# Costed Net Zero Action Plan

Cannock Chase District Council

Project number: 60664099

Delivering a better world

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# Glossary

| Term | Definition |
|---|---|
| **Department for Business, Energy & Industrial Strategy (BEIS)** | UK Government ministerial department responsible for leading economy-wide transformation by backing enterprise and long-term growth, generating cheaper, cleaner, homegrown energy and unleashing the UK as a science superpower through innovation. |
| **Carbon** | Carbon is used as a shorthand expression for carbon dioxide ($CO_2$). This is the most common greenhouse gas emitted by human activities in terms of the quantity released and the total impact on global warming. As a result, the term “carbon” is often used as an expression for all greenhouse gases.<br>*Source: Ecometrica* |
| **Carbon dioxide equivalent ($CO_2e$)** | Carbon dioxide equivalent or $CO_2e$ is used to describe different greenhouse gases in a common unit. For any quantity and type of greenhouse gas, $CO_2e$ signifies the amount of $CO_2$ which would have the equivalent global warming impact.<br>A quantity of greenhouse gases can be expressed as $CO_2e$ by multiplying the amount of the greenhouse gas by its Global Warming Potential. For example, if 1kg of methane is emitted, this can be expressed as 25kg of $CO_2e$ (1kg methane * 25 Global Warming Potential = 25kg $CO_2e$).<br>*Source: Ecometrica* |
| **Circular economy** | A circular economy is a systems solution framework that tackles global challenges like climate change, biodiversity loss, waste, and pollution. In our current economy, we take materials from the Earth, make products from them, and eventually throw them away as waste – the process is linear. In a circular economy, by contrast, we stop waste being produced in the first place.<br>The circular economy is based on three principles, driven by design:<br>• Eliminate waste and pollution<br>• Circulate products and materials (at their highest value)<br>• Regenerate nature<br>It is underpinned by a transition to renewable energy and materials. A circular economy decouples economic activity from the consumption of finite resources. It is a resilient system that is good for business, people and the environment.<br>*Source: Ellen MacArthur Foundation* |
| **Global warming potential (GWP)** | Indicates the amount of warming a gas causes over a given period of time. The GWP is an index, with $CO_2$ having the index value of 1, and the GWP for all other greenhouse gases is the number of times more warming they cause compared to $CO_2$. For example, 1kg of methane causes 25 times more warming over a 100 year period compared to 1kg of $CO_2$, and so methane has a GWP of 25.<br>*Source: Ecometrica* |

