

**Daventry District Council**  
**2019/20 Greenhouse Gas Emissions Report**



Date Last Revised: September 2020

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# 1. Introduction

## 1.1 Aims and Purpose

This report was initially produced to comply with the Government's request that local councils measure and report greenhouse gas emissions from their own estate and operations. However, the Department for Energy and Climate Change (DECC) was abolished in 2016 and merged into a newly formed Department for Business, Energy and Industrial Strategy (BEIS) and subsequently the requirement to provide a greenhouse gas report was no longer deemed mandatory for local authorities. It has been decided that reporting of emissions will continue for consistency and internal reporting requirements.

Over the last twelve months awareness of the climate crisis has risen and Government have responded to recent lobbying and research by the Committee for Climate Change by setting a net zero emissions target by 2050. This has been enshrined into law through an amendment to the Climate Change Act and the UK Government declared a 'Climate Emergency'. Daventry District Council has had a longstanding commitment to environmental improvement and declared a Climate Emergency in February 2020. This report will analyse the 2019/20 emissions from council activities and propose an emissions reduction target for 2020/21 ahead of a longer term strategy and target being created for West Northamptonshire Council.

This report has been structured in line with Defra's 'Guidance on how to measure and report your greenhouse gas emissions'.

## 1.2 Organisation Information

Daventry District Council is a small rural council employing approximately 192 FTE staff members. The main offices at Lodge Road are located in Daventry and the council is responsible for a number of other buildings including the Leisure Centre, currently outsourced to 'Everyone Active' and the Abbey Advice and Resource Centre, which has recently undergone a refurbishment and now houses the Library Service as well as a number of community sector advice services.

## 1.3 Environmental Services Contract (ESC)

Up to June 2018 the environmental services were managed by Amey on behalf of Daventry District Council. The activity data for the final year of this contract (2017/18) was not received. It was outlined in the report for that financial year that the only comparable data was scope 1 and scope 2 due to the missing data for scope 3 (see 1.4 below).

The ESC is now managed through a joint venture between the council and Daventry Norse which has been in place since June 2018. This report provides the first full year data from the operations carried out by Daventry Norse.

## 1.4 Types of Emissions – Scopes

The Government has identified three types of emissions, referred to as Scopes 1, 2 and 3 - these categorise emissions into three different types as follows.

**Scope 1 - Direct emissions.** These emissions relate to activities that are owned or controlled by the organisation and involve the release of emissions straight into the atmosphere. Examples include combustion emissions from gas boilers in council buildings and emissions from council owned vehicles.

**Scope 2 - Energy indirect emissions.** These emissions are associated with the consumption of purchased electricity, heat, steam and cooling. These emissions arise as a consequence of the organisation's activities but are not owned or controlled by them as they are released at power stations where the electricity is generated.

**Scope 3 - Other indirect emissions.** These are emissions that are a consequence of the organisation's actions that occur at sources that are not directly owned or controlled. Examples for the council include outsourced activities, business travel by staff using their own vehicles and at work air and rail travel.

## 1.5 Data to be reported

It is best practice that organisations report on Scope 1 and 2 emissions with the reporting of Scope 3 emissions being discretionary. This report includes Scope 1, 2 and some Scope 3 emissions.

## 1.6 Reporting Period

The reporting period is for the financial years from 2008/09 through to 2019/20.

## 2. Measuring and Reporting Approach

A number of gases contribute to climate change and six main greenhouse gases (GHGs) are covered in the Kyoto Protocol: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), hydrofluorocarbons (HFCs), nitrous oxide (N<sub>2</sub>O), perfluorocarbons (PFCs) and sulphur hexafluoride (SF<sub>6</sub>)<sup>19</sup>. Different activities emit different gases; for example, burning fossil fuels releases carbon dioxide, methane and nitrous oxide into the atmosphere.

It is standard practice to report GHGs in tonnes of CO<sub>2</sub> equivalents (CO<sub>2</sub>e). In order to achieve this, conversion factors are used that are located on the BEIS website along with guidance in the document 'Environmental Reporting Guidelines' which is available online.

