

Summary of greenhouse gas emissions in Gosport 2020

Introduction

The UK Government has passed into law targets to achieve at least a 78% reduction in greenhouse gas emissions from 1990 levels by 2035, and then to reach net-zero emissions by 2050. Local authorities have a role to play in achieving these reductions in emissions in their areas, to help the UK as a whole meet its targets. The Council's Climate Change Strategy therefore sets out an aspiration for the Borough to achieve net-zero emissions by 2050.

The Department for Business, Energy and Industrial Strategy (BEIS) publishes annual emissions estimates for each local authority area, which allow progress towards achieving carbon neutrality in Gosport to be tracked and can help to identify actions where the Council's actions could have the most impact. This report summarises the latest available figures, which cover emissions up to 2020. The full data set can be found at <https://www.gov.uk/government/statistics/uk-local-authority-and-regional-greenhouse-gas-emissions-national-statistics-2005-to-2020>.

Emissions included

Scopes

Emissions are classed into three scopes for reporting purposes. While the definitions of these scopes relate to emissions from organisations, they can be adapted to apply to emissions from a geographical area, as follows.

- Scope 1 emissions are those released within the area.
- Scope 2 emissions are those released when generating electricity and other energy used within the area, where the emissions from generating the energy occur outside the area.
- Scope 3 emissions cover all other emissions generated outside the area, to provide goods or services consumed or used within the area.

Omissions

Scope 3 emissions are not included in the BEIS estimates. While this avoids double counting (since one area's scope 3 emissions may also be another area's scope 1 and 2 emissions), and therefore allows the total of all local authority area emissions to be reconciled against UK emissions data, it means that the full emissions for which Gosport is responsible are not calculated.

Scope 1 and 2 emissions are included, with the following exceptions.

- Emissions from energy generation are only included as scope 2 emissions for the area using the energy, not as scope 1 emissions for the area generating the energy. This is also to avoid double counting, and has no impact on Gosport's emissions figures since there are no energy generation sources in Gosport that create emissions.
- Emissions from shipping and aviation (international and domestic, including military) are excluded. Scope 1 and 2 emissions from these sources are likely to be small.
- The BEIS data covers emissions of carbon dioxide, methane and nitrous oxide, which accounted for approximately 97% of the UK's total greenhouse gas emissions in 2020.

Alternative methodologies

An initiative funded by BEIS called SCATTER (Setting City Area Targets and Trajectories for Emissions Reductions) has developed an alternative methodology for estimating emissions. This methodology makes use of the BEIS data but supplements it with data from other sources to calculate some scope 1 and 2 emissions using alternative methodologies and to include some (but not all) scope 3 emissions.

However, there are significant disadvantages to using the SCATTER data. Firstly, it is less up to date than the BEIS data, with the latest available information covering 2019. Secondly, the SCATTER reporting tool only provides data for a single year, so it is not possible to analyse how emissions are changing and identify trends. While it would be possible to build up an archive of SCATTER data over time to achieve this, any changes to methodology would invalidate comparisons with previous years. This contrasts with the BEIS data, which provides emissions estimates from 2005 and for which all results for previous years are recalculated to account for methodology changes.

This report is therefore based on the BEIS data. Comparing the BEIS results for 2019 with those provided by SCATTER gives some indication of the scale of the omissions from the BEIS data. The 2019 emissions reported in the BEIS data are approximately 95% of the 2019 scope 1 and 2 emissions according to the SCATTER data, indicating that where different methodologies have been used by SCATTER, they result in slightly larger estimates of emissions. According to the SCATTER data, scope 1 and 2 emissions make up 77% of the total 2019 emissions. In combination, these two differences result in the total emissions according to the BEIS data being approximately 73% of the total according to the SCATTER data.

