Borough Council of
King's Lynn &
West Norfolk

Carbon Audit
2023/2024

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1. Summary

1.1 The following report sets out the carbon footprint relating to the estate emissions of the Borough Council of King's Lynn and West Norfolk (BCKLWN). This is reported annually to set out the direction of travel against the Council's commitment to be NetZero on its estate emissions profile by no later than 2035.

1.2 This 2023/2024 carbon audit highlights that the BCKLWN has achieved a 2.6% reduction in emissions from 2022/2023 levels, emitting 2,537.4 tCO_2e.

It still continues to represent a 65.5 % reduction from the original baseline year 2009/2010.

1.3 The carbon audit has been carried out in accordance with The Department for Energy Security and Net Zero (DESNZ) guidelines. Official DESNZ greenhouse gas reporting conversion factors have been used to convert the BCKLWN's usage data into standardised figures for estimated tonnes of carbon dioxide.

2. Scope emissions

2.1 The table below sets out what is captured in each of scopes.

Scope	***Activity***	***Description***	***Data Source***
Scope 1	Gas Consumption	Used to heat our buildings and sites.	Data obtained from council utility bills
	Oil Consumption	Used to heat our buildings and sites	Data obtained from council utility bills
	Vehicle Fleet	The council's operational vehicle fleet.	Data obtained from council fuel invoices
Scope 2	Purchased electricity	Electricity purchased from the national grid to power the council's buildings and sites.	Data obtained from council utility bills
Scope 3	Transmission and Distribution Losses	These are indirect emissions from the transmission and distribution of our purchased electricity. It is considered best practise to include these in scope 3 emissions.	Data obtained from council utility bills

	Water Supply	The supply of water to our buildings and sites.	Data obtained from council utility bills
	Water Treatment	The water we return to the system (90% return to sewer rate).	Data obtained from council utility bills
	Business Travel	Staff and member travel in their own vehicles on business grounds.	Obtained using employee mileage claims
	Contractor Travel	Travel by contractors to carry out work commissioned by the council, e.g., waste collection.	Obtained through contractor fuel records.

2.2 The table below sets out the related emissions for each of the scopes for previous years.

BCKLWN tCO_2e Emissions							
Year	**2009/2010**	**2018/2019**	**2019/2020**	**2020/2021**	**2021/2022**	**2022/2023**	**2023 / 2024**
Scope 1	2,109.2	1,720.5	1,676.6	1,595.0	1,685.0	1449.0	**1,436.0**
Scope 2	3,235.4	1,488.6	1,324.7	829.5	843.5	885.1	**965.2**
Scope 2 renewable tariffs	-	-	-	-671.3	-843.5	-885.1	**-965.2**
Scope 3	2021.5	1,499.6	1,454.5	1,243.8	1,146.41	1,239.4	**1,184.1**
Scope 3 Transmission Losses renewable tariff	-	-	-	-	-6.95	-80.9	**-83.52**
Total gross emissions	7,366.1	4,708.7	4,455.8	3,668.3	3,674.9	3,573.6	**3,586.1**
Total net emissions	7,366.1	4,708.7	4,457.2	2,997.0	2,824.5	2,607.5	**2,537.4**

