Purpose of CBA: describe the primary driver of the investment decision

We have proposed a program of refurbishment and replacement of our SEPD 66kV Transformer fleet. This CBA is designed to support our decision to refurbish transformers rather than replace, where technically appropriate, and to advise on the type of replacement units when replacement is either the only option or when its eventually required post refurbishment. We also carry out a check on our Load Related Transformer replacement program.

If investment is to replace an existing asset / asset class, please state the condition of the asset / asset class (H4 / C3 etc.)

66kV transformers in the SEPD area in asset health condition HI4 and HI5. Plus load related Transformer replacements.

List below all options considered to meet the stated aim

Options considered / project name	Comment
"do minimum" option	Refurbish transformer
Baseline	Refurbishment giving 10 year life extension before replacing with cheapest unit.
Option 1	Replace Transformer - with least cost replacements. Comparatively lossy unit comparable with existing older unit.
Option 2	Replace Transformer - with capitalised loss unit (current policy)
Option 3	Replace Transformer - with very low loss unit.
Option 4	Refurbishment giving 10 year life extension before replacing with capitalised loss unit.

List below the short list of those options which have been costed within this CBA workbook

Option no.	Options considered	Decision	Comment	For the chosen option only, provide detail of where CBA expenditure included in this CBA is reported in the BPDT pack. e.g. LV switchgear BPDT CV3 rows 15 to 22.	NPVs based on payback periods						45yr NPV with sensitivity on refurbishment life extension					Option Benefits - EDI units / year post investment					Incremental Investment (£k) Justified by optimum CBA - per unit						
					16 years	24 years	32 years	45 years	DNO view		3yr	5yr	10yr	15yr		Losses (MWh)	CI	CML	Carbon (tCO2e)		Base	Losses U/C	CI / CML U/C	Carbon U/C	Safety	Other	Total
B	Baseline Scenario: Refurbishment giving 10 year life extension before replacing with cheapest unit.	Rejected																									
1	Replacement with cheapest available unit yr 1	Rejected			£0.01	£0.05	£0.08	£0.11			£0.23	£0.19	£0.11	£0.05		0	0	0	0		493	0	0	0	0	0	0
2	Replacement in year 1 with capitalised loss unit (current policy) vs baseline	Adopted	Positive NPV. Adopt where criticality directs and failure of asset not tenable. Otherwise consider Opt 4.	SSES 66kV Transformer BPDT CV3 row 84	£0.06	£0.16	£0.23	£0.31			£0.42	£0.38	£0.31	£0.24		263	0	0	138		658.0	#VALUE!	#VALUE!	#VALUE!	0	0	#VALUE!
3	Replacement in year 1 with very low loss unit vs baseline	Rejected	Negative NPV therefore baseline option (refurb) is better value assuming 10 year life extension.		-£0.26	-£0.17	-£0.37	-£0.61			-£0.50	-£0.53	-£0.61	-£0.68		527	0	0	257		1,320.0	#VALUE!	#VALUE!	#VALUE!	0	0	#VALUE!
4	Refurbishment year 1 giving 10 year life extension, followed by replacement with capitalised loss unit	Adopted	Positive NPV in relation to baseline and Option 1 - should be adopted where criticality directs that refurbishment is a viable option.	SSES 66kV Transformer BPDT CV5 row 42 SSES 66kV Transformer BPDT CV3 row 84	£0.01	£0.06	£0.09	£0.13			£0.07	£0.09	£0.13	£0.16		0	0	0	0		0.0	0.0	0.0	0.0	0.0	0.0	0.0

CBA Option 1 — Replacement with cheapest available unit yr 1

Term (years from first out flow)	NPV (£m)
16	£0.01
24	£0.05
32	£0.08
45	£0.11
first year of investment out flow	1

	Calculation	Units	RIIO-ED1 1 2016	2 2017	3 2018	4 2019	5 2020	6 2021	7 2022	8 2023	RIIO-ED2 9 2024	10 2025	11 2026	12 2027	13 2028	14 2029	15 2030	16 2031	RIIO-ED3 17 2032	18 2033	19 2034	20 2035	21 2036	22 2037	23 2038	24 2039
Investment																										
Asset Replacement		£m	■																							
Please specify		£m																								
Please specify		£m																								
Please specify		£m																								
Please specify		£m																								
Total investment		£m	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Avoided DNO costs																										
Inspections & Maintenance		£m																								
Asset Replacement		£m										■														
Refurbishment		£m	■																							
Please specify		£m																								
Please specify		£m																								
Please specify		£m																								
Total avoided DNO costs		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total DNO net benefits before capitalisation	(1) = investment + DNO benefits	£m	-	-	-	-	-	-	-	-	-	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Capitalisation rates	(2)	%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%
Capitalised investment	(3)=(1)x(2)	£m	■	-	-	-	-	-	-	-	-	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Investment to be expensed	(4)=(1)-(3)	£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Depreciation	$(5)=\sum(5)_t$	£m	-	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cost of Capital	$(6)=avg[(6^{cl}),(6^{op})]\times WACC$	£m	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Total Net DNO benefits	(7)=(4)+(5)+(6)	£m	(0.08)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	0.15	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Societal benefits (£m) i.e. costs avoided																										
Losses		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2e associated with losses		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Customer interruptions (CI)		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Customer minutes lost (CML)		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other GHG emissions (CO2e) i.e. not associated with losses		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fatality		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Major injury		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oil leakage		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other 1 (specify)		£m																								
Other 2 (specify)		£m																								
Other 3 (specify)		£m																								
Total societal net benefits		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net benefits		£m	(0.08)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	0.15	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Discount factor	$=1/[(1+SRTP)^n]$		0.97	0.93	0.90	0.87	0.84	0.81	0.79	0.76	0.73	0.71	0.68	0.66	0.64	0.62	0.60	0.58	0.56	0.54	0.52	0.50	0.49	0.47	0.45	0.44
Discount factor (safety)	$=1/[(1+PTPR)^n]$		0.99	0.97	0.96	0.94	0.93	0.91	0.90	0.89	0.87	0.86	0.85	0.84	0.82	0.81	0.80	0.79	0.78	0.76	0.75	0.74	0.73	0.72	0.71	0.70
Discounted net benefits		£m	(0.07)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	0.10	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00
Cumulative discounted net benefits		£m	(0.07)	(0.08)	(0.09)	(0.10)	(0.11)	(0.12)	(0.13)	(0.14)	(0.14)	(0.04)	(0.03)	(0.02)	(0.02)	(0.01)	(0.00)	0.01	0.01	0.02	0.02	0.03	0.03	0.04	0.04	0.05

Non-DNO (eg societal) benefits

Enter values as increments (delta) relative to your reference scenario. If this is your reference scenario enter 0. Reductions are entered as positive numbers and increases as negative numbers.

Societal net benefits (impact relative to business as usual scenario)	Units																								
Reduced losses	MWh																								
Reduced emissions associated with losses	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reduced number of customers interrupted	no.																								
Reduced customer minutes lost	Mins																								
Reduced emissions (not associated with losses)[1]	tCO2e																								
Reduced probability of fatality[2]	%																								
Reduced probability of major injury[2]	%																								
Reduced oil leakage	Litres																								

[1] Includes all GHG not associated with losses e.g. SF6 converted to tCO2e using Defra conversion factors
http://www.defra.gov.uk/publications/2012/05/30/pb13773-2012-ghg-conversion/
Where losses are entered in terms of MWh, the CO2e associated with those losses will be calculated based on an assumed GHG conversion factor. The tCO2e are monetised using DECC traded carbon values.
All other GHG emissions not associated with losses should be entered in row 90 to avoid double counting.
[2] http://www.hse.gov.uk/risk/theory/alarpcheck.htm