It should be noted that the SCATTER data also considerably underestimates the full emissions for which Gosport is responsible. While it includes some scope 3 emissions, those from industrial processes and agriculture are not covered. No detailed analyses of these are available but they are likely to be significant. For example, the total 2019 emissions using the SCATTER data equate to 3.63 tCO₂e per person, whereas the average UK carbon footprint taking into account all consumption has been estimated to be as high as 12.7 tCO₂e per person per year.¹

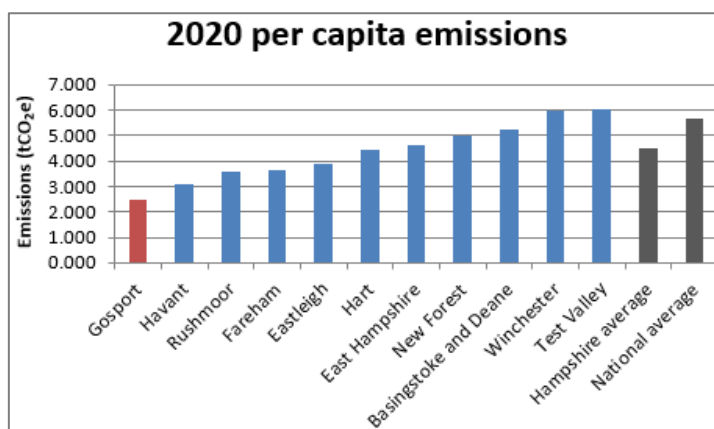
Results

Total emissions

The BEIS estimate of emissions in Gosport in 2020 is **208.370 ktCO₂e**, or **2.461 tCO₂e per capita**.

The per capita figure allows for comparison between local authorities, as shown below. However, this comparison should be treated with caution