Conversion factors help companies convert their activities into equivalent carbon emissions. The conversion factors change annually taking into account a number of influences including fuel mix, consumption from UK power generation along with imports and exports in relation to gas and electricity. With regards to petrol, factors such as bioethanol mix is taken into consideration but there are a huge number of other influences.

It is best practice to use the conversion factors from the calendar year in which the greatest portion of your data falls, this report for April 2019 – March 2020 has therefore used the 2019 factors.

The emissions are calculated as follows:

$$\text{Activity Data} \times \text{Emission Factor} = \text{Carbon dioxide equivalent (CO}_2\text{e)}$$

## 3. Organisational Boundary

All areas of the council's operations have been considered.

## 4. Operational Scopes

The Scope 1 emissions include the gas emissions from the council's buildings, council owned vehicles and all business lease vehicles such as Environmental Health vans/pool cars. Fugitive emissions relating to air conditioning and refrigeration units have been excluded.

The Scope 2 emissions are those associated with the mains electricity consumption from the council's buildings.

The Scope 3 emissions include the gas and electricity consumption from outsourced activities, the business mileage from private and leaseholder vehicle use, in addition to rail, bus and air travel where appropriate. Buildings that are managed by outsourced contracts are also included where the contractor is responsible for bill payments. Data on refuse and recycling trucks, road sweepers, grounds maintenance mowers and vans used by Daventry Norse for the environmental services contract are also included. Emissions from commuter travel have been excluded.

## 5. Base Year

The carbon footprint baseline year is currently 2008/09. There have been a number of operational changes since this time. The aforementioned BEIS guidance suggests a re-baselining where there has been a significant structural change such as the insourcing or outsourcing of relevant activities. Given the impending organisational changes in 2021, it is expected that a new baseline year will be established for West Northamptonshire Council.

## 6. Carbon Management Progress

The council is committed to reducing its carbon emissions and recognises that this not only minimises the impact on climate change but also reduces the operating costs of the council. Given that the price of electricity, gas and vehicle fuel continues to rise, efficiencies are needed to prevent existing costs rising.

The Carbon Management Plan adopted by Daventry District Council in 2010 identified a number of actions to reduce energy use and carbon emissions in relation to its operations and most of these have successfully been pursued to conclusion. A 31% reduction in carbon emissions was achieved by the end of the 2016/17 year against a 2008/09 baseline which met the overall aim of the Carbon Management Plan. Ongoing emission levels have continued to be reported on annually. In light of the recent political awareness on climate change and the transition to net zero it is expected that reporting on greenhouse gas emissions will again become mandatory for local government.

Key areas of progress in carbon reduction over the years are listed below.

- Construction of new low carbon business unit development in Prospect Way, Daventry.
- Construction of “green” community buildings, including the 2<sup>nd</sup> Daventry Scout Hall, Daventry and the Brass Band Hall, Daventry.
- Project partner in construction of low carbon innovation centre for Sustainable Construction (iCon).
- Centralised copier and printers also set to duplex and black and white printing by default.
- Setting carbon emission limits on vehicle choice as part of the staff lease car scheme.
- Implementation of outdoor covered bicycle storage and purchase of a satellite navigation system.
- Taking part in the voluntary Local Government Information Unit’s ‘Carbon Trading Councils: In Practice’ scheme to raise awareness of internal energy efficiency opportunities.
- Installation of a new energy efficient gas boiler at the main offices.
- Internal recycling and waste reduction improvements including office food waste collections.
- Use of low wattage bulbs in the council chamber.
- LED lighting at the outside of the main council offices.
- Employee engagement on ‘greener workforce’ activities including incentivising switch off activities, green travel to work and recycling activities.
- Server virtualisation project has been implemented to remove three physical servers.
- Replacement of 136 lights with new LED lighting at The Abbey.
- Calorex heat pump ventilation unit refurbished at the Leisure Centre.
- Liquid pool cover trialled at the Leisure Centre to reduce evaporation.
- Installation of Solar PV Arrays (total 96kWp) on the Council’s three main buildings; Lodge Road, The Abbey and the Leisure Centre.
- Installation of two electric vehicle charge-points at the Lodge Road car park for public use and a further chargepoint for council vehicles.
- Double-glazing fitted to the committee meeting rooms and office on the ground floor.
- Variable speed drive and energy efficient lighting improvements at the Leisure Centre.
- Thermostatic radiator valves replaced at Lodge Road.
- LED lighting installed in the council Chamber and Committee Rooms.
- Light sensors in some meeting rooms and office areas
- Pure electric and petrol hybrid pool cars in place for casual employee mileage at work.