CBA Option 1.1 **Sensitivity check: Option 1 with 5yr refurb life extension**

Term (years from first out flow)	NPV (£m)
16	£0.10
24	£0.14
32	£0.16
45	£0.19

first year of investment out flow	1

				RIIO-ED1								RIIO-ED2								RIIO-ED3							
	Calculation	Units	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
			2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Investment																										
Asset Replacement		£m																								
Please specify		£m																								
Please specify		£m																								
Please specify		£m																								
Please specify		£m																								
Total investment		£m		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Avoided DNO costs																										
Inspections & Maintenance		£m																								
Asset Replacement		£m																								
Refurbishment		£m																								
Please specify		£m																								
Please specify		£m																								
Please specify		£m																								
Total avoided DNO costs		£m		-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total DNO net benefits before capitalisation	(1) = investment + DNO benefits	£m		-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Capitalisation rates	(2)	%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%
Capitalised investment	(3)=(1)x(2)	£m		-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Investment to be expensed	(4)=(1)-(3)	£m		-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Depreciation	(5)=∑(5)$_t$	£m	-	(0.00)	(0.00)	(0.00)	(0.00)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cost of Capital	(6)=avg[(6^{cl}),(6^{op})]xWACC	£m	(0.00)	(0.01)	(0.01)	(0.01)	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00
Total Net DNO benefits	(7)=(4)+(5)+(6)	£m	(0.08)	(0.01)	(0.01)	(0.01)	0.14	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Societal benefits (£m) i.e. costs avoided																										
Losses		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2e associated with losses		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Customer interruptions (CI)		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Customer minutes lost (CML)		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other GHG emissions (CO2e) i.e. not associated with losses		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fatality		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Major injury		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oil leakage		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other 1 (specify)		£m																								
Other 2 (specify)		£m																								
Other 3 (specify)		£m																								
Total societal net benefits		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net benefits		£m	(0.08)	(0.01)	(0.01)	(0.01)	0.14	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Discount factor	=1/[(1+SRTP)^n]		0.97	0.93	0.90	0.87	0.84	0.81	0.79	0.76	0.73	0.71	0.68	0.66	0.64	0.62	0.60	0.58	0.56	0.54	0.52	0.50	0.49	0.47	0.45	0.44
Discount factor (safety)	=1/[(1+PTPR)^n]		0.99	0.97	0.96	0.94	0.93	0.91	0.90	0.89	0.87	0.86	0.85	0.84	0.82	0.81	0.80	0.79	0.78	0.76	0.75	0.74	0.73	0.72	0.71	0.70
Discounted net benefits		£m	(0.07)	(0.01)	(0.01)	(0.01)	0.12	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
Cumulative discounted net benefits		£m	(0.07)	(0.08)	(0.09)	(0.10)	0.02	0.03	0.04	0.05	0.05	0.06	0.07	0.08	0.08	0.09	0.10	0.10	0.11	0.11	0.12	0.12	0.13	0.13	0.13	0.14

Non-DNO (eg societal) benefits

Enter values as increments (delta) relative to your reference scenario. If this is your reference scenario enter 0. Reductions are entered as positive numbers and increases as negative numbers.

Societal net benefits (impact relative to business as usual scenario)

	Units																								
Reduced losses	MWh																								
Reduced emissions associated with losses	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reduced number of customers interrupted	no.																								
Reduced customer minutes lost	Mins																								
Reduced emissions (not associated with losses)[1]	tCO2e																								
Reduced probability of fatality[2]	%																								
Reduced probability of major injury[2]	%																								
Reduced oil leakage	Litres																								

[1] Includes all GHG not associated with losses e.g. SF6 converted to tCO2e using Defra conversion factors
http://www.defra.gov.uk/publications/2012/05/30/pb13773-2012-ghg-conversion/
Where losses are entered in terms of MWh, the CO2e associated with those losses will be calculated based on an assumed GHG conversion factor. The tCO2e are monetised using DECC traded carbon values.
All other GHG emissions not associated with losses should be entered in row 90 to avoid double counting.
[2] http://www.hse.gov.uk/risk/theory/alarpcheck.htm

Term (years from first out flow)	NPV (£m)
16	£0.14
24	£0.18
32	£0.20
45	£0.23

first year of investment out flow	1

		Calculation	Units	RIIO-ED1								RIIO-ED2								RIIO-ED3							
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
				2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Investment	Asset Replacement		£m	■																							
	Please specify		£m																								
	Please specify		£m																								
	Please specify		£m																								
	Please specify		£m																								
	Total investment		£m	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Avoided DNO costs	Inspections & Maintenance		£m																								
	Asset Replacement		£m			■																					
	Refurbishment		£m	■																							
	Please specify		£m																								
	Please specify		£m																								
	Please specify		£m																								
	Total avoided DNO costs		£m		-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total DNO net benefits before capitalisation	(1) = investment + DNO benefits	£m	■		■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Capitalisation rates	(2)	%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%
	Capitalised investment	(3)=(1)x(2)	£m	■	-	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Investment to be expensed	(4)=(1)-(3)	£m	■	-	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Depreciation	(5)=∑(5)_t	£m	-	(0.00)	(0.00)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Cost of Capital	(6)=avg[(6^cl),(6^op)]xWACC	£m	(0.00)	(0.01)	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00
	Total Net DNO benefits	(7)=(4)+(5)+(6)	£m	(0.08)	(0.01)	0.14	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Societal benefits (£m) i.e. costs avoided	Losses		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	CO2e associated with losses		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Customer interruptions (CI)		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Customer minutes lost (CML)		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Other GHG emissions (CO2e) i.e. not associated with losses		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fatality		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Major injury		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Oil leakage		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Other 1 (specify)		£m																								
	Other 2 (specify)		£m																								
	Other 3 (specify)		£m																								
	Total societal net benefits		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Net benefits		£m	(0.08)	(0.01)	0.14	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	Discount factor	=1/[(1+SRTP)^n]		0.97	0.93	0.90	0.87	0.84	0.81	0.79	0.76	0.73	0.71	0.68	0.66	0.64	0.62	0.60	0.58	0.56	0.54	0.52	0.50	0.49	0.47	0.45	0.44
	Discount factor (safety)	=1/[(1+PTPR)^n]		0.99	0.97	0.96	0.94	0.93	0.91	0.90	0.89	0.87	0.86	0.85	0.84	0.82	0.81	0.80	0.79	0.78	0.76	0.75	0.74	0.73	0.72	0.71	0.70
	Discounted net benefits		£m	(0.07)	(0.01)	0.13	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Cumulative discounted net benefits		£m	(0.07)	(0.08)	0.05	0.06	0.07	0.07	0.08	0.09	0.10	0.11	0.11	0.12	0.13	0.13	0.14	0.14	0.15	0.15	0.16	0.16	0.17	0.17	0.17	0.18

Non-DNO (eg societal) benefits

Enter values as increments (delta) relative to your reference scenario. If this is your reference scenario enter 0. Reductions are entered as positive numbers and increases as negative numbers.

Societal net benefits (impact relative to business as usual scenario)		Units																								
	Reduced losses	MWh																								
	Reduced emissions associated with losses	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Reduced number of customers interrupted	no.																								
	Reduced customer minutes lost	Mins																								
	Reduced emissions (not associated with losses)[1]	tCO2e																								
	Reduced probability of fatality[2]	%																								
	Reduced probability of major injury[2]	%																								
	Reduced oil leakage	Litres																								

[1] Includes all GHG not associated with losses e.g. SF6 converted to tCO2e using Defra conversion factors
http://www.defra.gov.uk/publications/2012/05/30/pb13773-2012-ghg-conversion/
Where losses are entered in terms of MWh, the CO2e associated with those losses will be calculated based on an assumed GHG conversion factor. The tCO2e are monetised using DECC traded carbon values.
All other GHG emissions not associated with losses should be entered in row 90 to avoid double counting.
[2] http://www.hse.gov.uk/risk/theory/alarpcheck.htm

CBA Option 1.3 **Sensitivity check: Option 1 with 15yr refurb life extension**

Term (years from first out flow)	NPV (£m)
16	-£0.08
24	-£0.03
32	£0.01
45	£0.05

first year of investment out flow	1

				RIIO-ED1								RIIO-ED2								RIIO-ED3							
	Calculation	Units	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
			2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Investment																										
Asset Replacement		£m	■																							
Please specify		£m																								
Please specify		£m																								
Please specify		£m																								
Please specify		£m																								
Total investment		£m	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Avoided DNO costs																										
Inspections & Maintenance		£m																								
Asset Replacement		£m													■											
Refurbishment		£m	■																							
Please specify		£m																								
Please specify		£m																								
Please specify		£m																								
Total avoided DNO costs		£m	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total DNO net benefits before capitalisation	(1) = investment + DNO benefits	£m	■	-	-	-	-	-	-	-	-	-	-	-	-	-	■	-	-	-	-	-	-	-	-	-
Capitalisation rates	(2)	%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%
Capitalised investment	(3)=(1)x(2)	£m	■	-	-	-	-	-	-	-	-	-	-	-	-	-	■	-	-	-	-	-	-	-	-	-
Investment to be expensed	(4)=(1)-(3)	£m	■	-	-	-	-	-	-	-	-	-	-	-	-	-	■	-	-	-	-	-	-	-	-	-
Depreciation	(5)=∑(5)ₜ	£m	-	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cost of Capital	(6)=avg[(6ᵈ),(6ᵒᵖ)]xWACC	£m	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Total Net DNO benefits	(7)=(4)+(5)+(6)	£m	(0.08)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	0.15	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Societal benefits (£m) i.e. costs avoided																										
Losses		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CO2e associated with losses		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Customer interruptions (CI)		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Customer minutes lost (CML)		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other GHG emissions (CO2e) i.e. not associated with losses		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fatality		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Major injury		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oil leakage		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other 1 (specify)		£m																								
Other 2 (specify)		£m																								
Other 3 (specify)		£m																								
Total societal net benefits		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net benefits		£m	(0.08)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	0.15	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Discount factor	=1/[(1+SRTP)^n]		0.97	0.93	0.90	0.87	0.84	0.81	0.79	0.76	0.73	0.71	0.68	0.66	0.64	0.62	0.60	0.58	0.56	0.54	0.52	0.50	0.49	0.47	0.45	0.44
Discount factor (safety)	=1/[(1+PTPR)^n]		0.99	0.97	0.96	0.94	0.93	0.91	0.90	0.89	0.87	0.86	0.85	0.84	0.82	0.81	0.80	0.79	0.78	0.76	0.75	0.74	0.73	0.72	0.71	0.70
Discounted net benefits		£m	(0.07)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	0.09	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cumulative discounted net benefits		£m	(0.07)	(0.08)	(0.09)	(0.10)	(0.11)	(0.12)	(0.13)	(0.14)	(0.14)	(0.15)	(0.16)	(0.16)	(0.17)	(0.17)	(0.09)	(0.08)	(0.07)	(0.07)	(0.06)	(0.05)	(0.05)	(0.04)	(0.03)	(0.03)

Non-DNO (eg societal) benefits

Enter values as increments (delta) relative to your reference scenario. If this is your reference scenario enter 0. Reductions are entered as positive numbers and increases as negative numbers.