| Term | Definition |
|---|---|
| **Greenhouse gas (GHG)** | A greenhouse gas is any gas in the atmosphere which absorbs and re-emits heat and thereby keeps the planet's atmosphere warmer than it otherwise would be. GHGs occur naturally in the Earth's atmosphere, but human activities, such as the burning of fossil fuels, are increasing the levels of GHG's in the atmosphere, causing global warming and climate change. The Kyoto Protocol is an international treaty for controlling the release of GHGs from human activities. The GHGs controlled under the treaty are as follows: carbon dioxide ($CO_2$), methane ($CH_4$), nitrous oxide ($N_2O$), F-gases (hydrofluorocarbons and perfluorocarbons) and sulphur hexafluoride ($SF_6$). |
| **Grey fleet** | Describes the use of personal vehicles for business purposes. |
| **Land use, land-use change and forestry (LULUCF)** | Land Use, Land-Use Change and Forestry (LULUCF) activities are both a source and sink for greenhouse gases. In the UK, generally emissions are produced from the conversion of land to cropland and settlements and are removed through forest growth and conversion of cropland to grassland. Currently in the UK, LULUCF activities are a net sink, resulting in the removal of emissions from the atmosphere.<br>*Source: Local Authority $CO_2$ emissions technical report 2019* |
| **Nature based solutions** | Nature-based Solutions are "actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits".<br>*Source: International Union for Conservation of Nature (IUCN).* |
| **Natural capital** | Natural capital is the part of nature which directly or indirectly underpins value to people, including ecosystems, species, freshwater, soils, minerals, the air and oceans, as well as natural processes and functions. In combination with other types of capital (manufactured, financial, human and social), natural capital forms part of our wealth, that is, our ability to produce actual or potential goods and services into the future to support our wellbeing.<br>*Source: Natural Capital Committee* |
| **Net zero** | Net zero refers to achieving a balance between the amount of greenhouse gas emissions produced and the amount removed from the atmosphere over a given time period. When the amount of carbon emissions produced within a defined boundary are cancelled out by the amount removed, this results in net zero emissions. Net zero recognises that there will be some emissions, i.e. it is not gross zero which would mean reducing all emissions to zero, but that emissions need to be fully offset, predominantly through natural carbon sinks such as oceans and forests. |
| **Non-combustion greenhouse gas emissions** | Non-combustion greenhouse gas emissions are those not associated with energy production and transport. Examples include fluorinated gases (F-gases) used as refrigerants, methane emissions from a variety of sources (including manure, waste water treatment facilities, landfill, enteric fermentation in livestock, and methane leakage from natural gas extraction, storage and pipelines), as well as carbon dioxide emissions from the chemical conversion process for making cement and nitrogen oxide emissions from fertilizer applications. |
| **Renewable technologies** | Technologies that produce energy through a natural resource or source that is not depleted by use. This includes water, wind or solar power. |
| **Sequestration (Carbon Sequestration)** | Carbon sequestration is the capturing, removal and storage of carbon dioxide from the Earth's atmosphere. It's recognised as a key method for removing carbon from the earth's atmosphere. Carbon sequestration can happen in two basic forms: biologically or geologically.<br>Biological carbon sequestration happens when carbon is stored in the natural environment. This includes what are known as 'carbon sinks', such as forests, grasslands, soil, oceans and other bodies of water. This is also known as an 'indirect' or passive form of sequestration.<br>Geological carbon sequestration happens when carbon is stored in places such as underground geological formations or rocks. This process is largely artificial or 'direct', representing a way of neutralising emissions put into human practices, such as manufacturing or construction.<br>*Source: National Grid* |
| **Ultra Low Emissions Vehicle (ULEVs)** | An Ultra Low Emissions Vehicle are currently defined as a vehicle that emits less than 75g of carbon dioxide per km travelled as measured by the World-Harmonised Light-Vehicle Test Procedure (WLTP).<br>*Source: Vehicle Certification Agency* |

# 1. Executive summary

In 2019 Cannock Chase District Council (the Council) declared a climate emergency. This committed to a vision for the district to become net zero by 2030.

Whilst the Council is directly responsible for a small percentage of total greenhouse gas emissions (estimated at circa. 0.7% of total emissions), the scope of this commitment includes emissions from all sources within the geographic boundary of the district. This includes the residential, transport, industrial, commercial and wider public sectors, highlighting that the Council understands it has a key role to play in the drive to net zero through demonstrating leadership, developing a pipeline of projects, jobs and skills to scale-up delivery and leveraging change through the services it delivers, its regulatory and strategic functions and its roles as major employer, large-scale procurer and social landlord.

Given the Council has 8 years to achieve its net zero target, activities will need to be undertaken at scale and pace. Trajectories developed as part of this Net Zero Action Plan show that in order to achieve a rapid decarbonisation scenario, rates of changes in the building stock and vehicle fleets will need to occur at the rate of half of the stock / fleet every four years.

Furthermore, as the target is 20 years ahead of the UK Climate Change Act target of net zero by 2050, the Council will have to:

- reduce energy demands from transport and buildings much faster
- increase the provision of local renewable energy as much as possible
- take immediate actions to increase carbon removals from the atmosphere
- ensure a robust supply chain is in place to deliver activities at the scale required

This presents a number of challenges; particularly with how the Council can influence areas outside of its direct control. This includes factors such as the rate of decarbonisation of the national electricity grid, development of national and regional policy, supply chain capacity and capability building, technological maturity and funding availability.

