Dorset Council

Climate and Ecological Emergency Strategy

Progress Report - Autumn 2022

CEES Progress Report Autumn 2022

Introduction

In July 2021, Dorset Council adopted a Climate and Ecological Emergency strategy (CEES) which set two key ambitions for carbon emissions reduction:

i) **Making Dorset Council carbon neutral by 2040** (operational)

ii) **Helping Dorset to become carbon neutral by 2050** (facilitation)

The strategy notes that Dorset should emit no more than 21,000,000 tCO_2e from 2017, as its share to help have an above average chance of remaining within a 1.5-degree temperature rise. It therefore estimated emission profiles for both Dorset Council and the county and identified several stretching interim reduction targets for years 2025, 30, 35, 40 and 50.

This report gives a summary of performance against these carbon targets and Dorset's carbon budget. Future reports will include a focus on ecology and resilience which are other key focus areas.

About the data

Accurate monitoring of carbon emissions is difficult and complex. It depends upon what emissions are included and the accuracy and method of data collection. For this reason, the annual emissions reported are intended to give a broad indication of the direction of travel.

Dorset wide data is provided by the Department for Business Energy & Industrial Strategy (BEIS) [1]. This data is provided two years in arrears, therefore the latest data available for this report is 2020. In addition, the data is updated within the year, making it hard to compare year on year in detail. This year BEIS added emissions from the agricultural and waste management activities, these additions are only backdated to 2018, making it difficult to make any comparisons with years prior and our baseline year.

The Dorset Council data is collated from across services. Data collection and availability needs to be improved in several areas to provide a more robust assessment of carbon emissions. Most notably emissions for fleet fuel use, Dorset Travel and staff commuting all have limitations at the current time and systems need to be significantly improved in these areas.

National Context

In 2020, net territorial greenhouse gas emissions in the UK were estimated to be 405.5 million tonnes carbon dioxide equivalent ($MtCO_2e$), a decrease of 9.5% compared to the previous year and 49.7% lower than they were in 1990. Carbon dioxide made up around 79% of the 2020 total. The coronavirus (COVID-19) pandemic and the resulting restrictions introduced in 2020 across the UK had major impacts on various aspects of society and the economy, which led to a significant impact on greenhouse gas emissions in the UK.

[1] All County wide emission data is from 2020 UK Greenhouse Gas Emissions, Final Figures, BEIS, 1st February 2022 & UK local authority and regional carbon dioxide emissions national statistics: 2005-2020

Dorset Area Emissions

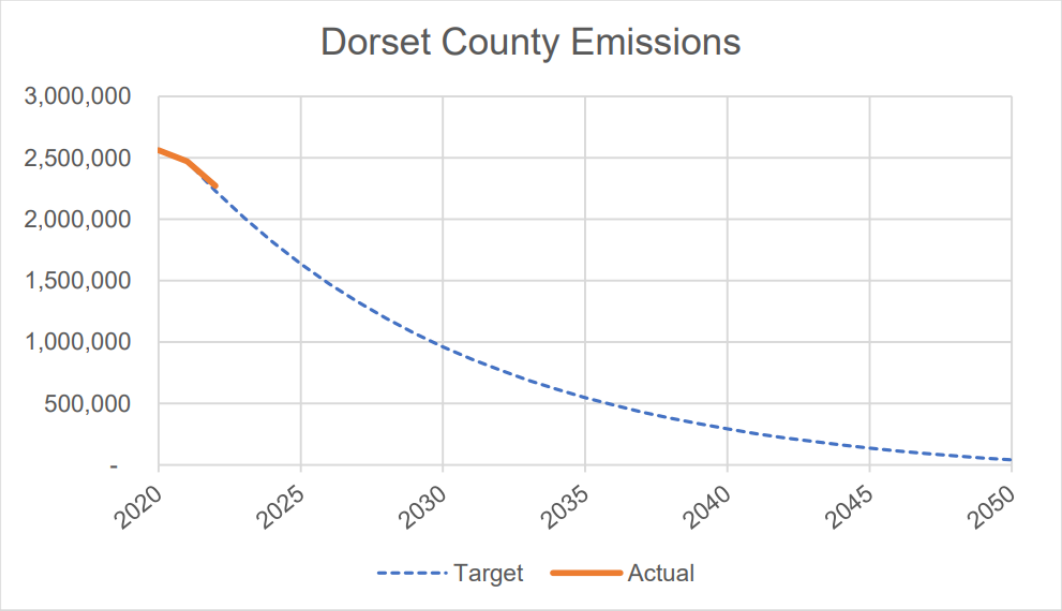
Compared to our reported baseline emissions (2017 data) Dorset (county) emissions have reduced by around 18%, from 1.7 to 1.4 million tonnes CO_2e per year

This reduction would have kept Dorset on track to reduce emissions to net zero by 2050 while remaining within its carbon budget (21 million tCO_2e).