3.**Emissions Breakdown**

BCKLWN Carbon Audit: 2023/2024				
Emissions Sources	**Consumption**		**Emissions Data**	
Scope 1	**Activity Data**	**Unit**	**t CO_2e**	**kg CO_2e**
Gas Consumption	6239216.00	*kWh*	1123.06	1123058.88
LPG Consumption	1.00	*tonnes*	2.94	2939.29
Oil Consumption	0.00	*litres*	0.00	0.00
Council Vehicle Fleet	-	-		
Petrol Vehicle	23026.42	*litres*	49.78	49779.67
Diesel Vehicle	102106.12	*litres*	261.17	261171.12
Red Diesel	0.00	*litres*	0.00	0.00
Total Scope 1	**-**	**-**	**1436.95**	**1436948.95**
Scope 2	**Activity Data**	**Unit**	**t CO_2e**	**kg CO_2e**
Electricty Consumption	4660919.00	*kWh*	965.16	965155.14
Total Scope 2	**-**	**-**	**965.16**	**965155.14**
Scope 3	**Activity Data**	**Unit**	**t CO_2e**	**kg CO_2e**
Transmission & Distribution Losses	4660919.00	*kWh*	83.52	83523.67
T&D: EV & Plug-in Hybrid	5889.44	*miles*	0.48	477.99
Water Supply	76499.00	m^3	13.54	13540.32
Water Treatment	54041.00	m^3	10.86	10862.24
Business Travel	**-**	**-**		
Small Petrol Car	4562.64	*miles*	1.03	1033.88
Medium Petrol Car	22269.47	*miles*	6.39	6385.93
Large Petrol Car	2962.68	*miles*	1.30	1298.00
Small Diesel Car	42447.01	*miles*	9.52	9516.45
Medium Diesel Car	46036.14	*miles*	12.38	12384.46
Large Diesel Car	12531.70	*miles*	4.21	4206.84
Bus	3637.12	*passenger km*	0.37	371.53
Taxi	63.09	*passenger km*	0.01	9.38
Rail	30461.66	*passenger km*	10.80	10796.83
Ferry	0.00	*passenger km*	0.00	0.00
Plane	0.00	*passenger km*	0.00	0.00
Contractor Travel	**-**	**-**		
Refuse Collection Vehicles	410199.40	*litres*	1029.60	1029600.49
Total Scope 3	**-**	**-**	**1184.01**	**1183530.02**
BCKLWN Gross Emissions Total	**-**	**-**	**3586.11**	**3585634.12**
Carbon Offsets / Renewable Tariffs	**Activity Data**	**Unit**	**t CO_2e**	**kg CO_2e**
Renewable Electricity Tariff	4660919.00	*kWh*	-965.16	-965155.14
Transmission & Distribution Losses	4660919.00	*kWh*	-83.52	-80965.89
Total	-	-	**-1048.68**	**-1046121.03**
BCKLWN Net Emissions Total	-	-	**2537.44**	**2539513.09**

4. Changes to emissions

4.1. The trend

There has been 2.6% reduction in the council's emissions compared to the 2022/2023 audit. Overall CO_2e emissions decreased from 2,607.5 tCO_2e in 2022/2023 to 2,537.44 tCO_2e this is a reduction of 70 tCO_2e.

4.2 Scope 1

Scope 1 emissions account for 57% of the organisation's total emission profile and totalled 1,436.95 tCO_2e, compared to 1,685.04 tCO_2e in 2022/2023. This is a decrease of 248.09 tonnes, which equates to a 14% decrease.

Variances explained:

4.2.1 Gas consumption

Gas usage across the council's estate contributed to 1,123.06 tCO_2e to the 2023/2024 emissions profile. This is a decrease of 5.89 tCO_2e of gas usage in comparison to 2022/2023. However, it should be noted that whilst there was a slight decrease overall, gas consumption has increased from 6,136,616kWh to 6,239,216kWh and it is only due to emission factor changes that there was an overall reduction of tCO_2e.

4.2.2 It is worth noting that these decreases help to highlight the positive impacts that the council's Re:Fit programme will have on gas consumption. In the reporting period we saw significant reductions at Kings Court, Mintlyn Crematorium, Bus Station Visitor Information Office and Hunstanton Valentine Road Office. Increases in gas usage were from buildings such as Broad Street, Custom House, Hunstanton Oasis Leisure Centre and the Arts Centre/Guildhall.

4.2.4 Council Fleet Fuel consumption

The council has seen an increase of 7,184.26 litres in its petrol consumption related emissions. This can be attributed to new hybrid vehicles coming online in the fleet. These hybrid vehicles use petrol rather than diesel.
This is supported by the council having a reduction of 8,521.56 litres of diesel related emissions.

The council has commissioned a decarbonisation review of its fleet. This will be undertaken in 2025.

