

Broadland District Council Carbon Footprint report for 2023/24

Highlights:

Our carbon footprint calculations have been independently verified by Groundwork East. The verification recommended some changes to our methodology, which have been applied for 2023/24 as well as applied to all reporting years retrospectively. This report includes the verified carbon footprint totals for all years, however the previous years' reports will not be updated.

Frettenham Depot have continued to use HVO fuel instead of diesel for our waste collection vehicles, which has kept these emissions low.

In June 2023, staff moved from Thorpe Lodge into the Horizon Centre, which has led to a reduction in the Council's emissions. The Horizon Centre has a significant solar array to generate electricity to be used on site, and the emissions of this building are also split with South Norfolk Council as a shared office. The installation of air source heat pumps that replaced the gas boilers took place in February 2024, which will help to reduce the building's emissions further, but will be most evident in the next carbon footprint report (2024/25).

Some of the electricity contracts that the council has purchased are 100% REGO* (Renewable Energy Guarantees of Origin) certified energy tariff. Emissions associated with this purchased electricity is included within the report but does not form part of the carbon footprint total.

Broadland District Council's 2023/24 (verified) carbon footprint is 395 tCO₂e.

*Renewable Energy Guarantees of Origin (REGO) certificates allow electricity suppliers to show customers how much electricity has been generated from renewable sources each year.

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Background to this Report

This report calculates the greenhouse gas emissions arising from the council's own activities. We publish our organisational Carbon Footprint report each year. This annual Greenhouse Gas Report follows HM Government Environmental Reporting Guidelines with emissions broken down into three scopes and reported in Carbon Dioxide Equivalent (CO₂e), calculated using the UK Government's 2023 carbon conversion factors.

Broadland District Council
Horizon Centre, Broadland Business Park, Peachman Way, Norwich, NR7 0WF
1st April 2023 to 31 st March 2024

We have a target of net zero emissions by 2030, the emissions in this report are the basis for this target.

In September 2022 Broadland Council purchased the Horizon Centre with South Norfolk Council as the new office base for both councils. All staff moved to the Horizon Centre in June 2023. However, Thorpe Lodge is still currently owned and maintained by Broadland District Council, so any energy use associated with the building still falls within the 2023/24 carbon footprint, even if the building is not used as the Council's main office anymore.

Scopes and Inclusions

Scope	Fuel/Activity	Location	Data Source
Scope 1	Main gas	Thorpe Lodge	Bills/meter reads
	Mains gas	Horizon Centre	Bills/meter reads
	Mains gas	Temporary Accommodation	
	Heating oil	Frettenham Depot	Meter reads
	Diesel in owned vehicles	Energy van Handyperson van	Estimated annual mileage
	Biomass wood chip	Frettenham Depot	
	HVO	Frettenham Depot	Litres used
Scope 2	Electricity	Thorpe Lodge	meter reads
	Electricity	Horizon Centre	Meter reads
	Electricity	Carrowbreck House	Bills
	Electricity	Frettenham Depot	Meter reads
	Electricity	Streetlights	Bills
	Electricity	Toilets	Bills
	Electricity	Temporary Accommodation	
Scope 3	Mileage	Staff and councillor business travel	
	HVO	Waste Fleet (Veolia operated)	Litres fuel recorded
	Waste disposal in council buildings	Thorpe Lodge	Waste notices and estimates of volume and frequency of bin emptying
	Waste disposal in council buildings	Carrowbreck House	Waste notices and estimates of volume and frequency of bin emptying
	Water use in council buildings	Thorpe Lodge Carrowbreck House	Estimated
	Gas and electricity emissions	Temporary Accommodation	From EPC data (where residents pay their own bills)

Scopes explained

Scope 1: These are Direct Emissions which arise from the activities of an organisation and include fuel combustion on site such as gas boilers and fleet vehicles.

Scope 2: These are Indirect Emissions from electricity purchased and used by the organisation. Emissions are created during the production of the energy which is eventually used by the organisation.

Some of the grid electricity purchased by the council is 100% renewable backed with REGO (Renewable Energy Guarantees of Origin) certificates. The emissions associated with this purchased electricity will not be recorded in the net total and overall carbon footprint total. The emissions associated with the purchased renewable electricity are still recorded within the gross footprint, as it is important to track the electricity use. If the electricity tariffs change to a non-renewable tariff, the emissions associated with this purchased electricity would return to the net footprint.

Scope 3: These are all other Indirect Emissions from activities of the organisation, occurring from sources that they do not own or control. In this GHG report these cover emissions associated with business travel by employees. We also include emissions associated with transmission and distribution losses for grid electricity and the well to tank emissions for all fuels.