However, national government for the first time have estimated the full emissions from agriculture and waste management in Dorset, which were previously underrepresented in the Dorset wide emissions baseline and the Climate and Ecological Emergency Strategy. (Climate and Ecological Emergency Strategy - Dorset Council). These emissions represent approximately 30% of all Dorset emissions, an additional 900 kt CO_2e, which raises emissions for this reporting year to approximately 2.27 million tonnes of CO_2e.

Is Dorset still on track?

Figure 1: Dorset County Emissions (including Agriculture & Waste)



The agriculture and waste data has been estimated for the past two years only, which does not allow us to compare progress against our baseline year. However, the national data shows that inclusion of the full emissions for agriculture means Dorset has more emissions to reduce and it will be more difficult to keep within the Dorset carbon budget. Including the additional 900,000 tCO_2e means that the rate of reduction needs to be faster than previously thought. Figure 1 shows the re-profiled carbon reduction trajectory required.

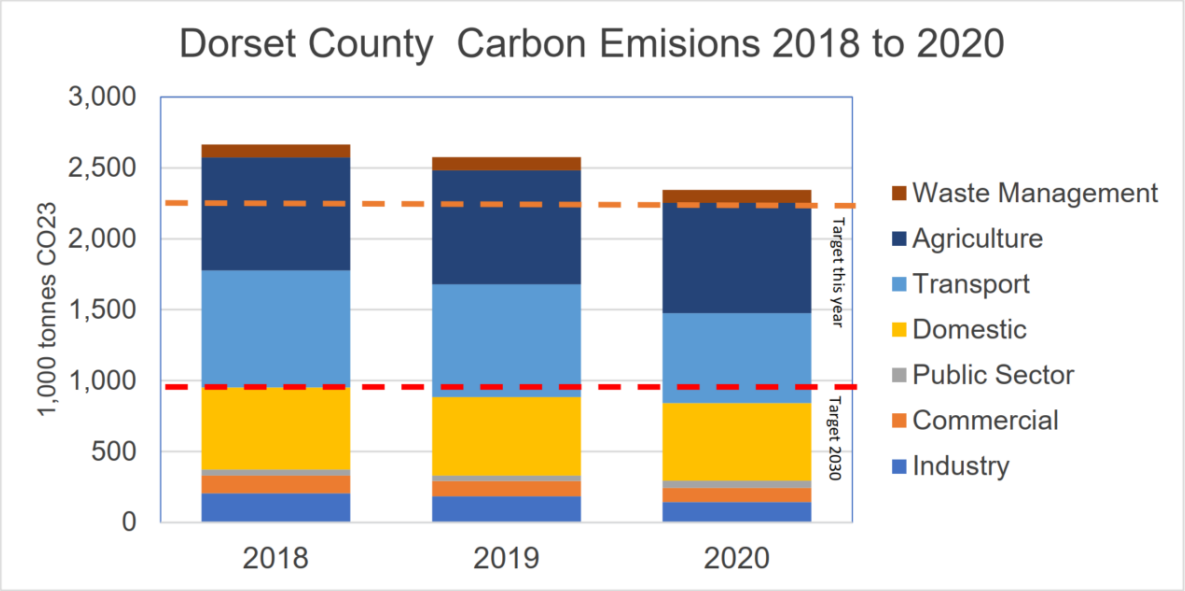
This shows that to keep within our carbon budget we would need to reduce emissions by more than 50% by 2030 from a higher level than previously calculated. It also shows that emissions are slightly above where they should be for this time.

What makes up Dorset's emissions now?

Figure 2 shows the emissions by source in Dorset. In 2020 the three most significant sources of emissions in Dorset where transport (27%), agriculture (33%) and domestic energy use (24%). Emission sources are broadly in proportion to national figures, except agriculture which is only 11% of the national emissions, but three times higher in rural Dorset. These include emissions from livestock, agricultural soils, stationary combustion sources and off-road machinery.