Societal net benefits (impact relative to business as usual scenario)	Units																								
Reduced losses	MWh																								
Reduced emissions associated with losses	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reduced number of customers interrupted	no.																								
Reduced customer minutes lost	Mins																								
Reduced emissions (not associated with losses)[1]	tCO2e																								
Reduced probability of fatality[2]	%																								
Reduced probability of major injury[2]	%																								
Reduced oil leakage	Litres																								

[1] Includes all GHG not associated with losses e.g. SF6 converted to tCO2e using Defra conversion factors
http://www.defra.gov.uk/publications/2012/05/30/pb13773-2012-ghg-conversion/
Where losses are entered in terms of MWh, the CO2e associated with those losses will be calculated based on an assumed GHG conversion factor. The tCO2e are monetised using DECC traded carbon values.
All other GHG emissions not associated with losses should be entered in row 90 to avoid double counting.
[2] http://www.hse.gov.uk/risk/theory/alarpcheck.htm

CBA Option 2 Replacement in year 1 with capitalised loss unit (current policy) vs baseline

Term (years from first out flow)	NPV (£m)
16	£0.06
24	£0.16
32	£0.23
45	£0.31
first year of investment out flow	1

	Calculation	Units	RIIO-ED1 1 2016	2 2017	3 2018	4 2019	5 2020	6 2021	7 2022	8 2023	RIIO-ED2 9 2024	10 2025	11 2026	12 2027	13 2028	14 2029	15 2030	16 2031	RIIO-ED3 17 2032	18 2033	19 2034	20 2035	21 2036	22 2037	23 2038	24 2039
Investment Asset Replacement		£m	■																							
Please specify		£m																								
Please specify		£m																								
Please specify		£m																								
Please specify		£m																								
Total investment		£m	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Avoided DNO costs Inspections & Maintenance		£m																								
Asset Replacement		£m										■														
Refurbishment		£m	■																							
Please specify		£m																								
Please specify		£m																								
Please specify		£m																								
Total avoided DNO costs		£m	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total DNO net benefits before capitalisation	(1) = investment + DNO benefits	£m		-	-	-	-	-	-	-	■		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Capitalisation rates	(2)	%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%
Capitalised investment	(3)=(1)x(2)	£m	■	-	-	-	-	-	-	-	■		-	-	-	-	-	-	-	-	-	-	-	-	-	-
Investment to be expensed	(4)=(1)-(3)	£m		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Depreciation	(5)=∑(5)t	£m	-	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cost of Capital	(6)=avg[(6cl),(6op)]xWACC	£m	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Net DNO benefits	(7)=(4)+(5)+(6)	£m	(0.13)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	0.14	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Societal benefits (£m) i.e. costs avoided Losses		£m	-	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
CO2e associated with losses		£m	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Customer interruptions (CI)		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Customer minutes lost (CML)		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other GHG emissions (CO2e) i.e. not associated with losses		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fatality		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Major injury		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oil leakage		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other 1 (specify)		£m																								
Other 2 (specify)		£m																								
Other 3 (specify)		£m																								
Total societal net benefits		£m	-	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Net benefits		£m	(0.13)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	0.00	0.16	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02
Discount factor	=1/[(1+SRTP)^n]		0.97	0.93	0.90	0.87	0.84	0.81	0.79	0.76	0.73	0.71	0.68	0.66	0.64	0.62	0.60	0.58	0.56	0.54	0.52	0.50	0.49	0.47	0.45	0.44
Discount factor (safety)	=1/[(1+PTPR)^n]		0.99	0.97	0.96	0.94	0.93	0.91	0.90	0.89	0.87	0.86	0.85	0.84	0.82	0.81	0.80	0.79	0.78	0.76	0.75	0.74	0.73	0.72	0.71	0.70
Discounted net benefits		£m	(0.12)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	0.00	0.11	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cumulative discounted net benefits		£m	(0.12)	(0.13)	(0.13)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.03)	(0.02)	(0.00)	0.02	0.03	0.05	0.06	0.07	0.09	0.10	0.11	0.13	0.14	0.15	0.16

Non-DNO (eg societal) benefits
Enter values as increments (delta) relative to your reference scenario. If this is your reference scenario enter 0. Reductions are entered as positive numbers and increases as negative numbers.

Societal net benefits (impact relative to business as usual scenario)	Units	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Reduced losses	MWh		263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263
Reduced emissions associated with losses	tCO2e	-	128.44	124.62	120.81	117.00	113.19	109.37	105.56	101.75	97.94	94.13	90.31	86.50	82.69	78.88	75.06	71.25	67.44	63.63	59.81	56.00	52.19	48.38	44.57
Reduced number of customers interrupted	no.																								
Reduced customer minutes lost	Mins																								
Reduced emissions (not associated with losses)[1]	tCO2e																								
Reduced probability of fatality[2]	%																								
Reduced probability of major injury[2]	%																								
Reduced oil leakage	Litres																								

[1] Includes all GHG not associated with losses e.g. SF6 converted to tCO2e using Defra conversion factors
http://www.defra.gov.uk/publications/2012/05/30/pb13773-2012-ghg-conversion/
Where losses are entered in terms of MWh, the CO2e associated with those losses will be calculated based on an assumed GHG conversion factor. The tCO2e are monetised using DECC traded carbon values.
All other GHG emissions not associated with losses should be entered in row 90 to avoid double counting.
[2] http://www.hse.gov.uk/risk/theory/alarpcheck.htm

CBA Option 2.1 Sensitivity check: Option 2 with 5yr refurb life extension

Term (years from first out flow)	NPV (£m)
16	£0.16
24	£0.25
32	£0.32
45	£0.38

first year of investment out flow	1

				RIIO-ED1								RIIO-ED2								RIIO-ED3							
	Calculation	Units	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
			2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Investment																										
Asset Replacement		£m	■																							
Please specify		£m																								
Please specify		£m																								
Please specify		£m																								
Please specify		£m																								
Total investment		£m	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Avoided DNO costs																										
Inspections & Maintenance		£m																								
Asset Replacement		£m				■																				
Refurbishment		£m	■																							
Please specify		£m																								
Please specify		£m																								
Please specify		£m																								
Total avoided DNO costs		£m		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total DNO net benefits before capitalisation	(1) = investment + DNO benefits	£m	■	-	-	-	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Capitalisation rates	(2)	%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%
Capitalised investment	(3)=(1)x(2)	£m	■	-	-	-	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Investment to be expensed	(4)=(1)-(3)	£m		-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Depreciation	(5)=∑(5)ₜ	£m	-	(0.01)	(0.01)	(0.01)	(0.01)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cost of Capital	(6)=avg[(6ᶜˡ),(6ᵒᵖ)]xWACC	£m	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Net DNO benefits	(7)=(4)+(5)+(6)	£m	(0.13)	(0.02)	(0.02)	(0.02)	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Societal benefits (£m) i.e. costs avoided																										
Losses		£m	-	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
CO2e associated with losses		£m	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Customer interruptions (CI)		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Customer minutes lost (CML)		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other GHG emissions (CO2e) i.e. not associated with losses		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fatality		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Major injury		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oil leakage		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other 1 (specify)		£m																								
Other 2 (specify)		£m																								
Other 3 (specify)		£m																								
Total societal net benefits		£m	-	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Net benefits		£m	(0.13)	(0.00)	(0.00)	(0.00)	0.15	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Discount factor	=1/[(1+SRTP)^n]		0.97	0.93	0.90	0.87	0.84	0.81	0.79	0.76	0.73	0.71	0.68	0.66	0.64	0.62	0.60	0.58	0.56	0.54	0.52	0.50	0.49	0.47	0.45	0.44
Discount factor (safety)	=1/[(1+PTPR)^n]		0.99	0.97	0.96	0.94	0.93	0.91	0.90	0.89	0.87	0.86	0.85	0.84	0.82	0.81	0.80	0.79	0.78	0.76	0.75	0.74	0.73	0.72	0.71	0.70
Discounted net benefits		£m	(0.12)	(0.00)	(0.00)	(0.00)	0.13	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cumulative discounted net benefits		£m	(0.12)	(0.13)	(0.13)	(0.14)	(0.01)	0.01	0.02	0.04	0.05	0.07	0.08	0.10	0.11	0.13	0.14	0.16	0.17	0.18	0.19	0.21	0.22	0.23	0.24	0.25

Non-DNO (eg societal) benefits
Enter values as increments (delta) relative to your reference scenario. If this is your reference scenario enter 0. Reductions are entered as positive numbers and increases as negative numbers.

