

Harborough District Council Carbon Emissions Inventory 2021-2022

Summary

This report collates the equivalent carbon emissions due to Harborough District Council's use of energy for both its own services and those services commissioned by the council. The results are for the financial year 2021/2022.

The results are separated into three scopes. Scope 1 covers emissions due to the direct use of fossil fuels in the district's own buildings and operations, that is gas boilers or vehicles owned by the council. Scope 2 covers indirect emissions from electricity consumption. Scope 3 amalgamates emissions from other sources, including contracted services, such as waste and leisure centres.

The Council has declared a Climate Emergency and has committed to reducing emissions to net zero by 2030, as far as possible. The Council is engaged in ongoing improvement of its own buildings. The new Harborough Grow on Centre has been built to the BREEAM "Excellent". The photovoltaic cells on the Market Hall continue to show real benefits in the fifth full year of operation.

The pandemic has continued to impact on council operations during 2021/22 but to a lesser extent than during 2020/21. Council services continue to be run online, with staff still homeworking, however the full shut down of building occurred less and services have been largely maintained. This inventory does not take account of the emissions due to home working, but travel to work emissions have not historically been included and these have reduced due to reduced travel to work, so hopefully these two changes balance to some extent.

The Council's emissions this year have shown some further reduction, but some areas have shown a return to earlier levels, especially the leisure centre emissions. The emissions from each of the scopes is summarised in the table below. Fuller details of the emissions are covered in the following sections.

It is clear that to meet the goal of the Climate Emergency by 2030 the Council will need to make significant reductions in emissions, especially from Symington Building, Market Hall and the leisure centres. In addition the decarbonisation of the waste fleet will need to be considered in the next waste contract.

	2021/22	2020/21	2019/20	2018/19	2017/18	2016/17	2015/16	2014/15	2013/14	2008
Scope 1	175.54	197.5	207.9	194.5	218.1	202.5	218.5	201.3	206.3	227.9
Scope 2	121.55	130.1	169.0	183.9	218.8	276.1	325.0	340.2	195.2	419.2
Scope 3	1931.92	1557.2	1996.4	1990.1	2161.2	2245.1	2326.2	2434.9	5393.4	Not comparable
Total Scopes 1 and 2	297.09	327.6	376.9	378.4	436.9	478.5	543.5	541.5	401.5	647.0
Total all scopes	2229.01	1884.8	2373.3	2368.5	2598.1	2723.6	2869.7	2976.4	5,794.90	Not comparable
									Missing data	
									(data issue)	

Table 1: Summary of Emissions (tonnes equivalent) 2021/22

Introduction

Harborough District Council covers an area of 238 square miles to the south and east of Leicester City. It is a largely rural area, with Market Harborough as the largest settlement. Latest estimate of the population is over 93,000. Around 27,000 of the population is concentrated in Market Harborough, the main settlement. Other major settlements include Lutterworth and Broughton Astley.

Harborough District Council's estate consists of; a Grade 2 listed mill building that is used as the council's main offices; a market hall, in use 6 days a week; a variety of sports changing facilities; and public toilet blocks. The sports and leisure services are contracted out under a competitive tender arrangement. There is also a start-up business incubator project, Harborough Innovation Centre, based in a council owned eco building and a Grow on Centre, for businesses that have progressed beyond start up, that was completed in autumn 2019 to BREEAM excellent standard. Both sites are managed for Harborough District Council and are included as scope 3 emissions.

Harborough District Council's action on emissions

Harborough District Council has declared a Climate Emergency and has committed, as far as practical, to reaching net zero carbon in its own services by 2030. An important part of monitoring this is an inventory of Harborough District Council controlled emissions: that is information on emissions from property and services run or commissioned by the council. The inventory has been completed annually since 2014 but has a baseline dataset for 2008.