since scope 3 emissions are not included. This means that in an area such as Gosport with few large emissions sources, the per capita figure is significantly lower than for areas with large emissions sources from which Gosport residents would benefit. For example, the high emissions in Winchester and Test Valley are accounted for by the presence of large industrial sites, motorways and trunk roads.

¹ Source: <https://www.pawprint.eco/eco-blog/average-carbon-footprint-uk> [accessed 27/7/22]

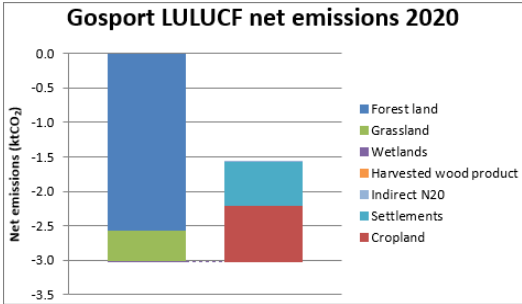
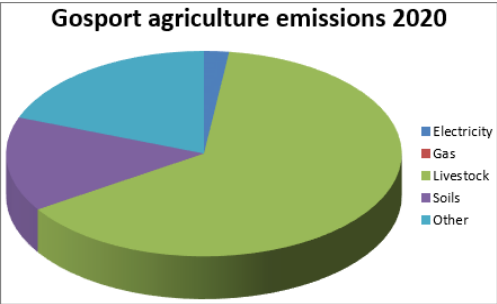
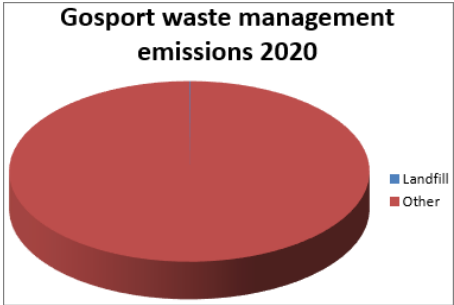
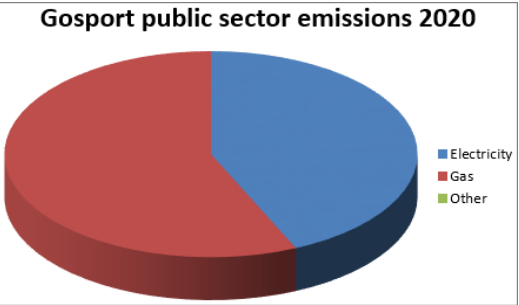
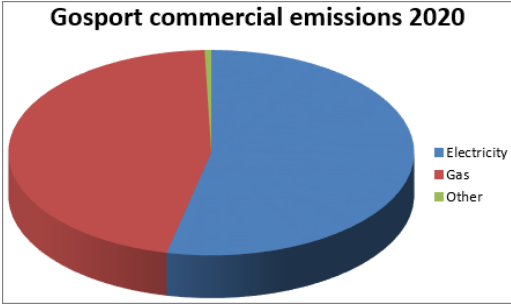
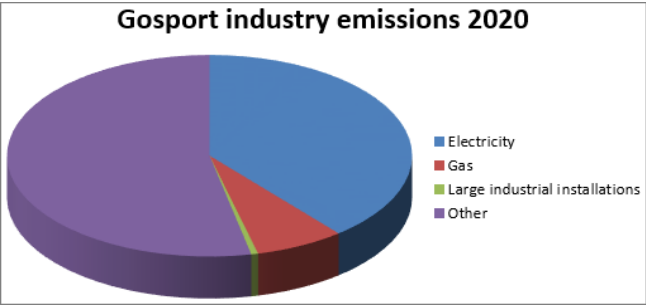
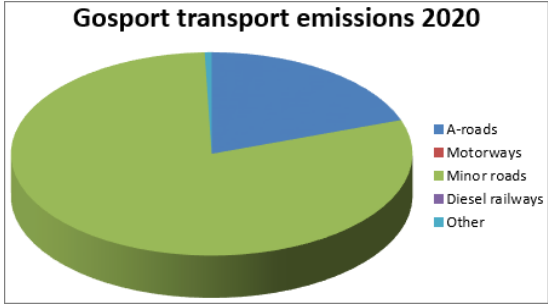
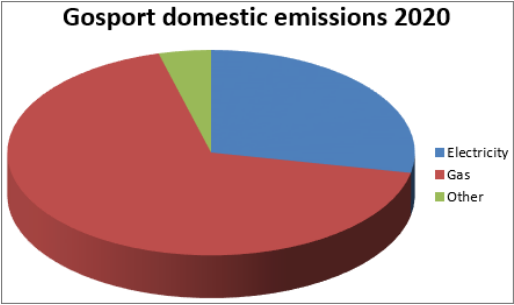
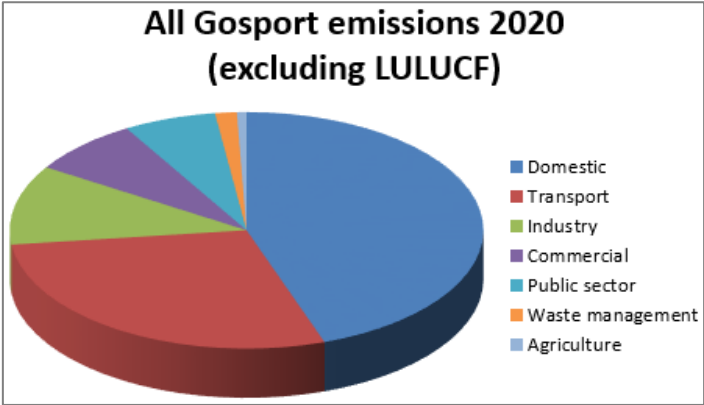