Scope 3 can include a wide range of indirect emission sources such as supply and demand chains and staff commuting emissions although at present the data is not available for this.

Broadland District Council's waste fleet is operated by Veolia so the emissions associated with this activity under scope 3. Water use and waste disposal from owned buildings is also included in scope 3.

Outside of Scopes*

The waste vehicles operated by Veolia previously used diesel, but since April 2022 they have instead used HVO fuel. The in-scope emissions for HVO do not include any of the carbon dioxide from the vehicle's tailpipe associated with combustion because the carbon dioxide emissions are accounted for by being absorbed when the crop was grown. This is based on conversion factors produced by Government. It is required to report the carbon emissions associated with the use of HVO fuel in an outside of scopes section, which does not count towards the footprint total.

Other greenhouse gases associated with HVO use must be reported within the in-scope emissions of the footprint, and therefore any emissions associated with HVO seen in this report refers to greenhouse gases other than carbon dioxide.

Inclusions

Buildings that are owned and operated by the councils have been included.

Example calculation method:

Electricity use (kWh) x conversion factor associated with grid electricity = emissions kgCO₂e

GHG Emissions Statement

Broadland District Council's Carbon Footprint for 2023/24 has been calculated as 395.37 tCO₂e, the breakdown is shown in Table 1, below.

	2023/24	tCO₂e
Scope 1	Natural Gas	47.23
	Heating Oil	0.76
	Biomass	0.96
	Authority owned vehicles	6.49
Scope 2	Electricity	99.22 (of which 29.82 renewable supply)
Scope 3	Staff business travel	51.29
	scope 3 electricity	32.48
	Waste Disposal	0.21
	Water Use & treatment	0.73
	Grounds maintenance	7.33
	HVO fuel	16.38132
	Well-To-Tank (all liquid/gas fuels)	156.01
TOTAL		395.37 (excluding renewable supply)

Intensity Measurement

In 2021 the population of Broadland was 131,700. This can be used to calculate an intensity measurement of kgCO₂e per resident.

This then allows for comparison with other councils. It should be noted though that not all councils offer the same services or report on the same activities.

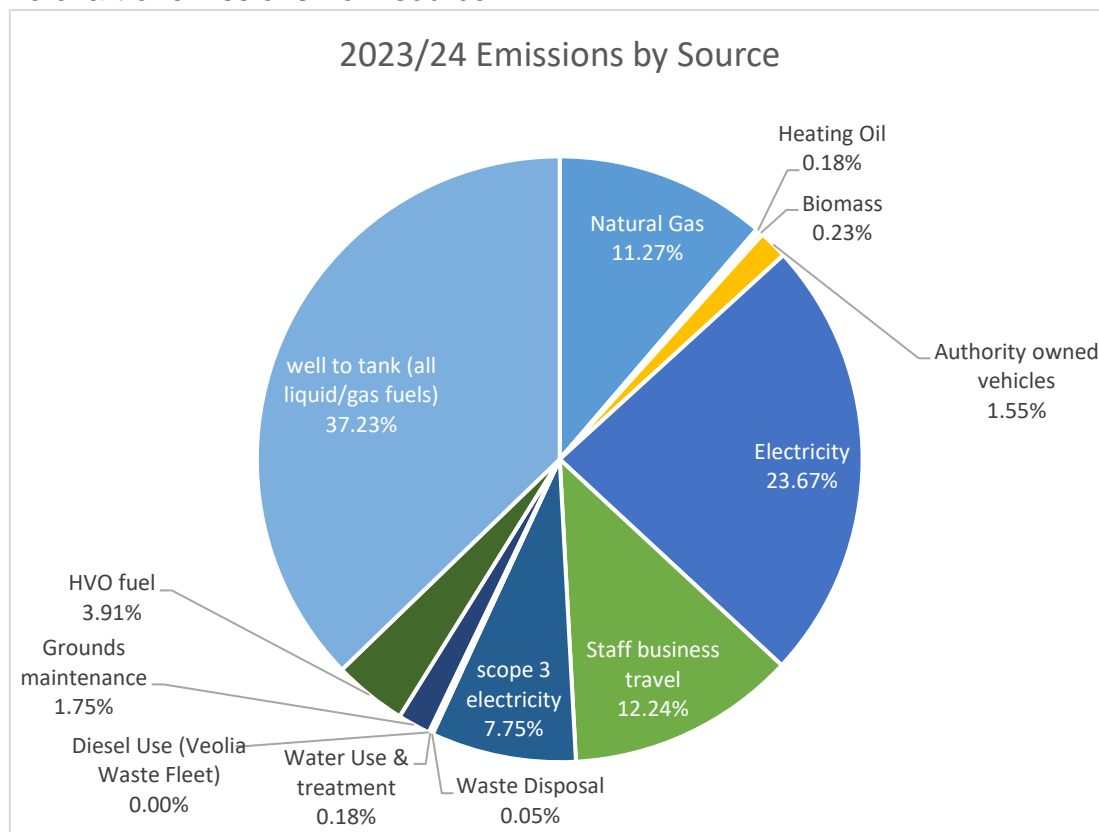
Table 2 below shows a comparison with other councils in Norfolk, based on their most recently published carbon footprint data

