	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
Air	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
Total	tCO2e						**6,013**	**9,004**	**4,883**	**4,946**	**4,010**	**3,485**	**4,216**	**4,046**	**-**	**40,604**

Business Transport

Road	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
Rail	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
Sea	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
Air	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
Total	tCO2e						**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Fugitive Emissions

SF6	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
Gases Other	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
Total	tCO2e						**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

Fuel Combustion

Diesel	tCO2e						4,465	3,922	3,406	3,315	4,550	4,842	6,854	5,375	**-**	**36,729**
Gas Natural	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
Fuels Other	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
	tCO2e						-	-	-	-	-	-	-	-	**-**	**-**
Total	tCO2e						**4,465**	**3,922**	**3,406**	**3,315**	**4,550**	**4,842**	**6,854**	**5,375**	**-**	**36,729**

Conversion factors

Buildings energy usage

Buildings - Electricity	Scalar	0.0005004	0.0004493	0.0003844	0.0003072	0.0002773	0.0002532	0.00023112	0.000211070	
Buildings - Other fuels	Scalar	0.0001845	0.0001840	0.0001842	0.0001840	0.0001839	0.0001839	0.00018316	0.000182540	
Substation Electricity	Scalar	0.0005004	0.0004493	0.0003844	0.0003072	0.0002773	0.0002532	0.00023112	0.000211070	
	Scalar	-	-	-	-	-	-	-	-	
	Scalar									
Total										

Operational Transport

Road	Scalar	0.0025828	0.0026110	0.0025935	0.0026216	0.0025928	0.0025451	0.00250873	0.00254650	
Rail	Scalar	-	-							
Sea	Scalar	-	-							
Air	Scalar	-	-							
	Scalar									
	Scalar									
Total	Scalar									

Business Transport

Road	Scalar	0.0002961	0.0002976	0.0002895	0.0002878	0.0002815	0.0002730	0.0002739	0.00027352	
Rail	Scalar	0.0000451	0.0000489	0.0000468	0.0000442	0.0000412	0.0000369	0.0000355	0.00003549	
Sea	Scalar	-	-	-	-	-				
Air	Scalar	0.0001972	0.0001919	0.0001975	0.0002092	0.0001933	-	0.0002459	0.00019239	
	Scalar									
	Scalar									
Total	Scalar									

Fugitive Emissions

SF6	Scalar	22.80	22.80	22.80	22.80	22.80	22.80	22.80	22.80	
Gases Other	Scalar	-	-	0.00						
	Scalar									
	Scalar									
Total	Scalar									

Fuel Combustion

Diesel	Scalar									
Gas Natural	Scalar									
Fuels Other	Scalar									
	Scalar									
	Scalar									
Total	Scalar									

Losses

Losses	Scalar	0.0004622	0.0004121	0.0003516	0.0002831	0.0002556	0.0002331	0.0002123	0.00019338	

Buildings energy usage

Buildings - Electricity	Scalar									
Buildings - Other fuels	Scalar									
Substation Electricity	Scalar									
	Scalar									
	Scalar									
Total										

Operational Transport

Road	Scalar	0.0025794	#######	0.0025961	0.0026213	0.0025858	0.0025383	0.00250641	0.00254773	
Rail	Scalar									
Sea	Scalar									
Air	Scalar									
	Scalar									
	Scalar									
Total	Scalar									

Business Transport

Road	Scalar									
Rail	Scalar									
Sea	Scalar									
Air	Scalar									
	Scalar									
	Scalar									
Total	Scalar									

Fugitive Emissions

SF6	Scalar									
Gases Other	Scalar									
	Scalar									
	Scalar									
	Scalar									
Total	Scalar									

Fuel Combustion

Diesel	Scalar	0.0025839	0.0026116	0.0026002	0.0026269	0.0025941	0.0025460	0.0025123	0.00255784	
Gas Natural	Scalar									
Fuels Other	Scalar									
	Scalar									
	Scalar									
Total	Scalar									

