Greenhouse Gas (GHG) Emissions Report
April 2020 to March 2021

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Introduction

This report provides a comprehensive carbon footprint for Babergh and Mid Suffok District Councils' operations in 2020/21. It provides detail on the trajectory of Greenhouse Gas (GHG) emissions since the establishment of a baseline in 2018/19 and provides supporting information for policy making and action planning to enable the Councils to respond to the declaration of a Climate Emergency and the commitment to be carbon neutral by 2030.

This report uses as its baseline the 'Greenhouse Gas Emissions Report – 2018/19 Financial Year' as this was the first comprehensive GHG report the Councils prepared. The report measures progress in terms of carbon emissions against the baseline and provides a trajectory which will need to be met to achieve the Councils' aim of being carbon neutral by 2030.

Methodology

The methodology in this report follows:

- HM Government, Environmental Reporting Guidelines: Including streamlined energy and carbon reporting guidance, March 2019 (Updated Introduction and Chapters 1 and 2).
- WRI / WBSCD - The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition), March 2004.
- WRI / WBSCD - The Greenhouse Gas Protocol: Scope 2 Guidance, An amendment to the GHG Protocol Corporate Standard, 2015.
- UK Government Conversion Factors for Company Reporting (2021) - DBEIS / DEFRA

Each activity that the Councils operate has been assessed for its direct and indirect energy use. The electricity and gas use of buildings, direct fuel use in Council-owned vehicles and mileage in private vehicles whilst undertaking Council operations have been assessed. Standard

conversion factors have been used to assess the carbon footprint of each activity and building. The conversion factors are published by DEFRA on an annual basis and reflect the carbon intensity of a range of carbon sources.

The report is based on emissions of the 'basket of six' GHGs as defined by the Kyoto Protocol and include: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), F-gases (hydrofluorocarbons and perfluorocarbons) and sulphur hexafluoride (SF_6). All values are given as CO_2 equivalent (CO_2e), which is a measure of the range of GHG as measured against the warming potential of CO_2. This is standard practice and better reflects the climate impact of the Councils' emissions. Electricity procured on behalf of Babergh and Mid Suffolk District Councils is on the EDF 'Blue tariff', which is regarded as a low carbon nuclear energy source. However, it is not permitted to report this energy source as low carbon as the generation certificates associated with the source of electricity are held by the generator and therefore the standard conversion factor of UK Grid Electricity has been used in the calculation of GHG emissions.

The electricity supplies for the four leisure centres were moved to an EDF Renewable Energy Guarantees of Origin (REGO) backed electricity supply in March 2021, however it remains contentious whether this consumption is allowed to be reported as zero carbon under the 'market based' approach. The 'grid average' emissions factor, which is applied to all electricity the Councils use, incorporates emissions derived from low carbon energy generation across the UK, therefore by reporting REGO-backed electricity, potentially from the same renewable sources, may lead to double counting. This is currently under review by the UK Government and therefore for the purposes of this report, a record of the REGO-backed CO_2e emissions will be included in the footprint under the title 'green tariffs', however this total will not be deducted from the overall footprint.

Organisational Boundary and Scopes

The GHG Protocol advises that in setting organisational boundaries, an organisation should select an approach for consolidating GHG emissions and then consistently apply the selected approach to define those business activities and operations that constitute the organisation for the purpose of accounting and reporting GHG emissions. A 'control approach' has been used to consolidate the Councils' GHG emissions i.e., all GHG emissions from operations over which the Councils have control. GHG emissions from operations in which the Councils have an interest but have no control have not been included. Control can be defined in either financial or operational terms.

The organisational boundary has been taken to be those emissions from the Councils' headquarters, touchdown points, leisure centres, streetlighting operated by the Councils, vehicles owned by the Councils, third parties delivering Council services, and internal Council policies that result in emissions of GHG.

An example of what has not been included in the organisational boundary would be emissions related to the disposal, treatment or sorting of waste from the point of transfer from the refuse collection vehicles to the waste handler.

The personal commuting miles of staff to Endeavour House or other offices have been excluded as these are not within the organisational boundary. Mileage incurred by councillors attending Endeavour House on Council business may be claimed as expenses under standard HMRC rules and so the resulting emissions are within the organisational boundary.