4.2.5 Please note that this section does not refer to the council's outsourced waste contract as their emissions are counted in the scope 3 emissions profile.

4.3 Scope 2

The council's Scope 2 emissions profile is reported at zero. This is due to the council's electric contract with EDF being provided from confirmed and certified zero carbon sources. However, there was an increase of 80.07 tCO_2e compared to 2022/2023 figures. This is due to an increase of usage from 4,576,930 kWh to 4,660,919 kWh as well as emission factor changes.

It is worth noting that if the council did not receive its electric from this tariff it would have a further 965 tCO_2e on its scope 2 emissions profile and additional emissions relating to transmission and distribution through the power grid (see section 4.4 for further details).

Moving forward, due to the electrification of more heating systems throughout the estate and the further uptake of electric vehicles it is anticipated that electricity consumption will increase.

Energy efficient LED lighting has been installed at several sites and further installations are being explored.

4.4 Scope 3

Scope 3 emissions totalled at 1,184.01 tCO_2e compared to 1,239.39 tCO_2e in 2022/2023. This is a decrease of 55.38 tCO_2e which equates to a 4.6% decrease in Scope 3 emissions compared to the previous year.

Business travel emissions are included in scope 3. There was a total of 181,085.28 staff business miles undertaken for the year 2023 – 2024.

Only 2,986.2 of these miles were from public transport, this is 1.65% of staff business travel. Out of these the most utilised mode of public transport was public buses with 75.70%. Train was 22.60%, taxi 39.2% and the London tube with 0.40%.

The remaining 98.35% or 178,099.08 miles is made up of private vehicle journeys. Of these 75% are claimed from staff at the Borough Council, 14% from councillors and 11% from staff at Alive West Norfolk. Electric miles make up 3.3% of the miles with the most mileage claims coming from medium diesel cars making up just over 25% of all mileage claims.

Variances explained:

4.4.1 Business Travel

The council has seen a slight decrease of 3% related to business travel in cars and an increase of bus and taxi usage but a decrease of rail travel compared to 2022/2023. This can be attributed to the easing of COVID-19 restrictions and a return to more face-to-face business meetings. However, due to the rural nature of the borough there are certain limitations around public transport access.

There has been an increase in the use fully electric vehicles being used for business related travel. The increase of over 4000 electric miles is due to electric vehicles now being owned by members of staff and used for business travel.

4.4.2 Waste contract

The council's outsourced waste contract has not seen an emissions increase compared to the previous year. However, refuse fuel consumption has increased to 410,199.40 litres from 400,393.77 in 2022/2023. Yet, due to decreases in emission factors this has resulted in an overall decrease.
Increased fuel consumption can be attributed to extended routes and route optimisation work will be undertaken to seek future efficiencies.

4.4.3 Water supply & treatment

The amount of water used by or sent to be treated from council assets has decreased by 6,819 m3 compared to 2022/2023. This 5% decrease is due to decrease in usage at office facilities and leisure centres. The total water supply & treatment for 2023/2024 totalled 130,540.00m3 whereas in 2022/2023 it totalled 137,359.00m3.

4.4.4 Electric Transmission/Distribution Losses

Similar to everyone who receives their electricity supply through the national grid infrastructure, the council is subject to transmission/distribution losses of the electricity moving through the grid from where it is generated to the building where it is used. This means more electricity needs to be generated than is actually consumed by the end user. These transmission losses generate emissions as captured under scope 3.

As already highlighted due to the council purchasing zero carbon electricity, all electricity consumption related emissions are reported as zero. This can also be applied to the transmission/distribution losses so for the purpose of this audit they are reported as zero.

5. Electricity generation

The BCKLWN has solar photo voltaic (PV) arrays installed on a number of its assets. Over 2023/2024, these systems generated 54,416.3kWh of clean energy. The decrease of 9,7947kWh can be explained by the weather.
The bulk of this energy will have been consumed on site, reducing the council's electricity consumption with surplus generation exported to the grid.