Volume

Buildings Energy Usage

		2016	2,017	2018	2019	2020	2021	2022	2023	Total RIIO-ED1
		#	#	#	#	#	#	#	#	#
Buildings - Electricity	kWh	2,988,744	2,888,568	3,729,804.30	3,494,131.60	3,598,929.70	3,378,142.85	3,744,725.50	3,536,190.00	**27,359,235.35**
Buildings - Other fuels	kWh	529,010	514,870	461,978.17	612,375.81	1,360,288.23	1,227,918.23	1,176,970.51	1,016,414.69	**6,899,825.02**
Substation Electricity	kWh	8,217,848	8,217,848	7,850,264.28	7,527,793.80	7,527,793.80	7,527,793.80	7,658,962.95	7,701,792.00	**62,230,095.75**
										-
										-
Total										

Operational Transport

Road	Litres	1,085,074	1,008,758	925,323.01	880,704.78	897,601.50	844,334.88	811,212.87	763,409.21	**7,216,418.62**
Rail		-	-							**-**
Sea		-	-							**-**
Air		-	-							**-**
										-
										-
Total										

Business Transport

Road	Miles	4,578,183	4,295,180	4,282,712.00	4,090,503.00	4,192,076.00	2,702,113.00	2,952,167.00	3,268,703.00	**30,361,637.00**
Rail	Person Km	435,656	379,434	643,337.64	601,303.20	490,598.34	3,516.12	29,435.49	274,116.10	**2,857,397.26**
Sea		-	-	-	-	-	-	-	-	**-**
Air	Person Km	662,675	302,710	669,783.15	712,303.19	690,935.40	-	6,574.19	412,699.97	**3,457,680.08**
										-
										-
Total										

Fugitive Emissions

SF6	kg	24	15	36.13	17.70	14.75	24.05	14.50	21.88	**167.63**
Gases Other		-	-	225.00						**225.00**
										-
										-
Total										

Fuel Combustion

Diesel										**-**
Gas Natural										**-**
Fuels Other										**-**
										-
										-
Total										

Losses

Losses	kWh	791,603,487	766,498,196	766,862,543.30	672,607,856.30	#########	#########	#########	#########	**5,841,799,062.71**

Buildings Energy Usage

Buildings - Electricity										**-**
Buildings - Other fuels										**-**
Substation Electricity										**-**
										-
										-
Total										

Operational Transport

Road	Litres	2,331,149	3,495,357	1,881,056	1,886,904.64	1,550,803.16	1,372,833.83	1,682,275.30	1,587,952.85	**15,788,331.13**
Rail										**-**
Sea										**-**
Air										**-**
										-
										-
Total										

Business Transport

Road										**-**
Rail										**-**
Sea										**-**
Air										**-**
										-
										-
Total										

Fugitive Emissions

SF6										**-**
Gases Other										**-**
										-
										-
Total										

Fuel Combustion

Diesel	Litres	1,728,175	1,501,782	1,309,900.72	1,262,092.33	1,753,907.15	1,901,769.69	2,728,223.21	2,101,199.74	**14,287,049.78**
Gas Natural										**-**
Fuels Other										**-**
										-
										-
Total										

4Y - Losses Snapshot
NPgY
2022/23

Activity							Units	Volumes								Estimated Distribution Losses benefits over 'Baseline Scenario'								Cumulative discounted net benefits	
Category	**Programme/project title**	**Type of Distribution Losses managed by the activity *(Select from list)***	**Primary driver of activity *(Select from list)***	**Please indicate where else in the RIGs the activity has been reported**	**Activity identified in DNO's final RIIO-ED1 Business Plan? *(Yes/No)***	**Cross-reference to relevant paragraph(s) of current Distribution Losses Strategy**	**Description of unit**	**2015/16**	**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**2015/16**	**2016/17**	**2017/18**	**2018/19**	**2019/20**	**2020/21**	**2021/22**	**2022/23**	**RIIO-ED1**	**45 years (if appropriate)**
Text	Text	Text	Text	Text	Text	Text	Text	#	#	#	#	#	#	#	#	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	£m	£m
Cable	NPgY 300mm HV	Technical losses	Other	This information	Yes	Design policy,	km	112.85	112.99	78.40	118.40	120	104.800	88.000	96.800	#####	-509.720	-689.220	-959.895	######	- 1,478.26	-1,684.27	- 1,911.18	-0.543	0.356
Cable	NPgY 300mm LV	Technical losses	Other	This information	Yes	Design policy,	km	114.94	85.30	104.80	172.37	155	152.800	163.200	126.400	-405.22	-705.96	-1075.45	-1,681.85	######	- 2,826.96	-3,402.33	- 3,847.96	-0.241	2.452
Cable	transformers replacement	Technical losses	Asset Replacement	This information	Yes	Replacement of	Transformer	3	1	3	7	11	7	4	4.00	-79.211	-109.038	-156.061	-317.302	-525.315	-656.321	-721.829	-793.980	-0.066	0.545
Cable																									
Cable																									
Transformer																									
Transformer																									
Transformer																									
Transformer																									
Transformer																									
Innovative Solution																									
Innovative Solution																									
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Smart Meters																									
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Smart Meters																									
Smart Meters																									
Relevant Theft of Electricity																									
Relevant Theft of Electricity																									
Relevant Theft of Electricity																									
Relevant Theft of Electricity																									
Relevant Theft of Electricity																									
Other (please specify)																									
Other (please specify)																									
Other (please specify)																									
Other (please specify)																									
Other (please specify)																									
Total																**-737.9**	**-1,324.7**	**-1,920.7**	**- 2,959.0**	**-4,049.1**	**- 4,961.5**	**-5,808.4**	**- 6,553.1**	**- 0.9**	