Harborough District Council are committed to having an effectively and efficiently run service. Controlling energy costs is a significant part of this. The Council installed photovoltaic cells on the south facing roof of the Market Hall in summer 2015. The PV array supplies electricity to the building, providing an income, as well as reducing the emissions. In addition, there has been an upgrade of the lighting to LED lights in autumn 2015.

Since the 2015/16 financial year, the electricity and gas usage of the council estate has been monitored quarterly. The aim is to provide a baseline from which reductions in consumption can be measured. In 2018 new monitoring software has been used in the Symington building to better understand half hourly electricity usage. The council's assets team are actively looking for further savings in all of the council's operations.

Compiling an Inventory

The UK government has encouraged Local Authorities to continue to voluntarily report on their greenhouse gas emissions, even if the authority is too small to be required to report through the formal reporting framework for larger authorities. The Government provide guidance on the format and methodology that should be used <https://www.gov.uk/sharing-information-on-greenhouse-gas-emissions-from-local-authority-own-estate-and-operations-previously-ni-185>. In addition, they provide information to enable conversion of energy in kWh or fuel in litres to be converted. The information presented here has used these protocols and the conversion data available at <https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2021>. Conversion factors for 2021 have been used in this report.

The Data is collected in three sections or scopes:

- Scope 1 relates to emissions due to the direct use of fuel, i.e gas boilers, vehicle fuel use for council business.
- Scope 2 relates to electricity usage in buildings
- Scope 3 relates to all other emissions, including from contracted out services, business travel, electricity transmission.

Harborough District Council has collated emissions information in earlier years, with 2008 as the earliest year. However, the methodology has changed, and the estate has also changed. 2008 is used as a base year for Scope 1 and 2 reporting. Scope 3 is not comparable. Full data for all 3 scopes is available from 2014/2015.

Direct Emissions from Council Services (Scope 1)

Direct emissions from the council estate, in the financial year 2021/2022, amount to 175.54 tonnes equivalent of CO₂¹. These emissions arise from gas boilers in two buildings and also a small contribution from travel around the district by parking attendants (this figure is estimated as no direct monitoring is available).

The Market Hall and the Symington Building gas boilers are the largest contributors to Scope 1 emissions of the years monitored. A total of 164.24 tonnes are attributed to the gas use in the Market Hall and Symington Building.

The Symington Building is usually well used throughout the day and into the evening. There are three retail units, the library, museum, and partner office space, as well as the HDC office and meeting space. However, there is no separately metered gas supply to the different parts of the building. All of the emissions from gas use are included within the figures for the Symington Building, although Harborough District Council only uses around half of the building directly.

The Market Hall has continued to be used for essential food retail during lockdowns, with other retailers returning when restrictions were lifted.

Parking attendants transport contribution is approximately 11.31 Tonnes equivalent of CO₂. Parking attendants' mileage is not specifically monitored, so the figure is an estimate. The figure is also for all parking mileage a HDC manages the carparking for all of the Districts and Boroughs through a partnership agreement.

The total CO₂ contribution from direct emissions is 175.54 Tonnes_e. This is a small decrease on the previous year from 197.5 Tonnes_e. This is a reduction of 23% since 2008 in scope 1 emissions. However, emissions have not changed significantly over the last few years, as shown in Table 2. The use of gas varies with the severity of the winter. The level of emission reduction in scope 1 emissions is unlikely to lead to a net zero by 2030 without boiler replacement, for example with Air Source Heat Pumps (ASHP). The Symington Building was refurbished in 2013/14, with boiler upgrade. The Market Hall has not had a boiler upgrade in recent years.

¹ Tonnes equivalent of CO₂ presents all greenhouse gases as a CO₂ equivalent taking account of the strength an amount of the greenhouse gases emitted.

