

CARBON BUDGETS PATHWAYS & TRAJECTORIES

Global & National Carbon Budget



Global Carbon Budget
**420 giga (billion)
tonnes CO₂e³**

The International Panel of Climate Change (IPCC) has noted that we would have only a 66% chance of keeping global warming under 1.5°C, if the world kept to a global carbon budget of about 420 giga (i.e. billion) tonnes of greenhouse gases (tCO₂e).

The world is currently emitting at around 55 billion tCO₂e per year, which means that this budget of 420 billion tonnes would be used up in under eight years if nothing changes.

In 2008, the UK was the first country in the world to adopt legally binding emissions reduction targets of 80% by 2050 (compared to 1990 levels) and led to a series of five carbon budgets to 2032.

The target was upgraded to be net zero emissions by 2050, with a 100% reduction instead of 80%. In September 2020, the Committee on Climate Change will be advising on the 6th Carbon Budget (2033-37), which will be the first Carbon Budget set in line with this new net zero target. However, the Committee on Climate Change have warned that the UK is not on track to meet the fourth (2023-27) or fifth (2028-32) carbon budgets.

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County Wide Carbon Budget

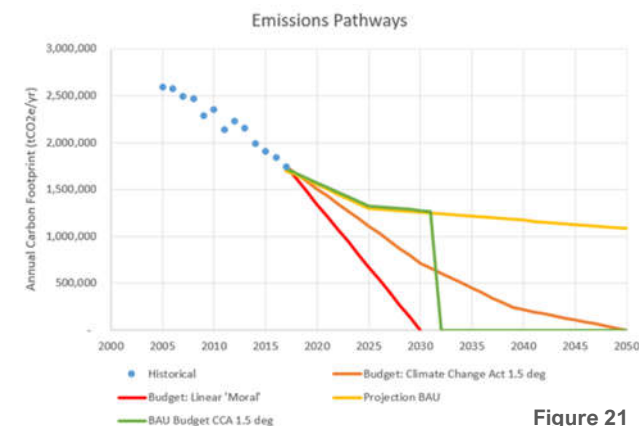
Based on the global carbon budget and scaling this by the population of Dorset gives us a budget of 21,000,000 tCO₂e. In 2017, Dorset emitted a total of 1,759,239 tCO₂e. Therefore, if Dorset continued to emit at the 2017 rate, we will have used our carbon budget up by 2030.

There are various pathways that could be followed.

Emissions have been reducing in recent years and are likely to have reduced in 2018, 2019, and 2020.

Given our historic performance, it does not appear overly challenging to follow the orange 1.5°C per-capita budget line (figure 21) to achieve a Carbon Neutral Dorset by 2050.

However, the challenge is more obvious when the current best-guess projection for the UK's emissions is scaled to Dorset and added (yellow line). This accounts for the UK having already picked low hanging fruit, such as reducing coal burning, investing in cheap efficiency measures, and adding renewable energy generation. Importantly, if Dorset continues to follow the UK's projected path, our emissions will have to follow the green trajectory in



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order to stay within our per-capita portion of the 1.5°C budget.

A considerable effort is going to be needed to stay on the orange 1.5°C per-capita budget pathway. This is going to require enormous changes to heat and transport, as well as accelerated changes to electricity generation. The county wide interim carbon budgets for this trajectory would need to be:

- ▶ **BY 2025** – (1,119,516 tCO₂e) - 36% reduction
- ▶ **BY 2030** – (719,689 tCO₂e) - 59% reduction
- ▶ **BY 2040** – (218,096 tCO₂e) - 88% reduction
- ▶ **BY 2050** – (Zero tCO₂e) - 100% reduction

Dorset Council's Carbon Budget

Dorset Council only has control over the carbon emissions produced from its operations and this will be a key focus of our initial programme.

We have no historic data for Dorset Council. However, by using the historic emissions of the Councils which combined to form Dorset Council, our best guess is in the region of 40,000 to 45,000 tonnes per year in the early part of the decade. Applying the UK predictions of future emissions (discussed above) to these figures, we can estimate the future 'Business as Usual' trajectory (yellow in figure 22), is the line we are most likely to follow if action remains at current levels. If we follow this trajectory the green line shows we will have used up our carbon budget by about 2030!

Scaling the emission pathway from the UK's 2050 target from the

Climate Change Act and remaining within its per-capita budget for a 1.5°C temperature rise suggests a minimum path Dorset Council could follow (shown by the blue line). We have chosen to set an earlier target by achieving a carbon neutral Council by 2040, this is shown by the black line. This will be our target trajectory against which we will monitor progress.

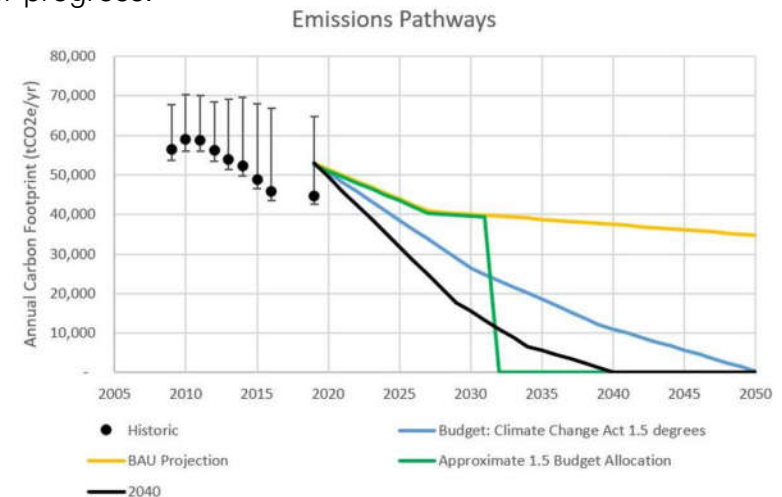


Figure 22

To achieve this Dorset Council will need to meet interim Carbon budgets of:

- ▶ **2025** 40% reduction
- ▶ **2030** 71% reduction
- ▶ **2035** 90% reduction
- ▶ **2040** 100% Carbon neutral

It should be noted that each of these Dorset Council emission pathways starts with estimated data. Once the full 2019/20 baseline has been determined more accurately, Dorset Council will be able to publish annual budget figures for each pathway, against which progress can be monitored.