4N - Losses Snapshot
NPgN
2022/23

Activity							Units	Volumes								Estimated Distribution Losses benefits over 'Baseline Scenario'								Cumulative discounted net benefits	
Category	**Programme/project title**	**Type of Distribution Losses managed by the activity *(Select from list)***	**Primary driver of activity *(Select from list)***	**Please indicate where else in the RIGs the activity has been reported**	**Activity identified in DNO's final RIIO-ED1 Business Plan? *(Yes/No)***	**Cross-reference to relevant paragraph(s) of current Distribution Losses Strategy**	**Description of unit**	**2015/16**	**2016/17**	**2017/18**	**2018/19**	**2020/21**	**2020/21**	**2021/22**	**2022/23**	**2015/16**	**2016/17**	**2017/18**	**2018/19**	**2020/21**	**2020/21**	**2021/22**	**2022/23**	**RIIO-ED1**	**45 years (if appropriate)**
Text	Text	Text	Text	Text	Text	Text	Text	#	#	#	#	#	#	#	#	MWh	MWh	MWh	MWh	MWh	MWh	MWh	MWh	£m	£m
Cable	NPgN 300mm HV	Technical losses	Other	This information	Yes	Design policy, page	km	19.74	53.21	15.20	73.60	77.60	49.60	45.60	88.80	- 44.34	- 164.65	- 199.78	- 366.90	- 543.88	- 658.55	- 764.76	- 969.01	-0.268	0.176
Cable	NPgN 300mm LV	Technical losses	Other	This information	Yes	Design policy, page	km	75.14	34.28	36.00	87.20	79.20	61.60	107.20	80.80	- 264.90	- 385.76	- 512.68	- 820.11	- 1,099.33	- 1,316.51	- 1,694.45	- 1,979.32	-0.128	1.255
Cable	n transformers replacement	Technical losses	Asset Replacement	This information	Yes	Replacement of pre-	Transformer	0.00	5.00	6.00	0.00	4.00	2.00	0.00	3.00	-	- 111.76	- 250.97	- 252.22	- 335.33	- 383.96	- 385.89	- 447.77	-0.021	0.346
Cable																									
Cable																									
Transformer																									
Transformer																									
Transformer																									
Transformer																									
Transformer																									
Innovative Solution																									
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Relevant Theft of Electricity																									
Relevant Theft of Electricity																									
Relevant Theft of Electricity																									
Relevant Theft of Electricity																									
Other (please specify)																									
Other (please specify)																									
Other (please specify)																									
Other (please specify)																									
Other (please specify)																									
Total																**- 309.2**	**- 662.2**	**- 963.4**	**- 1,439.2**	**- 1,978.5**	**- 2,359.0**	**- 2,845.1**	**- 3,396.1**	**- 0.4**	