The sites that have had solar PV arrays installed are the Oldmedow Road depot, the Lynnsport complex, Alive St James swimming pool, Downham Market Leisure Centre, Hunstanton Oasis Leisure Centre, South Lynn Community Centre and Kings Court. More sites that may be suitable for solar PV arrays are being explored.

6. Reducing our emissions

6.1 The council is following a twin approach to reducing emissions and addressing climate change. Our primary approach focuses on corporate emissions reporting and reduction. The annual monitoring and reporting of the council's own emissions indicate the direction of travel of the councils against our baseline of 2009/10. Our second approach focuses on the reduction of our geographical borough's emissions.

6.2 The BCKWLN adopted a corporate climate change policy in October 2020, setting out climate change commitments for the future. Further to this work a climate change strategy and action plan was adopted in September 2021. This details how the council will work towards net-zero by 2035, looking specifically at how each scope's emissions will be reduced. This strategy and action plan is split into the councils two work phases, focusing heavily on phase one, and reaching net-zero by 2035 for the council's corporate emissions. The strategy and action plan also covers geographical borough emissions and where the council is best placed to influence and lead emissions reductions. The council is working towards the national 2050 net-zero target for the geographical borough and reports annual data published by the Department for Net Zero and Energy Security.

6.3 In 2021/22, the council used a £3.8 million grant from the Government's Public Sector Decarbonisation Scheme for heat decarbonisation on 11 high emitting council buildings. This forms our second refit project, having previously conducted a Re:fit project in 2018/2019 to improve energy efficiency across the building portfolio. Further opportunities for decarbonisation are being explored.

6.4 The council is reducing the amount of energy that streetlights use by upgrading the streetlights to more energy-efficient LED units.

6.5 The council are undertaking a fleet review and will be seeking to replace petrol and diesel vehicles with models that use less carbon intensive fuel.

6.6 A staff travel survey has been completed. A number of council staff work in roles that allow for hybrid working thereby reducing the need to travel to work. When staff do need to travel, we encourage employees to choose sustainable travel options like walking, cycling or public transport. We currently provide employees with cycle parking, showers and changing facilities. We will be exploring further ways to encourage employees to choose sustainable travel such as a cycle to work salary sacrifice scheme to help save money on the cost of a new bike and accessories and access to ultra-low emission cars through a 'greener car' salary sacrifice scheme.

6.7 The council is open to suggestions relating to its reduction of emissions. If you have any suggestions, please feel free to email climatechange@west-norfolk.gov.uk