This figure also shows that emissions in total are higher than target for this time (top dotted line) and the emissions reduction required by 2030 (the bottom dotted line).

Figure 2: Dorset County Carbon Emissions 2018 – 2020



Where have reductions come from?

The available data represents the situation in 2020. This highlights that major reductions were seen in industrial emissions (down 30%), transport (down 23%) and commercial (down 23%). Most other areas also decreased but to a lesser extent. This would seem to align with the covid pandemic, where we saw economic activity slow and travel reduce dramatically from lock down and then continued home working and use of digital technology.

In most areas, reductions in emissions went further in Dorset than the national average. In addition, figures include an estimation of land use, land use change and forestry (LULUCF) which consists of emissions and removals from forest land, cropland, grassland, settlements, and harvested wood products. In Dorset the LULUCF sector is estimated to resulted in net removals of 72 $ktCO_2e$.

Dorset Council Carbon emissions from operations

Dorset Council has set the ambition to be carbon neutral by 2040, by reducing carbon emissions from the council's own operations. In 2019, we estimated we produced roughly 33,500 tonnes of CO_2e. Although this only accounts for around 1.5% of Dorset's wider footprint, the council has direct control over these emissions, and it is critical that Dorset Council shows leadership in this area. This has therefore been a key focus of our activities to date. We realised that action had to be taken quickly and therefore set a series of stretching targets to reach zero by 2040. The first was to achieve 40% reduction in carbon emmisions by 2025.

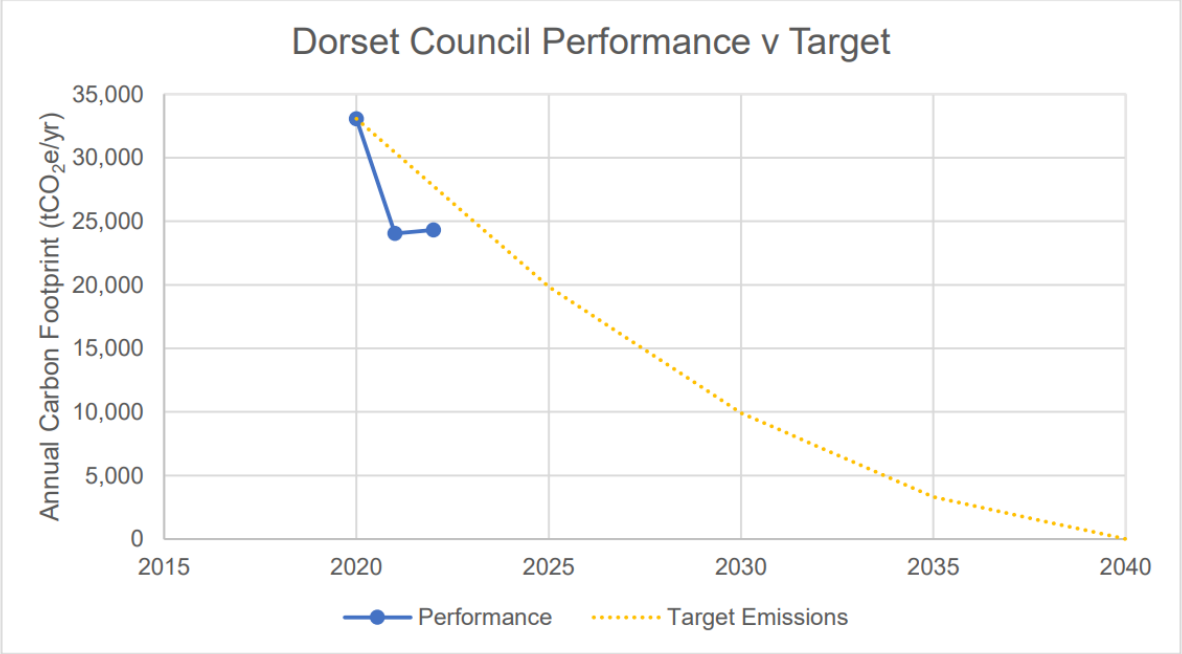
Are we on track?