5Y - Smart Metering
NPgY
2022/23

	DPCR5					RIIO-ED1								Total	
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	DPCR5	RIIO-ED1
	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m
Costs	**Cost**														
Smart Meter Communication Licensee Costs (pass through)				0.1	0.3	0.6	1.3	1.4	1.9	2.4	2.9	2.5	2.7	**0.4**	**15.6**
Smart Meter Information Technology Costs (pass through)				-	-	0.8	1.4	0.9	0.8	0.6	0.7	1.0	0.8	**-**	**7.0**
Elective Communication Services (outside price control)				-	-	-	-	-	-	-	-			**-**	**-**
Smart Meter Communication Licensee Costs (outside price control)														**-**	**-**
Total	**-**	**-**	**-**	**0.1**	**0.3**	**1.4**	**2.6**	**2.2**	**2.7**	**2.9**	**3.6**	**3.5**	**3.5**	**0.4**	**22.5**
Estimated Benefits	**Estimated benefits**														
Avoided losses to network operators						-	-	-	-	-	-			**-**	**-**
Reduction in CML						-	-	-	-	-	-			**-**	**-**
Reduction in operational costs to fix faults						-	-	-	-	-	-			**-**	**-**
Reduction in calls to faults and emergencies lines						-	-	-	-	-	-			**-**	**-**
Better informed investment decisions for electricity network enforcement						-	-	-	-	-	-			**-**	**-**
Avoided cost of investigation of customer complaints about voltage quality of supply						-	-	-	-	-	-			**-**	**-**
Network capacity investment savings from electricity demand shift						-	-	-	-	-	-			**-**	**-**
Total	**-**	**-**	**-**	**-**	**-**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**-**	**-**

5N - Smart Metering
NPgN
2022/23

	DPCR5					RIIO-ED1								Total	
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	DPCR5	RIIO-ED1
	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m	£m
Costs	**Cost**														
Smart Meter Communication Licensee Costs (pass through)				0.07	0.18	0.46	0.90	0.96	1.36	1.67	2.0	1.75	1.9	**0.25**	**11.02**
Smart Meter Information Technology Costs (pass through)				-	-	0.82	1.35	0.88	0.79	0.59	0.7	1.02	0.8	**-**	**6.97**
Elective Communication Services (outside price control)				-	-	-	-	-	-	-	-			**-**	**-**
Smart Meter Communication Licensee Costs (outside price control)														**-**	**-**
Total	**-**	**-**	**-**	**0.07**	**0.18**	**1.29**	**2.26**	**1.84**	**2.14**	**2.26**	**2.79**	**2.77**	**2.65**	**0.3**	**17.99**
Estimated Benefits	**Estimated benefits**														
Avoided losses to network operators						-	-	-	-	-	-			**-**	**-**
Reduction in CML						-	-	-	-	-	-			**-**	**-**
Reduction in operational costs to fix faults						-	-	-	-	-	-			**-**	**-**
Reduction in calls to faults and emergencies lines						-	-	-	-	-	-			**-**	**-**
Better informed investment decisions for electricity network enforcement						-	-	-	-	-	-			**-**	**-**
Avoided cost of investigation of customer complaints about voltage quality of supply						-	-	-	-	-	-			**-**	**-**
Network capacity investment savings from electricity demand shift						-	-	-	-	-	-			**-**	**-**
Total	**-**	**-**	**-**	**-**	**-**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**-**	**-**