Council	GHG emissions (tCO ₂ e)	Population	Intensity ratio (kgCO ₂ e per resident)
Broadland	395.37	130,700	3.03
South Norfolk (2023/24)	1,886.52	141,900	13.29
Norwich (2021/22)	3,610	144,000	25.07
Breckland (2022/23)	4,119	141,500	29.11
Great Yarmouth (2019/20)	7,843	99,700	78.67
Kings Lynn and West Norfolk (2022/23)	2,607	154,300	16.89
North Norfolk (2023/24)	4,765	103,000	46.26

It is important to note that there are differences amongst the different local authorities in Norfolk that can greatly influence a Council's carbon footprint. For example, South Norfolk Council operates leisure centres that contribute towards their carbon footprint, whereas Broadland District Council owns and operates fewer assets that would contribute towards our carbon footprint.

Breakdown of Emissions

Figure 1: Pie chart of emissions from source



The highest proportion of Broadland District Council's emissions is attributed to the well to tank emissions from all liquid or gas fuels. This is defined as all the greenhouse gas emissions from the production, transportation, transformation and distribution of the fuel to power the vehicle/building. The second largest contributor to the carbon footprint is emissions associated with electricity consumption, followed by staff business travel and natural gas consumption.

Figure 2: Pie chart of emissions from building/activity

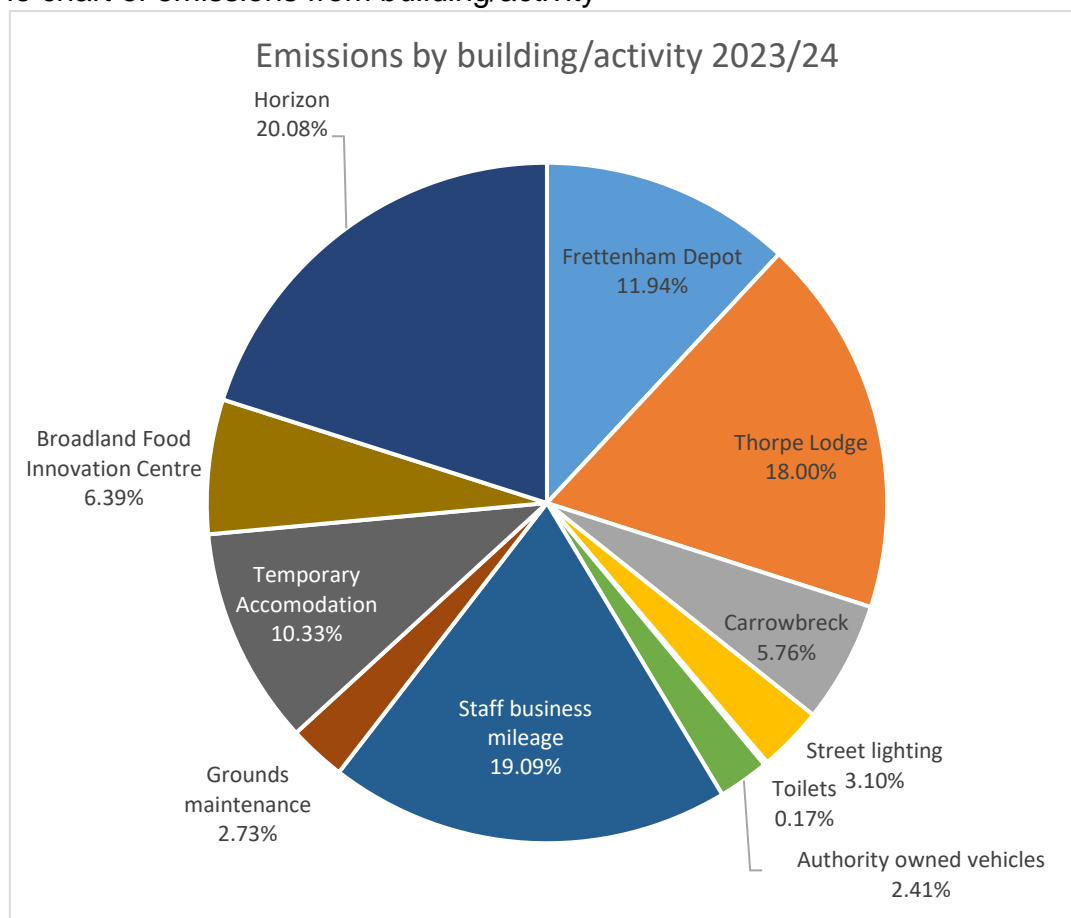


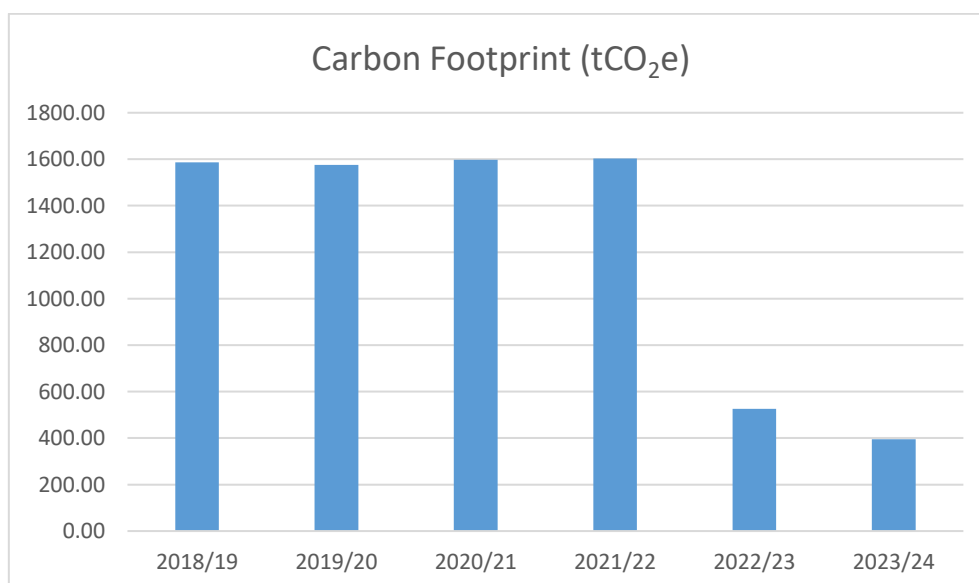
Figure 2 shows the emissions associated with each building or activity. The Horizon Centre is responsible for the biggest proportion followed by staff business mileage and Thorpe Lodge.

Emissions Trends

Table 3: Changes in emissions over time

	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Scope 1	66.88	68.01	64.92	91.87	109.85	55.44
Scope 2	163.57	147.76	121.04	106.63	115.79	99.22
Scope 3	1356.66	1359.70	1411.55	1404.67	299.94	270.53
Total gross emissions	157.11	1575.48	1597.51	1603.17	529.59	425.19
Renewable electricity generated					24,496 kWh generated saving 5.17 tCO ₂ e avoided from grid electricity	1,978,005.00 (kWh) generated saving 409.59tCO ₂ e from avoided grid electricity
Offsets	0	0	0	0	0	0
Green tariff	0	0	0	0	0	29.82
Total annual net emissions	157.11	1575.48	1597.51	1603.17	529.59	395.37
Outside of scopes					1148.214	1118.791

Figure 3: Trends in annual emissions



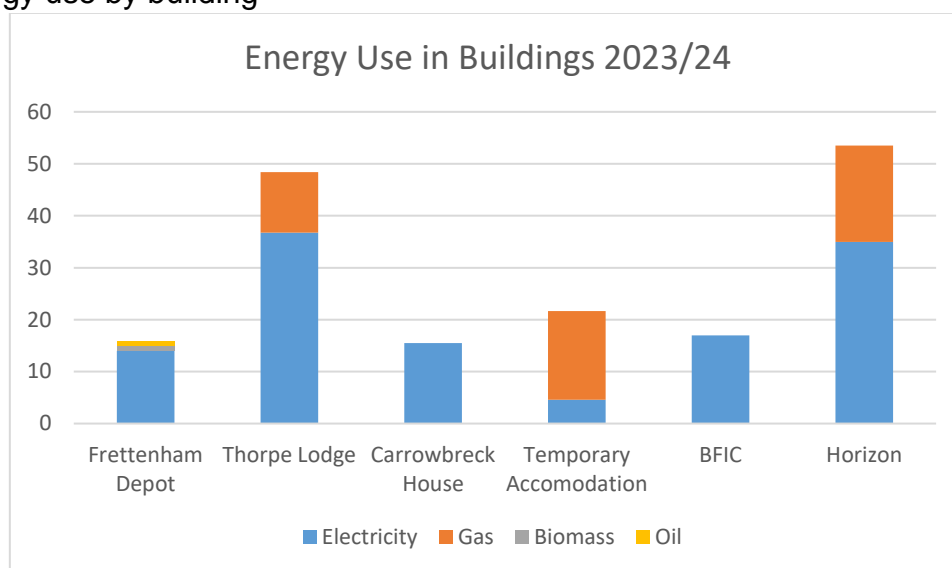
Annual emissions from 2023/24 show a reduction of approximately 130 tCO₂e compared to the previous carbon footprint (2022/23). The largest decrease in emissions was attributed to the Council