Societal net benefits (impact relative to business as usual scenario)	Units																								
Reduced losses	MWh		263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263
Reduced emissions associated with losses	tCO2e	-	128.44	124.62	120.81	117.00	113.19	109.37	105.56	101.75	97.94	94.13	90.31	86.50	82.69	78.88	75.06	71.25	67.44	63.63	59.81	56.00	52.19	48.38	44.57
Reduced number of customers interrupted	no.																								
Reduced customer minutes lost	Mins																								
Reduced emissions (not associated with losses)[1]	tCO2e																								
Reduced probability of fatality[2]	%																								
Reduced probability of major injury[2]	%																								
Reduced oil leakage	Litres																								

[1] Includes all GHG not associated with losses e.g. SF6 converted to tCO2e using Defra conversion factors
http://www.defra.gov.uk/publications/2012/05/30/pb13773-2012-ghg-conversion/
Where losses are entered in terms of MWh, the CO2e associated with those losses will be calculated based on an assumed GHG conversion factor. The tCO2e are monetised using DECC traded carbon values.
All other GHG emissions not associated with losses should be entered in row 90 to avoid double counting.
[2] http://www.hse.gov.uk/risk/theory/alarpcheck.htm

CBA Option 2.2 **Sensitivity check: Option 2 with 3yr refurb life extension**

Term (years from first out flow)	NPV (£m)
16	£0.20
24	£0.29
32	£0.35
45	£0.42

first year of investment out flow	1

					RIIO-ED1								RIIO-ED2								RIIO-ED3						
		Calculation	Units	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
				2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Investment	Asset Replacement		£m	■																							
	Please specify		£m																								
	Please specify		£m																								
	Please specify		£m																								
	Please specify		£m																								
	Total investment		£m	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Avoided DNO costs	Inspections & Maintenance		£m																								
	Asset Replacement		£m			■																					
	Refurbishment		£m	■																							
	Please specify		£m																								
	Please specify		£m																								
	Please specify		£m																								
	Total avoided DNO costs		£m		-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total DNO net benefits before capitalisation	(1) = investment + DNO benefits	£m	■		■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Capitalisation rates	(2)	%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%
	Capitalised investment	(3)=(1)x(2)	£m	■	-	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Investment to be expensed	(4)=(1)-(3)	£m		-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Depreciation	(5)=∑(5)ₜ	£m	-	(0.01)	(0.01)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Cost of Capital	(6)=avg[(6^cl),(6^op)]xWACC	£m	(0.01)	(0.01)	(0.00)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total Net DNO benefits	(7)=(4)+(5)+(6)	£m	(0.13)	(0.02)	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Societal benefits (£m) i.e. costs avoided	Losses		£m	-	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	CO2e associated with losses		£m	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	Customer interruptions (CI)		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Customer minutes lost (CML)		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Other GHG emissions (CO2e) i.e. not associated with losses		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fatality		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Major injury		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Oil leakage		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Other 1 (specify)		£m																								
	Other 2 (specify)		£m																								
	Other 3 (specify)		£m																								
	Total societal net benefits		£m	-	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
	Net benefits		£m	(0.13)	(0.00)	0.15	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
	Discount factor	=1/[(1+SRTP)^n]		0.97	0.93	0.90	0.87	0.84	0.81	0.79	0.76	0.73	0.71	0.68	0.66	0.64	0.62	0.60	0.58	0.56	0.54	0.52	0.50	0.49	0.47	0.45	0.44
	Discount factor (safety)	=1/[(1+PTPR)^n]		0.99	0.97	0.96	0.94	0.93	0.91	0.90	0.89	0.87	0.86	0.85	0.84	0.82	0.81	0.80	0.79	0.78	0.76	0.75	0.74	0.73	0.72	0.71	0.70
	Discounted net benefits		£m	(0.12)	(0.00)	0.14	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	Cumulative discounted net benefits		£m	(0.12)	(0.13)	0.01	0.02	0.04	0.05	0.07	0.08	0.10	0.11	0.13	0.14	0.16	0.17	0.19	0.20	0.21	0.22	0.24	0.25	0.26	0.27	0.28	0.29

Non-DNO (eg societal) benefits
Enter values as increments (delta) relative to your reference scenario. If this is your reference scenario enter 0. Reductions are entered as positive numbers and increases as negative numbers.

Societal net benefits (impact relative to business as usual scenario)		Units	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
	Reduced losses	MWh		263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263
	Reduced emissions associated with losses	tCO2e	-	128.44	124.62	120.81	117.00	113.19	109.37	105.56	101.75	97.94	94.13	90.31	86.50	82.69	78.88	75.06	71.25	67.44	63.63	59.81	56.00	52.19	48.38	44.57
	Reduced number of customers interrupted	no.																								
	Reduced customer minutes lost	Mins																								
	Reduced emissions (not associated with losses)[1]	tCO2e																								
	Reduced probability of fatality[2]	%																								
	Reduced probability of major injury[2]	%																								
	Reduced oil leakage	Litres																								

[1] Includes all GHG not associated with losses e.g. SF6 converted to tCO2e using Defra conversion factors
http://www.defra.gov.uk/publications/2012/05/30/pb13773-2012-ghg-conversion/
Where losses are entered in terms of MWh, the CO2e associated with those losses will be calculated based on an assumed GHG conversion factor. The tCO2e are monetised using DECC traded carbon values.
All other GHG emissions not associated with losses should be entered in row 90 to avoid double counting.
[2] http://www.hse.gov.uk/risk/theory/alarpcheck.htm

CBA Option 2.3 **Sensitivity check: Option 2 with 15yr refurb life extension**

Term (years from first out flow)	NPV (£m)
16	-£0.02
24	£0.08
32	£0.16
45	£0.24

first year of investment out flow	1

	Calculation	Units	1 2016	2 2017	3 2018	4 2019	5 2020	6 2021	7 2022	8 2023	9 2024	10 2025	11 2026	12 2027	13 2028	14 2029	15 2030	16 2031	17 2032	18 2033	19 2034	20 2035	21 2036	22 2037	23 2038	24 2039
Investment																										
Asset Replacement		£m	■																							
Please specify		£m																								
Please specify		£m																								
Please specify		£m																								
Please specify		£m																								
Total investment		£m	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Avoided DNO costs																										
Inspections & Maintenance		£m																								
Asset Replacement		£m													■											
Refurbishment		£m	■																							
Please specify		£m																								
Please specify		£m																								
Please specify		£m																								
Total avoided DNO costs		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total DNO net benefits before capitalisation	(1) = investment + DNO benefits	£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	■	-	-	-	-	-	-	-	-	-
Capitalisation rates	(2)	%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%
Capitalised investment	(3)=(1)x(2)	£m	■	-	-	-	-	-	-	-	-	-	-	-	-	-	■	-	-	-	-	-	-	-	-	-
Investment to be expensed	(4)=(1)-(3)	£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Depreciation	(5)=∑(5)$_t$	£m	-	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cost of Capital	(6)=avg[(6^{cl}),(6^{op})]xWACC	£m	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Total Net DNO benefits	(7)=(4)+(5)+(6)	£m	(0.13)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	0.14	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Societal benefits (£m) i.e. costs avoided																										
Losses		£m	-	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
CO2e associated with losses		£m	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Customer interruptions (CI)		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Customer minutes lost (CML)		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other GHG emissions (CO2e) i.e. not associated with losses		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fatality		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Major injury		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oil leakage		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other 1 (specify)		£m																								
Other 2 (specify)		£m																								
Other 3 (specify)		£m																								
Total societal net benefits		£m	-	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Net benefits		£m	(0.13)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Discount factor	=1/[(1+SRTP)^n]		0.97	0.93	0.90	0.87	0.84	0.81	0.79	0.76	0.73	0.71	0.68	0.66	0.64	0.62	0.60	0.58	0.56	0.54	0.52	0.50	0.49	0.47	0.45	0.44
Discount factor (safety)	=1/[(1+PTPR)^n]		0.99	0.97	0.96	0.94	0.93	0.91	0.90	0.89	0.87	0.86	0.85	0.84	0.82	0.81	0.80	0.79	0.78	0.76	0.75	0.74	0.73	0.72	0.71	0.70
Discounted net benefits		£m	(0.12)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cumulative discounted net benefits		£m	(0.12)	(0.13)	(0.13)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.04)	(0.02)	(0.01)	0.01	0.02	0.03	0.05	0.06	0.07	0.08

Non-DNO (eg societal) benefits

Enter values as increments (delta) relative to your reference scenario. If this is your reference scenario enter 0. Reductions are entered as positive numbers and increases as negative numbers.