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Solution type	Unit	Voltage level of issue	RIIO Output	2023 #	RIIO-ED1 #	Disposals 2016 #	Disposals RIIO-ED1 #	MVA released 2016 MVA	MVA released 2023 MVA	MVA released RIIO-ED1 MVA	Estimated Gross Avoided Costs 2016 £m	Estimated Gross Avoided Costs 2023 £m	Estimated Gross Avoided Costs RIIO-ED1 £m	Estimated L 2016 MWh	Estimated CI Impact 2016 CI	Estimated CI Impact 2023 CI	Estimated CI Impact RIIO-ED1 CI	Estimated CML Impact 2016 mins	Estimated CML Impact 2023 mins	Estimated CML Impact RIIO-ED1 mins	Other Estimated GHG Emissions 2016 tCO2e	Other Estimated GHG Emissions 2023 tCO2e	Other Estimated GHG Emissions RIIO-ED1	Estimated Impact on Fatality 2016 fatalities	Estimated Impact on Fatality 2023 fatalities	Estimated Impact on Fatality RIIO-ED1	2023 major injuries	RIIO-ED1	Estimated Impact on Oil Leakage 2016 litres	Estimated Impact on Oil Leakage 2023 litres	Estimated Impact on Oil Leakage RIIO-ED1
Increase Network Capacity/Optimise Utilisation																															
Load capacity release	Agreement	EHV	connections	-	**4.00**		-	26.00		**26.00**			-				-			-			-			-		-			-
Generation capacity release	Agreement	EHV	connections	-	**3.00**		-	3.00		**17.00**			-				-			-			-			-		-			-
Voltage reduction at primary	Substation primary	LV	connections	13.0	**337.00**		-	117.00	117.0	**3,033.00**			-				-			-			-			-		-			-
Total				**13.00**	**344.00**	-	-	**146.00**	**117.00**	**3,076.00**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Improve Asset Life Cycle Management																															
Transformer insulating oil on-line regeneration	Substation primary	EHV	reliability and availability	18.0	**49.00**		-			-			-				-			-			-			-		-			-
HV Circuit breaker retrofit	Retrofit	HV	reliability and availability	19.0	**95.00**							- 0.76	**- 3.80**																		
Total				**37.00**	**144.00**	-	-	-	-	-	-	**- 0.76**	**- 3.80**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Improve Network Performance																															
LV technology programme (Kelvatek)	units	LV	reliability and availability		**643.00**		-			-	- 1.19	- 0.82	**- 9.10**		- 22,806	######	**-178,017.00**	- 2,736,720	- 1,892,520.0	**-21,362,040.00**			-			-		-			-
Automatic Power Restoration System (APRS)	Substation primary	HV	reliability and availability		**180.00**		-			-			**-**		- 527	######	**-266,262.00**	- 19,707	- 456,479.6	**- 1,394,973.87**			-			-		-			-
Total				**-**	**823.00**	-	-	-	-	-	**- 1.19**	**- 0.82**	**- 9.10**	-	**- 23,333.00**	**######**	**-444,279.00**	**- 2,756,427.00**	**-2,348,999.63**	**-22,757,013.87**	-	-	-	-	-	-	-	-	-	-	-
Improve Safety																															
Telematics in operational vehicles	vehicles	N/A	safety	-	**400.00**		-			-	-	-	**- 0.08**				-			-		-	**- 165.60**			-		-			-
Fire retardant workwear	employees protect	N/A	safety	-	**1,920.00**		-			-	- 0.06	-	**- 0.12**				-			-			-			-		-	**- 14.00**		-
Farm safety	shows	HV/EHV	safety	-	**10.00**		-			-	- 0.01	-	**- 0.01**		- 495.00	-	**- 990.00**	- 85,072.00	-	**- 170,144.00**			-	- 0.07	-	**- 0.14**	-	**- 0.08**			-
Total				-	**2,330.00**	-	-	-	-	-	**- 0.07**	**-**	**- 0.21**	-	**- 495.00**	**-**	**- 990.00**	**- 85,072.00**	**-**	**- 170,144.00**	-	-	**- 165.60**	**- 0.07**	**-**	**- 0.14**	**-**	**- 14.08**	-	-	-
Improve Environmental Impact																															
Fluid filled cable leak detection (pft)	circuits	EHV	environment		**29.00**		-			-	- 0.11		**- 1.92**				-			-			-			-		-	- 750.00		**-21,750.00**
Total				**-**	**29.00**	-	-	-	-	-	**- 0.11**	**-**	**- 1.92**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**- 750.00**	**-**	**-21,750.00**
Improve Connection Performance																															
Flexible connection agreements (constrained generators)	Connection agreen	EHV	connections		**5.00**		-	3.00		**27.60**	- 0.75		**- 10.85**				-			-			-			-		-			-
AutoDesign	Deployments	LV	connections	815.0	**2,881.00**							- 0.1	**- 0.27**																		
Total				**###**	**2,886.00**	-	-	**3.00**	-	**27.60**	**- 0.75**	**- 0.08**	**- 11.12**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Solution type	Unit	Voltage level of issue	RIIO Output	Additions RIIO-ED1 2016 #	Additions RIIO-ED1 2023 #	Additions RIIO-ED1 #	Disposals RIIO-ED1 2016 #	Disposals RIIO-ED1 2023 #	Disposals RIIO-ED1 #	MVA released RIIO-ED1 2016 MVA	MVA released RIIO-ED1 2023 MVA	MVA released RIIO-ED1 MVA	Estimated Gross Avoided Costs RIIO-ED1 2016 £m	Estimated Gross Avoided Costs RIIO-ED1 2023 £m	Estimated Gross Avoided Costs RIIO-ED1 £m	Estimated Losses Impact RIIO-ED1 2016 MWh	Estimated Losses Impact RIIO-ED1 2023 MWh	Estimated Losses Impact RIIO-ED1 MWh	Estimated CI Impact RIIO-ED1 2016 CI	Estimated CI Impact RIIO-ED1 2023 CI	Estimated CI Impact RIIO-ED1 CI	Estimated CML Impact RIIO-ED1 2016 mins	Estimated CML Impact RIIO-ED1 2023 mins	Estimated CML Impact RIIO-ED1 mins	Other Estimated GHG Emissions RIIO-ED1 2016 tCO2e	Other Estimated GHG Emissions RIIO-ED1 2023 tCO2e	Other Estimated GHG Emissions RIIO-ED1 tCO2e	Estimated Impact on Fatality RIIO-ED1 2016 fatalities	Estimated Impact on Fatality RIIO-ED1 2023 fatalities	Estimated Impact on Fatality RIIO-ED1 fatalities	Estimated Impact on Serious Inju RIIO-ED1 2016 major injuries	Estimated Impact on Serious Inju RIIO-ED1 2023 major injuries	Estimated Impact on Serious Inju RIIO-ED1 major injuries	Estimated Impact on Oil Leakage RIIO-ED1 2016 litres	Estimated Impact on Oil Leakage RIIO-ED1 2023 litres	Estimated Impact on Oil Leakage RIIO-ED1 litres
Increase Network Capacity/Optimise Utilisation																																				
Generation capacity release	agreement	EHV	connections	-		**2.00**			**-**	-		**4.00**			**-**			**-**			**-**			**-**	-		**-**			**-**			**-**			**-**
Voltage reduction at primary	substation primary	LV	connections	5.00		**174.00**			**-**	45.00		**#####**			**-**			**-**			**-**			**-**			**-**			**-**			**-**			**-**
Total				**5.00**	**-**	**176.00**	**-**	**-**	**-**	**45.00**	**-**	**#####**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Improve Asset Life Cycle Management																																				
Transformer insulating oil on-line regeneration	Regeneration	EHV	reliability and availability			**9.00**			**-**			**-**			**-**			**-**			**-**			**-**			**-**			**-**			**-**			**-**
HV Circuit breaker retrofit	Retrofit	HV	reliability and availability		8.0	**79.00**			**-**			**-**		- 0.32	**- 3.16**			**-**			**-**			**-**			**-**			**-**			**-**			**-**
Total				**-**	**8.00**	**88.00**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**- 0.32**	**- 3.16**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Improve Network Performance																																				
LV technology programme (Kelvatek)	unit	LV	reliability and availability	368.00		**368.00**			**-**			**-**	- 0.72	- 0.5	**- 5.18**			**-**	- 13,794	- 9,424.0	**- 99,161.00**	- 1,655,280	- 1,130,880.0	##########			**-**			**-**			**-**			**-**
Automatic Power Restoration System (APRS)	substation primary	HV	reliability and availability	17.00	6.0	**142.00**			**-**			**-**			**-**			**-**	- 2,522	######	##########	- 13,409.54	- 694,095.6	##########			**-**			**-**			**-**			**-**
Total				**385.00**	**6.00**	**510.00**	**-**	**-**	**-**	**-**	**-**	**-**	**- 0.72**	**- 0.50**	**- 5.18**	**-**	**-**	**-**	########	#######	##########	**-1,668,689.54**	**-1,824,975.61**	##########	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Improve Safety																																				
Telematics in operational vehicles	vehicles	N/A	safety	345.00	-	**400.00**			**-**	-	-	**-**	-	-	**- 0.05**			**-**		-	**-**			**-**		-	**- 110.40**		-	**-**	-	-	**-**			**-**
Fire retardant workwear	employees protecti	N/A	safety	640.00	-	**#####**			**-**	-	-	**-**	- 0.04	-	**- 0.08**			**-**			**-**			**-**		-	**-**			**-**	- 6.00	-	**- 12.00**			**-**
Farm safety	shows	HV/EHV	safety	2.00	-	**4.00**			**-**	-	-	**-**	- 0.00	-	**- 0.01**			**-**	- 1,835.00	-	**- 3,670.00**	- 149,800.00		**- 299,600.00**		-	**-**	- 0.07	-	**- 0.13**	- 0.04	-	**- 0.07**			**-**
Total				**987.00**	**-**	**#####**	**-**	**-**	**-**	**-**	**-**	**-**	**- 0.04**	**-**	**- 0.14**	**-**	**-**	**-**	**- 1,835.00**	**-**	**- 3,670.00**	**- 149,800.00**	**-**	**- 299,600.00**	**-**	**-**	**- 110.40**	**- 0.07**	**-**	**- 0.13**	**- 6.04**	**-**	**- 12.07**	**-**	**-**	**-**
Improve Environmental Impact																																				
Fluid filled cable leak detection (pft)	circuits	EHV	environment	6.00		**7.00**			**-**			**-**	- 0.51		**- 0.58**			**-**			**-**			**-**			**-**			**-**			**-**	- 4,500.00		**-5,250.00**
Total				**6.00**	**-**	**7.00**	**-**	**-**	**-**	**-**	**-**	**-**	**- 0.51**	**-**	**- 0.58**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**- 4,500.00**	**-**	**-5,250.00**
Improve Connection Performance																																				
Flexible connection agreements (constrained generato	connection agreem	132kV	connections	1.00		**1.00**			**-**	30.00		**30.00**	- 3.00		**- 3.00**			**-**			**-**			**-**			**-**			**-**			**-**			**-**
AutoDesign	deployments	LV	connections		2,022.0	**#####**								- 0.2350	**- 0.41**																					
Total				**1.00**	**#####**	**#####**	**-**	**-**	**-**	**30.00**	**-**	**30.00**	**- 3.00**	**- 0.23**	**- 3.41**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**