moving to the Horizon Centre from Thorpe Lodge and switching to some 100% renewable electricity supplies.

Energy Use in Buildings

Electricity and gas usage has been provided from meter readings at the buildings.

Figure 4: Energy use by building



The bar chart shows the energy use from the different buildings that the council operates. The Horizon Centre (the main office bas) has the highest emissions, followed by Thorpe Lodge, which is still owned by the Council.

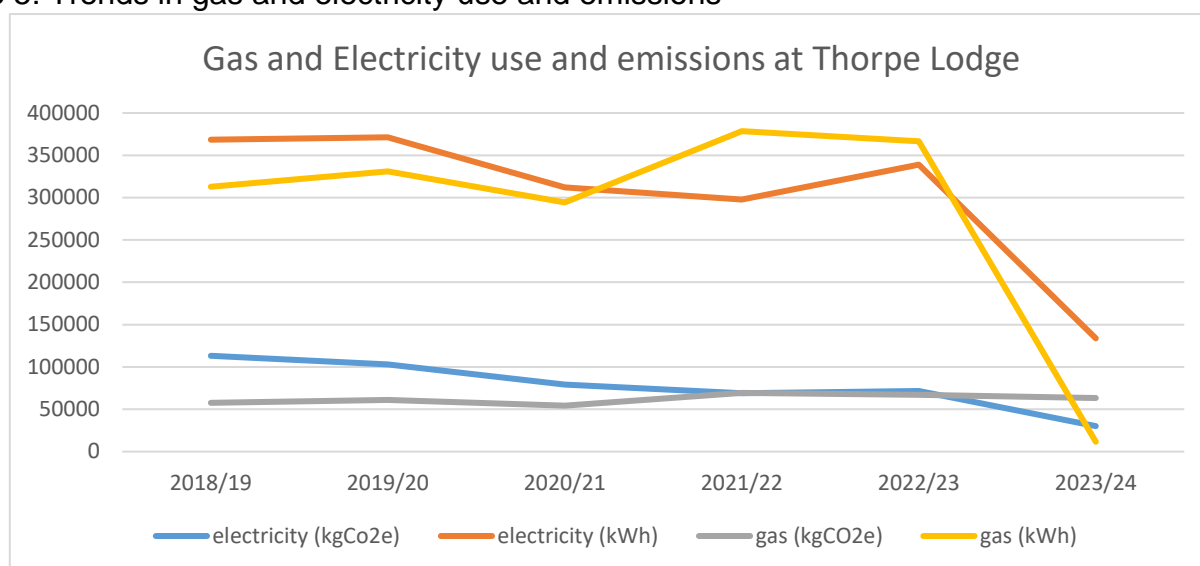
Thorpe Lodge

Thorpe Lodge was occupied by Council staff, including South Norfolk Council staff, up until June 2023 when both Councils moved to the Horizon Centre as their main office. Broadland District Council still own Thorpe Lodge so are therefore still responsible for any energy consumption (and associated emissions) attributed to the building.

Table 4: Trends in emissions (tCO₂e)

	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Electricity	113.2	103	79.1	68.8	71.6	30.1
Gas	57.6	60.9	54.3	69.3	66.9	11.6

Figure 5: Trends in gas and electricity use and emissions



Explanations

Emissions from energy use at Thorpe Lodge has decreased significantly due to the move to the Horizon Centre.

