

Harborough District Council Carbon Emissions Inventory

2016-2017

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 2016/2017.

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, i.e. gas boilers or vehicles owned by the council. Scope 2 covers indirect emissions, i.e. electricity consumption. Scope 3 amalgamates emissions from other sources, including contracted services, such as waste and leisure centres.

The Council is committed to reducing energy costs and emissions and is engaged in an ongoing project to improve its own buildings. The Symington Building and the Market Hall in Market Harborough have both undergone refurbishment, which have delivered significant savings. In particular the Photovoltaic cells are showing real benefits in the first full year of operation.

Contracted services such as waste and leisure also work hard to keep energy usage low. Waste Services have done regular driver monitoring and training and the leisure centres in Lutterworth and Market Harborough have both been fitted with energy saving equipment. Waste services have delivered year on year savings, despite having an increasing number of properties to service, as housing numbers in the district increase.

The emissions from each of the scopes is summarised in the table below. Fuller details of the emissions are covered in the following sections. These savings represent a 26% reduction in emissions from scope 1 and 2 together, compared to the 2008 baseline.

Scope of emissions	Tonnes Equivalent of CO ₂ 2016/2017	Tonnes Equivalent of CO ₂ 2015/2016	Tonnes Equivalent of CO ₂ 2014/2015	Tonnes Equivalent of CO ₂ 2013/2014 ¹	Baseline 2008
Scope 1 Direct Emissions	202.47	218.52	201.30	206.30	227.86
Scope 2 Indirect Emissions	276.06	324.97	340.23	195.20	419.17
Scope 3 Other Indirect Emissions	2,245.09	2,326.22	2434.90	Missing data	Not comparable
Total Emissions	2723.62	2,869.71	2,976.43	Missing data	Not Comparable
Total Emissions excluding services contracted out (Scopes 1 &2)	478.53	543.49	541.53	401.50	647.03

Table 1: Summary of Emissions

¹ In 2013/14 the Symington Building was empty, undergoing refurbishment, so emissions are unusually low.

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. The population is around 85,000 (Census 2011), with around 27,000 concentrated in Market Harborough. Other major settlements include Lutterworth and Broughton Astley.

Harborough District Council's action on emissions

Harborough District Council is a signatory of Climate Local² and has adopted a Climate Local Action Plan (full council 28th July 2015)

http://www.harborough.gov.uk/directory_record/1163/climate_change_action_plan. . An important part of 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.

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.

Compiling an Inventory

The UK government has encouraged Local Authorities to continue to report on their greenhouse gas emissions, despite of the removal of the NI185 indicator that previously called for this. 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-2016>.

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

² Climate Local is a framework for local authority action on climate change under the auspices of the Local Government Association.

- 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 2016/2017, amount to tonnes equivalent of CO₂. These emissions arise from gas boilers in four 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 number of buildings included in Scope 1 has reduced, following the disposal of two buildings. The Market Hall and the Symington Building are by far the largest contributors to Scope 1 emissions. The total Scope 1 emissions from all buildings are 190.02 tonnes_e of CO₂.

The Symington Building is fully occupied and well used through out the day and into the evening. There are also three retail units, two of which have been open all year. However, there is no metered gas supply to those units. Leicestershire County Council and other partners, including the library and the museum do not have their electricity and gas directly monitored, so these emissions are included within the figures for the Symington Building, although Harborough District Council only uses around half of the building directly. Some work on the Building Energy Management System has improved the performance of the heating in the building, reducing emissions by over 6 tonnes_e of CO₂ since 2015/16.

The Market Hall continues to be more heavily used with an increase in the number of traders on the six trading days. Some improvements to the heating system have made a small improvement, but there are more opportunities for reductions as the heating system is old and inefficient.

Parking attendants transport contribution is approximately 12.44 Tonnes equivalent of CO₂. This means that the total CO₂ contributions from direct emissions are 202.47 Tonnes_e. This is a reduction of 11.1% on the 2008 baseline data and a 7.3% decrease since last year.