7Y - LCTs
NPgY
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	Units	RIIO-ED1 2016	2017	2018	2019	2020	2021	2022	2023	RIIO-ED1
		#	#	#	#	#	#	#	#	#
Estimated volumes of LCTs Installed										
Secondary network										
Heat Pumps	Number	456	541	657	624	943	866	573.0	2,408.0	**7,068.0**
EV slow charge	Number	209	48	111	207	31	14	29.0	268.0	**917.0**
EV fast charge	Number	296	375	417	965	748	1,767	4,189.0	7,039.0	**15,796.0**
PVs (G83)	Number	13,038	2,320	1,155	1,333	469	868	1,596.0	6,479.0	**27,258.0**
Other DG (G83)	Number	1	-	-	-	20	-	-		**21.0**
DG (non G83)	Number	235	120	47	44	34	252	534.0	2,804.0	**4,070.0**
Total		**14,235**	**3,404**	**2,387.0**	**3,173.0**	**2,245.0**	**3,767.0**	**6,921.0**	**#####**	**55,130.0**
Primary network										
Heat Pumps	Number									**-**
EV slow charge	Number									**-**
EV fast charge	Number									**-**
PVs (G83)	Number									**-**
Other DG (G83)	Number									**-**
DG (non G83)	Number	7.0	10.0	4.0	-	1.0	4.0			**26.0**
Total		**7**	**10.0**	**4.0**	**-**	**1.0**	**4.0**	**-**	**-**	**26.0**
Estimated size of LCTs Installed										
Secondary network										
Heat Pumps		2.94	2.32	2.84	3.57	9.40	24.95	3.6	21.5	**71.1**
EV slow charge	MW	0.72	0.18	0.41	0.76	0.11	0.06	0.1	1.9	**4.3**
EV fast charge	MW	2.22	2.76	3.12	7.83	7.36	20.19	33.0	54.2	**130.6**
PVs (G83)	MW	40.17	7.24	3.69	4.40	1.58	2.92	5.6	23.2	**88.8**
Other DG (G83)	MW	0.00	-	-	-	0.08	-	-		**0.1**
DG (non G83)	MW	103.50	54.20	10.73	11.40	81.01	13.00	23.5	88.3	**385.6**
Total		**150**	**66.7**	**20.8**	**28.0**	**99.5**	**61.1**	**65.7**	**189.1**	**680.4**
Primary network										
Heat Pumps	MW									**-**
EV slow charge	MW									**-**
EV fast charge	MW									**-**
PVs (G83)	MW									**-**
Other DG (G83)	MW									**-**
DG (non G83)	MW	135.9	230.4	122.5	-	77.0	121.0			**686.8**
Total		136	**230.4**	**122.5**	**-**	**77.0**	**121.0**	**-**	**-**	**686.8**