## 7. Greenhouse Gas Emissions

The table below summarises the Greenhouse Gas Emissions the council has been responsible for, split into scopes 1, 2 and 3 for the years 2008/9 (baseline year) to 2019/20.

Scope / Activity	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
	(base year)											
	Kg CO2e	Kg CO2e	Kg CO2e	Kg CO2e	Kg CO2e	Kg CO2e	Kg CO2e	Kg CO2e	Kg CO2e	Kg CO2e	Kg CO2e	Kg CO2e
<b>Scope 1</b>												
Gas Consumption	124,980	126,053	100,434	66,727	122,769	98,387	92,073	82,530	75,329	84,572	108,653	117,301
Lease Vehicles	10,086	9,099	8,753	9,309	20,879	20,033	18,472	15,788	18,104	16,200	16,338	14,643
Environmental Health Vans	36,046	48,673	13,279	6,791	9,527	9,374	9,596	4,209	4,492	2,831	4,301	4,974
<i>Total (Scope 1)</i>	1,159,580	1,084,115	1,203,797	918,858	153,175	127,793	120,142	102,526	97,925	103,603	129,293	136,918
<b>Scope 2</b>												
Purchased electricity	461,609	404,554	372,403	355,311	299,644	268,933	293,680	252,340	228,204	176,289	187,069	163,870
<i>Total (Scope 2)</i>	461,609	404,554	372,403	355,311	299,644	268,933	293,680	252,340	228,204	176,289	187,069	163,870
Total Scope 1 and Scope 2) excluding outsourced	596,674	539,706	481,590	431,347	443,293	387,353	404,226	350,658	321,636	279,892	316,362	300,789
<b>Scope 3</b>												
Refuse and Recycling Trucks including Road Sweepers	Previously reported under Scope 1				734,897	544,066	513,537	640,541	425,053	Not available	654,589	616,840
Grounds maintenance mowers	Previously reported under Scope 1				49,590	65,375	34,629	56,802	24,236	Not available	161,885	138,214
Gas and electricity from outsourced buildings	810,438	795,457	766,315	1,044,938	1,054,088	1,010,572	1,055,369	822,137	926,241	811,268	723,665	760,483
Business travel from greyfleet (staff own vehicles)	78,359	97,037	113,685	34,076	21,626	24,228	18,763	19,603	17,847	20,478	18,745	18,252
Rail travel	258	257	173	61	155	54	49	544	562	551	521	485
Air travel	555	0	252	0	72	0	0	0	0	0	0	0
<i>Total (Scope 3)</i>	889,610	892,751	880,594	1,079,075	1,860,427	1,644,295	1,622,348	1,539,627	1,393,939	832,297	1,559,405	1,534,275
<b>Total Gross Emissions (kg)</b>	2,510,798	2,381,420	2,456,794	2,353,245	2,313,247	2,041,022	2,036,170	1,894,494	1,720,068	1,112,189	1,875,767	1,835,064
<b>Total Gross Emissions (t)</b>	2,511	2,381	2,457	2,353	2,313	2,041	2,036	1,894	1,720	1,112	1,876	1,835