Harborough District Council Site	Gas Consumption (kWh)	Emissions (Tonnes equivalent CO ₂) 2021/22	Emissions (Tonnes equivalent CO ₂) 2020/21	Emissions (Tonnes equivalent CO ₂) 2019/2020	Emissions (Tonnes equivalent CO ₂) 2018/2019	Emissions (Tonnes equivalent CO ₂) 2017/2018	Emissions (Tonnes equivalent CO ₂) 2016/2017	Emissions (Tonnes equivalent CO ₂) 2015/2016
Council Offices, Adam & Eve Street	553,080.20	101.30	111.91	115.24	107.68	122.94	100.17	106.31
Market Hall	343,618.10	62.94	73.81	80.92	69.95	77.55	84.95	86.86
Total		164.24	185.72	196.16	182.61	206.03	190.02	206.7

Table 2: Scope 1 Emissions for Council Buildings

Indirect Emissions from Council Services (Scope 2)

Contributions to indirect emissions come from the use of electricity across the council estate. Electricity consumption figures come from nine active sites. The total emissions equate to 121.55 tonnes CO_{2e}, which represents a reduction of a further 8.6 tonnes since 2020/21 and a 71% reduction since 2008. The Symington Building and the Market Hall are the biggest contributors to overall emissions. In October 2019 the supply for electricity switched to a 100% renewable tariff, however the overall carbon emissions are still calculated, as the renewable tariff contributes to the national figure for electricity, so cannot be counted locally. National increase in renewable energy has contributed significantly to the reduction in emissions measured in Harborough District Council's buildings.

The Symington Building, which houses the Council offices, was refurbished in 2013. In addition to Harborough District Council, the building houses some departments from Leicestershire County council, including the library and museum. It also houses a range of services run by partners such as Citizen's Advice Bureau and three commercial units. The three commercial units have separate electricity meters, so this usage, which is recharged, is not included in the Symington building figures. The building achieved a DECC rating of D, slightly better than a similar typical building. The lifts have been refitted and the Building Management System (BEMS) has been optimised to improve energy efficiency. The building has continued to be used throughout the pandemic, but at reduced occupancy and with some areas closed for long periods. This has led to a marked reduction in electricity usage and thus emissions. Table 3 summarises the emissions since 2013/14.

Harborough District Council installed photovoltaic on the Market Hall, with generation commencing in August 2015. Data indicates that during 2021/22 the Market Hall used some 212,985.40 kWh, generating some 45.22 tonnes_e of CO₂.

The total annual consumption of electricity in the Market Hall is around 121,000kWh less than 2014/15 prior to the PV installation and LED upgrade. In 2020/21 the PV installation generated 39,293kWh, saving 16 tonnes_e of CO₂ this year. Financial savings from reduced electricity usage, Feed in Tariff (FiT) and export of electricity has led to a financial benefit of £10,156 this year.

Harborough District Council Site	Electricity Consumption (kWh)	Emissions 2021/2022	Emissions 2020/2021	Emissions 2019/2020	Emissions 2018/2019	Emissions 2017/2018	Emissions 2016/2017	Emissions 2015/2016	Emissions 2014/2015	Emissions 2013/2014
Public Conveniences, Common Car Park	26,176.10	5.56	3.84	4.18	4.75	3.32	3.28	5.51	6.92	5.1
Council Offices, Adam & Eve St ²	306,234.30	65.02	77.26	91.03	99.02	119.99	148.17	160.85	166.01	51.3 ³
Welland Park Rest Room	2,780.70	0.59	0.79	1.11	1.64	0.46	4.28	1.91	2.33	2.3
Public Conveniences, Recreation Ground	5,778.50	1.23	0.82	1.26	1.25	1.33	2.41	2.18	2.40	2.8
Cemetery Chapel	10,632.80	2.26	2.76	2.58	2.51	6.41	4.76	4.20	2.48	4.6
Symington Sports Pavilion	6,091.10	1.29	1.39	1.73	1.82	0.92	1.90	1.84	2.35	3.9
Welland Park Bowl Pavilion	937.90	0.20	0.11	0.14	0.09	0.20	0.29	0.28	0.65	0.1
Manor Farm, Thurnby	825.20	0.18	0.41	0.59	0.66	0.83	0.47	Not part of HDC estate prior to 2016/17	Not part of HDC estate prior to 2016/17	Not part of HDC estate prior to 2016/17