7N - LCTs
NPgN
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	Units	RIIO-ED1 2016	2017	2018	2019	2020	2021	2022	2023	RIIO-ED1
		#	#	#	#	#	#	#	#	#
Estimated volumes of LCTs Installed										
Secondary network										
Heat Pumps	Number	541	370	436	589	711	702	1,178.0	1,890.0	**6,417.0**
EV slow charge	Number	228	94	164	110	16	13	32.0	190.0	**847.0**
EV fast charge	Number	321	313	435	424	427	1,027	2,601.0	4,846.0	**10,394.0**
PVs (G83)	Number	11,890	1,304	932	1,231	445	460	1,392.0	5,370.0	**23,024.0**
Other DG (G83)	Number	-	1	-	-	27	-	-		**28.0**
DG (non G83)	Number	115	83	35	36	28	164	411.0	1,867.0	**2,739.0**
Total		**13,095**	**2,165**	**2,002**	**2,390**	**1,654**	**2,366**	**5,614**	**14,163**	**43,449.0**
Primary network										
Heat Pumps	Number									**-**
EV slow charge	Number									**-**
EV fast charge	Number									**-**
PVs (G83)	Number									**-**
Other DG (G83)	Number									**-**
DG (non G83)	Number	2.0	3.0	5.0	1.0	2.0	1.0			**14.0**
Total		**2.0**	**3**	**5.0**	**1.0**	**2.0**	**1.0**	**-**	**-**	**14.0**
Estimated size of LCTs Installed										
Secondary network										
Heat Pumps		2.34	4.04	3.04	6.51	9.57	14.51	5.80	12.0	**57.8**
EV slow charge	MW	0.76	0.35	0.61	0.41	0.06	0.05	0.11	1.7	**4.0**
EV fast charge	MW	2.35	2.27	3.17	3.36	6.23	12.03	19.18	37.6	**86.2**
PVs (G83)	MW	35.24	3.90	2.97	3.98	1.43	1.48	4.68	18.3	**71.9**
Other DG (G83)	MW	-	0.00	-	-	0.10	-	-		**0.1**
DG (non G83)	MW	39.69	79.00	6.23	3.03	12.85	30.40	21.49	57.2	**249.9**
Total		**80.4**	**89.6**	**16.0**	**17.3**	**30.2**	**58.5**	**51.3**	**126.7**	**469.9**
Primary network										
Heat Pumps	MW									**-**
EV slow charge	MW									**-**
EV fast charge	MW									**-**
PVs (G83)	MW									**-**
Other DG (G83)	MW									**-**
DG (non G83)	MW	9.0	85.1	225.9	0.04	33.0	99.0			**452.1**
Total		**9.0**	**85.1**	**225.9**	**0.0**	**33.0**	**99.0**	**-**	**-**	**452.1**