Figure 1

## 7.1 Scope 1 emissions

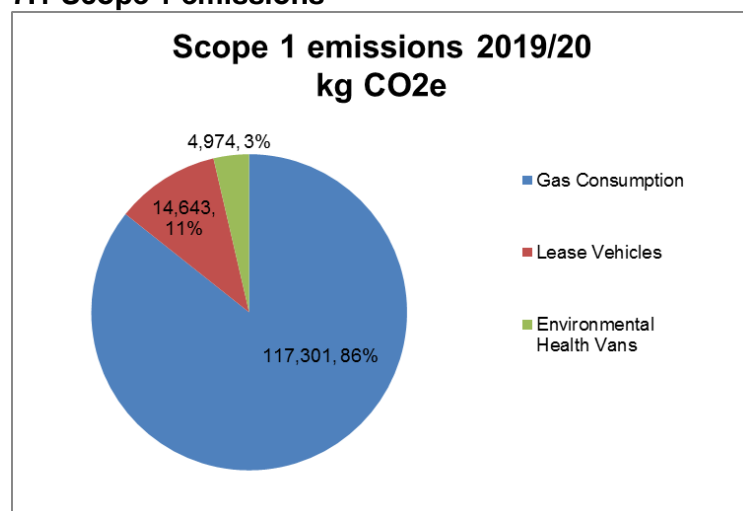


Figure 2

As can be seen in Figure 2, 86% of Scope 1 emissions result from the gas consumption at Lodge Road and The Abbey. For the second consecutive year there has been a significant increase in total gas usage at Lodge Road but gas usage at The Abbey has fallen slightly. The boilers at Lodge Road are old and inefficient, the building management system (BMS) is also out dated meaning room temperatures for heating and air conditioning are controlled in individual office spaces rather than centrally. This can lead to excessive use of the heating and air conditioning systems. The Facilities Management team are investigating costings for an upgrade to the BMS to improve efficiency and reduce operational costs.

There has been a small increase in mileage from lease vehicles compared to the previous year but this is to be expected with increased meetings for the Future Northants programme. Despite the increase, emissions are in fact lower due to a correction in the formula compared to that used in previous years. A large proportion of lease vehicles are also hybrid helping to reduce emissions compared to staff owned vehicles which the council has no control over.

The vans used internally by DDC to provide the environmental health service have been differentiated as 'other vans' in scope 1 emissions, these have seen an increase in emissions since the electric van was replaced with a small petrol van. This was due to the battery in the electric van degrading making it difficult to complete the mileage required. The conversion factor for vans is only available in km not miles so the annual mileage has been converted to km to result in the correct emissions which has not been done in previous years. Despite the annual mileage being lower than last year, the emissions are therefore higher due to the data being converted to km which is a larger unit. The small increase in emissions is evident in the GHG summary table (Figure 1) but the mileage data in Figure 3 below shows the reduction in miles driven compared to the previous year.

The total Scope 1 emissions have increased compared to last year mainly due to the aforementioned increased gas consumption. Total percentage change for Scope 1 emissions since baseline is 80%, mainly due to the transfer of some services to Scope 3.

Figure 3 below shows the total activity data since baseline for the three areas of Scope 1 emissions with the activities which have moved to Scope 3 excluded to enable a more accurate annual comparison.

Scope 1 Direct emissions	Year	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Gas (kWh)		680,720	680,593	542,270	360,279	662,866	535,700	497,765	447,315	409,396	459,630	590,635	638,023
Lease vehicles (miles)		34,633	31,843	30,634	32,578	73,071	71,232	64,775	55,863	63,408	57,916	58,504	60,177
Other vans (miles)		144,416	196,918	53,725	27,474	38,542	37,923	35,698	15,719	15,788	10,271	20,428	17,155
CO2e (kg)		171,112	183,824	122,466	82,827	153,175	127,793	120,142	102,526	97,925	103,603	129,293	136,918

Figure 3

## 7.2 Scope 2 emissions

Scope 2 emissions are solely those released into the atmosphere that are associated with the consumption of purchased (mains) electricity.

Figure 4 below shows the gradual decline in emissions from electricity since the baseline year whilst Figure 5 shows the consumption rates of electricity and the associated emissions.