To help delineate direct and indirect emission sources, improve transparency, and provide utility for different types of organisations, three "scopes" (Scope 1, Scope 2, and Scope 3) are defined by the GHG Protocol for accounting and reporting purposes:

Scope	
1	These are emissions from fuels that the Councils directly consume e.g., gas, diesel, and petrol in the direct delivery of Council business by Council employees.
2	These are indirect emissions such as electricity use in Council premises.
3	These are emissions derived from third party contractors providing services on behalf of the Councils.

Table 1.1 – Definitions of scopes included within the organisational boundary

There is some discretion within the Protocol on what to include in each scope, for example where information is not recorded, where third party data is unavailable, or where the accuracy of data cannot be relied upon. The following have not been included for such reasons:

- The impact of the Councils' supply chains. Only those services that are delivered directly by the Councils or through third party suppliers on the Councils' behalf have been assessed.
- Contracts where the impact would be regarded as minimal e.g., the collection of a small number of abandoned vehicles by third party service providers.
- Non-carbon GHG emissions associated with the air conditioning within Endeavour House.
- The energy use of staff working in their own homes as this would add a degree of uncertainty and imprecision that would be unhelpful.
- Embedded carbon resulting from water use.

Scope Change

In March 2021, the responsibility for payment of electricity and gas invoices was transferred from the two leisure centre contractors (Everyone Active and Abbeycroft Leisure) to the Councils. As the Councils are now directly responsible for paying the energy invoices at these sites the associated emissions have been transferred from Scope 3 to Scope 2. It should be noted that this will not affect the overall carbon emissions figures.

Data Gaps

Scope 3 emissions from the contractors and the supply chain have not been included in this report, however the Councils are looking into the possibility of developing a standard reporting mechanism for all the Councils' suppliers/contractors to provide a more comprehensive report in the future.

Reliability of Data

Data has been verified as far as possible, but the reliability is nevertheless dependent on the data collection practices of third-party providers. It would therefore seem reasonable to assume an error margin of +/- 5% on all values within this report.

Re-basing of Reports

It was identified that the GHG Reports for 2018/19 and 2019/20 did not fully include the carbon emissions derived from electricity used by the leisure centres. The emissions factor for 'grid average' electricity was used to calculate the Scope 3 emissions, however there were no emission factors applied for the 'transmission of electricity'. This has been corrected and the revised figures are used in this report.

Results

To help provide context and scale when reading the results, it may be useful to understand that an average resident of our district is responsible for the emission of 6 tCO_2e per annum.

The total emissions attributable to the Councils' operations were 4,821.9 tCO_2e for the 2020/21 financial year.

The breakdown of emissions by scope are shown in Chart 1.1. Scope 1 emissions, arising from the use of gas in our buildings, heating oil in sheltered housing schemes and fuel used in Council-owned vehicles, accounted for 27.7% of overall emissions. Scope 2 emissions accounted for 10.7% of overall emissions and were largely derived from electricity use in buildings and sheltered housing schemes. 61.6% of emissions were derived from contracted services – the Serco waste contract and the two leisure centre contracts.