² Excludes electricity for retail units (separately metered)

³ Building empty for refurbishment in 2013/14

Market Hall	212,985.40	45.22	42.71	66.34	72.15	85.34	107.97	132.68	135.11	99.6 ⁴
Total		121.55	130.09	168.96	183.88	218.80	276.06	324.97	340.23	194.5

Table 3: Scope 2 Emissions from Council Buildings

⁴ Market Hall closed during part of 2013/14 for refurbishment

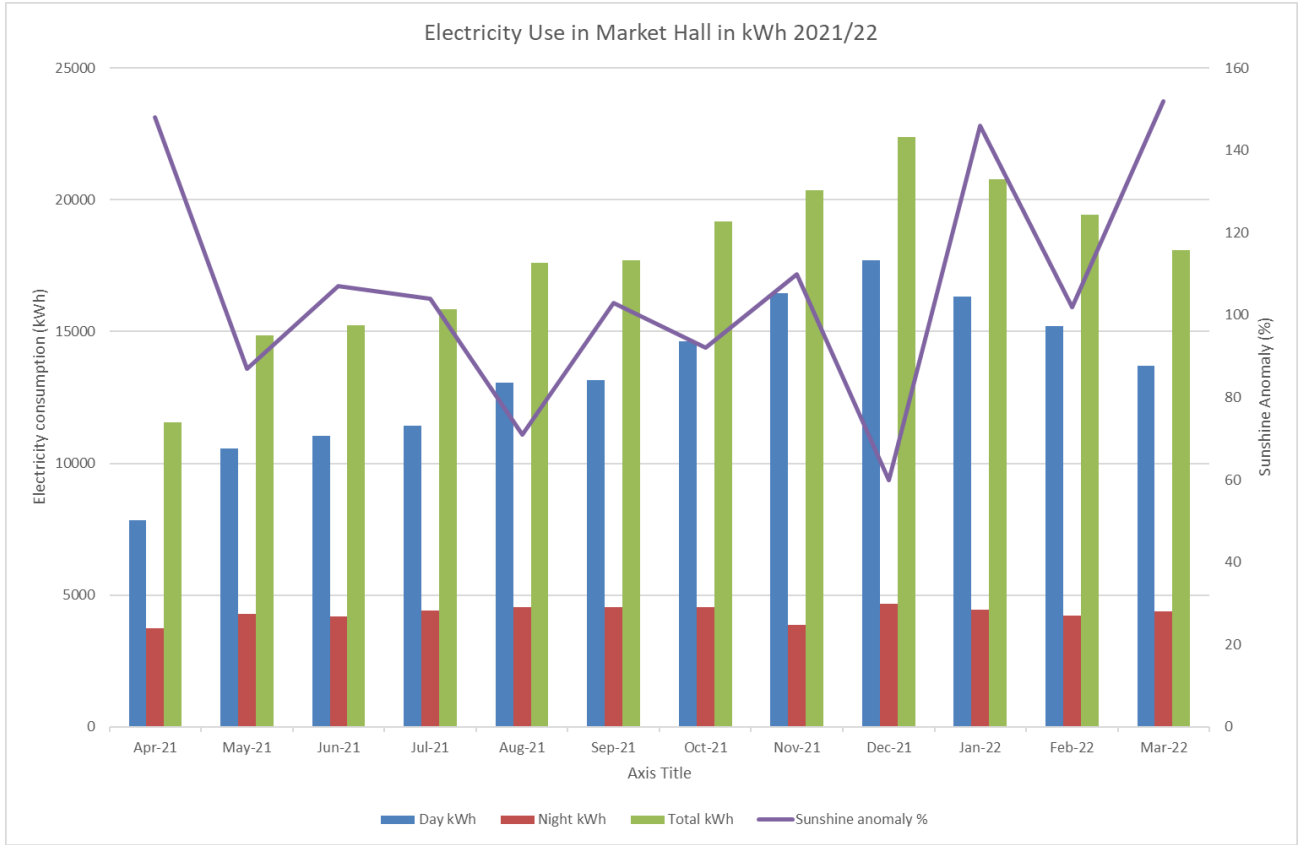


Figure 1: Market Hall Electricity consumption 2021/22

Emissions from Contracted Council Services (Scope 3)

Harborough District Council, in common with many Local Authorities, has contracted out various services. These results are collated in Scope 3.