Societal net benefits (impact relative to business as usual scenario)		Units	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Reduced losses		MWh		263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263
Reduced emissions associated with losses		tCO2e	-	128.44	124.62	120.81	117.00	113.19	109.37	105.56	101.75	97.94	94.13	90.31	86.50	82.69	78.88	75.06	71.25	67.44	63.63	59.81	56.00	52.19	48.38	44.57
Reduced number of customers interrupted		no.																								
Reduced customer minutes lost		Mins																								
Reduced emissions (not associated with losses)[1]		tCO2e																								
Reduced probability of fatality[2]		%																								
Reduced probability of major injury[2]		%																								
Reduced oil leakage		Litres																								

[1] Includes all GHG not associated with losses e.g. SF6 converted to tCO2e using Defra conversion factors
http://www.defra.gov.uk/publications/2012/05/30/pb13773-2012-ghg-conversion/
Where losses are entered in terms of MWh, the CO2e associated with those losses will be calculated based on an assumed GHG conversion factor. The tCO2e are monetised using DECC traded carbon values.
All other GHG emissions not associated with losses should be entered in row 90 to avoid double counting.
[2] http://www.hse.gov.uk/risk/theory/alarpcheck.htm

CBA Option 3   Replacement year 1 with very low loss unit vs baseline

Term (years from first out flow)	NPV (£m)
16	-£0.26
24	-£0.17
32	-£0.37
45	-£0.61
first year of investment out flow	1

				RIIO-ED1								RIIO-ED2								RIIO-ED3							
	Calculation	Units	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
			2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Investment																										
Asset Replacement		£m																								
Please specify		£m																								
Please specify		£m																								
Please specify		£m																								
Please specify		£m																								
Total investment		£m		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Avoided DNO costs																										
Inspections & Maintenance		£m																								
Asset Replacement		£m																								
Refurbishment		£m																								
Please specify		£m																								
Please specify		£m																								
Please specify		£m																								
Total avoided DNO costs		£m		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total DNO net benefits before capitalisation	(1) = investment + DNO benefits	£m		-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Capitalisation rates	(2)	%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%
Capitalised investment	(3)=(1)x(2)	£m		-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Investment to be expensed	(4)=(1)-(3)	£m		-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Depreciation	(5)=∑(5)ₜ	£m	-	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Cost of Capital	(6)=avg[(6ᵈ),(6ᵒᵖ)]xWACC	£m	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Total Net DNO benefits	(7)=(4)+(5)+(6)	£m	(0.34)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)	(0.04)	(0.04)	0.11	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)
Societal benefits (£m) i.e. costs avoided																										
Losses		£m	-	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
CO2e associated with losses		£m	-	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Customer interruptions (CI)		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Customer minutes lost (CML)		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other GHG emissions (CO2e) i.e. not associated with losses		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fatality		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Major injury		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oil leakage		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other 1 (specify)		£m																								
Other 2 (specify)		£m																								
Other 3 (specify)		£m																								
Total societal net benefits		£m	-	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Net benefits		£m	(0.34)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	0.15	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Discount factor	=1/[(1+SRTP)^n]		0.97	0.93	0.90	0.87	0.84	0.81	0.79	0.76	0.73	0.71	0.68	0.66	0.64	0.62	0.60	0.58	0.56	0.54	0.52	0.50	0.49	0.47	0.45	0.44
Discount factor (safety)	=1/[(1+PTPR)^n]		0.99	0.97	0.96	0.94	0.93	0.91	0.90	0.89	0.87	0.86	0.85	0.84	0.82	0.81	0.80	0.79	0.78	0.76	0.75	0.74	0.73	0.72	0.71	0.70
Discounted net benefits		£m	(0.33)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	0.10	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cumulative discounted net benefits		£m	(0.33)	(0.35)	(0.36)	(0.38)	(0.39)	(0.41)	(0.42)	(0.43)	(0.43)	(0.33)	(0.32)	(0.31)	(0.30)	(0.28)	(0.27)	(0.26)	(0.25)	(0.23)	(0.22)	(0.21)	(0.20)	(0.19)	(0.18)	(0.17)

Non-DNO (eg societal) benefits

Enter values as increments (delta) relative to your reference scenario. If this is your reference scenario enter 0. Reductions are entered as positive numbers and increases as negative numbers.

Societal net benefits (impact relative to business as usual scenario)	Units																								
Reduced losses	MWh	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527
Reduced emissions associated with losses	tCO2e	-	257.17	249.53	241.90	234.27	226.63	219.00	211.37	203.73	196.10	188.47	180.83	173.20	165.57	157.93	150.30	142.67	135.03	127.40	119.77	112.13	104.50	96.87	89.23
Reduced number of customers interrupted	no.																								
Reduced customer minutes lost	Mins																								
Reduced emissions (not associated with losses)[1]	tCO2e																								
Reduced probability of fatality[2]	%																								
Reduced probability of major injury[2]	%																								
Reduced oil leakage	Litres																								

[1] Includes all GHG not associated with losses e.g. SF6 converted to tCO2e using Defra conversion factors
http://www.defra.gov.uk/publications/2012/05/30/pb13773-2012-ghg-conversion/
Where losses are entered in terms of MWh, the CO2e associated with those losses will be calculated based on an assumed GHG conversion factor. The tCO2e are monetised using DECC traded carbon values.
All other GHG emissions not associated with losses should be entered in row 90 to avoid double counting.
[2] http://www.hse.gov.uk/risk/theory/alarpcheck.htm

CBA Option 3.1   **Sensitivity check: Option 3 with 5yr refurb life extension**

Term (years from first out flow)	NPV (£m)
16	-£0.16
24	-£0.08
32	-£0.29
45	-£0.53

first year of investment out flow	1

				RIIO-ED1								RIIO-ED2								RIIO-ED3							
		Calculation	Units	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
				2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Investment	Asset Replacement		£m	■																							
	Please specify		£m																								
	Please specify		£m																								
	Please specify		£m																								
	Please specify		£m																								
	Total investment		£m	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Avoided DNO costs	Inspections & Maintenance		£m																								
	Asset Replacement		£m				■																				
	Refurbishment		£m	■																							
	Please specify		£m																								
	Please specify		£m																								
	Please specify		£m																								
	Total avoided DNO costs		£m	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total DNO net benefits before capitalisation	(1) = investment + DNO benefits	£m	■	-	-	-	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Capitalisation rates	(2)	%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%
	Capitalised investment	(3)=(1)x(2)	£m	■	-	-	-	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Investment to be expensed	(4)=(1)-(3)	£m	■	-	-	-	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Depreciation	(5)=∑(5)ₜ	£m	-	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
	Cost of Capital	(6)=avg[(6ᶜˡ),(6ᵒᵖ)]xWACC	£m	(0.02)	(0.03)	(0.03)	(0.03)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
	Total Net DNO benefits	(7)=(4)+(5)+(6)	£m	(0.34)	(0.05)	(0.05)	(0.05)	0.11	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Societal benefits (£m) i.e. costs avoided	Losses		£m	-	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
	CO2e associated with losses		£m	-	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	Customer interruptions (CI)		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Customer minutes lost (CML)		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Other GHG emissions (CO2e) i.e. not associated with losses		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fatality		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Major injury		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Oil leakage		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Other 1 (specify)		£m																								
	Other 2 (specify)		£m																								
	Other 3 (specify)		£m																								
	Total societal net benefits		£m	-	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	Net benefits		£m	(0.34)	(0.02)	(0.02)	(0.02)	0.14	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
	Discount factor	=1/[(1+SRTP)^n]		0.97	0.93	0.90	0.87	0.84	0.81	0.79	0.76	0.73	0.71	0.68	0.66	0.64	0.62	0.60	0.58	0.56	0.54	0.52	0.50	0.49	0.47	0.45	0.44
	Discount factor (safety)	=1/[(1+PTPR)^n]		0.99	0.97	0.96	0.94	0.93	0.91	0.90	0.89	0.87	0.86	0.85	0.84	0.82	0.81	0.80	0.79	0.78	0.76	0.75	0.74	0.73	0.72	0.71	0.70
	Discounted net benefits		£m	(0.33)	(0.02)	(0.02)	(0.02)	0.12	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	Cumulative discounted net benefits		£m	(0.33)	(0.35)	(0.36)	(0.38)	(0.26)	(0.26)	(0.25)	(0.24)	(0.24)	(0.23)	(0.22)	(0.21)	(0.20)	(0.19)	(0.17)	(0.16)	(0.15)	(0.14)	(0.13)	(0.12)	(0.11)	(0.10)	(0.09)	(0.08)

Non-DNO (eg societal) benefits
Enter values as increments (delta) relative to your reference scenario. If this is your reference scenario enter 0. Reductions are entered as positive numbers and increases as negative numbers.