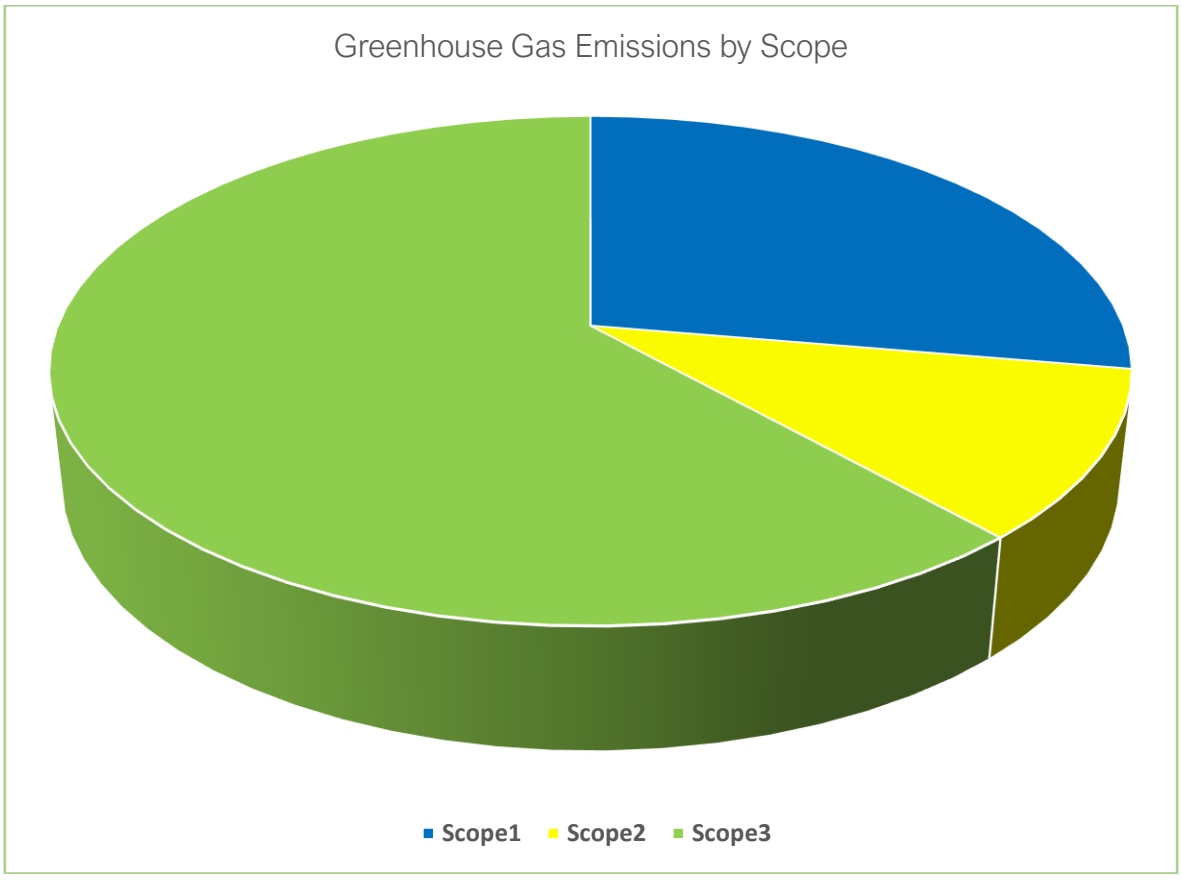

Chart 1.1 –Babergh and Mid Suffolk Council GHG emissions by scope

Table 1.2 (overleaf) provides a summary of Babergh and Mid Suffolk District Councils' GHG emissions by scope and includes the provision for reporting on carbon offsets and dual reporting on green (low carbon) tariffs.

Reporting period 2020/2021	Units	Consumption	Greenhouse Gas Emissions (tonnes CO_2e)
Scope 1			
Oil boilers[1]	Litres	141,475	40.4
Gas boilers	kWh	4,628,937	939.5
Diesel	Litres	136,672	343.4
Petrol	Litres	518	1.1
Gas Oil	Litres	4,373	12.1
Scope 2			
Premises electricity	kWh	2,212,485	469.8
Street/highways lighting	kWh	176,315	37.4
Leisure Centre Electricity	kWh	32,380	6.9
Scope 3			
Staff and member business travel[3]	Miles	267,116	73.7
3rd Part Contracted Diesel	Litres	645,035	1620.5
3rd Party Contracted Petrol	Litres	0	0.0
T and D premises electricity[4]	kWh	2,218,183	41.7
T and D Street/highways lighting electricity[4]	kWh	176,315	3.5
3rd Party Contracted Gas	kWh	4,090,853	830.3
3rd Party Contracted Electricity	kWh	1,735,120	401.6
Total Gross Emissions			4,821.9
Carbon offsets[5]			0.0
Green tariffs[6]		32,380	6.9
Total Net Emissions			4,821.9
Intensity measurements[7]			
Tonnes of CO_2e per resident			0.025

