

South Norfolk Council Carbon Footprint report for 2021/22



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Background to this Report

This report calculates the greenhouse gas emissions arising from the council's own activities. 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 2021 carbon conversion factors.

South Norfolk District Council
South Norfolk House, Cygnet Court, Long Stratton, Norwich, NR15 2XE
1st April 2021 to 31st March 2022

During this period the council was affected by some Covid restrictions. There were not national lockdowns in this period, but restrictions meant that staff would continue to work from home and fewer people could visit the leisure centres. The waste depot provided a full service throughout this period.

Scopes and Inclusions

Scope	Fuel/Activity	Location	Data Source
Scope 1	Main Gas	Wymondham Leisure Centre	Bills/meter reads
		Diss Leisure Centre	Bills/meter reads
		Temporary Accommodation 1	Bills/meter reads
	Heating oil	South Norfolk House	Oil Deliveries
		Ketteringham Depot	Oil Deliveries
	Diesel in owned vehicles	Waste and street scene Fleet	Diesel used – fuel pump data
		Grounds Maintenance Ketteringham	Diesel used – fuel pump data
Scope 2	Electricity	South Norfolk House	Bills/meter reads
	Electricity	Wymondham Leisure Centre	Bills/meter reads
	Electricity	Diss Leisure Centre	Bills/meter reads
	Electricity	Long Stratton Leisure Centre	Bills/meter reads
	Electricity	Ketteringham Depot	Bills/meter reads
	Electricity	Long Stratton toilets	Bills/meter reads
	Electricity	Wymondham Ticket Machine	Bills/meter reads
	Electricity	Diss Ticket Machine	Bills/meter reads
	Electricity	Temporary Accommodation 2	Bills/meter reads
	Electricity	4 St Andrews Close	Bills/meter reads
	Electricity	Temporary Accommodation 1	Bills/meter reads
	Electricity	Streetlights	Bills/meter reads
Scope 3	Mileage	Staff and councillor business travel	From mileage claims
	Gas	Loddon Business Centre	Bills/meter reads
	Electricity	Old Barn Annexe, Diss	Bills/meter reads
	Electricity	Loddon BC	Bills/meter reads
	Electricity	Diss Business Centre	Bills/meter reads
	Electricity	Crafton House	Bills/meter reads
	Electricity	Trumpeter House	Bills/meter reads
	Electricity Transmission and Distribution	South Norfolk House, Leisure Centres, Public Toilets, Business Centres, streetlights	Bills/ meter reads

	Waste disposal in council buildings	South Norfolk House	Waste notices and estimates of volume and frequency of bin emptying
	Waste disposal in council buildings	Long Stratton Leisure Centre	Waste notices and estimates of volume and frequency of bin emptying
	Waste disposal in council buildings	Diss Leisure Centre	Waste notices and estimates of volume and frequency of bin emptying
	Waste disposal in council buildings	Wymondham Leisure Centre	Waste notices and estimates of volume and frequency of bin emptying
	Water use	South Norfolk House	Bills
	Water use	Public toilets	Bills
	Water use	Ketteringham Depot	Bills

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.

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 and also those associated with the 'Transmission and Distribution' (T&D) of electricity purchased by the organisation.

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.

The Business Centres are included in Scope 3 as they are leased to tenants.

Inclusions

Buildings that are owned and operated by the councils have been included – where the council pays the energy bills.

Buildings that are owned by the council but operated by an organisation not providing a council service are not included, the exception being the Business Centres.

Example calculation method

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

GHG Emissions Statement

South Norfolk Council's Carbon Footprint for 2021/22 has been calculated as 2229.73tCO₂e, the breakdown is shown in table 1

2021/22	tCO₂e
Natural Gas	343.73
Heating Oil	151.89
Authority owned vehicles	1237.46
Electricity	383.54
Transmission and Distribution losses from electricity consumption	33.94
Employee & Councillor business travel	67.78
Waste Disposal (from Council operated buildings)	9.19
Water Use	2.20
TOTAL	2229.73

Intensity Measurement

In 2021 the population of South Norfolk was 141,900. 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 shows a comparison with other councils in Norfolk

Council	GHG emissions (tCO ₂ e)	Population	Intensity ration (kgCO ₂ e per resident)
Broadland	1,278.58	131,700	9.70
South Norfolk	2229.73	141,900	15.71
Norwich	3,077 – 2020/21	144,000	21.36
Breckland	5,084 – 2019/20	141,500	35.9
Kings Lynn and West Norfolk	2,997 – 2020/21	154,300	19.42