Analysis of emissions by category

The BEIS estimates break down the total emissions into several categories, as shown below.

Category	2020 emissions (ktCO ₂ e)	Sub-category	2020 emissions (ktCO ₂ e)
Domestic	93.780	Electricity	26.422
		Gas	63.458
		Other	3.899
Transport	59.596	A-roads	11.683
		Motorways	0.000
		Minor roads	47.578
		Diesel railways	0.000
		Other	0.335
Industry	22.859	Electricity	8.917
		Gas	1.633
		Other	12.185
		Large industrial installations	0.125
Commercial	15.943	Electricity	8.534
		Gas	7.325
		Other	0.084
Public sector	13.282	Electricity	5.746
		Gas	7.536
		Other	0.000
Waste management	3.101	Landfill	0.028
		Other	0.000
Agriculture	1.387	Electricity	0.884
		Gas	0.206
		Livestock	0.267
		Soils	0.003
		Other	3.099
LULUCF (net emissions) ¹	-1.578	Forest land	-2.568
		Cropland	0.787
		Grassland	-0.447
		Wetlands	0.000
		Settlements	0.632
		Harvested wood products	0.000
		Indirect N ₂ O	0.018

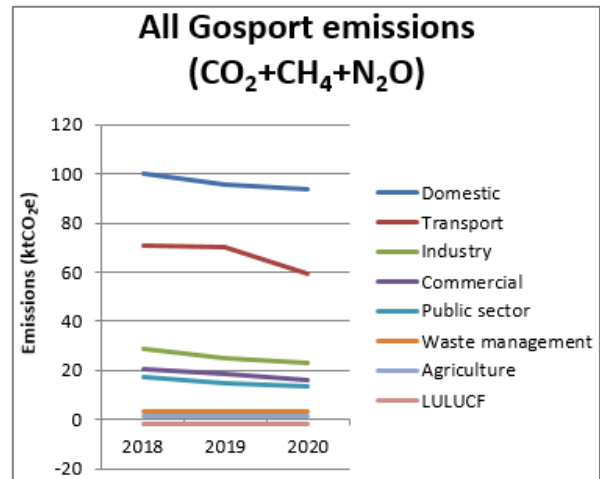
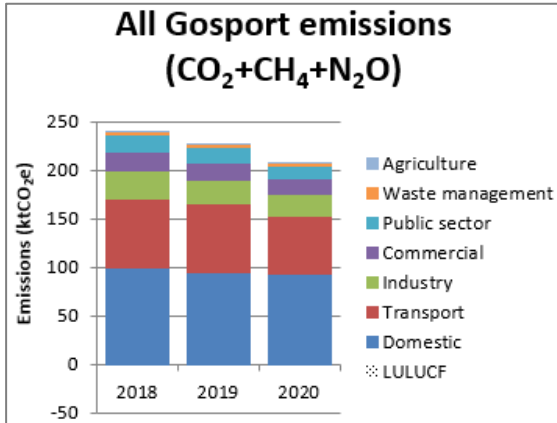
¹ LULUCF stands for Land-Use, Land-Use Change and Forestry. The net LULUCF emissions are the emissions of CO₂ due to carbon sinks being degraded or lost, minus CO₂ absorbed from the atmosphere by carbon sinks.



Changes to emissions over time

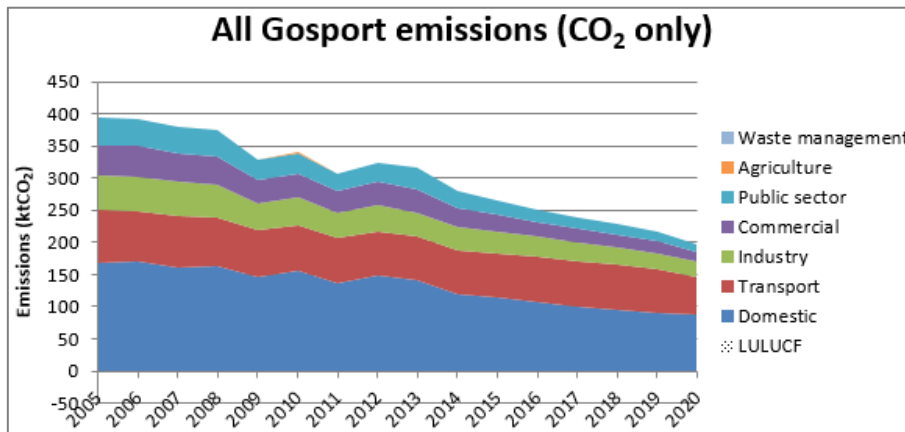
Carbon dioxide, methane and nitrous oxide

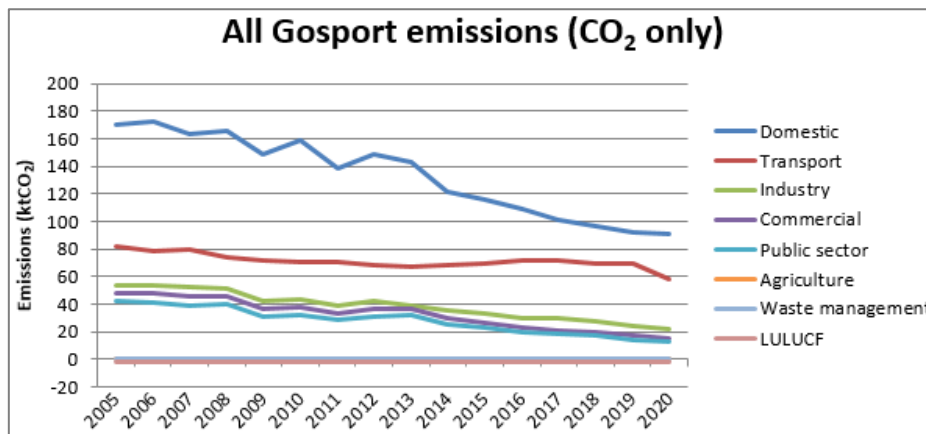
BEIS included data on emissions of methane and nitrous oxide, in addition to carbon dioxide, for the first time this year. Estimates of emissions from some sources of these gases are available from 2005, but estimates for landfill and agriculture, which are the two largest sources of non-CO₂ emissions, are only available from 2018. Therefore comparable total emissions covering all three gases are provided covering the years 2018 to 2020. The changes to the contribution of each category of emissions in these years is shown below.