Compared to our baseline year (2019) Dorset Council emissions have **reduced by approximately 26% to 24,325 tCO_2e.**

This year saw a slight increase of 1% in emissions, but despite this we are still on track and emissions are **still below our target level** of 27,807 tCO_2e for this year (figure 3).

Our current position has been influenced greatly by the pandemic which resulted in drastic reductions in emissions particularly from travel (business and commuting), last year we noted the dangers of 'bounce back' as things returned to normal and the risks of emissions returning to previous levels. Although we have seen some staff return to the office and travel more frequently, we have not seen the large scale return to work and travel patterns of pre-pandemic times. We must remain mindful of this and seek to maintain approriate travel behaviours to support achieving our carbon reduction targets, through arangements such as hybrid working and continued use of digital technology.

Figure 3: Dorset Council Carbon Emissions Performance versus Target

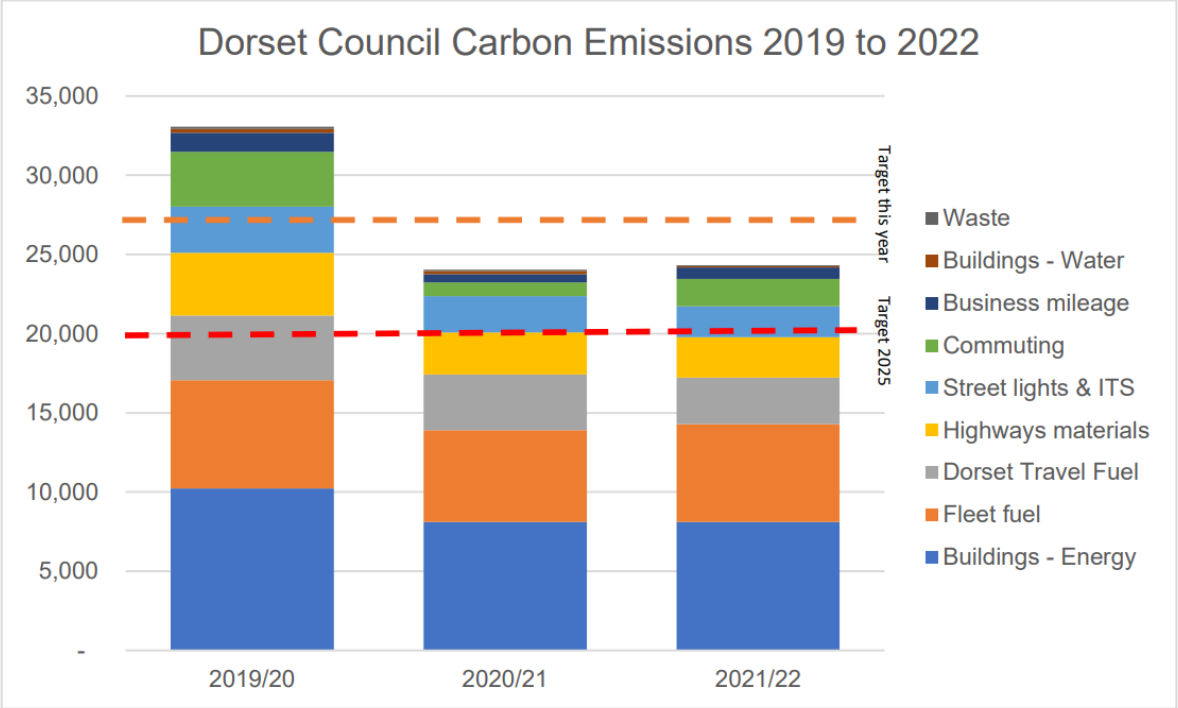


What makes up operational emissions this year?

Figure 4 shows how our operational emissions are made up and how these have changed since 2019. The largest contributor to our carbon footprint is energy use in buildings (32%), closely followed by the use of fuel in fleet vehciles (25%). Dorset travel, staff commuting, materials used for highway maintenance and streetlighting make up the majority of the rest with between 12% and 8% each.

As can be seen from the diagram, emissions are below the target for this time (top dotted line) and excellent progress is being made towards our first interim target for 2025 (bottom dotted line).

Figure 4: Dorset Council Carbon Emissions 2019 to 2022



How has each area performed?

As previously noted, there are several areas where data collection and analysis need to be improved. The data presented therefore only gives an indication of performance.