Breakdown of Emissions

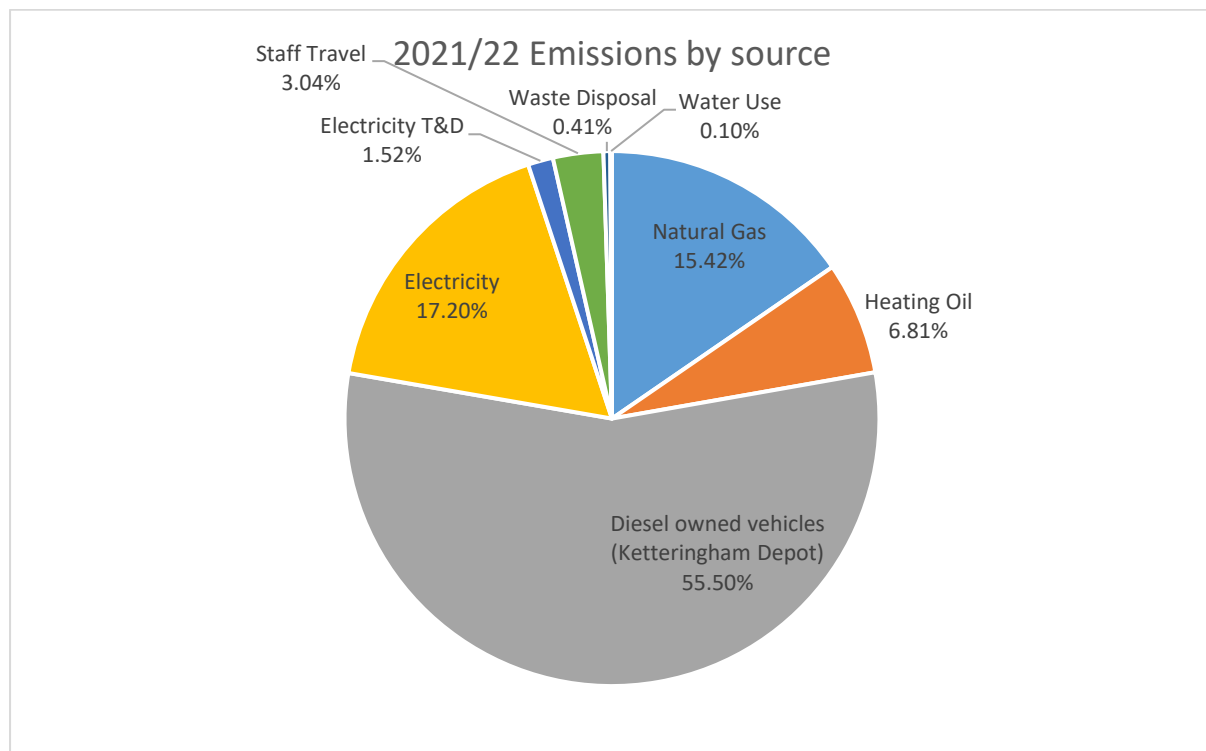


Figure 1: Emissions by source

Figure 1 shows the breakdown of emissions by source. Diesel used by the waste fleet makes up 56% of emissions, this is followed by electricity (17%) and natural gas (15%). Heating Oil (7%) and staff and member business travel (3%) make up the remaining significant contributions, with all other emissions sources contributing 2% or less of total emissions.

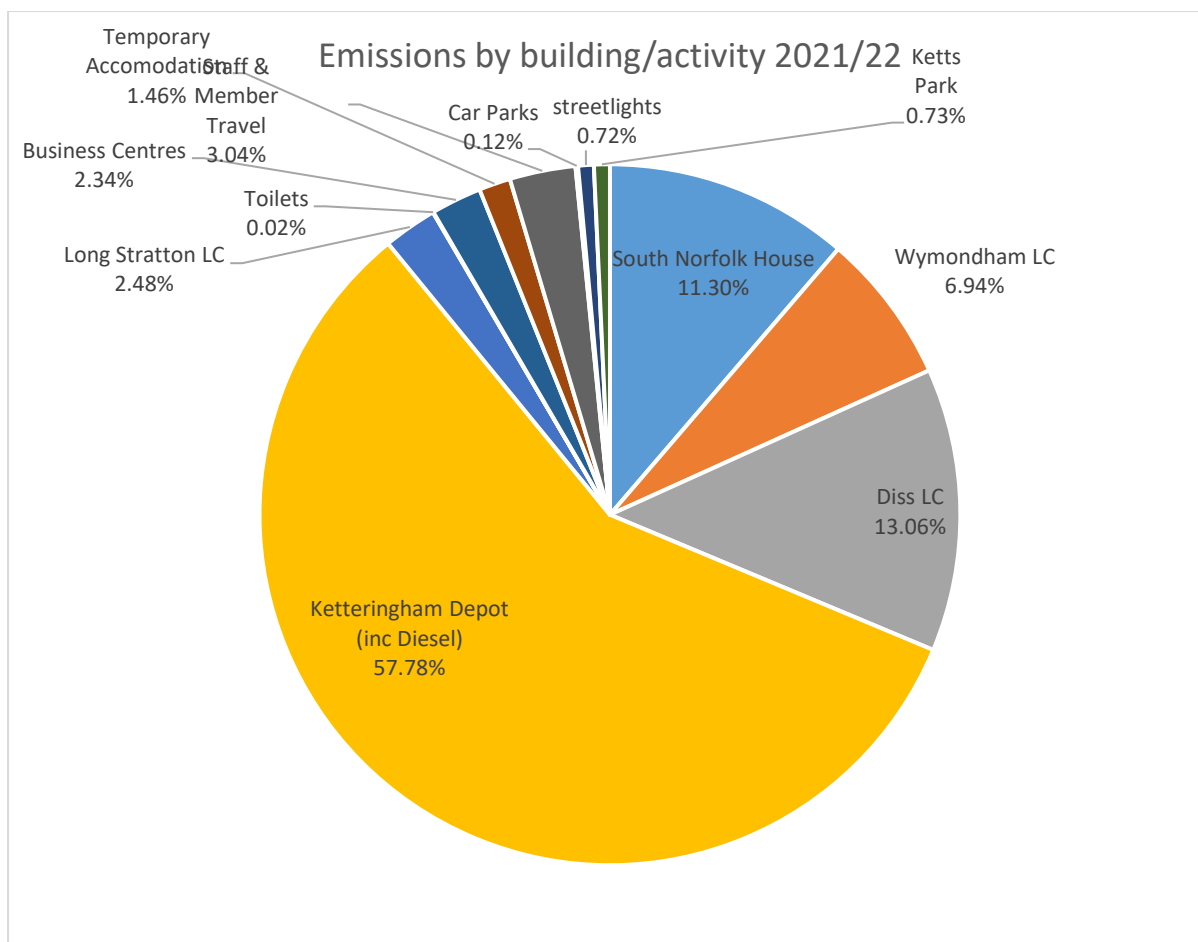


Figure 2: Emissions by Building or Activity

Figure 2 shows the building or activity that the emissions are produced by. Ketteringham Depot is the largest with 58% this includes energy use in the building and the diesel used by the refuse vehicles, South Norfolk House is second largest with 11% of emissions, followed by Wymondham Leisure Centre (7%) and Diss Leisure Centre (13%). Long Stratton Leisure Centre (2%) and the combined Business Centres (2%) and temporary accommodation units (2%) make up the remaining emissions. The public toilets have a negligible contribution to the total emissions.