Table 1.2 – Summary of Babergh and Mid Suffolk Council GHG emissions

Data explanations (footnote references):

1. Oil and Gas: Not weather corrected compared to 2018/19 baseline year.
2. Fugitive Emissions: Emissions resulting for greenhouse gas emissions from air conditioning units are calculated on basis of an average 3% leakage rate.
3. Business travel: Staff and members' car and motorcycle journeys including staff owned and car club vehicles. Train and bus travel not included.
4. Transmission & Distribution of electricity: the carbon footprint of electricity consumption is split between Scope 2 and Scope 3, with the proportion of energy losses that occur in delivering the electricity from power plant to the organisations that purchase it being reported as Scope 3 rather than Scope 2.
5. Carbon offsets: We have reported on the contribution of on-site renewable energy generation that we consider as carbon offsets through our export of renewable energy to the national grid.
6. Green tariff: This includes carbon emissions which can be reported on as the Councils hold the generation certificates.
7. Intensity measurement: We are required to define a result using an 'intensity measurement', which is a ratio of GHG impact per unit of activity or other business metric. We have selected CO_2e emissions per resident.

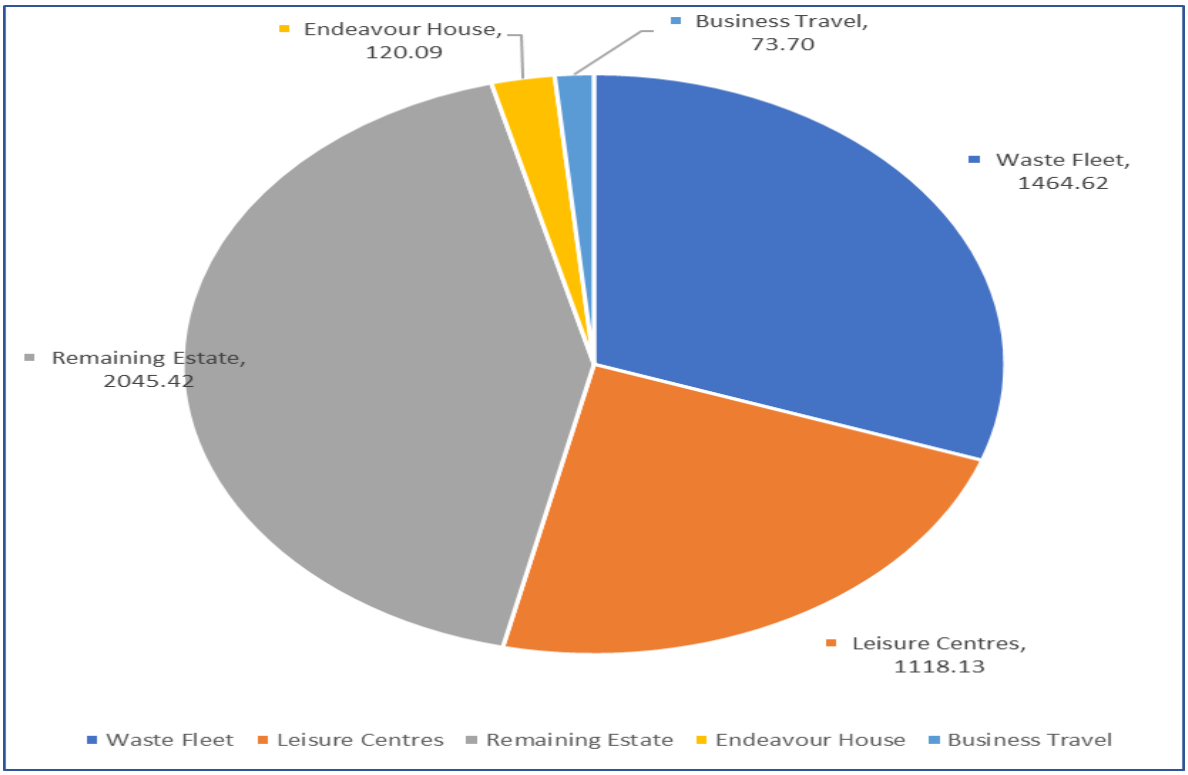

Chart 1.2 –Babergh and Mid Suffolk Council GHG emissions by sector

Waste and Refuse Collection

The largest source of emissions within the Council portfolio was the waste refuse collection service (including recycling) at 1,464.6 tCO_2e per annum, accounting for 30.3% of the total emissions.