Harborough District Council Site	Gas Consumption (kWh)	Emissions (Tonnes equivalent CO ₂) 2016/2017	Emissions (Tonnes equivalent CO ₂) 2015/2016	Emissions (Tonnes equivalent CO ₂) 2014/2015	Emissions (Tonnes equivalent CO ₂) 2013/2014
Council Offices, Adam & Eve Street	544,387.86	100.17	106.31	123.49	78.9
Market Hall	461,706.06	84.95	86.86	56.67	84.6
Settling rooms	17,551.03	3.23	4.91	4.18	4.6
26, Hill Court, Bushby	9,093.00	1.67	3.65	2.36	N/A
Total		190.02	206.7	198.2	180.5

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 twelve sites. The total emissions equate to 276.06 tonnes CO_{2e}. The Symington Building and the Market Hall are once again the biggest contributors to overall emissions.

Harborough District Council installed photovoltaic on the Market Hall, with generation commencing in August 2015. Data indicates that during the summer the consumption is around 10,000kWh less than prior to the PV installation. The summer of 2016 was quite sunny (see the sunshine anomaly line, over 100% is sunnier than usual), so the performance of the panels has been good. The consumption increases during the winter months, when there is less sunlight, however, the total annual consumption of electricity is some 25,047kWh less than the previous year, equating to a 9% reduction. The heating system in the hall is old and inefficient, leading to higher consumption in winter, due to the pumps being in higher use. Overall, there has been a significant drop in electricity consumption and carbon emissions. Carbon emissions are 18.6% less than 2015/16.

