Annex 7d - Carbon Costs

Do Nothing Schedule

Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
LED luminaires fitted	105	316	527	738	949	1160	1371	1582	1793	2004	2215	2426	2637	2848	3059	3270	3481	3692	3903	4114	4325	4536	4747	4958	5169	5380	5591	5802	6013
Remaining 'Lamp' Units	6031	5820	5609	5398	5187	4976	4765	4554	4343	4132	3921	3710	3499	3288	3077	2866	2655	2444	2233	2022	1811	1600	1389	1178	967	756	545	334	123

Average Unit Energy Consumption for current inventory 240.7 kWhr
Average Unit Energy Consumption for LED with pre-programmed ballast 78.9 kWhr

Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Energy Consumption (kWhr)	**1,459,722**	**1,425,587**	**1,391,452**	**1,357,317**	**1,323,182**	**1,289,047**	**1,254,912**	**1,220,777**	**1,186,642**	**1,152,507**	**1,118,372**	**1,084,237**	**1,050,102**	**1,015,967**	**981,832**	**947,697**	**913,562**	**879,427**	**845,292**	**811,157**	**777,022**	**742,887**	**708,752**	**674,617**	**640,482**	**606,347**	**572,212**	**538,077**	**503,942**
CO2 Consumption (tonne)	**721**	**705**	**688**	**671**	**654**	**637**	**620**	**603**	**587**	**570**	**553**	**536**	**519**	**502**	**485**	**468**	**452**	**435**	**418**	**401**	**384**	**367**	**350**	**333**	**317**	**300**	**283**	**266**	**249**

Replacement Schedule

Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
LED luminaires fitted	1023	3068	5113	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136
Remaining 'Lamp' Units	5113	3068	1023	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Average Unit Energy Consumption for current inventory 240.7 kWhr
Average Unit Energy Consumption for LED with current switch regimes 106.4 kWhr
Average Unit Energy Consumption for LED with CMS (Dimming from 00:00 to 05:30 (Clock) Lux 55/28) 78.9 kWhr

LED with current switch regimes

Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Energy Consumption (kWhr)	**1,339,381**	**1,064,861**	**790,340**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**
CO2 Consumption (tonne)	**662**	**526**	**391**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**

LED with CMS (Dimming from 00:00 to 05:30 (Clock) Lux 55/28)

Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
Energy Consumption (kWhr)	**1,311,211**	**980,376**	**649,542**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**
CO2 Consumption (tonne)	**648**	**485**	**321**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**

Shadow Cost of Carbon

Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
SCC Cost (£)	4.56	4.66	4.78	4.97	5.16	5.35	5.55	5.75	5.97	6.19	6.42	6.66	6.91	7.16	7.43	7.71	13.51	22.52	33.53	48.99	69.87	*69.87*	*69.87*	*69.87*	*69.87*	*69.87*	*69.87*	*69.87*	*69.87*
Do Nothing Schedule (£)	3,290	3,283	3,287	3,334	3,375	3,409	3,442	3,469	3,501	3,526	3,549	3,569	3,586	3,595	3,606	3,611	6,100	9,789	14,009	19,641	26,834	25,655	24,476	23,297	22,118	20,940	19,761	18,582	17,403
Replacement Schedule - LED with current switch regimes (£)	3,019	2,453	1,867	1,604	1,665	1,727	1,791	1,856	1,927	1,998	2,072	2,150	2,230	2,311	2,398	2,488	4,360	7,269	10,822	15,812	22,551	22,551	22,551	22,551	22,551	22,551	22,551	22,551	22,551
Replacement Schedule - LED with CMS (Dimming from 00:00 to 05:30 (Clock) Lux 55/28) (£)	2,955	2,258	1,535	1,189	1,234	1,280	1,328	1,376	1,428	1,481	1,536	1,593	1,653	1,713	1,778	1,845	3,232	5,388	8,022	11,721	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716

Carbon Reduction Commitment (CRC) cost

Year	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043
CRC Cost (£)	0	0	0	0	0	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Do Nothing Schedule (£)	0	0	0	0	0	10,194	9,924	9,654	9,384	9,114	8,844	8,574	8,304	8,034	7,764	7,495	7,225	6,955	6,685	6,415	6,145	5,875	5,605	5,335	5,065	4,795	4,525	4,255	3,985
Replacement Schedule - LED with current switch regimes (£)	0	0	0	0	0	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164
Replacement Schedule - LED with CMS (Dimming from 00:00 to 05:30 (Clock) Lux 55/28) (£)	0	0	0	0	0	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828

2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074
6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074
484,043	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**
239	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**

2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074
6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136	6136
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074
653,013	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**	**653,013**
323	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**	**323**

2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074
484,043	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**	**484,043**
239	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**	**239**

2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074
69.87	*69.87*	*69.87*	*69.87*	*69.87*	*69.87*	*69.87*	*69.87*	*69.87*	*69.87*	*69.87*	*69.87*	*69.87*	*69.87*	*69.87*	*69.87*	*69.87*	*69.87*	*69.87*	*69.87*	*69.87*	*69.87*	*69.87*	*69.87*	*69.87*	*69.87*	*69.87*	*69.87*	*69.87*	*69.87*	*69.87*
16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716
22,551	22,551	22,551	22,551	22,551	22,551	22,551	22,551	22,551	22,551	22,551	22,551	22,551	22,551	22,551	22,551	22,551	22,551	22,551	22,551	22,551	22,551	22,551	22,551	22,551	22,551	22,551	22,551	22,551	22,551	22,551
16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716	16,716

2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074
16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828
5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164	5,164
3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828	3,828