The existing refuse vehicle fleet is due to be replaced in 2023 and an appraisal will be required to assess options for a low emission refuse vehicle fleet. It is likely that this will require a larger capital investment than a direct like-for-like replacement of the existing diesel vehicle fleet, although there would be significant savings on fuel costs. The necessary vehicle charging infrastructure would also require significant capital expenditure, which will need to be considered in an options appraisal.

The Councils have undertaken a review of the fuels used by the waster fleet for the purpose of finding alternative low carbon fuel source. As a result of the review the waste fleet started using Hydrotreated Vegetable Oil (HVO) from August 2021. This will result in a 90% reduction in associated carbon emissions and will be able to be reported on in next year's GHG report.

Leisure Centres

The second largest source of emissions was the four Council-owned leisure centres, which are operated by Abbeycroft Leisure and Everyone Active. Collectively these contributed 1,118.1 tCO_2e to the Councils' carbon footprint, or 23.2% of the total carbon emissions from Council activities, as shown in table 1.3 (below). In the previous two years the carbon emissions from the leisure centres accounted for over 30% of total emissions and were the single greatest source of emissions, however the effects of the Covid-19 pandemic with the associated lockdowns and closure of buildings, has seen the emissions form the leisure centres fall below that of the waste services which weren't significantly affected by the pandemic.

Source	Operator	GHG Emissions (tonnes CO_2e)
Kingfisher Leisure Centre, Sudbury	Abbeycroft Leisure	530.4
Hadleigh Leisure Centre	Abbeycroft Leisure	107.5
Mid Suffolk Leisure Centre, Stowmarket	Everyone Active	381.4
Stradbroke Leisure Centre	Everyone Active	98.8
Total		1,118.1

Table 1.3 – Summary of Babergh and Mid Suffolk Council Leisure Centre Emissions

Electricity and gas use in the Councils' leisure centres accounted for 327.6 tCO_2e and 790.6 tCO_2e, respectively. There is no gas grid supply for Stradbroke Leisure Centre and so the facility relies on the electricity supply. Electricity consumption in this building was higher than would be expected as all water heating is undertaken using electric immersion heaters.

Despite one of the Councils' leisure centres being off the gas network, 71% of the emissions from the leisure centres were derived from the use of gas. Most energy suppliers that offer it, guarantee to cover only 6-25% of their gas supplies from renewable sources, and so a simple switch to a green energy supplier to reduce the carbon footprint is unlikely to be feasible at this stage.

Babergh and Mid Suffolk District Councils actively procure energy for the leisure centres and have entered REGO-backed electricity contracts with EDF. These contracts will also be available to the Councils for all Council-owned property from April 2022. The Councils are also exploring their options with regards to procuring 'green tariffs' for the gas supplies.

Any further upgrade plans will be required to fully address and minimise energy use if the Councils are to achieve their ambitions of being carbon neutral by 2030. The current buildings, either in use or under construction, have a lifespan beyond 2030 and so will require significant investment in either upgrades and/or replacement plant, or offsetting elsewhere within the Council estate to account for these emissions.

Other Emissions

The remainder of the Councils' emissions (2,045.4 tCO_2e) were derived from all other activities and premises, with no other single source or activity contributing more than 3% to the total emissions – this will provide a challenge in the development of the carbon reduction plan owing to the relative lack of significant 'easy wins'.

The Council offices at Endeavour House accounted for 120.1 tCO_2e which equates to 2.5% of the Councils' total carbon emissions (this is based on the Councils' floorspace occupancy as a proportion of the whole building). It should be noted that this is an actual increase on the previous year despite the Council-occupied part of the building being unused for much of the assessment period due to the pandemic. It has been suggested that a reason for the increase in gas consumption during this period was due to an increase in the amount of required air changes by the air handling unit as a requirement under new Covid-19 estates regulations for air circulation.

