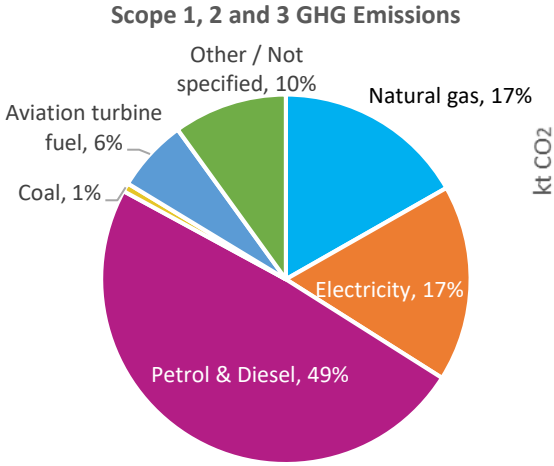
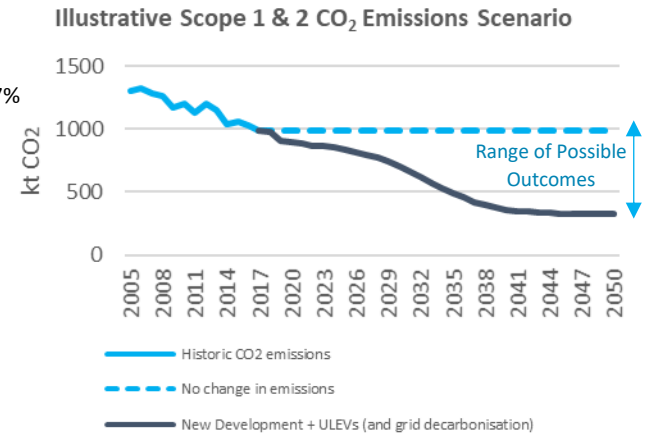
Stafford Climate Change Mitigation & Adaptation Report

AECOM has been commissioned to contribute towards a technical evidence base for new energy and sustainability policies for Staffordshire County Council and its eight constituent Local Authorities. This note summarises key issues for Stafford Borough.





Total Scope 1, 2 and 3 GHG emissions are c.1.1 million tonnes CO_2 per annum and per capita emissions are 8.3 tonnes CO_2 per annum. On a per capita basis, this is higher than the average for Staffordshire county and the UK as a whole (7.4 and 5.4 tCO_2 p.a. respectively). The largest single source of emissions in Stafford is from petrol and diesel, mainly for road transport use. A significant portion of this is due to the motorway. Electricity and gas use in residential buildings is the next most significant contributor to GHG emissions. For further details, please see the Baseline Report.

The above figure shows that, even when accounting for new development, the decarbonisation of grid electricity and switching to Ultra-Low Emission Vehicles (ULEVs) in Stafford could result in up to a 67% decrease in emissions levels by 2050 compared with 2017. However, this outcome is highly uncertain which means it is important to take local action. Other emissions would have to be eliminated through energy demand reduction, building fabric improvements, renewable energy generation, switching to low carbon heating and offsetting remaining emissions.

Stafford's Illustrative Path to Net Zero

	2020	2030	2050
Sustainable Transport	361 ULEVs 26 EV Charge-Points	30% of vehicles are ULEVs	100% of vehicles are ULEVs
	ULEV projections are based on the National Grid's Future Energy Scenarios.		
Renewables	12 MW of Solar PV 2 MW of Onshore Wind	→	100% of energy demands met with renewables
Built Environment	43,400 Gas boilers 4,000 Oil Boilers 3,800 Electric Boilers	16% of heating systems are served by Heat Pumps	57% of heating systems are served by Heat Pumps
	Note: 2020 data is from 2011 census. *Heating technology projections are based on the National Grid's Future Energy Scenarios.*		
Natural Capital	Net 29,000 tCO_2 Sequestered Annually	→	+12,300 tCO_2 Sequestered Annually
	Carbon sequestration projections are illustrative, based on 100% conversion of SCC landholdings in Stafford to woodland.		

Policy Options

Reducing CO_2 Emissions in the Built Environment

- Require all proposals to meet or exceed Building Regulations through energy efficiency alone
- New proposals should be 'futureproofed' to facilitate uptake of low-carbon heating, onsite energy generation and energy storage**.**
- Aim to achieve Net Zero regulated & unregulated emissions.
- Consider requiring developers to conduct Lifecycle Carbon Assessments (LCA) and monitor & report on operational energy use and CO_2 emissions.
- Set high standards for water efficiency and conservation including rainwater collection.