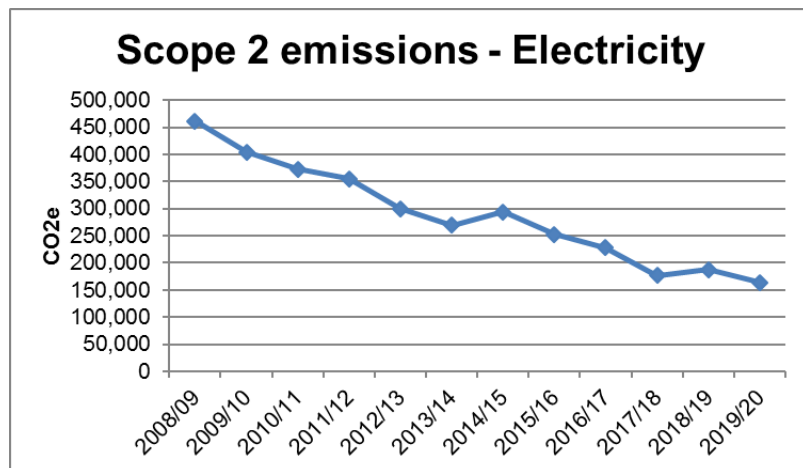


Figure 4

Year	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Electricity (kWh)	948,427	889,399	809,537	786,000	619,932	198,782	594,182	545,967	553,825	501,448	660,859	641,121
CO2e (kg)	461,609	404,554	372,403	355,311	299,644	268,933	293,680	252,340	228,204	176,289	187,069	163,870

Figure 5

As the UK grid decarbonises through the increased transition to renewable electricity, the conversion factors for electricity into carbon emissions continue to decrease. There was an increase of <1000kwh of electricity usage at Lodge Road and a significant decrease at the Abbey over the course of this year. This decrease in usage combined with the lower conversion factor have helped to reduce Scope 2 emissions this year. It is also of importance to note that both buildings have solar panels which over the course of the year generated a combined total of 68,705 kWh of additional electricity to that utilised from the grid. It is a fair assumption based on the usage of these buildings that all electricity generated is utilised within the buildings. This renewable energy generation helps to reduce the reliance on the grid and the Council's scope 2 carbon emissions.

Other buildings included in this category are New Street toilets, Reservoir cottage at Daventry Country Park, Street lighting and the Undercroft car park. With the exception of the previous year, electricity consumption is still much lower than earlier years although there are still ways we can improve this, particularly at the larger buildings. The Leisure Centre and Sports Park buildings are the responsibility of Everyone Active and are reported under the Scope 3 emissions.

Total Scope 2 emissions have reduced compared to last year despite usage at some buildings being higher, this is as a result of the increased renewable electricity provided by the grid and the subsequent reduced conversion factor. Total percentage change for scope 2 emissions against baseline is a decrease of 65%.

## 7.3 Combined Scope 1 and 2 emissions



There has been a large decrease in total emissions from Scope 1 and Scope 2, excluding outsourced activities, since the baseline year. Despite the increase in Scope 1 emissions, the reduced electricity usage and continued decarbonisation of the grid over the last year has helped to reduce combined Scope 1 and 2 emissions by 5% compared to the previous year.

The vast majority of the combined Scope 1 and 2 emissions are the gas and electricity from buildings. The Lodge Road offices and the Abbey are the two main properties making up the largest proportion of emissions so the graphs below have been produced to show the variations in consumption of these two resources over the last two years.

At Lodge Road, the electricity usage is consistent with the previous year as can be seen in Figure 6, with an increase in demand of only 1,279 kWh across the year. Gas usage at Lodge Road follows the same seasonal pattern of the previous year as seen in Figure 7 with a higher usage in the months of November, December, February and March resulting in an increased demand of 48,697 kWh across this year.

During 2019 the Abbey Centre underwent a refurbishment and now houses Daventry Library. As a result of the refurbishment some efficiency savings will have been achieved helping to reduce annual electricity consumption from 93,924 kWh in 2018/19 to 78,174 kWh in 2019/20. The gas usage at the Abbey follows the same seasonal fluctuation as Lodge Road and there was a minute reduction in gas usage over the year.