The office at Endeavour House currently has a Display Energy Certificate rating of E, which is below the standard expected of a building of its size, age, and nature of occupation. As tenants, the Councils have no control over the heating, air conditioning and lighting of the space within the building beyond the decision to base the Councils within the building. The Councils also

currently have no say over which supplier to use with respect to low carbon energy suppliers – this is undertaken by Vertas on behalf of Suffolk County Council. As such, these emissions are reportable but outside of the Councils' direct control.

Council staff claimed travelling expenses for 265,750 miles in the 2020/21 financial year using private vehicles for undertaking council business. This accounted for 73.3 tCO_2e. Staff mileage has decreased by just under 50% since the previous year because of lockdown and the pandemic.

Councillors claimed travelling expenses for 1,030 miles in the 2020/21 financial year using private vehicles undertaking council business, which accounted for 0.3 tCO_2e of GHG emissions. Councillor mileage has decreased by 95% since the previous year because of lockdown and the pandemic.

Pool car use by Council staff and councillors during 2020/21 totalled 336 miles, which resulted in 0.1 tCO_2e. Pool vehicles, whilst currently underused, have a marginally lower carbon footprint per mile than the private "grey" fleet owing to the size of vehicle, the provision of electric vehicles and plug-in hybrid electric vehicles. The shift in the pool car fleet towards electric is likely to track ahead of the general fleet and as such the gap between the grey fleet and the pool cars is likely to grow – for example an electric vehicle has a 68% lower carbon footprint than the grey fleet. Pool cars are currently only accessible to those not in receipt of Essential Car User Allowance. Encouraging a shift to the use of pool cars should be considered with the acknowledgement that the use of private vehicles whilst undertaking tasks on behalf of the Councils is only a minor component of its carbon footprint. A shift to pool car use may also increase carbon emissions overall if staff are required to drive from the districts to Endeavour House to collect and return a pool vehicle.

Investment in a publicly accessible electric vehicle charging infrastructure is currently contributing to the Councils' carbon emissions either through direct electricity procurement or from host suppliers (e.g., Kingfisher Leisure Centre). The carbon emissions from the electric vehicle charging infrastructure are minimal, however it is expected to rise as the adoption of electric vehicles increases. The Councils are in the process of preparing a bid for partial grant funding of £400,000 from the Office of Zero Emission Vehicles to increase the provision of electric vehicle charging points at Council car parks.

The transition to carbon neutrality

Chart 1.3 depicts the trajectory from a 2018/19 baseline of 5,800 tCO2e to a carbon neutral target in 2030 and compares actual emissions against the trajectory. In 2019/20 carbon emissions rose to 5,820 tCO2e before falling 2020/21 to 4,821.9 tCO2e. This decline in emissions was significant enough to get the Councils back on track to meet the carbon neutral target and only narrowly missed the 2020/21 target of 4,749 tCO2e. However, the rate in decline is predominantly due to the Covid pandemic, which has resulted in a significant reduction in carbon emissions from the leisure centres and staff travel.