Emissions Trends

Table 3 shows the changes in emissions over time.

	2018/19	2019/20	2020/21	2021/22
Scope 1	2299.38	2101.09	1630.64	1727.70
Scope 2	481.31	427.07	324.53	340.60
Scope 3	183.02	212.65	141.77	161.43
Total gross emissions	2963.71	2740.81	2096.93	2229.73
Offsets	0	0	0	0
Green tariff	0	0	0	0
Total annual net emissions	2963.71	2740.81	2096.93	2229.73
Outside of scopes	0	0	0	0

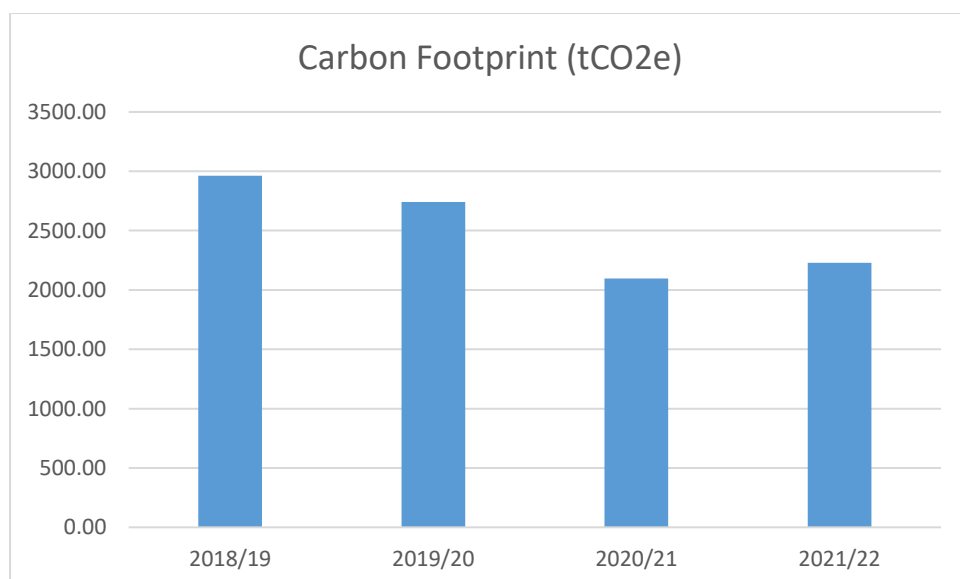


Figure 3: Trend in total carbon footprint

Figure 3 shows that the carbon footprint has been reducing. 2020/21 was particularly low, this is because of the impact that Covid had on energy use in the leisure centres. Emissions from 2021/22 were higher than this, but still followed the general downward trend. Please note that during this period there was lower emissions from the Wymondham Leisure centre this is in part due to a faulty gas meter.

Energy Use in Buildings

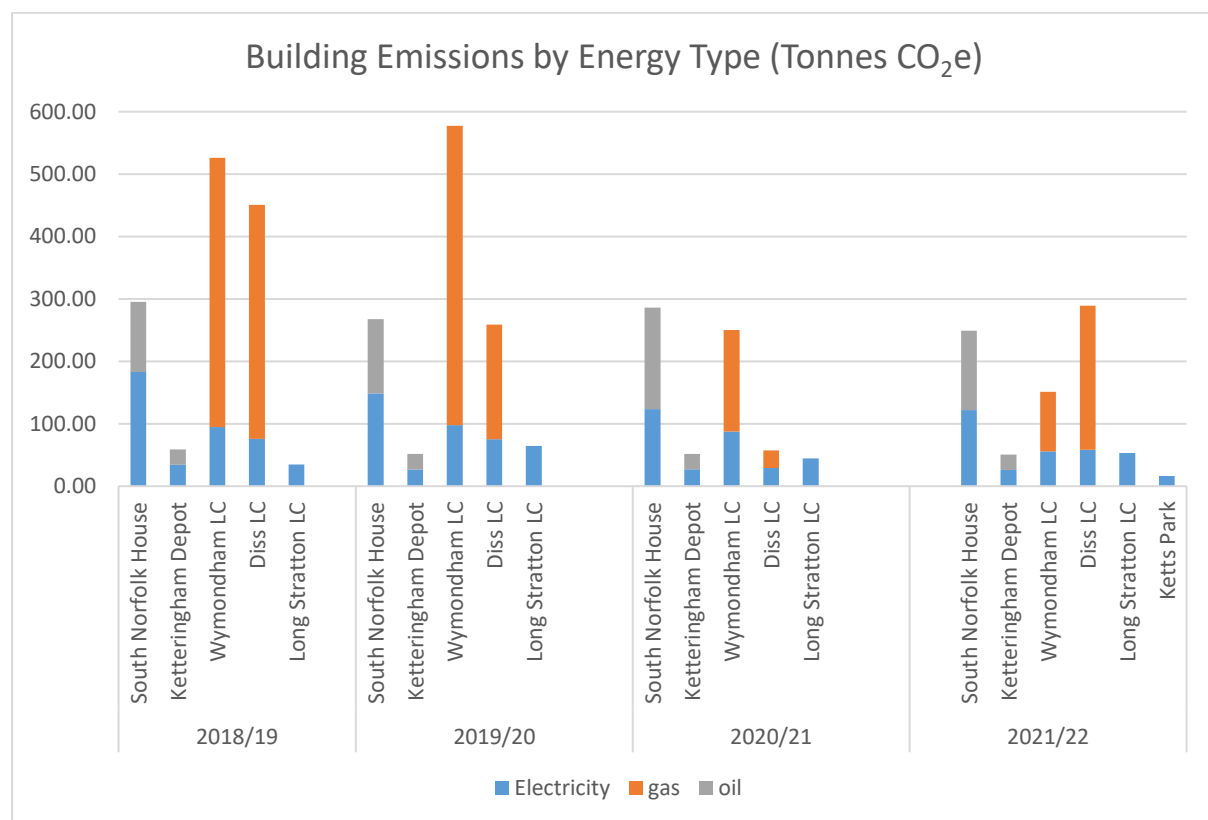


Figure 4: Emissions use in buildings

The stacked bar chart shows the emissions by fuel and building. In 2021/22 South Norfolk House and Diss Leisure Centre were the largest emitters. However the gas emissions are artificially low at Wymondham Leisure Centre due to a meter fault.