GLOSSARY

Term	Definition
BCF	Business Carbon Footprint (BCF) is the total amount of greenhouse gas emissions that is caused directly or indirectly by a busi
CI	Customer Interruption (CI) is the number of customers whose electricity supply has been interrupted, per 100 customers, wh interruption of supply lasts for three minutes or longer, and excludes re-interruptions to the supply of customers previously i during the same incident.
CML	Customer Minutes Lost (CML) is the average duration of interruptions to the supply per customer, where an interruption of su three minutes or longer.
Designated Area	Designated Area (DA) is used to refer to Areas of Outstanding Natural Beauty and National Parks
DPCR5	DPCR5 stands for Distribution Price Control Review 5. The period of five regulatory years (1 April to 31 March), from 2010 to 2 by an agreement between the regulator and the distributed network operator on costs and deliverables. The generic name fo is a 'price control period'.
G83	The term is used in this annex as a way to refer to small-scale distributed generation which falls under the Engineering Recom G83 (i.e. up to 16A per phase per premises, connected at low voltage). Please note, G98 standard has now replaced the G83 s Table E7 still refers to G83.
MVA	Mega Volt Amp is a measure of electrical power.
Non G83	The term is used in this annex as a way to refer to all distributed generation which is greater in size than G83. Please note, G9 now replaced the G83 standard. The Table E7 still refers to G83.
Primary substations	Substation connecting circuits at extra-high voltage and high voltage.
RIIO-ED1	The price control period (see DPCR5) covering 2015 to 2023.