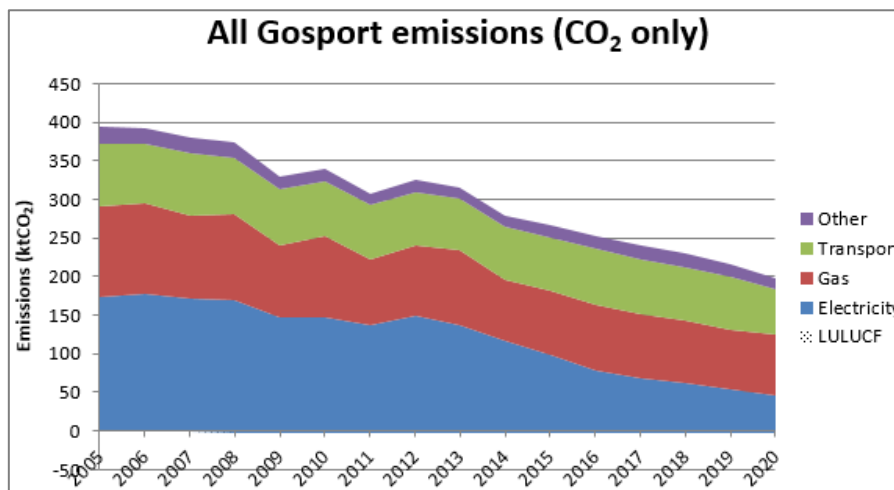
Carbon dioxide only

Full data covering just carbon dioxide emissions goes back to 2005. The changes to the contribution of each category to the total CO₂ emissions over this period are shown below.

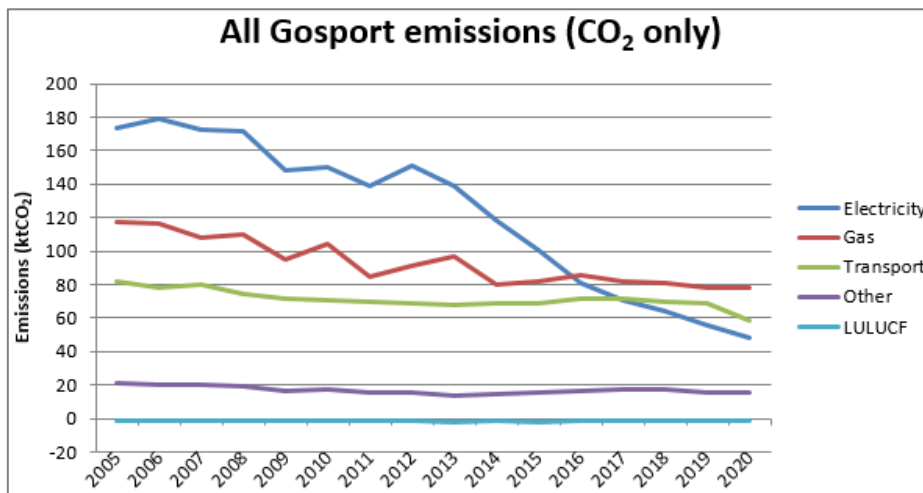




Looking at how the contribution of emissions from different energy sources has changed since 2005, it can be seen that the majority (64%) of the emissions reductions so far are due to lower emissions from electricity generation, as shown below. This is partly accounted for by a decrease in demand of 23% between 2005 and 2020.¹ However the total reduction in electricity emissions is 72%, which implies that this is mostly the result of electricity generation becoming less carbon intensive. Only 12% of the total emissions reductions are attributable to transport fuels, despite a sharp drop in transport emissions in 2020 due to covid-19 lockdowns, which is likely to have been mostly reversed in 2021.