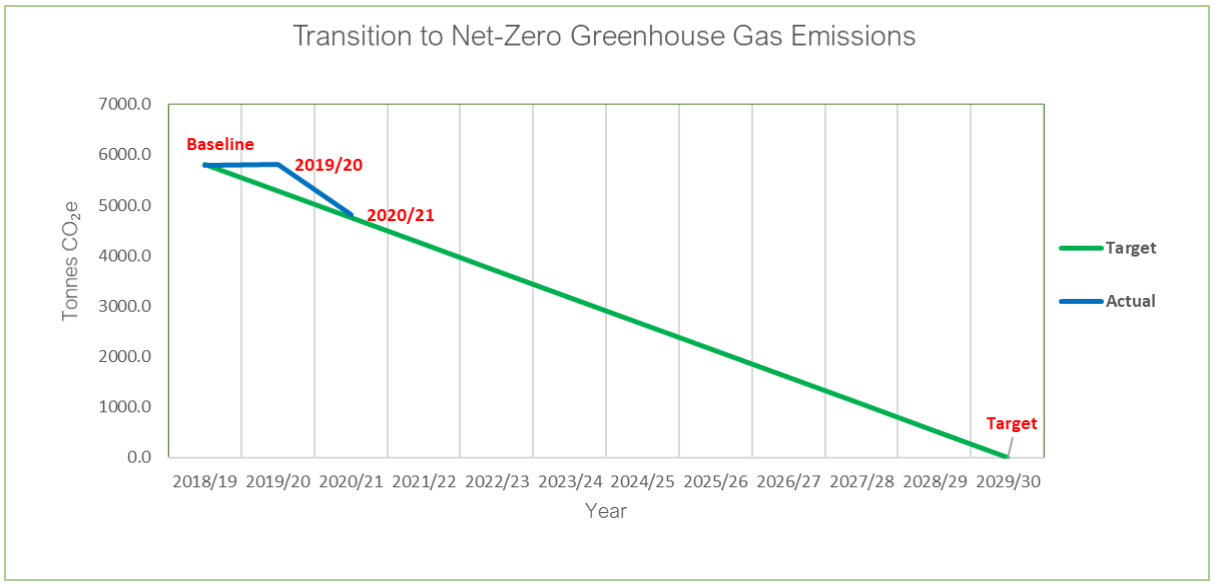

Chart 1.3 – Transition to carbon neutral GHG emissions

It will now prove to be very challenging to maintain this level of reduction as the economy begins to open up and activities return to a pre-pandemic level. Meeting the carbon neutral target by 2030 will rely on the successful implementation of the Councils' 'Carbon Reduction Management Plan'.

Renewable Technology

The Councils have invested significant sums of money installing approximately 5MWp of solar photovoltaic panels on around 2,000 Council-owned properties. Under the Government's standard reporting guidelines, the emissions saved are not reportable as an offset against wider Council emissions because they are claimed by the electricity companies as part of the purchase transaction.

Table 1.4 provides a summary of the electricity generated by the Councils' solar PV systems over the past three years and identifies the carbon emissions that have been saved during this period. Since 2018/19 the Councils have saved 3,040 tCO_2e, an average of 1,013 tCO_2e per year.

Solar PV Energy Generation						
Year	Authority	Fuel Type	Units	Generation	Conversion Factor	CO_2e (T)
2018/19	BDC	Electricity	kWh	2,404,821	0.25560	614.7
2018/19	MSDC	Electricity	kWh	2,091,746	0.25560	534.7
2019/20	BDC	Electricity	kWh	2,331,689	0.23314	543.6
2019/20	MSDC	Electricity	kWh	2,009,840	0.23314	468.6
2020/21	BDC	Electricity	kWh	2,242,679	0.21233	476.2
2020/21	MSDC	Electricity	kWh	1,893,176	0.21233	402.0

Table 1.4 – Summary of electricity generation and carbon emissions reductions from installed Solar PV

In February 2021 the Councils were awarded a £1.39 million grant from Phase 1 of the Public Sector Decarbonisation Scheme (PSDS) which provided £1 billion in grants as part of the Government's 'Plan for Jobs 2020' commitment to support the UK's economic recovery from Covid-19, supporting the low carbon and energy efficiency sector. The original bid was to install

solar PV on the four leisure centres and Wenham depot as well as install low carbon heating in the Mid Suffolk Leisure Centre. A design and feasibility study was carried out and identified the following projects would go ahead:

- 148.2 kW roof-mounted solar PV array at Hadleigh Leisure Centre.
- 40.6 kW roof-mounted solar PV array at Stradbroke Leisure Centre.
- 111.7 kW roof-mounted solar PV array at Kingfisher Leisure Centre.
- 195 kW roof-mounted solar PV array at Mid Suffolk Leisure Centre.
- 21.8 kW roof-mounted solar PV array at Wenham depot.
- Installation of an Air Source Heat Pump and Air Handling Unit at Mid Suffolk Leisure Centre.

The projects are all underway and are due to be completed in November 2021. The solar projects will generate an estimated 406,910 kWh/annum, saving 86.3 tCO_2e.