South Norfolk House

South Norfolk House is the main office building for South Norfolk Council, during 2021/22 it was open throughout but it was not fully occupied as many staff members were working from home.

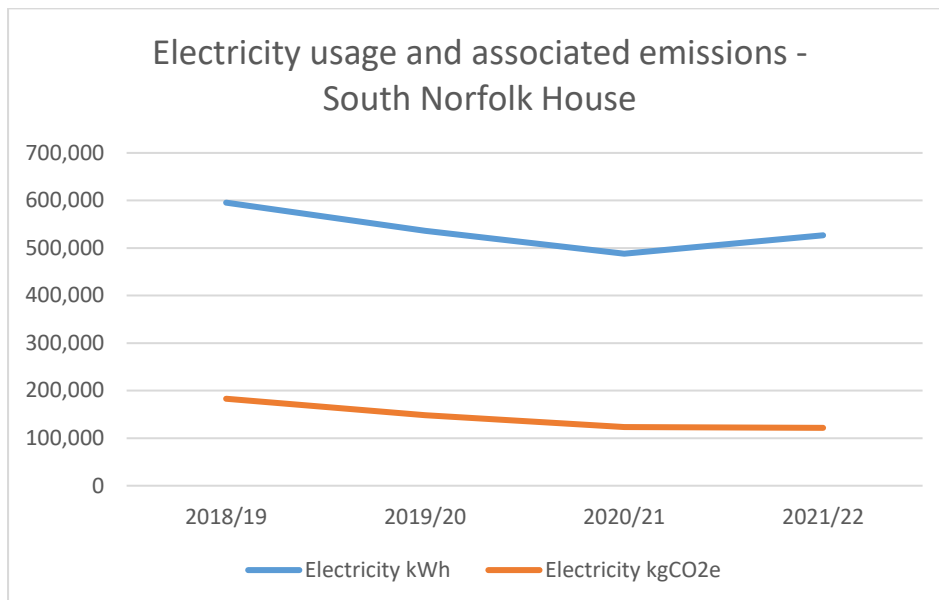


Figure 5: Electricity use and associated emissions at South Norfolk House

Electricity use has been falling gradually since the baseline year. There has been a small increase from 2020/21 to 2021/22 this is likely to have been caused by more staff using the office as Covid restrictions were lifted. Due to the decarbonisation of the grid, the emissions have continued to fall.

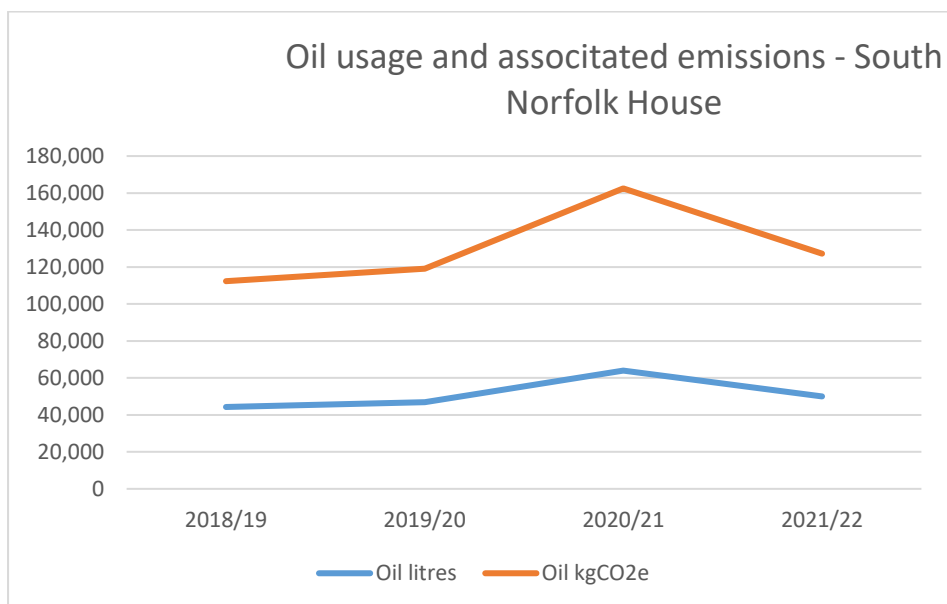


Figure 6: Oil use and associated emissions at South Norfolk House

In 2021/22 the oil use fell back to being more like 2018-2020. Degree days data also shows that 2021/22 was a slightly colder year than the baseline, so this explains some of the small increase in oil use.

Wymondham Leisure Centre

Wymondham Leisure Centre has a pool, a fitness studio, a spa and sports courts. This is the largest leisure centre and was refurbished recently. There is a CHP system onsite.