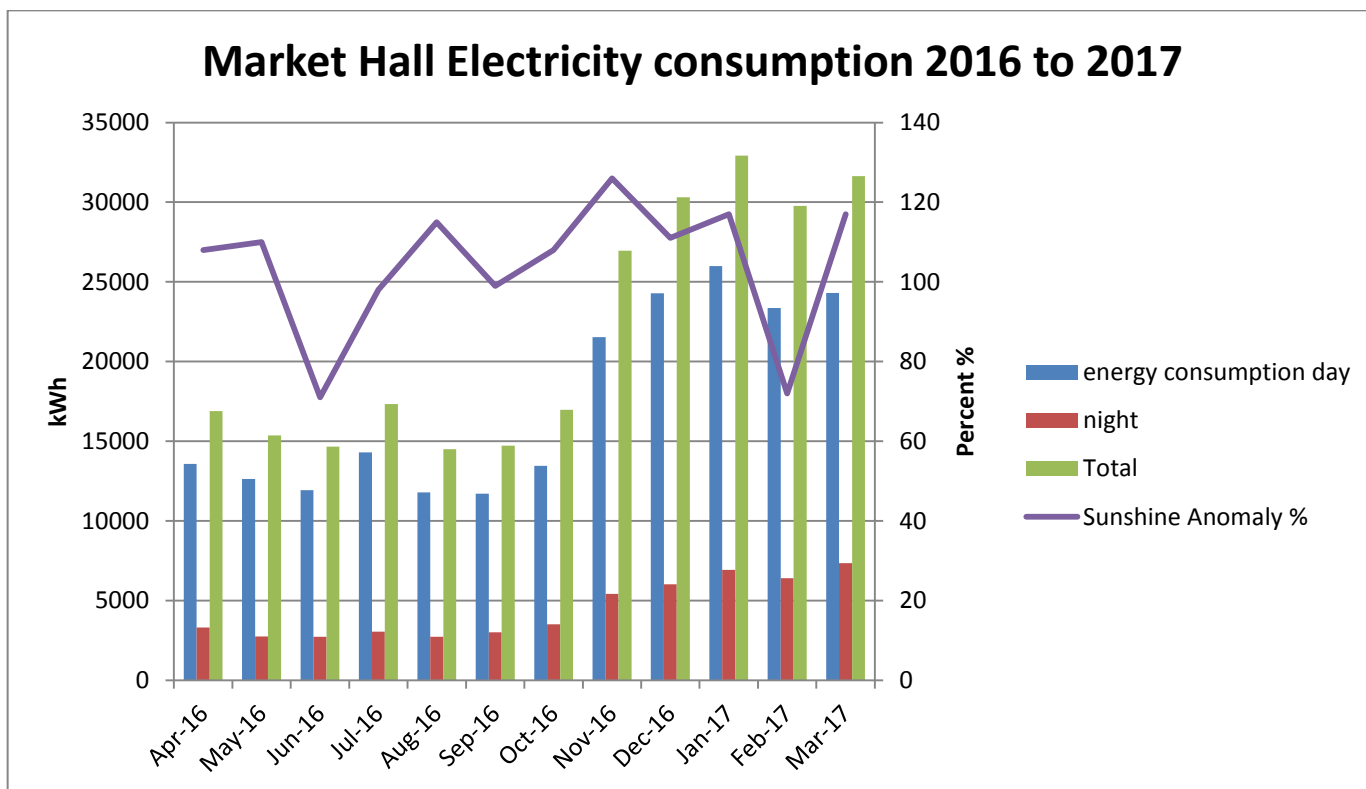


Figure 1: Market Hall Electricity consumption 2015/16

Since the refurbishment of the Council offices, completed in January 2014 the occupancy of the building has increased; it is now at full occupancy. This has led to an increase in electricity usage, due to banks of computers, lighting and some air-conditioned areas. The two of the three retail units were occupied, but had separate electricity meters, so this contribution, which is recharged, is not included in the Symington building figures. The building achieved a DECC rating of D, which is slightly better than a typical building. The Building Management System has been adjusted to improve energy efficiency.

Harborough District Council Site	Electricity Consumption (kWh)	Emissions (Tonnes equivalent CO ₂) 2016/2017	Emissions (Tonnes equivalent CO ₂) 2015/2016	Emissions (Tonnes equivalent CO ₂) 2014/2015	Emissions (Tonnes equivalent CO ₂) 2013/2014
Public Conveniences, Common Car Park	7,951.00	3.28	5.51	6.92	5.1
Settling Office	2,954.00	1.22	3.75	4.18	6.3
Council Offices, Adam & Eve Street ³	359,585.00	148.17	160.85	166.01	51.3 ⁴
26 Hill Court, Bushby ⁵	522.70	0.22	0.75	1.00	2.0
Pumping Station, Northampton Road ⁶	2,684.00	1.11	4.20	6.57	6.8
Welland Park Rest Room	10,381.80	4.28	1.91	2.33	2.3
Public Conveniences, Recreation Ground	5,855.90	2.41	2.18	2.40	2.8
Cemetery Chapel	11,556.80	4.76	4.20	2.48	4.6
Symington Sports Pavilion	4,616.20	1.90	1.84	2.35	3.9
Welland Park Bowl Pavilion,	698.70	0.29	0.28	0.65	0.1
Manor Farm Thurnby	1,131.60	0.47	Not part of HDC estate prior to 2016/17		
Market Hall	262,023.20	107.97	132.68	135.11	99.6 ⁷
Total		276.06	324.97	340.23	194.5

Table 3: Scope 2 Emissions from Council Buildings

³ Excludes electricity for retail units (separately metered)

⁴ Building empty for refurbishment in 2013/14

⁵ Transferred to Thurnby and Bushby Parish Council

⁶ Transferred to Anglian Water

⁷ Market Hall closed during part of 2013/14 for refurbishment

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.

The contracted services that use vehicles are summarised below. In addition to the named services, there are some smaller uses for vehicles, which are put together as general. These services contribute to the overall carbon emissions through the use of diesel fuel. The largest of these is waste collection. Total emissions from contractors' transport fuel use are 846.49 Tonnes CO_{2e}. This is a reduction from last year's value of 922.41 Tonnes CO_{2e}. This reduction has come about despite a growing number of houses requiring waste collections. The contractor monitors vehicle use and includes regular driver training to ensure efficiency.

Contractor Service area	Fuel (Litres)	Emissions (Tonnes equivalent CO ₂)
Waste collection	255689.48	667.77
Grounds Maintenance	11027.6	28.80
Streets	22992.9	60.05
General	10214.63	26.68
Dog Warden	18200.00 ⁸	47.53
Pest Control	6000.00 ⁹	15.67

Table 4: Scope 3 Emissions from Vehicle Operations

⁸ Estimated value

⁹ Estimated value

There are two leisure centres, both with pools, in the district. One is in Market Harborough and the other in Lutterworth. The total emissions from both gas and electricity consumption are 1,172.38 Tonnes equivalent of CO₂. This is around 4% lower than last year, but this may be accounted for by variations in weather. The electricity consumption of Harborough Leisure Centre is close to the good practice benchmark identified by the Carbon Trust (it has a DEC rating of C); Lutterworth Leisure Centre figures are closer to typical, with a DEC rating of E.

http://www.carbontrust.com/media/39352/ctv006_sports_and_leisure_sector_overview.pdf.