7. Appendix 1: Detailed Emissions

BCKLWN Carbon Audit: 2023/2024

Emissions Sources	Consumption		Emissions (tonnes)				Emissions (kilograms)			
Scope 1	**Activity Data**	**Unit**	**t CO_2e**	**t CO_2**	**t CH_4**	**t N_2O**	**kg CO_2e**	**kg CO_2**	**kg CH_4**	**kg N_2O**
Gas Consumption	6239216.00	*kWh*	1123.06	1139.03	1.75	0.56	1123058.88	1139031.27	1746.98	561.53
LPG Consumption	1.00	*tonnes*	2.94	2.94	0.00	0.00	2939.29	2935.18	2.55	1.63
Oil Consumption	0.00	*litres*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Council Vehicle Fleet	-	-								
Petrol Vehicle	23026.42	*litres*	49.78	49.46	0.17	0.15	49779.67	49461.90	165.79	151.97
Diesel Vehicle	102106.12	*litres*	261.17	257.37	0.03	3.78	261171.12	257366.64	26.55	3777.93
Red Diesel	0.00	*litres*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Scope 1	**-**	**-**	**1436.95**	**1448.79**	**1.94**	**4.49**	**1436948.95**	**1448795.00**	**1941.87**	**4493.06**
Scope 2	**Activity Data**	**Unit**	**t CO_2e**	**t CO_2**	**t CH_4**	**t N_2O**	**kg CO_2e**	**kg CO_2**	**kg CH_4**	**kg N_2O**
Electricty Consumption	4660919.00	*kWh*	965.16	955.30	41.76	5.68	965155.14	955301.96	41761.83	5677.00
Total Scope 2	**-**	**-**	**965.16**	**955.30**	**41.76**	**5.68**	**965155.14**	**955301.96**	**41761.83**	**5677.00**
Scope 3	**Activity Data**	**Unit**	**t CO_2e**	**t CO_2**	**t CH_4**	**t N_2O**	**kg CO_2e**	**kg CO_2**	**kg CH_4**	**kg N_2O**
Transmission & Distribution Losses	4660919.00	*kWh*	83.52	82.64	0.37	0.51	83523.67	82638.09	372.87	512.70
TD: Fully electric vehicle business travel	5889.44	*miles*	0.48	0.47	0.00	0.00	477.99	473.28	2.00	2.71
TD: Plug-in Hybrid business travel	0.00	*miles*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water Supply	76499.00	m^3	13.54	n/a	n/a	n/a	13540.32	n/a	n/a	n/a
Water Treatment	54041.00	m^3	10.86	n/a	n/a	n/a	10862.24	n/a	n/a	n/a
Business Travel	-	-								
Small Petrol Car	4562.64	*miles*	1.03	1.03	0.00	0.00	1033.88	1028.92	2.61	2.35
Medium Petrol Car	22269.47	*miles*	6.39	6.36	0.01	0.01	6385.93	6361.72	12.72	11.49
Large Petrol Car	2962.68	*miles*	1.30	1.29	0.00	0.00	1298.00	1294.78	1.69	1.53
Small Diesel Car	42447.01	*miles*	9.52	9.40	0.00	0.11	9516.45	9401.59	0.47	114.35
Medium Diesel Car	46036.14	*miles*	12.38	12.26	0.00	0.01	12384.46	12259.88	0.51	12.40
Large Diesel Car	12531.70	*miles*	4.21	4.17	0.00	0.03	4206.84	4172.93	0.14	33.76
Bus	3637.12	*passenger km*	0.37	0.37	0.00	0.00	371.53	368.84	0.04	2.65
Taxi	63.09	*passenger km*	0.01	0.01	0.00	0.00	9.38	9.30	0.00	0.08
Rail	30461.62	*passenger km*	10.80	1.07	0.00	0.01	10796.83	1073.46	2.38	8.69
Ferry	0.00	*passenger km*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Plane	0.00	*passenger km*	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Contractor Travel	-	-								
Refuse Collection Vehicles	410199.40	*litres*	1029.60	1016.83	0.12	13.57	1029600.49	1016830.99	118.96	13569.40
Total Scope 3	**-**	**-**	**1184.01**	**1135.91**	**0.51**	**14.27**	**1184008.01**	**1135913.78**	**514.37**	**14272.11**
BCKLWN Gross Emissions Total	**-**	**-**	**3586.11**	**3540.01**	**44.22**	**24.44**	**3586112.11**	**3540010.73**	**44218.08**	**24442.17**
Carbon Offsets / Renewable Tariffs	**Activity Data**	**Unit**	**t CO_2e**	**t CO_2**	**t CH_4**	**t N_2O**	**kg CO_2e**	**kg CO_2**	**kg CH_4**	**kg N_2O**
Renewable Electricity Tariff	4660919.00	*kWh*	-965.16	-891.21	-3.73	-6.39	-965155.14	-891214.32	-3728.74	-6385.46
Transmission & Distribution Losses	4660919.00	*kWh*	-83.52	-81.57	-0.33	-0.56	-82451.66	-81566.08	-326.26	-559.31
Total	-	-	**-1048.68**	**-972.78**	**-4.06**	**-6.95**	**-1047606.80**	**-972780.40**	**-4055.00**	**-6944.77**
BCKLWN Net Emissions Total	-	-	**2537.44**	**2567.23**	**40.16**	**17.49**	**2538505.31**	**2567230.33**	**40163.08**	**17497.40**

Appendix 2: Emission Changes from Base Year