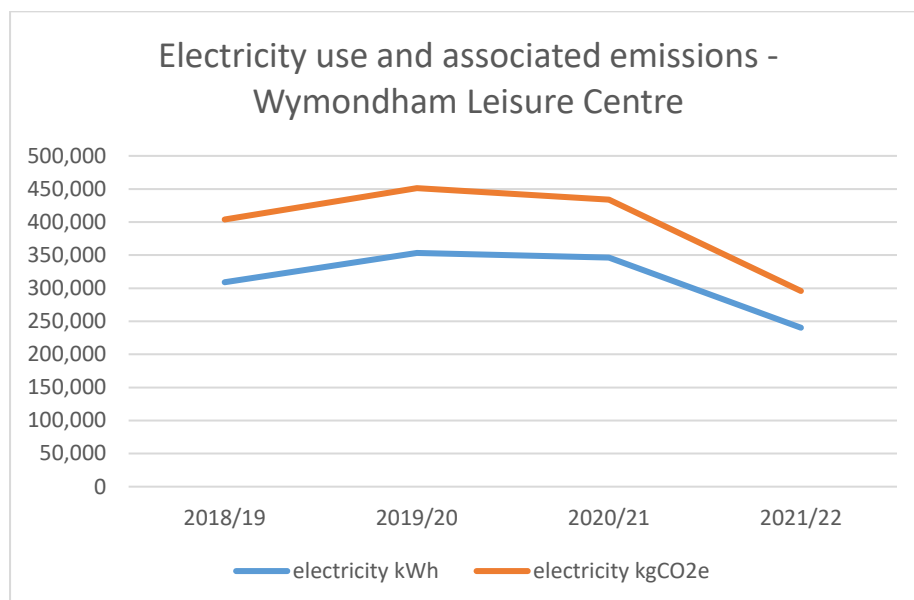


Figure 7: Electricity use and associated emissions at Wymondham Leisure Centre

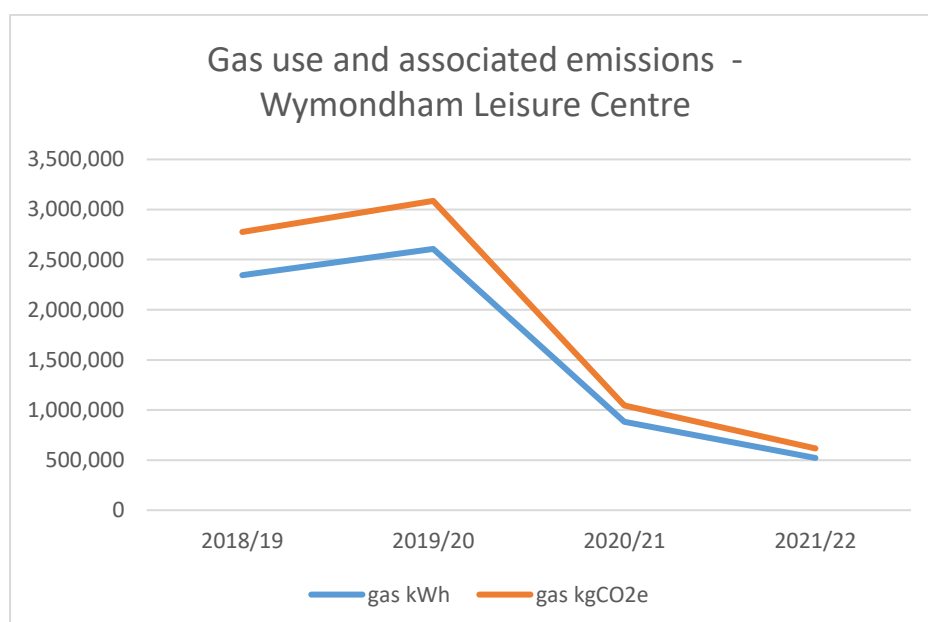


Figure 8: Gas use and associated emissions at Wymondham Leisure Centre

Electricity and gas use are down because of lower customer numbers following the covid restrictions and social distancing.

The gas use in particular is much lower than expected, the meters have been checked and a fault has been found with one meter. The supplier is now trying to resolve this, therefore the data in this report may change or an increase in gas use

next year should be expected. There have been some interventions which have reduced gas use which account for some of the drop in usage. These are that the main gas boilers have been replaced with new more efficient ones, the connection between the boilers and the CHP have been improved, and this is likely to have also led to a reduction in the electricity use.

Long Stratton Leisure Centre

Long Stratton Leisure Centre has a gym, fitness studio, soft play area and 3G pitch. This building was refurbished recently, and the heating was changed from oil to an air source heat pump.

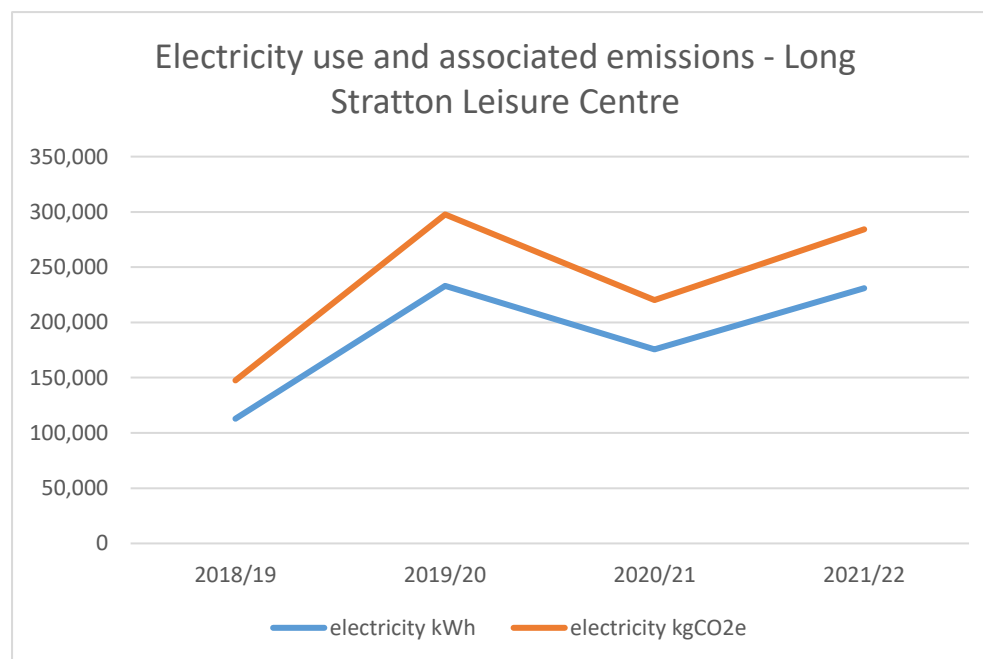


Figure 9: Electricity use and associated emissions at Long Stratton Leisure Centre

The energy use has increased from 2020/21 as the centre reopened after the covid restrictions. During 2021/22 though the leisure centre was open, usage was reduced due to Covid and social distancing.