Emissions from Waste Services and Other Vehicles

Contracted services for waste collection are the main contribution to emissions from vehicles. The emissions also include grounds maintenance, street cleaning and environmental crime vehicle. The amount of fuel used has increased by about 50,000 litres this year. In total this contributes some 955.42 Tonnes_e of CO₂. The waste collection rounds increase as the number of households increase. The contractor monitors vehicle use and provides regular driver training. Routes are regularly reviewed to increase efficiencies. The vehicles were replaced in 2016 and meet the Euro VI standard.

Contractor Service area	Fuel (Litres)	Emissions (Tonnes equivalent CO ₂)
Waste collection, grounds maintenance and street cleaning.	380,294.2	955.42

Table 4: Scope 3 Emissions from Environmental Services Vehicle Operations

In addition to the waste services, there are some smaller uses for vehicles, including pest control and dog warden. The mileage for these services is estimated. These services contribute to the overall carbon emissions through the use of diesel fuel, contributing some 4.74 Tonnes_e of CO₂.

Total emissions from all contractors' transport fuel use are 960.17 Tonnes CO_{2e}. This is an increase on last year.

Harborough District Council business mileage is only available via the expenses system. This provides simplified data, with no information on car size or fuel type. All figures here have been derived assuming half of the vehicles are average petrol cars and the other half are average diesel. The total mileage claimed for business use accounts for 18.91 Tonnes equivalent of CO₂. This is a slight increase from last year, as during the pandemic staff reduced travel to meetings and on-site visits to only the most essential. However, it is still a significant reduction on pre pandemic travel, with 39.43 tonnes recorded in 2019/20. Business miles have reduced to half of the mileage claimed in 2019/20. The use of video meetings is likely to help maintain a lower business mileage.

Emissions from Leisure services

There are two leisure centres, both with pools, in the district. One is in Market Harborough and the other in Lutterworth. The management of the leisure centres was taken over by SLM in April 2019. Both leisure centres were closed during lockdowns but the number of users has increased as restrictions have been lifted. Energy consumption figures have increased again, with the leisure centres as major source of emissions. The total emissions from both gas and electricity consumption are then 810.3 tonnes equivalent of CO₂. This is similar to pre-pandemic totals.

Leisure Centre Site	Electricity Consumption (kWh)	Emissions (Tonnes equivalent CO ₂)	Gas Consumption (kWh)	Emissions (Tonnes equivalent CO ₂)
Harborough	740904.00	157.316146	1383575.00	253.42
Lutterworth	546327.00	116.001612	1548164.00	283.56

Table 5: Scope 3 Emissions from Leisure Centres

Emissions from Other Buildings

Harborough District Council has an Innovation Centre (HIC), which acts as an incubator for new businesses. This was managed by an external company on behalf of the council but moved to council management during 2019. The building was designed to be energy efficient, with a BREEAM assessment of Excellent. It incorporates a biomass boiler, but emissions from the biomass boiler are not included, only those from the back-up gas boiler. Emissions due to gas usage in the Innovation Centre account for 35.66 Tonnes_e of CO₂. This is an increase on 2020/21 and also higher than 2019/20. Electricity use accounts for 35.66 Tonnes_e of CO₂, this is an increase on last year, but still lower than 2019/20.