		Units	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Societal net benefits (impact relative to business as usual scenario)	Reduced losses	MWh		527	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527
	Reduced emissions associated with losses	tCO2e	-	257.17	249.53	241.90	234.27	226.63	219.00	211.37	203.73	196.10	188.47	180.83	173.20	165.57	157.93	150.30	142.67	135.03	127.40	119.77	112.13	104.50	96.87	89.23
	Reduced number of customers interrupted	no.																								
	Reduced customer minutes lost	Mins																								
	Reduced emissions (not associated with losses)[1]	tCO2e																								
	Reduced probability of fatality[2]	%																								
	Reduced probability of major injury[2]	%																								
	Reduced oil leakage	Litres																								

[1] Includes all GHG not associated with losses e.g. SF6 converted to tCO2e using Defra conversion factors
http://www.defra.gov.uk/publications/2012/05/30/pb13773-2012-ghg-conversion/
Where losses are entered in terms of MWh, the CO2e associated with those losses will be calculated based on an assumed GHG conversion factor. The tCO2e are monetised using DECC traded carbon values.
All other GHG emissions not associated with losses should be entered in row 90 to avoid double counting.
[2] http://www.hse.gov.uk/risk/theory/alarpcheck.htm

CBA Option 3.2 **Sensitivity check: Option 3 with 3yr refurb life extension**

Term (years from first out flow)	NPV (£m)
16	-£0.12
24	-£0.04
32	-£0.25
45	-£0.50

first year of investment out flow	1

	Calculation	Units	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
			RIIO-ED1								RIIO-ED2								RIIO-ED3							
Investment																											
Asset Replacement		£m																								
Please specify		£m																								
Please specify		£m																								
Please specify		£m																								
Please specify		£m																								
Total investment		£m		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Avoided DNO costs																										
Inspections & Maintenance		£m																								
Asset Replacement		£m																								
Refurbishment		£m																								
Please specify		£m																								
Please specify		£m																								
Please specify		£m																								
Total avoided DNO costs		£m		-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total DNO net benefits before capitalisation	(1) = investment + DNO benefits	£m		-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Capitalisation rates	(2)	%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%
Capitalised investment	(3)=(1)x(2)	£m		-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Investment to be expensed	(4)=(1)-(3)	£m		-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Depreciation	(5)=Σ(5)t	£m	-	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Cost of Capital	(6)=avg[(6^cl),(6^op)]xWACC	£m	(0.02)	(0.03)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Total Net DNO benefits	(7)=(4)+(5)+(6)	£m	(0.34)	(0.05)	0.11	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Societal benefits (£m) i.e. costs avoided																										
Losses		£m	-	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
CO2e associated with losses		£m	-	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Customer interruptions (CI)		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Customer minutes lost (CML)		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other GHG emissions (CO2e) i.e. not associated with losses		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fatality		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Major injury		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oil leakage		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other 1 (specify)		£m																								
Other 2 (specify)		£m																								
Other 3 (specify)		£m																								
Total societal net benefits		£m	-	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Net benefits		£m	(0.34)	(0.02)	0.14	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Discount factor	=1/[(1+SRTP)^n]		0.97	0.93	0.90	0.87	0.84	0.81	0.79	0.76	0.73	0.71	0.68	0.66	0.64	0.62	0.60	0.58	0.56	0.54	0.52	0.50	0.49	0.47	0.45	0.44
Discount factor (safety)	=1/[(1+PTPR)^n]		0.99	0.97	0.96	0.94	0.93	0.91	0.90	0.89	0.87	0.86	0.85	0.84	0.82	0.81	0.80	0.79	0.78	0.76	0.75	0.74	0.73	0.72	0.71	0.70
Discounted net benefits		£m	(0.33)	(0.02)	0.12	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cumulative discounted net benefits		£m	(0.33)	(0.35)	(0.22)	(0.22)	(0.22)	(0.21)	(0.21)	(0.20)	(0.19)	(0.18)	(0.17)	(0.16)	(0.15)	(0.14)	(0.13)	(0.12)	(0.11)	(0.10)	(0.09)	(0.08)	(0.07)	(0.06)	(0.05)	(0.04)

Non-DNO (eg societal) benefits

Enter values as increments (delta) relative to your reference scenario. If this is your reference scenario enter 0. Reductions are entered as positive numbers and increases as negative numbers.

Societal net benefits (impact relative to business as usual scenario)	Units	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Reduced losses	MWh	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527
Reduced emissions associated with losses	tCO2e	-	257.17	249.53	241.90	234.27	226.63	219.00	211.37	203.73	196.10	188.47	180.83	173.20	165.57	157.93	150.30	142.67	135.03	127.40	119.77	112.13	104.50	96.87	89.23
Reduced number of customers interrupted	no.																								
Reduced customer minutes lost	Mins																								
Reduced emissions (not associated with losses)[1]	tCO2e																								
Reduced probability of fatality[2]	%																								
Reduced probability of major injury[2]	%																								
Reduced oil leakage	Litres																								

[1] Includes all GHG not associated with losses e.g. SF6 converted to tCO2e using Defra conversion factors
http://www.defra.gov.uk/publications/2012/05/30/pb13773-2012-ghg-conversion/
Where losses are entered in terms of MWh, the CO2e associated with those losses will be calculated based on an assumed GHG conversion factor. The tCO2e are monetised using DECC traded carbon values.
All other GHG emissions not associated with losses should be entered in row 90 to avoid double counting.
[2] http://www.hse.gov.uk/risk/theory/alarpcheck.htm

CBA Option 3.3　　　　　**Sensitivity check: Option 3 with 15yr refurb life extension**

Term (years from first out flow)	NPV (£m)
16	-£0.34
24	-£0.25
32	-£0.45
45	-£0.68
first year of investment out flow	1

				RIIO-ED1								RIIO-ED2								RIIO-ED3							
		Calculation	Units	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
				2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Investment	Asset Replacement		£m																								
	Please specify		£m																								
	Please specify		£m																								
	Please specify		£m																								
	Please specify		£m																								
	Total investment		£m		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Avoided DNO costs	Inspections & Maintenance		£m																								
	Asset Replacement		£m																								
	Refurbishment		£m																								
	Please specify		£m																								
	Please specify		£m																								
	Please specify		£m																								
	Total avoided DNO costs		£m		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total DNO net benefits before capitalisation	(1) = investment + DNO benefits	£m		-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-
	Capitalisation rates	(2)	%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%
	Capitalised investment	(3)=(1)x(2)	£m		-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-
	Investment to be expensed	(4)=(1)-(3)	£m		-	-	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-
	Depreciation	(5)=∑(5)ₜ	£m	-	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
	Cost of Capital	(6)=avg[(6ᵈ),(6ᵒᵖ)]xWACC	£m	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
	Total Net DNO benefits	(7)=(4)+(5)+(6)	£m	(0.34)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	0.12	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Societal benefits (£m) i.e. costs avoided	Losses		£m	-	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
	CO2e associated with losses		£m	-	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	Customer interruptions (CI)		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Customer minutes lost (CML)		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Other GHG emissions (CO2e) i.e. not associated with losses		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fatality		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Major injury		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Oil leakage		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Other 1 (specify)		£m																								
	Other 2 (specify)		£m																								
	Other 3 (specify)		£m																								
	Total societal net benefits		£m	-	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
	Net benefits		£m	(0.34)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	0.15	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03	0.03
	Discount factor	=1/[(1+SRTP)^n]		0.97	0.93	0.90	0.87	0.84	0.81	0.79	0.76	0.73	0.71	0.68	0.66	0.64	0.62	0.60	0.58	0.56	0.54	0.52	0.50	0.49	0.47	0.45	0.44
	Discount factor (safety)	=1/[(1+PTPR)^n]		0.99	0.97	0.96	0.94	0.93	0.91	0.90	0.89	0.87	0.86	0.85	0.84	0.82	0.81	0.80	0.79	0.78	0.76	0.75	0.74	0.73	0.72	0.71	0.70
	Discounted net benefits		£m	(0.33)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	0.09	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	Cumulative discounted net benefits		£m	(0.33)	(0.35)	(0.36)	(0.38)	(0.39)	(0.41)	(0.42)	(0.43)	(0.43)	(0.44)	(0.44)	(0.45)	(0.45)	(0.45)	(0.36)	(0.34)	(0.33)	(0.32)	(0.31)	(0.29)	(0.28)	(0.27)	(0.26)	(0.25)

Non-DNO (eg societal) benefits

Enter values as increments (delta) relative to your reference scenario. If this is your reference scenario enter 0. Reductions are entered as positive numbers and increases as negative numbers.