Diss Leisure Centre

Diss Leisure Centre has a pool, gym and sauna. This is an older leisure centre.

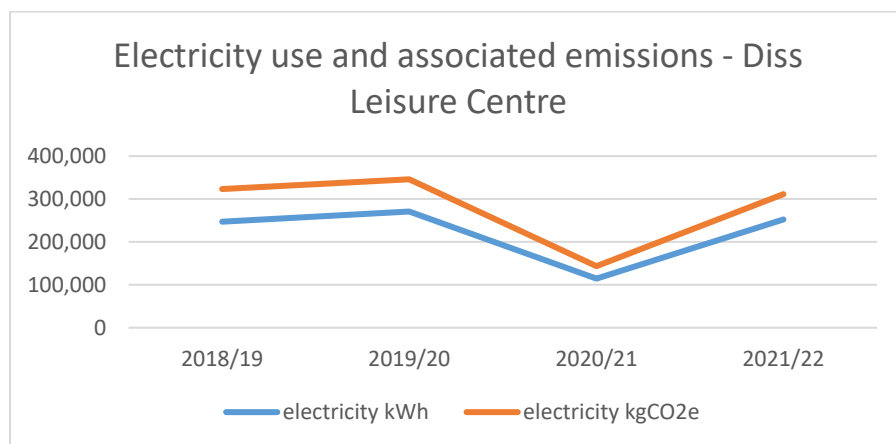


Figure 10: Electricity use and associated emissions at Diss Leisure Centre

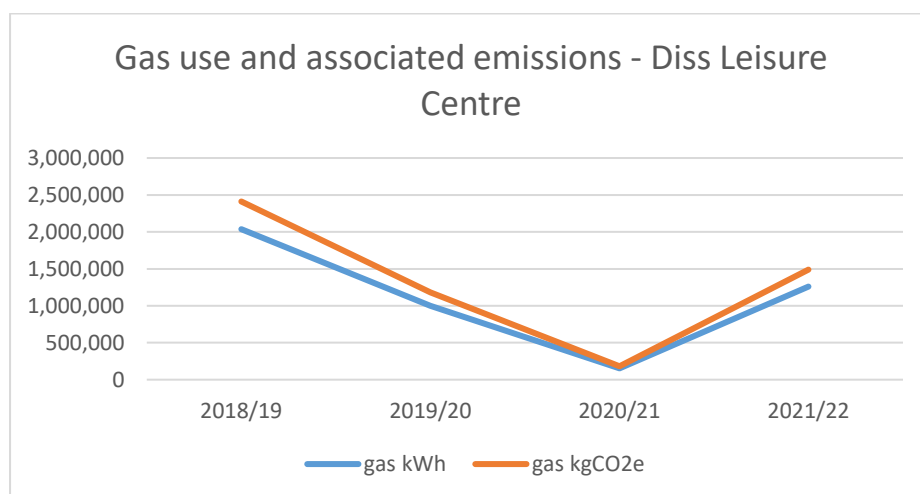


Figure 11: Gas use and associated emissions at Diss Leisure Centre

Figure 10 and 11 show that following the reduction in emissions in 2020/21 there has been an increase in 2021/22. This decrease and increase were caused by Covid lockdowns and restrictions. The leisure centre was open in 2021/22 but usage was still lower than pre covid.

Ketteringham Depot

Ketteringham Depot is the base for the waste and grounds maintenance service.

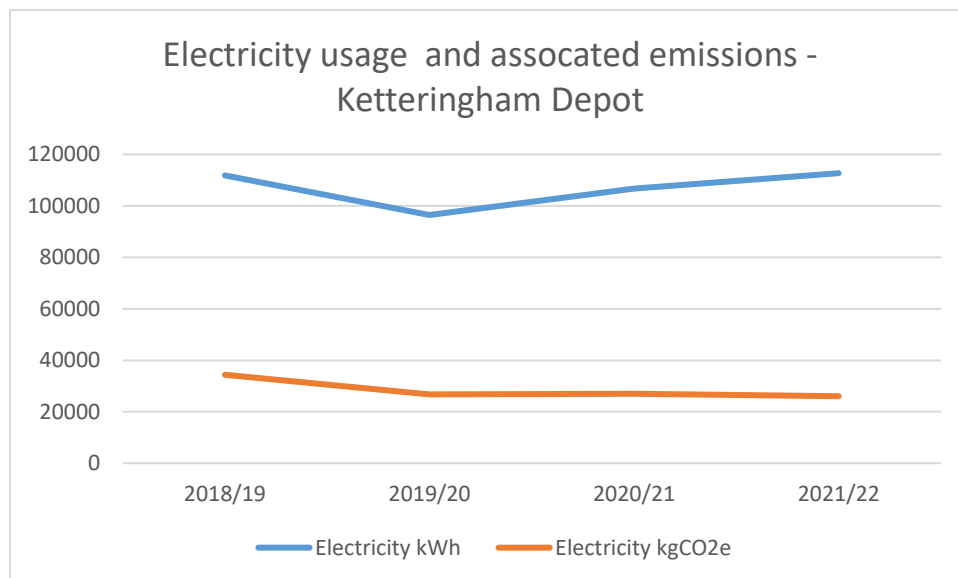


Figure 12 Electricity use and associated emissions for Ketteringham Depot

Electricity use has been fairly stable at the depot. Unlike the other sites there was not a reduction in 2020 due to Covid. The depot remained open and provided a full service throughout Covid restrictions.