Current data indicates that all areas have made excellent progress since the base year (2019) and emissions have reduced across the board. The majority have met this year's target and are on track to achieve the 40% reduction by 2025. As previously noted, travel areas such as business travel and staff commuting reduced greatly last year but both have shown an upward trend this year and increased significantly as staff begin to return to the office. Fleet fuel also appears to have risen this year, but this could be for several reasons and the data is not sufficiently robust to draw clear conclusions. Equally commuting travel is currently estimated and will only improve once a travel survey has been completed.

In addition, other factors have helped to bring emissions down, such as the decarbonisation of the national electricity distribution network and improvements in technology such as cleaner more efficient vehicle engines. For example, energy use in buildings increased by 4% but de-carbonisation of the grid resulted in an overall nil change in carbon emissions. The scale of activity is also a contributing factor, for example carbon tonnes for materials used in capital highways programme is dependent on embodied energy of asphalt and quality of materials used.

Table 1 shows the breakdown of Dorset Council's operational emissions by area. It highlights performance overall (since base year 2019).

Overall, the trend is upward from last year but only by 1%.

Table 1: Breakdown of Dorset Council carbon footprint

Carbon Footprint area	tCO_2e 2021/22	% of Carbon Footprint	From Baseline
Buildings - Energy	8,123	33%	-21%
Fleet fuel	6,157	25%	-10%
Dorset Travel Fuel	2,933	12%	-28%
Highways materials	2,570	11%	-35%
Streetlights & ITS[2]	1,947	8%	-33%
Commuting	1,728	7%	-50%
Business mileage	724	3%	-40%
Buildings - Water	83	0.3%	-66%
Waste	60	0.2%	-58%
TOTAL	24,325	100%	-26%

Working from Home

Despite emissions reducing in some areas because of greater working at home, we must recognise that staff working at home could potentially be increasing their domestic carbon emissions. A number of studies have been undertaken across the UK to calculate this unforeseen impact, but it is dependent on a wide range of variables, such as distance from work travelled, how many days a week people work, how people travel normally, type of house, heating systems and home occupancy.

We have started to explore this in more detail but are awaiting the results of a travel survey to enable some of the variables to be better understood.

[2] Intelligent transport systems

Looking Forward

It is anticipated that the council's carbon emissions will continue to reduce as existing work programmes complete and new ones are initiated over the next few years. The data indicates that the council is in an excellent position to achieve its 2025 interim target of 40% reduction in emissions and push on to its 2040 net zero target. This longer-term target will not only require carbon reduction to reduce emissions as low as is possible, but will also require significant generation of renewable energy to cover our own energy needs (est. equivalent to 60MW solar) as well as nature-based solutions on our assets to sequester the remaining carbon emissions.

In the short term, several significant initiatives will help to reduce emissions over the next few years, some of which are highlighted below.

Public Sector Decarbonisation Scheme

Dorset Council secured £19m in 2021 from the Public Sector Decarbonisation Scheme (PSDS) to deliver a major building retrofit programme. This is all but completed and all projects will be fully commissioned before the end of 2022. This has included the installation of energy saving and renewable energy measures at over two hundred council-owned sites. Projects range from insulation in offices, solar PV, heat pumps, LED lighting, through to state-of-the-art energy management systems in schools.

This portfolio of projects will contribute an estimated 6MW of renewable energy capacity and reductions in energy consumption. Final figures on associated carbon savings will be known after final commissioning and a period of operation and monitoring. These will be reflected in 2022/23 energy figures. Further work is also underway to explore larger renewable energy opportunities across Dorset.

> View footage of PV projects

Dorset Council Capital Investment Programme

- A £10 million climate and ecological capital programme has been established to support the operational programme. It is anticipated that over 5 years this will enable a further 5-6% reduction in Dorset Council's emissions. This money has now been allocated to services across the council and will support:
    - An additional 9,000 streetlights to be switched to low energy LEDs.
    - Further retrofit of Dorset Council buildings with low carbon technologies, including insulation, heat pumps and solar PV
    - Expansion of the EV charging infrastructure on Dorset Council estate and in public locations to support expansion of EVs
    - Purchase of electric vehicles supporting the roll out of EV's for small vehicles. Orders have now been placed to replace the existing fossil fuelled fleet of pool cars and parking service vehicles (approx. 24 vehicles)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