Holistic Interventions in Development

- Incorporate circular economy principles such as designing out waste, adaptability, reusability etc.
- Consider requiring applicants to undertake a BREEAM or HQM assessment (or similar) with a minimum target for relevant credits achieved.
- Integrate and co-locate green and blue infrastructure with pedestrian and cycle routes and sustainable drainage systems (SuDs).
- Integrate LZC technologies into the built environment.
- Specify locally sourced materials with a low environmental impact.

Low & Zero Carbon (LZC) Technologies

- Require developments to demonstrate how layout, orientation and massing has been designed to maximise opportunities for on-site renewables.
- Set a target for the proportion of energy demands to be met from on-site renewables.
- Increase support for LZC energy developments that meet local criteria for acceptability and seek to broaden those criteria.
- Encourage the development of heat networks where appropriate.

Climate Risks & Adaptation

- Direct / restrict future development to areas with lower flood risk.
- Require planning applications to consider long term flood risk projections in assessing flood risk and SuDS design.
- Ensure all future development considers the urban heat island effect in its design.
- Require planning applications for future developments to consider thermal comfort, e.g. through a dedicated overheating assessment (in line with CIBSE TM52 or equivalent) that considers high-emission climate projections.

Carbon Sequestration & Natural Capital

- Mitigate against the loss of green spaces and habitats, and seek to improve woodland, heathland and other habitats.
- Identify ways to ensure that biodiversity, carbon sequestration and amenity are all considered as part of land management strategies.
- Ensure ecological experts are involved in the writing of planning conditions (where relevant).
- Increase sequestration on Council-owned land (e.g. areas of greenspace including parks and gardens; linear parcels and green infrastructure such as verges and green spaces alongside roads; and the 'greening' of grey infrastructure in urban settings).

Sustainable Transport

- Enhance the provision of EV charge points.
- Collaborate with key market participants (e.g. WPD and the Government's Office for Low Emission Vehicles) to facilitate the transition to EVs .
- Keep informed of significant changes in hydrogen vehicle markets as they continue to develop.
- Co-locate PV canopies with existing or future parking provision.
- Ensure that the design and layout of developments will reduce reliance on private vehicles while promoting walking, cycling and public transport.

Additional Considerations for Stafford

The Council has declared a Climate Emergency and set a target date for Net Zero emissions of 2040, which is in advance of the UK-wide 2050 target. This is an ambitious target that will require strong and immediate actions if it is to be met. One key challenge will be that, due to the relatively short timescales, the CO_2 savings from national electricity grid decarbonisation are likely to be lower than if the Stafford target was set for 2050. Additionally, although there is expected to be a significant shift towards ultra low emissions transport, this transition is not likely to be complete by 2040. Road transport accounts for a significant proportion of total emissions, and in the case of Stafford the majority of this is associated with motorways. This means that, in order to reach Net Zero, the Borough will be particularly reliant on changes in transport, trends that may happen primarily on a regional/national rather than local basis.

In practical terms this means that Stafford will need to (a) reduce energy demands from transport and buildings much faster than were it to align with the UK 2050 target; (b) seek to increase the provision of local renewable energy as much as possible; and (c) take actions to increase carbon removals from the atmosphere. Because carbon removal technologies have not yet been widely adopted or demonstrated at commercial scales, tree planting and other 'natural climate solutions' are likely to be the preferred option, although these take up to a decade to mature.

Stafford Borough includes a significant area of land located within the Stoke Green Belt to the north and Cannock Chase AONB to the south. Although these areas could potentially accommodate sensitively-designed renewable energy installations (particularly the Green Belt around Stoke, where there is potentially significant capacity in the grid infrastructure, which could help to facilitate the connection of large renewable capacity), they also offer significant opportunities to deliver environmental benefits through 'natural' climate solutions such as tree planting. Our study has also identified that, based on the types of policy and environmental constraints set out in our Final Report, Stafford contains the largest amount of 'less constrained' land area, i.e. areas where there may be significant opportunities for deployment of large-scale LZCs. This includes a large amount of SCC-owned land.

The current adopted Local Plan Policy N2 includes some specific targets for sustainable development including a net zero requirement for new residential development, BREEAM 'Very Good' and 'Excellent' ratings for non-residential development (non-major and major, respectively) and a requirement for some energy to be generated on-site using renewable technologies. It is possible that Local Authorities' ability to set these kinds of targets will be limited in the future but ideally these policies could be retained or strengthened as they reflect best practice measures. The map associated with Policy N3 is taken from the 2010 Camco study. As discussed in our Final Report, future policies could potentially consider broadening the areas that are considered suitable for large-scale LZCs, subject to local criteria for acceptability.