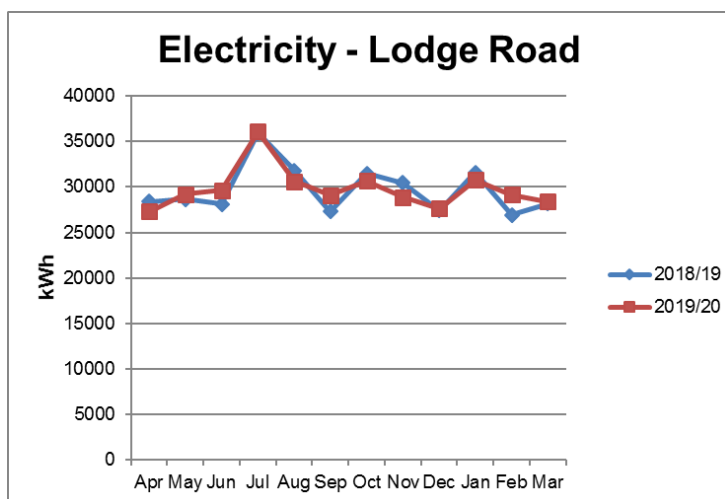


Figure 6

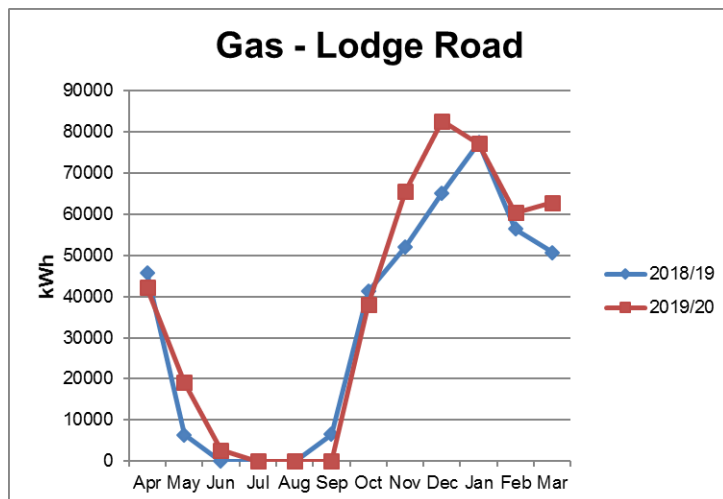


Figure 7

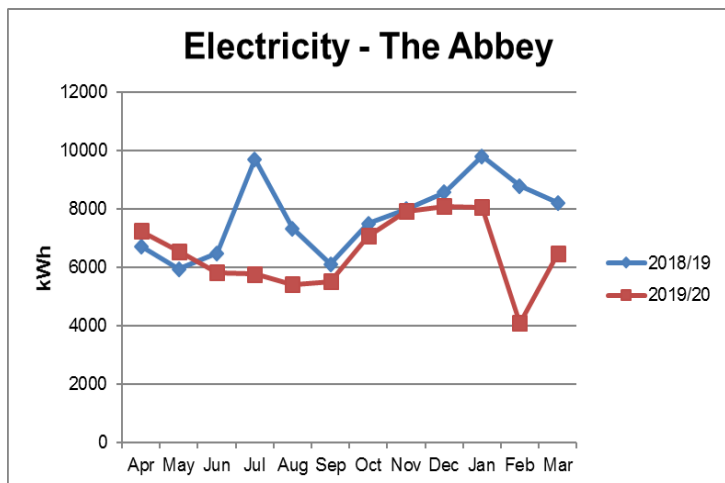


Figure 8

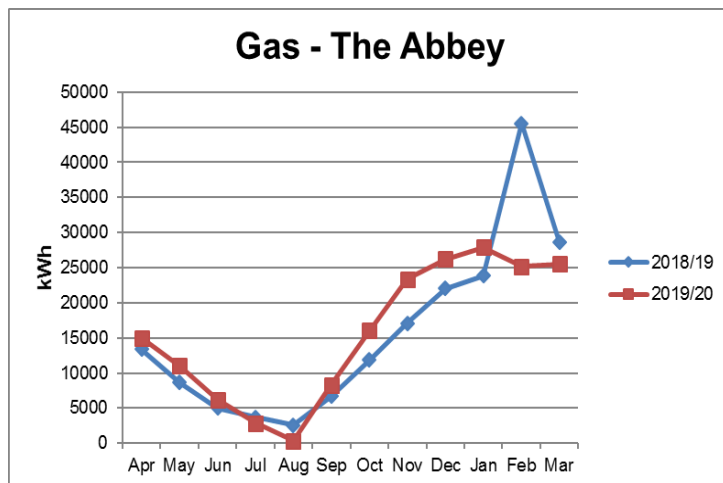


Figure 9

## 7.4 Scope 3 emissions

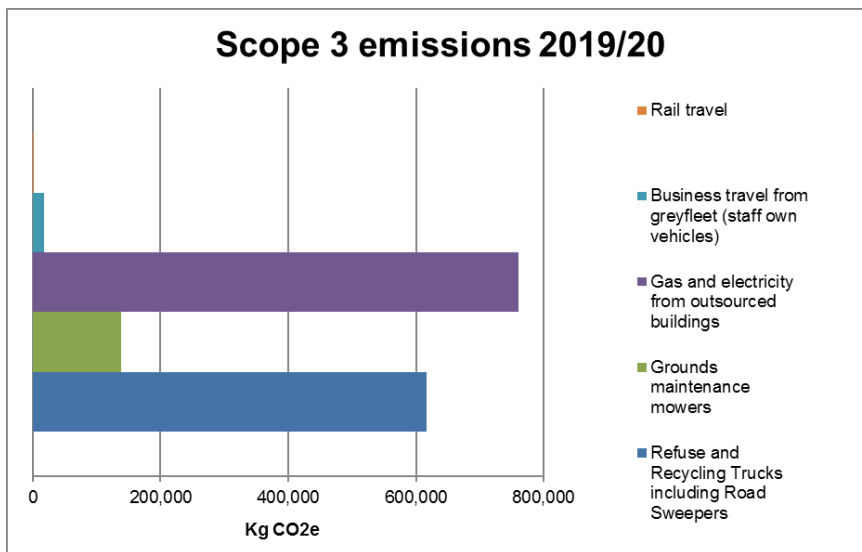


Figure 10

Since the outsourcing of some activities in 2011, overall emissions from Scope 3 have increased due to the inclusion of activities previously reported under Scope 1. This has since resulted in Scope 3 emissions being the largest category of emissions from all council activities.

As alluded to in the report for the 2018/19 emissions, during the first year of the Daventry Norse partnership, household waste was being transported to facilities further afield than Daventry. The expected reduction in miles and associated emissions has been achieved during 2019/20 since the waste transfer station in Daventry has been operational. This, along with better planned scheduling of work, has helped to achieve a 5% reduction in both fuel usage and emissions from the refuse and recycling trucks. The data from Norse for grounds maintenance includes fuel usage for vehicles used on streets, grounds, plant and machinery. There has also been a 14% reduction in fuel usage and emissions in this category compared to last year due to improved efficiencies when planning work.

Due to the decline in fuel usage from refuse trucks over this year, emissions from gas and electricity from outsourced buildings is the largest Scope 3 emission category for 2019/20. With Daventry Leisure Centre being closed due to the Covid-19 pandemic and staff on furlough, gas and electricity usage data for the Leisure Centre and Sports Park have not been received. An average over the last two years has therefore been used to calculate estimated emissions for these buildings. When this outstanding data is received the report will be updated to reflect actual usage. It should be noted that usage is unlikely to have a significant impact on this calculation.

Emissions from grey fleet vehicles are those from employee's own vehicles, details of which are obtained through casual mileage claims. There has been a decrease of 3,500 miles claimed compared to the previous year which has achieved a small reduction in emissions from grey fleet vehicles. This mileage reduction may partly be attributed to the introduction of the VW e-Golf pool car with an improved range compared to the previous vehicle giving employees the confidence to complete more business mileage in this vehicle rather than their own. The e-Golf was driven 5,200 miles in the ten months it was in use during 2019/20 which is over 1,000 miles more than the annual mileage of the Nissan Leaf.

Total Scope 3 emissions have reduced from the previous year saving a total of 25 tCO2e.