Societal net benefits (impact relative to business as usual scenario)	Reduced losses	MWh		527	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527	527
	Reduced emissions associated with losses	tCO2e	-	257.17	249.53	241.90	234.27	226.63	219.00	211.37	203.73	196.10	188.47	180.83	173.20	165.57	157.93	150.30	142.67	135.03	127.40	119.77	112.13	104.50	96.87	89.23
	Reduced number of customers interrupted	no.																								
	Reduced customer minutes lost	Mins																								
	Reduced emissions (not associated with losses)[1]	tCO2e																								
	Reduced probability of fatality[2]	%																								
	Reduced probability of major injury[2]	%																								
	Reduced oil leakage	Litres																								

[1] Includes all GHG not associated with losses e.g. SF6 converted to tCO2e using Defra conversion factors
http://www.defra.gov.uk/publications/2012/05/30/pb13773-2012-ghg-conversion/
Where losses are entered in terms of MWh, the CO2e associated with those losses will be calculated based on an assumed GHG conversion factor. The tCO2e are monetised using DECC traded carbon values.
All other GHG emissions not associated with losses should be entered in row 90 to avoid double counting.
[2] http://www.hse.gov.uk/risk/theory/alarpcheck.htm

CBA Option 4 Refurbishment year 1 giving 10 year life extension, followed by replacement with capitalised loss unit

Term (years from first out flow)	NPV (£m)
16	£0.01
24	£0.06
32	£0.09
45	£0.13

first year of investment out flow	1

				RIIO-ED1								RIIO-ED2							RIIO-ED3						
		Calculation	Units	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
				2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Investment	Asset Replacement		£m																								
	Please specify		£m	■																							
	Please specify		£m																								
	Please specify		£m																								
	Please specify		£m																								
	Total investment		£m	■	-	-	-	-	-	-	-	-	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Avoided DNO costs	Inspections & Maintenance		£m																								
	Asset Replacement		£m										■														
	Refurbishment		£m	■																							
	Please specify		£m																								
	Please specify		£m																								
	Total avoided DNO costs		£m		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total DNO net benefits before capitalisation	(1) = investment + DNO benefits	£m	■	-	-	-	-	-	-	-	-	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Capitalisation rates	(2)	%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%
	Capitalised investment	(3)=(1)×(2)	£m	■	-	-	-	-	-	-	-	-	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Investment to be expensed	(4)=(1)-(3)	£m	■	-	-	-	-	-	-	-	-	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Depreciation	(5)=∑(5)ₜ	£m	-	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
	Cost of Capital	(6)=avg[(6^d),(6^{op})]×WACC	£m	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
	Total Net DNO benefits	(7)=(4)+(5)+(6)	£m	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.05)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Societal benefits (£m) i.e. costs avoided	Losses		£m	-	-	-	-	-	-	-	-	-	-	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	CO2e associated with losses		£m	-	-	-	-	-	-	-	-	-	-	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	Customer interruptions (CI)		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Customer minutes lost (CML)		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Other GHG emissions (CO2e) i.e. not associated with losses		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fatality		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Major injury		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Oil leakage		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Other 1 (specify)		£m																								
	Other 2 (specify)		£m																								
	Other 3 (specify)		£m																								
	Total societal net benefits		£m	-	-	-	-	-	-	-	-	-	-	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
	Net benefits		£m	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.05)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	Discount factor	=1/[(1+SRTP)^n]		0.97	0.93	0.90	0.87	0.84	0.81	0.79	0.76	0.73	0.71	0.68	0.66	0.64	0.62	0.60	0.58	0.56	0.54	0.52	0.50	0.49	0.47	0.45	0.44
	Discount factor (safety)	=1/[(1+PTPR)^n]		0.99	0.97	0.96	0.94	0.93	0.91	0.90	0.89	0.87	0.86	0.85	0.84	0.82	0.81	0.80	0.79	0.78	0.76	0.75	0.74	0.73	0.72	0.71	0.70
	Discounted net benefits		£m	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.04)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	Cumulative discounted net benefits		£m	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.04)	(0.03)	(0.02)	(0.02)	(0.01)	(0.00)	0.01	0.01	0.02	0.03	0.03	0.04	0.05	0.05	0.06

Non-DNO (eg societal) benefits
Enter values as increments (delta) relative to your reference scenario. If this is your reference scenario enter 0. Reductions are entered as positive numbers and increases as negative numbers.

		Units																								
Societal net benefits (impact relative to business as usual scenario)	Reduced losses	MWh											263	263	263	263	263	263	263	263	263	263	263	263	263	263
	Reduced emissions associated with losses	tCO2e	-	-	-	-	-	-	-	-	-	-	94.05	90.24	86.44	82.63	78.82	75.01	71.20	67.39	63.58	59.77	55.96	52.15	48.34	44.53
	Reduced number of customers interrupted	no.																									
	Reduced customer minutes lost	Mins																									
	Reduced emissions (not associated with losses)[1]	tCO2e																									
	Reduced probability of fatality[2]	%																									
	Reduced probability of major injury[2]	%																									
	Reduced oil leakage	Litres																									

[1] Includes all GHG not associated with losses e.g. SF6 converted to tCO2e using Defra conversion factors
http://www.defra.gov.uk/publications/2012/05/30/pb13773-2012-ghg-conversion/
Where losses are entered in terms of MWh, the CO2e associated with those losses will be calculated based on an assumed GHG conversion factor. The tCO2e are monetised using DECC traded carbon values.
All other GHG emissions not associated with losses should be entered in row 90 to avoid double counting.
[2] http://www.hse.gov.uk/risk/theory/alarpcheck.htm

CBA Option 4.1			Sensitivity check: Option 4 with 5yr refurb life extension																									

Term (years from first out flow)	NPV (£m)
16	-£0.06
24	-£0.00
32	£0.04
45	£0.09

first year of investment out flow	1

					RIIO-ED1								RIIO-ED2								RIIO-ED3							
		Calculation	Units	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
				2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Investment	Asset Replacement		£m					■																			
	Please specify		£m	■																							
	Please specify		£m																								
	Please specify		£m																								
	Please specify		£m																								
	Total investment		£m	■	-	-	-	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Avoided DNO costs	Inspections & Maintenance		£m																								
	Asset Replacement		£m										■														
	Refurbishment		£m	■																							
	Please specify		£m																								
	Please specify		£m																								
	Please specify		£m																								
	Total avoided DNO costs		£m	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total DNO net benefits before capitalisation	(1) = investment + DNO benefits	£m	■	-	-	-	■	-	-	-	-	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Capitalisation rates	(2)	%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%
	Capitalised investment	(3)=(1)x(2)	£m	■	-	-	-	■	-	-	-	-	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Investment to be expensed	(4)=(1)-(3)	£m	■	-	-	-	■	-	-	-	-	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Depreciation	(5)=∑(5)t	£m	-	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
	Cost of Capital	(6)=avg[(6^cl)t,(6^op)]xWACC	£m	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
	Total Net DNO benefits	(7)=(4)+(5)+(6)	£m	(0.00)	(0.00)	(0.00)	(0.00)	(0.21)	(0.03)	(0.03)	(0.03)	(0.03)	0.13	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Societal benefits (£m) i.e. costs avoided	Losses		£m	-	-	-	-	-	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	CO2e associated with losses		£m	-	-	-	-	-	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	Customer interruptions (CI)		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Customer minutes lost (CML)		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Other GHG emissions (CO2e) i.e. not associated with losses		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Fatality		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Major injury		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Oil leakage		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Other 1 (specify)		£m																								
	Other 2 (specify)		£m																								
	Other 3 (specify)		£m																								
	Total societal net benefits		£m	-	-	-	-	-	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
	Net benefits		£m	(0.00)	(0.00)	(0.00)	(0.00)	(0.21)	(0.01)	(0.01)	(0.01)	(0.01)	0.14	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02
	Discount factor	=1/[(1+SRTP)^n]		0.97	0.93	0.90	0.87	0.84	0.81	0.79	0.76	0.73	0.71	0.68	0.66	0.64	0.62	0.60	0.58	0.56	0.54	0.52	0.50	0.49	0.47	0.45	0.44
	Discount factor (safety)	=1/[(1+PTPR)^n]		0.99	0.97	0.96	0.94	0.93	0.91	0.90	0.89	0.87	0.86	0.85	0.84	0.82	0.81	0.80	0.79	0.78	0.76	0.75	0.74	0.73	0.72	0.71	0.70
	Discounted net benefits		£m	(0.00)	(0.00)	(0.00)	(0.00)	(0.17)	(0.01)	(0.01)	(0.01)	(0.01)	0.10	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	Cumulative discounted net benefits		£m	(0.00)	(0.00)	(0.00)	(0.00)	(0.18)	(0.19)	(0.20)	(0.21)	(0.22)	(0.11)	(0.11)	(0.10)	(0.09)	(0.08)	(0.07)	(0.06)	(0.05)	(0.05)	(0.04)	(0.03)	(0.02)	(0.02)	(0.01)	(0.00)

Non-DNO (eg societal) benefits

Enter values as increments (delta) relative to your reference scenario. If this is your reference scenario enter 0. Reductions are entered as positive numbers and increases as negative numbers.