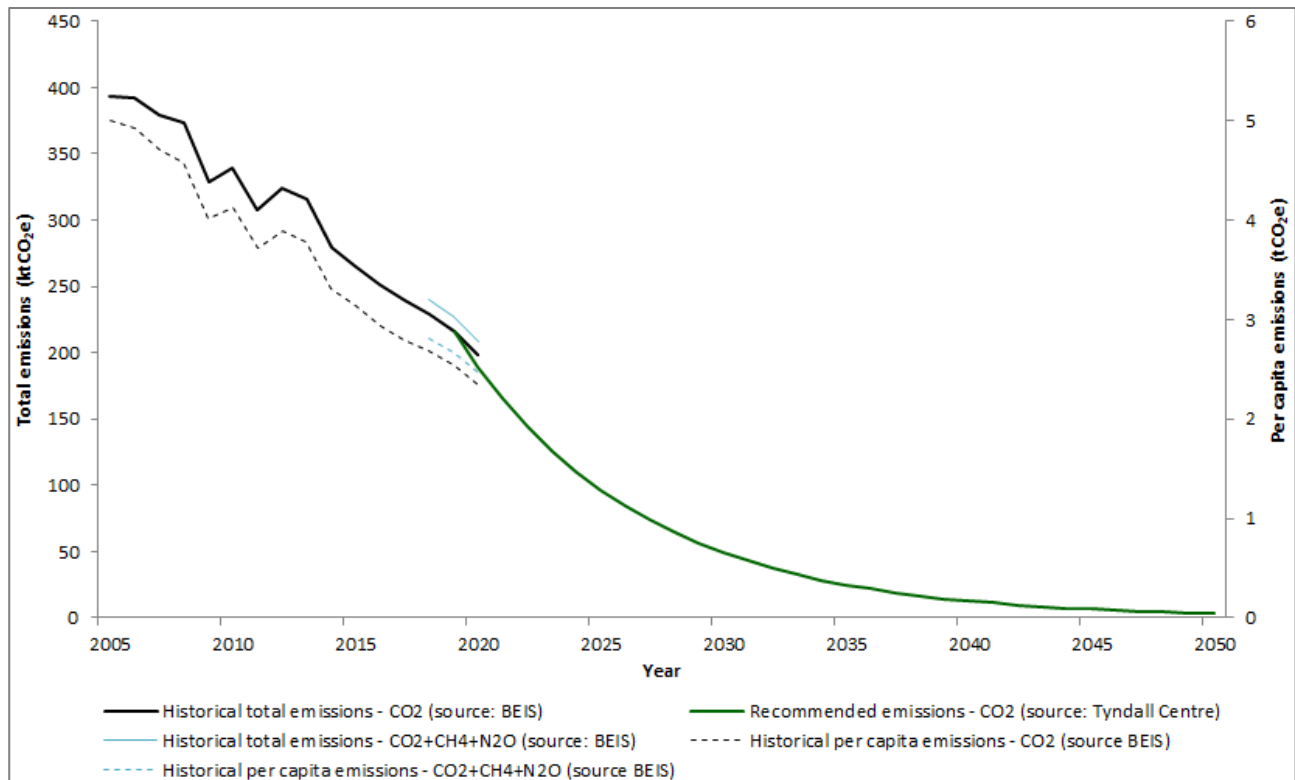
¹ Source: <https://www.gov.uk/government/statistical-data-sets/regional-and-local-authority-electricity-consumption-statistics> [accessed 29/7/22]. Note that the decline in electricity consumption is a long term trend. There is no clear overall impact of covid-19 lockdowns in 2020, with a sharp decrease in non-domestic consumption compensated for by a corresponding increase in domestic consumption.



Comparison with recommended emissions reduction pathway

The Tyndall Centre has calculated a recommended pathway for carbon dioxide emissions reductions from 2019 onwards, based on Gosport contributing its fair share of the global emissions reductions required to meet the ambitions set out in the Paris climate agreement.¹ This indicates that CO₂ emissions need to reduce by 12.6% per year on average. Total CO₂ emissions reduced by 50% between 2005 and 2020, which equates to an average annual reduction of 4.5%.

The graph below shows Gosport’s total and per capita emissions up to 2020, together with the recommended future pathway for CO₂ emissions reductions.



¹ Source: <https://carbonbudget.manchester.ac.uk/reports/E07000088/print/> [accessed 28/7/22]