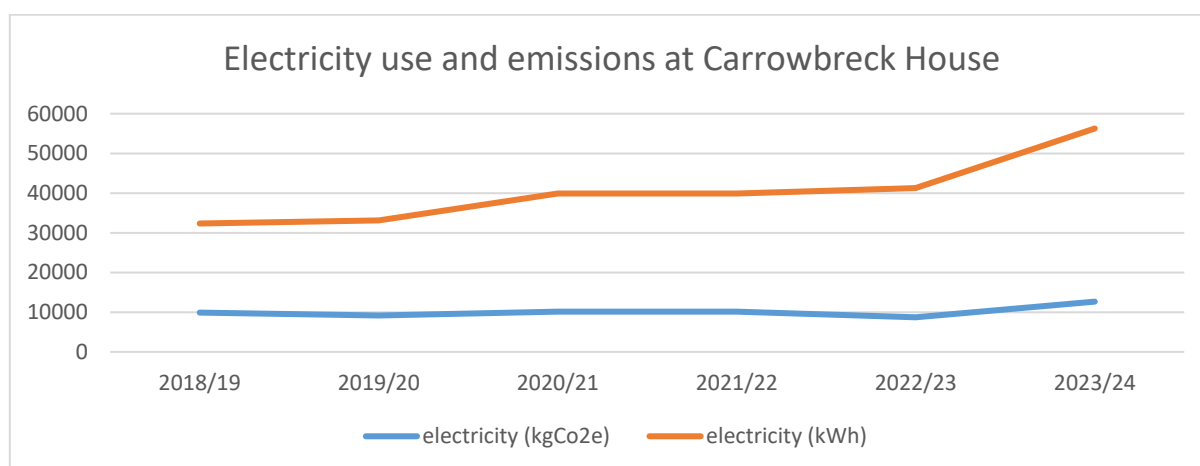
Carrowbreck House

Carrowbreck House serves as the Council's training centre, which has solar panels and a ground source heat pump.

Table 5: Trends in emissions

	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Electricity	9.16	8.46	9.31	8.57	7.99	11.65
Scope 3 electricity	2.25	2.00	2.20	3.19	2.82	3.81

Figure 6: Trends in electricity use and emissions, Carrowbreck House



Explanations

There has been a slight increase in emissions associated with electricity use at Carrowbreck House between 2022/23 and 2023/24, as the building has seen increased use, including increased course numbers and room hire.

Horizon Centre

The Horizon Centre is the new office building for both South Norfolk Council and Broadland District Council. The emissions associated with the building are split between the two councils. The Horizon Centre has a considerable roof mounted solar array and solar carports. Initially there was a gas boiler system installed, which was removed and replaced with heat pumps in February 2024. The emissions savings from this will be shown in the 2024/25 footprint.

Table 6: Emissions sources for Horizon Centre

Source	Emissions for 2023/24 (tCO ₂ e)	Energy generated or exported
Grid Electricity	26.35	
Scope 3 electricity	8.62	
<i>Electricity generated from PV</i>	<i>409.59</i>	<i>1,978,005.00 (kWh) generated</i>
<i>Electricity exported to grid (June 2023-March 2024)</i>	<i>18.25</i>	<i>88,128 (kWh) exported</i>
Gas	18.57	
Water and treatment	0.23	
Waste – general	0.12	
Waste – recycling	0.07	
Waste – food	0.02	

Waste – Waste from Electrical and Electronic Equipment (WEEE)	0.00	
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The table shows the emissions associated with each type of energy consumption at the Horizon Centre. The electricity grid tariff for the building is 100% renewable, so emissions from this electricity consumption is not counted towards the total footprint. The electricity generated and exported is expressed in kWh, as well as the tonnes of emissions saved through not using grid electricity, which is for information only and does not form part of the overall footprint.