		Units																								
Societal net benefits (impact relative to business as usual scenario)	Reduced losses	MWh					263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263
	Reduced emissions associated with losses	tCO2e	-	-	-	-	-	113.10	109.29	105.48	101.67	97.86	94.05	90.24	86.44	82.63	78.82	75.01	71.20	67.39	63.58	59.77	55.96	52.15	48.34	44.53
	Reduced number of customers interrupted	no.																								
	Reduced customer minutes lost	Mins																								
	Reduced emissions (not associated with losses)[1]	tCO2e																								
	Reduced probability of fatality[2]	%																								
	Reduced probability of major injury[2]	%																								
	Reduced oil leakage	Litres																								

[1] Includes all GHG not associated with losses e.g. SF6 converted to tCO2e using Defra conversion factors
http://www.defra.gov.uk/publications/2012/05/30/pb13773-2012-ghg-conversion/
Where losses are entered in terms of MWh, the CO2e associated with those losses will be calculated based on an assumed GHG conversion factor. The tCO2e are monetised using DECC traded carbon values.
All other GHG emissions not associated with losses should be entered in row 90 to avoid double counting.
[2] http://www.hse.gov.uk/risk/theory/alarpcheck.htm

CBA Option 4.2 **Sensitivity check: Option 4 with 3yr refurb life extension**

Term (years from first out flow)	NPV (£m)
16	-£0.09
24	-£0.03
32	£0.02
45	£0.07

first year of investment out flow	1

			RIIO-ED1								RIIO-ED2								RIIO-ED3								
	Calculation	Units	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
			2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Investment																										
Asset Replacement		£m			■																					
Please specify		£m	■																							
Please specify		£m																								
Please specify		£m																								
Please specify		£m																								
Total investment		£m	■	-	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Avoided DNO costs																										
Inspections & Maintenance		£m																								
Asset Replacement		£m										■														
Refurbishment		£m	■																							
Please specify		£m																								
Please specify		£m																								
Please specify		£m																								
Total avoided DNO costs		£m		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total DNO net benefits before capitalisation	(1) = investment + DNO benefits	£m	■	-	■	-	-	-	-	-	-	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Capitalisation rates	(2)	%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%
Capitalised investment	(3)=(1)x(2)	£m	■	-	■	-	-	-	-	-	-	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Investment to be expensed	(4)=(1)-(3)	£m	■	-	■	-	-	-	-	-	-	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Depreciation	(5)=∑(5)t	£m	-	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Cost of Capital	(6)=avg[(6d),(6op)]xWACC	£m	(0.00)	(0.00)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Total Net DNO benefits	(7)=(4)+(5)+(6)	£m	(0.00)	(0.00)	(0.21)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	0.13	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Societal benefits (£m) i.e. costs avoided																										
Losses		£m	-	-	-	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
CO2e associated with losses		£m	-	-	-	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Customer interruptions (CI)		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Customer minutes lost (CML)		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other GHG emissions (CO2e) i.e. not associated with losses		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fatality		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Major injury		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oil leakage		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other 1 (specify)		£m																								
Other 2 (specify)		£m																								
Other 3 (specify)		£m																								
Total societal net benefits		£m	-	-	-	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Net benefits		£m	(0.00)	(0.00)	(0.21)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	0.15	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Discount factor	=1/[(1+SRTP)^n]		0.97	0.93	0.90	0.87	0.84	0.81	0.79	0.76	0.73	0.71	0.68	0.66	0.64	0.62	0.60	0.58	0.56	0.54	0.52	0.50	0.49	0.47	0.45	0.44
Discount factor (safety)	=1/[(1+PTPR)^n]		0.99	0.97	0.96	0.94	0.93	0.91	0.90	0.89	0.87	0.86	0.85	0.84	0.82	0.81	0.80	0.79	0.78	0.76	0.75	0.74	0.73	0.72	0.71	0.70
Discounted net benefits		£m	(0.00)	(0.00)	(0.19)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	0.10	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Cumulative discounted net benefits		£m	(0.00)	(0.00)	(0.19)	(0.20)	(0.21)	(0.23)	(0.24)	(0.24)	(0.25)	(0.15)	(0.14)	(0.13)	(0.12)	(0.11)	(0.10)	(0.09)	(0.09)	(0.08)	(0.07)	(0.06)	(0.05)	(0.04)	(0.04)	(0.03)

Non-DNO (eg societal) benefits
Enter values as increments (delta) relative to your reference scenario. If this is your reference scenario enter 0. Reductions are entered as positive numbers and increases as negative numbers.

Societal net benefits (impact relative to business as usual scenario)	Units	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Reduced losses	MWh				263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263	263
Reduced emissions associated with losses	tCO2e	-	-	-	120.72	116.91	113.10	109.29	105.48	101.67	97.86	94.05	90.24	86.44	82.63	78.82	75.01	71.20	67.39	63.58	59.77	55.96	52.15	48.34	44.53
Reduced number of customers interrupted	no.																								
Reduced customer minutes lost	Mins																								
Reduced emissions (not associated with losses)[1]	tCO2e																								
Reduced probability of fatality[2]	%																								
Reduced probability of major injury[2]	%																								
Reduced oil leakage	Litres																								

[1] Includes all GHG not associated with losses e.g. SF6 converted to tCO2e using Defra conversion factors
http://www.defra.gov.uk/publications/2012/05/30/pb13773-2012-ghg-conversion/
Where losses are entered in terms of MWh, the CO2e associated with those losses will be calculated based on an assumed GHG conversion factor. The tCO2e are monetised using DECC traded carbon values.
All other GHG emissions not associated with losses should be entered in row 90 to avoid double counting.
[2] http://www.hse.gov.uk/risk/theory/alarpcheck.htm

CBA Option 4.3   Sensitivity check: Option 4 with 15yr refurb life extension

Term (years from first out flow)	NPV (£m)
16	£0.06
24	£0.10
32	£0.13
45	£0.16

first year of investment out flow	1

			RIIO-ED1								RIIO-ED2							RIIO-ED3							
	Calculation	Units	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
			2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Investment																										
Asset Replacement		£m															■									
Please specify		£m	■																							
Please specify		£m																								
Please specify		£m																								
Please specify		£m																								
Total investment		£m	■	-	-	-	-	-	-	-	-	-	-	-	-	-	■	-	-	-	-	-	-	-	-	-
Avoided DNO costs																										
Inspections & Maintenance		£m																								
Asset Replacement		£m									■															
Refurbishment		£m	■																							
Please specify		£m																								
Please specify		£m																								
Please specify		£m																								
Total avoided DNO costs		£m	■	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total DNO net benefits before capitalisation	(1) = investment + DNO benefits	£m	■	-	-	-	-	-	-	-	■	-	-	-	-	■	-	-	-	-	-	-	-	-	-	-
Capitalisation rates	(2)	%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%	70.0%
Capitalised investment	(3)=(1)x(2)	£m	■	-	-	-	-	-	-	-	■	-	-	-	-	■	-	-	-	-	-	-	-	-	-	-
Investment to be expensed	(4)=(1)-(3)	£m	■	-	-	-	-	-	-	-	-	-	-	-	-	■	-	-	-	-	-	-	-	-	-	-
Depreciation	(5)=∑(5)t	£m	-	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	0.01	0.01	0.01	0.01	0.01	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Cost of Capital	(6)=avg[(6^cl),(6^op)]xWACC	£m	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	0.01	0.01	0.01	0.01	0.01	0.00	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Total Net DNO benefits	(7)=(4)+(5)+(6)	£m	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	0.16	0.02	0.02	0.02	0.02	(0.19)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Societal benefits (£m) i.e. costs avoided																										
Losses		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
CO2e associated with losses		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Customer interruptions (CI)		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Customer minutes lost (CML)		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other GHG emissions (CO2e) i.e. not associated with losses		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fatality		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Major injury		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oil leakage		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other 1 (specify)		£m																								
Other 2 (specify)		£m																								
Other 3 (specify)		£m																								
Total societal net benefits		£m	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Net benefits		£m	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	0.16	0.02	0.02	0.02	0.02	(0.19)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Discount factor	=1/[(1+SRTP)^n]		0.97	0.93	0.90	0.87	0.84	0.81	0.79	0.76	0.73	0.71	0.68	0.66	0.64	0.62	0.60	0.58	0.56	0.54	0.52	0.50	0.49	0.47	0.45	0.44
Discount factor (safety)	=1/[(1+PTPR)^n]		0.99	0.97	0.96	0.94	0.93	0.91	0.90	0.89	0.87	0.86	0.85	0.84	0.82	0.81	0.80	0.79	0.78	0.76	0.75	0.74	0.73	0.72	0.71	0.70
Discounted net benefits		£m	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	0.11	0.02	0.01	0.01	0.01	(0.11)	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.00
Cumulative discounted net benefits		£m	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	0.11	0.12	0.14	0.15	0.16	0.05	0.06	0.07	0.07	0.08	0.08	0.09	0.09	0.10	0.10

Non-DNO (eg societal) benefits

Enter values as increments (delta) relative to your reference scenario. If this is your reference scenario enter 0. Reductions are entered as positive numbers and increases as negative numbers.

Societal net benefits (impact relative to business as usual scenario)																										
Reduced losses	MWh																	263	263	263	263	263	263	263	263	263
Reduced emissions associated with losses	tCO2e	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75.01	71.20	67.39	63.58	59.77	55.96	52.15	48.34	44.53
Reduced number of customers interrupted	no.																									
Reduced customer minutes lost	Mins																									
Reduced emissions (not associated with losses)[1]	tCO2e																									
Reduced probability of fatality[2]	%																									
Reduced probability of major injury[2]	%																									
Reduced oil leakage	Litres																									

[1] Includes all GHG not associated with losses e.g. SF6 converted to tCO2e using Defra conversion factors
http://www.defra.gov.uk/publications/2012/05/30/pb13773-2012-ghg-conversion/
Where losses are entered in terms of MWh, the CO2e associated with those losses will be calculated based on an assumed GHG conversion factor. The tCO2e are monetised using DECC traded carbon values.
All other GHG emissions not associated with losses should be entered in row 90 to avoid double counting.
[2] http://www.hse.gov.uk/risk/theory/alarpcheck.htm