The Innovation Centre has been very successful, but some of the companies that have outgrown the space there struggle to find quality office space in the district. Harborough District Council have built a new Grow On Centre to meet this need. The building has been designed to meet BREEAM excellent standard. The Grow on Centre was commissioned during 2019/20, and due to lockdown it has not been tenanted as quickly as expected. This year emissions of 18.06 Tonnes_e of CO₂ from gas use and 16.03 Tonnes_e of CO₂ from electricity usage; a total of 34.09 Tonnes_e of CO₂. This is around 68 Tonnes lower than 2019/20.

The Welland Park Café is now also being managed by an independent company, so is now reported under scope 3. There were 4.61 Tonnes_e of CO₂ from electricity use and 3.34 Tonnes_e of CO₂ from gas usage. This is 7.95 Tonnes_e of CO₂ in total. This is lower than 2019/20 (10.31 Tonnes).

Other Buildings	Electricity Consumption (kWh)	Emissions (Tonnes equivalent CO ₂)	Gas Consumption (kWh)	Emissions (Tonnes equivalent CO ₂)	Total Emissions (Tonnes equivalent CO ₂)
HIC	167,968.00	35.66	194,690.90	35.66	71.32
Welland Park Cafe	21,711.50	4.61	18,258.50	3.34	7.95
Grow on Centre	75,482	16.03	98,626.50	18.06	34.09

Table 6: Scope 3 Emissions from other buildings

Emissions due to electricity transmission

Finally, the transmission of electricity has an impact on emissions, so this included using the factors suggested in government guidance. Given an electricity consumption of 1,552,392.50 kWh from all scope 2 and 3 consumption there is a contribution of approximately 29.16 Tonnes of CO₂ equivalent. This is similar to last year and still some 10 tonnes lower than 2019/20.

Total Scope 3 Emissions

The total of emissions covered by Scope 3 is thus 1931.92Tonnes equivalent of CO₂. This brings the scope 3 emissions back in line with compare to 2019/20 (1996.44). Scope 3 is responsible for the highest emissions. Leisure centres are very high users of energy and waste services have to cover a very large rural collection area, which leads to high emissions.

Conclusions

Harborough District Council continues to work hard to reduce emissions current emissions⁵ show a reduction, compared to 2008 levels, of 54.08%, in scope 1 and 2 emissions together. Scope 1 emissions have reduced by 23 % and Scope 2 by 71%. Scope 3 emissions cannot be compared to the 2008 baseline data, so it is not possible to accurately measure changes compared to 2008. Emissions have returned to levels comparable with pre-pandemic as leisure centres and other services return to normal.

It is clear, that there are still significant challenge if the Council is to meet its commitment of net carbon neutral by 2030. Some of the reduction in emissions are due to the decarbonisation of the Grid, rather than HDC action. If HDC were to offset the current overall emissions with tree planting, it would require perhaps as many as 150,000 trees (assuming trees absorb around 10kg to 20kg of CO₂ per year depending on size). National electricity is likely to continue to be decarbonised, so this will continue to reduce emissions, but challenges remain.

The quarterly monitoring of electricity and gas usage for council buildings has helped to identify some areas where further assessment would be worthwhile. There are areas where data for the monitoring is not available, which has led to approximations.

Areas for action have been identified; namely:

- Refurbishment of the Leisure Centres has been agreed – the plans are being drawn up and opportunities for energy saving and renewable energy are vital if significant reductions in emissions are to be realised.
- An assets management plan in preparation
- Scoping further opportunities for renewable energy (including HIC)
- Further savings from improving energy efficiency in the ongoing maintenance (LED replacement at the HIC).
- Including energy efficiency in any new contract for contracted-out services
- Electric vehicle replacement when contracts are up for renewal subject to suitable technology being available.
- Alternative fuels are being investigated for waste vehicles (Biodiesel/waste vegetable oil) and the vehicles will also form part of the waste contract which will be renegotiated by 2025.

The potential actions will be included in the Climate Emergency Action Plan.

⁵ Scope 1 and 2 emissions