Leisure Centre Site	Electricity Consumption (kWh)	Emissions (Tonnes equivalent CO ₂)	Gas Consumption (kWh)	Emissions (Tonnes equivalent CO ₂)
Harborough	782,192.00	322.3	1,563,361.00	287.66
Lutterworth	677,379.00	279.11	1,539,681.00	283.30

Table 5: Scope 3 Emissions from Leisure Centres

Harborough District Council also has an Innovation Centre, which acts as an incubator for new business. This is managed by an external company on behalf of the council. The building was designed to be energy efficient and incorporates a biomass boiler. Emissions from the biomass boiler are not included, only those from the back-up gas boiler. Gas emissions from the Innovation Centre account for 14.66 Tonnes_e of CO₂ and electricity use accounts for 91.25 Tonnes_e of CO₂; 105.91 Tonnes_e in total. This is slightly lower than previous year.

The Welland Park Café is now also being managed by an independent company, so is now reported under scope 3. It accounts for 5.93 Tonnes_e of CO₂ from electricity use and 3.49 Tonnes_e of CO₂ from gas usage. This is 9.42 Tonnes_e of CO₂ in total.

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 using an average petrol car. The total mileage claimed for business use accounts for 22.3 Tonnes equivalent of CO₂. This has reduced once again as staff are encouraged to be efficient about journeys. It is not possible to obtain information about business journeys taken by public transport, so this is not included.

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 2,374,787.33 kWh there is a contribution of approximately 88.51 Tonnes of CO₂ equivalent.

The total of emissions covered by Scope 3 is thus 2,245.09 Tonnes equivalent of CO₂. This scope 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. Both of these services are working hard to minimise emissions. There has been a reduction of 81.13 Tonnes_e of CO₂ since last financial year, continuing a downward trend.

Future activity to reduce emissions

Harborough District Council will continue to review its estate and look for ways to reduce emissions. Some of this is expected to come from further disposal of assets, but there are also opportunities to reduce energy consumption. Further refurbishment to heating in the Market Hall is expected to have an impact and some of the smaller buildings are being assessed.

The operation of the Council Offices in the Symington Building will continue to be monitored through the quarterly reports on fuel usage. Opportunities for staff engagement in energy saving will be investigated.

The green travel plan is under review and will seek to reduce emissions from staff travel. However, the current monitoring system for staff expenses is not able to provide detailed information on staff travel, so this may need to be investigated further to ensure that changes in behaviour can be monitored.

The waste contractors are planning to renew vehicles in the near future. New vehicles have much higher efficiencies and should lead to a further reduction of emissions, however, the number of houses in the district is growing significantly, which increases the rounds for the vehicles, so all of the savings may not be realised.

The contract for the management of the Leisure centres is also due in the near future. The delivery of leisure services is being consulted on, and may result in major changes in approach. Efficiency will be an element of this. There may also be opportunities for the further deployment of renewable energy. Heating systems in particular may still be cost effective to transfer to renewable heat.

Conclusion

Harborough District Council continues to work hard to reduce emissions. There has been a significant improvement this year, as the benefits of the PV on the Market Hall feed into the data. Current emissions show a reduction, compared to 2008 levels, of 26.04%. Scope 1 emissions have reduced by 11.14% and Scope 2 by 34.14%. Scope 3 emissions cannot be compared to the 2008 baseline data, so it is not possible to accurately measure changes compared to 2008. However, scope 3 emissions do show a further reduction of over 80 tonnes since the last financial year.

It is clear that, whilst progress has been made, there is more that can be done. 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 a number of areas, where the data for the monitoring is not available, which has led to approximations. This makes it difficult for delivering future progress.

A number of areas for improvement have been identified; namely:

- Identifying further opportunities for renewable energy
- Progressing the green travel plan
- Further savings from rationalising stock and improving energy efficiency in the ongoing maintenance.
- Encouraging the occupants of the buildings to save energy by switching off lights and computers when not in use.
- Including energy efficiency in any new contract for contracted out services