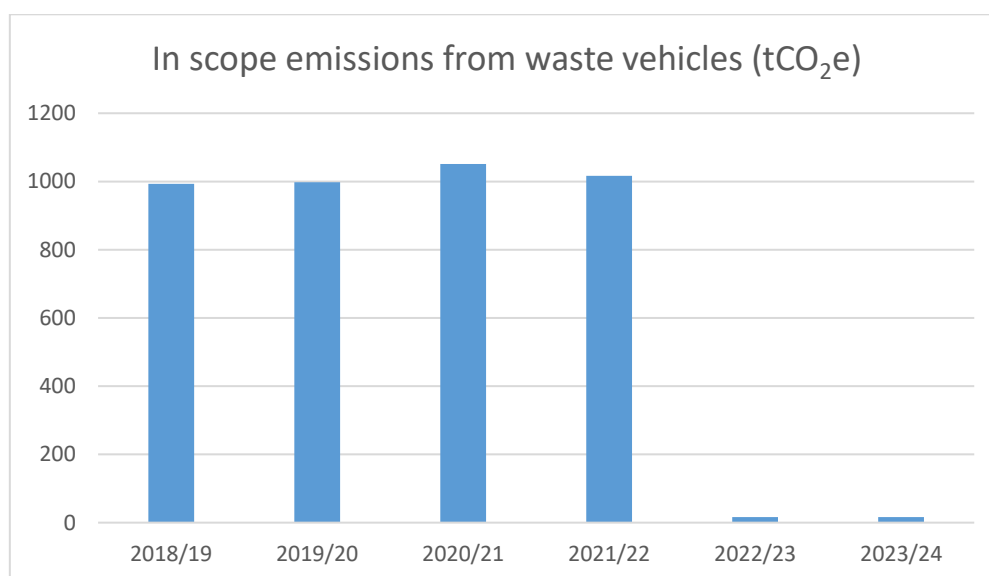
The Horizon Centre no longer uses gas as of February 2024; therefore, the associated emissions saving will show in the 2024/25 report. This is because the gas boilers have been replaced by air source heat pumps. The heat pumps run on electricity, however due to the solar PV and renewable tariff, there will be no emissions associated with this.

Transport related emissions

Waste and Street scene fleet

Emissions associated with the waste fleet remain very low, at approximately 16tCO₂e, as a result of the use of hydrotreated vegetable oil (HVO) fuel instead of diesel.

Figure 7: In scope emissions from waste vehicles (tCO₂e)



Staff travel

The emissions associated with staff and member business travel is 51tCO₂e. This is a decrease compared to last year. However, due to a change in HR and expenses system it was not possible to obtain any actual data for 2023/24. Therefore, the total has been estimated by taking an average of emissions from staff travel for all previous reporting years.

Independent Verification

As our baseline report was back completed in 2018/19, we have had the carbon footprint report for this reporting year (2023/24) independently verified by Groundwork East, to ensure that we continue to align with the GHG Protocol and best practice.

Since 2018/19 we have been producing our reports in house based on the methodology in our baseline report, which was also produced by Groundwork East. Through the verification, Groundwork East recommended that we make a few changes to how we are reporting our scope 3 emissions. Although we have been following the correct methodology, best practice for reporting scope 3 emissions has updated since our baseline report was conducted.

Appendix

Data tables

		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Scope 1							
Building/Activity	fuel	emissions	emissions	emissions	emissions	emissions	emissions
Thorpe Lodge	gas	57.59	60.87	54.29	69.33	66.9396	11.609262
Owned vehicles	Diesel	1.94	1.81	2.14	2.43	2.938536	6.4865237
Frettenham Depot	heating oil	6.09	4.82	7.62	6.18	6.177596	0.762045
Frettenham Depot	Biomass	1.27	0.51	0.87	1.31	0.303328	0.9591033
Horizon Centre	gas					19.19597	18.56512
Temporary Accommodation	gas				12.62	14.29	17.06
TOTAL		66.88	68.01	64.92	91.87	109.85	55.44

Scope 2		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Building/Activity	fuel	emissions	emissions	emissions	emissions	emissions	emissions
Thorpe Lodge	electricity	104.30	94.89	72.80	63.20	65.57477	27.706333
Carrowbreck	electricity	9.16	8.46	9.31	8.57	7.99	11.65
Frettenham Depot	electricity	12.06	11.80	10.92	11.34	11.22358	10.539667
Streetlights	electricity	35.39	30.32	26.68	20.48	11.14178	6.2710792
Ranworth toilets	electricity	0.29	0.11	0.03	0.03	0.36	0.29
Reedham toilets	electricity	0.06	0.08	0.04	0.04	0.12	0.15
TSA Toilets	electricity	0.42	0.38	0.00	no longer managed by BDC		
Coltishall toilets	electricity	0.34	0.30	0.22	0.23	0.22	0.00
South Walsham toilets	electricity	1.54	1.41	1.04	0.77	0.00	0.00
Horizon Centre	electricity					0.010856	26.346994
Salhouse toilets	electricity	0.02	0.01	0.01	0.01	0.00	0.00

BFIC	electricity					17.02421	12.786485
Temporary Accommodation	electricity				1.97	2.14	3.48
TOTAL		163.57	147.76	121.04	106.63	115.79	99.22