## 7.5 Total Emissions

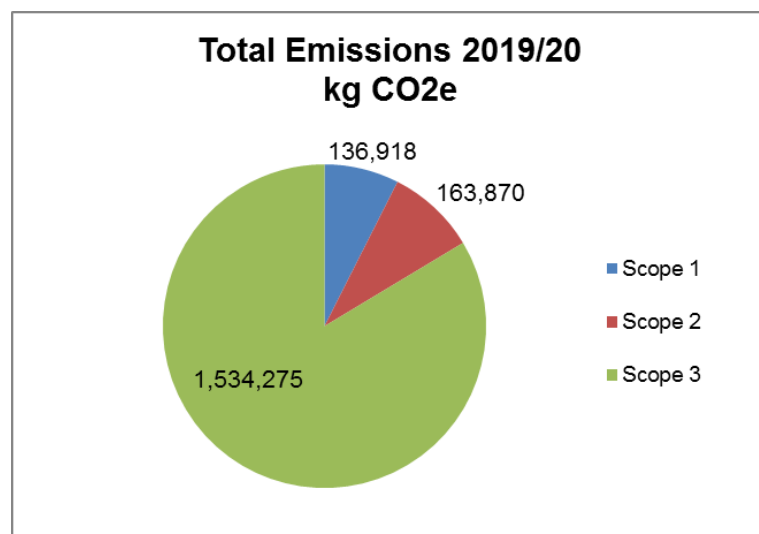


Figure 11

The graph above shows the breakdown of the total emissions from DDC by scope category for 2019/20. This clearly demonstrates that over 80% of emissions are created by activities which are a consequence of the council's operations yet they occur at sources not directly controlled by the council.

The total emissions for 2019/20 equates to 1,835 tCO<sub>2</sub>e which is a decrease of 41 tonnes compared to the previous year. Despite the increase in Scope 1 emissions there was a decrease in Scope 2 and Scope 3 emissions which resulted in the overall reduction. The difference between total emissions for 2019/20 against baseline is a reduction of 27%. This confirms the cumulative reduction in emissions was achieved in 2019/20.

## 8. Reduction Targets

The council is guided by the following targets/commitments.

- National Target - Net zero carbon emissions by 2050 (against a 1990 baseline).
- Adopt the aims of the Northamptonshire Climate Change Strategy 2017-2020
- Achieve an annual cumulative reduction in CO<sub>2</sub> emissions from DDC operations

As the council transitions to West Northamptonshire Council along with Northampton Borough Council, South Northamptonshire Council and Northamptonshire County Council, there will be an expectation to set long term targets towards net zero. It is a sensible approach that these targets are set after the new council is formed so that a realistic long-term target for the local authority's own emissions and possibly for the local authority area can be set.

Over the last year as a district council, Daventry will aim to reduce Scope 1 and Scope 2 emissions against the previous year by 10% respectively. As activities in Scope 3 and the associated emissions are not in our direct control, a 5% reduction will be aimed for but priorities will be focused on other areas for the unitary authority.

## 9. Summary

The council has made significant progress in reducing carbon emissions since the baseline year of 2008/09 due to a number of initiatives outlined in this report. The monitoring of emissions from the council's activities

has continued to be a priority as progress is monitored through the annual environmental goals with a commitment to reduce emissions annually. This reduction in local authority emissions is of heightened importance now that the council has declared a Climate Emergency and is transitioning to a unitary authority with a wider emissions impact.

Over the last year, a reduction in Scope 2 and 3 emissions has helped to achieve the overall reduction compared to the previous year. The council will look to try and reduce energy demand during 2020/21 at the main council offices and is exploring ways of doing this over this last year as a district council.

As outlined throughout this report, there is an opportunity to set a net zero emissions target in line with the national target which has been replicated across Local Government. However, the impending change to a unitary authority by April 2021 means a long term trajectory to net zero will need to be determined for the new authority. The continuous monitoring of the DDC's greenhouse gas emissions will help form part of the analysis needed to determine an achievable long-term target for West Northamptonshire Council to work towards net zero.