Transport related emissions

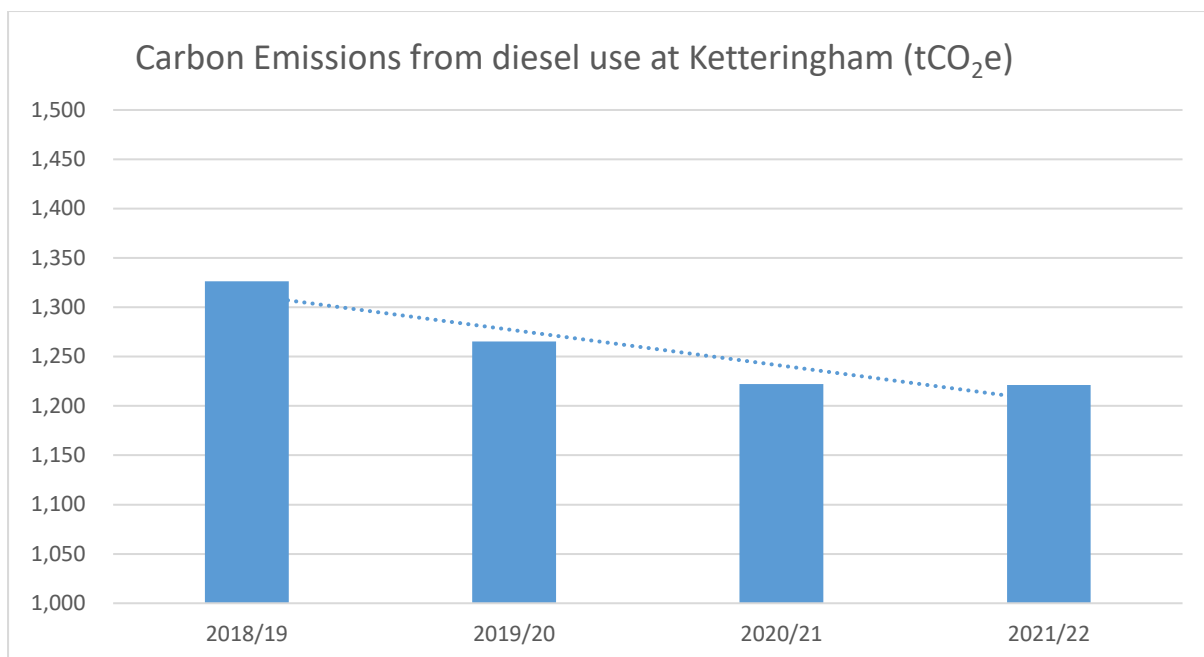


Figure 13: Carbon Emissions from diesel use at Ketteringham Depot

Waste and Street scene fleet

Emissions associated with the waste fleet are the largest emitter. The emissions have decreased since baseline year. This is because new vehicles added to the fleet are more efficient.

Staff travel

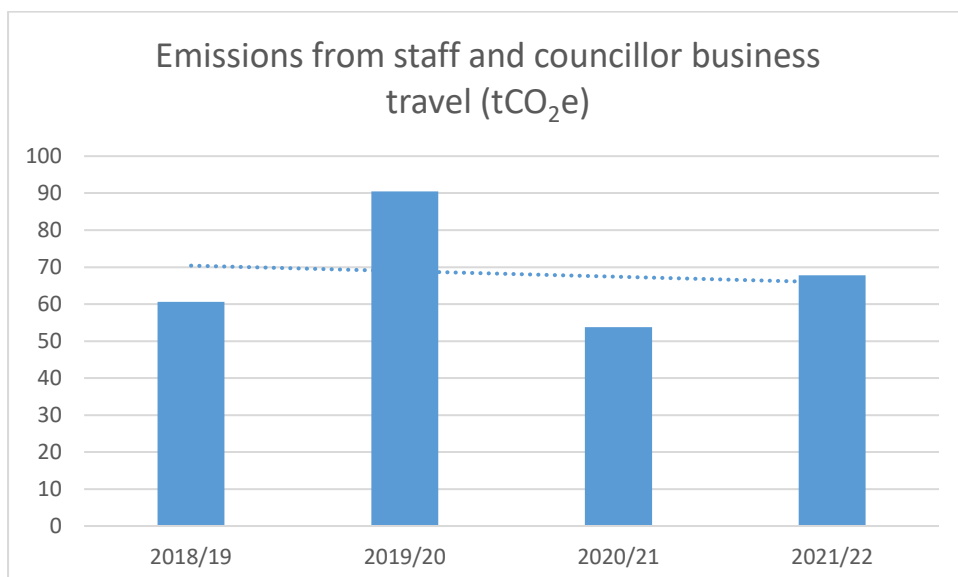


Figure 14: Emissions from staff and councillor business travel

The emissions associated with staff and member business travel are 68tCO₂e. This is an increase compared to last year. This is because more journeys were taken by staff and councillors.

Staff business mileage in their own vehicles has been estimated based on the mileage data supplied, this was not available by fuel type in the recorded data. A sample of the vehicle's registrations were checked for fuel type against the government records and a proportion then extrapolated over the entire mileage and average vehicle conversion factors were used.

Water Emissions

Limited water meter data was available for the South Norfolk Council properties. Carbon emissions from staff and public welfare facilities water consumption can be insignificant however the wider environmental impacts of water consumption and wastewater disposal may be considered in future environmental reports so should be part of the monitoring systems

Waste Emissions

Commercial waste data supplied for the council owned buildings indicates that there are 2 main streams recycling and residual, with the residual waste going to incineration (energy from waste)

The government conversion factors for recycling and incineration (energy from waste) emissions per kg are the same.

All of these waste options emit considerably less carbon emissions than if the waste went to landfill.

The most powerful way to reduce emissions from waste is to reduce the amount produced e.g., reduced printing and selective procurement.