Scope 3		2018 /19	2019 /20	2020 /21	2021/22	2022/23	2023 /24	2024 /25	2025 /26
Building/Activity	fuel	emissions	emissions	emissions	emissions	emissions	emissions	emissions	emissions
Staff & member business travel	mileage	46.95	49.75	44.40	55.47	61.80736	51.293875	0	0
Thorpe Lodge	Scope electricity 3	25.68	22.42	17.17	23.50	23.11631	9.0695801	0	0
Carrowbreck	Scope electricity 3	2.25	2.00	2.20	3.19	2.82	3.81	0.00	0.00
Frettenham Depot	Scope electricity 3	2.97	2.79	2.58	4.22	3.956519	3.4501266	0	0
Streetlights	Scope electricity 3	8.71	7.16	6.29	7.62	3.927683	2.0528179	0	0
Ranworth toilets	Scope electricity 3	0.07	0.03	0.01	0.01	0.13	0.10	0.00	0.00
Reedham toilets	Scope electricity 3	0.01	0.02	0.01	0.02	0.04	0.05	0.00	0.00
TSA Toilets	Scope electricity 3	0.10	0.09	0.00	no longer managed by BDC				
Coltishall toilets	Scope electricity 3	0.08	0.07	0.05	0.09	0.08	0.00	0.00	0.00
South Walsham toilets	Scope electricity 3	0.38	0.33	0.24	0.29	0.00	0.00	0.00	0.00
Salhouse toilets	Scope electricity 3	0.00	0.00	0.00	0.00	No longer managed by BDC			
Horizon Centre	Scope electricity 3					0.003827	8.6246048	0	0
BFIC	Scope electricity 3					6.001346	4.1856154		

Frettenham Depot	HVO					16.53986	16.381317	0	0
Frettenham Depot	diesel	993.26	997.57	1051.26	1016.24	0	0	0	0
Grounds maintenance (SNC depot)	diesel	8.66	8.05	8.04	8.05	8.04639	7.3273641	7.327364	0
Thorpe Lodge	waste residual efw	5.39	5.38	1.88	2.68	3.592948			
Thorpe Lodge	waste dry recycling	0.02	0.02	0.02	0.01	0.011984			
Thorpe Lodge	waste food waste compost	0.47	0.47	0.08	0.23	0.311584			
Thorpe Lodge	electrical waste	0.00	0.00	0.00	0.00	0.000913			
Thorpe Lodge	sanitary waste	0.00	0.00	0.00	0.00	0.001923			
Carrowbreck	waste residual efw	0.61	0.61	0.21	0.30	0.408027	0	0	0
Horizon Centre	waste residual efw					0	0.1220627	0	0
Horizon Centre	waste dry recycling					0	0.0655215	0	0
Horizon Centre	waste food waste compost					0	0.0195358	0	0
Horizon Centre	electrical waste					0	0.0006493	0	0
Horizon Centre	sanitary waste					0	0	0	0
Horizon Centre	water					0.011682	0.1100674	0	0
Horizon Centre	sewage					0.019194	0.1128719	0	
BFIC	water						0.0964698		
Ranworth toilets	water	0.21	0.21	0.19	0.08	0.06	0.10	0.00	0.00
Reedham toilets	water	0.00	0.00	0.02	0.01	0.02	0.01	0.00	0.00
TSA Toilets	water	0.01	0.01	0.00	no longer managed by BDC				

Coltishall toilets	water	0.01	0.01	0.04	0.02	0.03	0.05	0.00	0.00
South Walsham toilets	water	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00
Salhouse toilets	water	0.13	0.13	0.04	0.03	0.03	0.00	0.00	0.00
BFIC	sewage						0.09 8927 8		
Ranworth toilets	sewage	0.38	0.38	0.35	0.13	0.15	0.10	0.00	0.00
Reedham toilets	sewage	0.00	0.00	0.29	0.11	0.02	0.01	0.00	0.00
TSA Toilets	sewage	0.03	0.03	0.00	0.00	no longer managed by BDC			
Coltishall toilets	sewage	0.02	0.02	0.07	0.03	0.08	0.04	0.00	0.00
South Walsham toilets	sewage	0.00	0.00	0.00	0.00	0	0	0	0
Salhouse toilets	sewage	0.19	0.19	0.07	0.05	0.04	-	-	-
Temporary Accommodation	Scope 3 electricity				0.73	0.75	1.14	0	
Temporary Accommodation	From EPCs						6.10	0	
Well to Tank	All fuels (except electricity)	260.03	261.97	276.05	281.57	167.94	156.01	1.78 2237	
TOTAL		1356.66	1359.70	1411.55	1404.67	299.94	270.53	9.11	0.00

Outside of Scopes		2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
Frettenham Depot	HVO					1148.214	1118.7914
1,2,3	TOTAL	1587.11	1575.48	1597.51	1603.17	525.59	425.19
Green electricity tariff							29.82
Total net emissions							395.37