Appendix

Scope 1		2018/19	2019/20	2020/21	2021/22
Building/Activity	fuel	emissions	emissions	emissions	emissions
South Norfolk House	oil	112.33	119.08	162.51	127.17
Wymondham LC	gas	431.39	479.28	162.34	95.39
Diss LC	gas	374.66	183.71	28.18	230.63
Waste and street scene fleet	diesel	1326.39	1265.37	1222.22	1221.12
grounds maintenance Ketteringham	diesel	17.59	16.33	16.33	16.34
Ketteringham Depot	oil	24.68	24.72	24.72	24.72
Temporary Accommodation 1	gas	12.33	12.59	14.33	12.33
TOTAL		2299.38	2101.09	1630.64	1727.70
Scope 2		2018/19	2019/20	2020/21	2021/22
Building/Activity	fuel	emissions	emissions	emissions	emissions
South Norfolk House	electricity	168.55	136.97	113.78	111.83
Wymondham LC	electricity	87.43	90.30	80.71	51.02
Diss LC	electricity	70.03	69.21	26.69	53.63
Ketts Park	electricity				14.99
Long Stratton LC	electricity	31.94	59.57	40.96	49.01
Ketteringham Depot	electricity	31.68	24.66	24.87	23.93
Diss Mere toilets	electricity	0.83	0.78	0.74	0.00
Wymondham Market Place toilets	electricity	0.00	0.00	0.00	0.00
Hingham Market Place toilets	electricity	0.27	0.52	0.00	0.00
Long Stratton toilets	electricity	0.62	0.46	0.07	0.12
Church Plain Loddon toilets	electricity	0.01	0.00	0.00	0.00
Harleston toilets	electricity	0.68	2.93	0.20	0.36
Wymondham Ticket Machine	electricity	0.04	0.70	0.62	0.59
Diss Ticket Machine	electricity	2.34	2.12	1.88	1.81
Temporary Accommodation 2	electricity	10.51	10.29	8.97	8.34

Temporary Accommodation 3	electricity	0.49	0.33	0.00	0.00
Temporary Accommodation 5	electricity	3.02	2.40	5.72	2.45
Temporary Accommodation 1	electricity	7.25	3.72	0.64	7.72
Temporary Accommodation 4	electricity	0.00	0.00	0.00	0.00
streetlights (all)	electricity	65.61	22.13	18.67	14.79
TOTAL		481.31	427.07	324.53	340.60
Scope 3		2018/19	2019/20	2020/21	2021/22
Building/Activity	fuel	emissions	emissions	emissions	emissions
Staff & member business travel	mileage	60.57	90.46	53.77	67.78
Loddon BC	gas	2.37	9.48	5.61	5.38
Old Barn Annexe, Diss	electricity	2.49	3.50	0.00	3.43
Loddon BC	electricity	2.01	1.21	1.17	1.02
Diss Business Centre	electricity	6.96	4.50	2.43	3.27
Crafton House	electricity	35.56	32.77	23.70	27.15
Trumpeter House	electricity	7.87	11.90	10.40	8.07
South Norfolk House	electricity T&D	14.37	11.63	9.78	9.90
Wymondham LC	electricity T&D	7.45	7.67	6.94	4.51
Ketts Park	electricity T&D				1.33
Diss LC	electricity T&D	5.97	5.88	2.30	4.75
Long Stratton LC	electricity T&D	2.72	5.06	3.52	4.34
Ketteringham Depot	electricity T&D	2.70	2.09	2.14	2.12
Diss Mere toilets	electricity T&D	0.07	0.07	0.06	0.00
Wymondham Market Place Toilets	electricity T&D	0.00	0.00	0.00	0.00
Hingham Market Place toilets	electricity T&D	0.02	0.04	0.00	0.00
Long Stratton toilets	electricity T&D	0.05	0.04	0.01	0.01
Church Plain Loddon toilets	electricity T&D	0.00	0.00	0.00	0.00
Harleston toilets	electricity T&D	0.06	0.25	0.02	0.03

Wymondham Ticket Machine	electricity T&D	0.00	0.06	0.05	0.05
Diss Ticket Machine	electricity T&D	0.20	0.18	0.16	0.16
Old Barn Annexe, Diss	electricity T&D	0.21	0.30	0.00	0.30
Loddon BC	electricity T&D	0.17	0.10	0.10	0.09
Diss Business Centre	electricity T&D	0.59	0.38	0.21	0.29
Crafton House	electricity T&D	3.03	2.78	2.04	2.40
Trumpeter House	electricity T&D	0.67	1.01	0.89	0.71
Temporary Accommodation 2	electricity T&D	0.90	0.87	0.77	0.74
Temporary Accommodation 3	electricity T&D	0.04	0.03	0.00	0.00
Temporary Accommodation 5	electricity T&D	0.26	0.20	0.49	0.22
Temporary Accommodation 1	electricity T&D	0.62	0.32	0.05	0.68
Temporary Accommodation 4	electricity T&D	0.00	0.00	0.00	0.00
Streetlights (all)	electricity T&D	5.59	1.88	1.61	1.52
South Norfolk House	water	0.51	0.51	0.20	0.20
South Norfolk House	waste general	0.92	0.92	0.91	0.91
South Norfolk House	waste recycling	1.89	1.89	1.88	1.88
Wymondham Leisure Centre	water	4.71	4.09	1.28	0.84
Wymondham Leisure Centre	waste general	2.14	2.14	2.13	2.13
Wymondham Leisure Centre	waste recycling	0.92	0.92	0.91	0.91
Long Stratton LC	water	0.43	0.69	0.27	0.14
Long Stratton LC	waste general	0.92	0.92	0.91	0.91
Long Stratton LC	waste recycling	0.92	0.92	0.91	0.91
Ketts Park	waste general				0.00
Ketts Park	waste recycling				0.00
Ketts Park	water				0.03
Diss LC	water	2.91	2.85	1.15	0.72

Diss LC	waste general	0.92	0.92	0.91	0.91
Diss LC	waste recycling	0.61	0.61	0.61	0.61
Diss Mere toilets	water	0.62	0.18	0.00	0.00
Wymondham Market Place toilets	water	0.29	0.00	0.00	0.00
Hingham Market Place toilets	water	0.08	0.00	0.00	0.00
Long Stratton toilets	water	0.42	0.23	1.22	0.03
Church Plain Loddon toilets	water	0.00	0.00	0.00	0.00
Harleston toilets	water	0.05	0.00	0.00	0.00
Ketteringham Depot	water	0.25	0.24	0.24	0.24
TOTAL		183.02	212.65	141.77	161.64
1,2,3	TOTAL	2963.71	2740.81	2096.93	2229.73