Recognising these challenges, this Net Action Plan has been developed to address a number of key considerations:

- **Scale and pace** - focusing on action that can be undertaken quickly and at sufficient scale to make meaningful reductions in district-wide carbon emissions
- **Public sector leadership** – leveraging Council buildings to support the development of markets and supply chains for wider sectors
- **Avoiding delays** – completing mobilising, enabling and feasibility works early in the programme to enable focused delivery in the medium and longer term
- **Council control** – recognising the influence of the Council and where it can meaningfully enable carbon reductions
- **Collaborative working** – action is already underway in Cannock Chase to support delivery of net zero ambitions, working collaboratively with external stakeholders will allow the Council to align efforts and maximise impact

Based on the activities in this plan, total resources costs are estimated at circa. £21 million between financial years 2022/23 and 2030/31.

Capital costs are expected to far exceed this, with a minimum indicative high-level estimate of £4.7 billion. However, at this stage capital costs are extremely difficult to ascertain as this requires the completion of mobilising and enabling works including energy audits and feasibility studies. Recognising that this plan is also currently unfunded, and external funding would be required to ensure its success, this would also require the Council to identify and consider how to account for external funding as well as any wider industry, regional or UK Government programmes outside of its direct control.

# 2. Introduction

In 2019 Cannock Chase District Council (the Council) declared a climate emergency. This committed to a vision for the district to become net zero by 2030. This commitment also recognised that whilst the Council is directly responsible for a small percentage of the total greenhouse gas emissions produced in the district (see Section 3), it has an important role to play in encouraging and supporting residents, businesses, and local organisations to take action.

Against this backdrop, AECOM has been commissioned to develop a Net Zero Action Plan. The intention of this document is to identify the actions that the Council could implement to reduce greenhouse gas emissions (GHG) in line with its net zero target. This includes tackling both the Council's own emissions as well as those generated within the geographic boundary of the Local Authority area.

The resulting output incorporates the Council's initial plans for tackling climate change, including identifying costs for taking action aligned against six key strategic themes:

## Energy

Comprising GHG emissions directly produced within the district associated with the generation, transmission and distribution of energy. This includes activities such as increasing the use of renewable and low carbon technologies to generate electricity, heat and cooling, as well as opportunities around demand response and energy storage.

## Natural capital and nature based solutions

Recognising that we rely on nature and the power of healthy ecosystems to protect people, optimise infrastructure and safeguard a stable and biodiverse future. These actions seek to protect, sustainably manage, and restore natural or modified ecosystems, addressing societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits (definition by the IUCN).

## Non-residential

GHG emissions associated with agriculture, commercial, industrial and public sector buildings and processes undertaken within Cannock Chase district.

## Residential

GHG emissions associated with residential buildings in the district. This includes social housing, private rented accommodation and owner occupier.

## Transport

This comprises actions to reduce transport emissions as accounted for in the UK local authority and regional carbon dioxide emissions national statistics. The scope of this covers all road, railway and other (inland waterways, combustion of lubricants and LPG) transportation but excludes emissions associated with aviation.

## Cross-cutting

This theme recognises and incorporates actions that are relevant to more than one of the five themes. This includes the predicted electrification of the energy system, the role of the hydrogen economy, circular economy principles and accounting for non-combustion greenhouse gas emissions (e.g. refrigerants).

# 3. Policy background

In 2008 the UK Government was the first government to create a legally binding decarbonisation target, with a target 80% reduction in greenhouse gas (GHG) emissions, from 1990 levels by 2050. Following increased scientific evidence, public pressure and analysis, consultation, and consideration undertaken by the UK Climate Change Committee (CCC), the UK Government has since committed to reducing net GHG emissions by 100% relative to 1990 levels by 2050 - the Climate Change Act (June 2019).

The CCC's Sixth Carbon Budget, issued in 2020, provided ministers with advice on the volume of GHGs that the UK can emit during the period 2033-2037. The recommended pathway requires a 78% reduction in UK territorial emissions between 1990 and 2035. In effect, this brings the UK's previous 80% target forward by nearly 15 years since the original Climate Change Act committed the UK to an 80% reduction in GHG emissions by 2050.

In the CCC's opinion, the Sixth Carbon Budget can be met through four key steps:

1. **Uptake up of low-carbon solutions** - people and businesses choose to adopt low-carbon solutions, as high carbon options are progressively phased out. UK industry shifts to using renewable electricity or hydrogen instead of fossil fuels or captures its carbon emissions.
2. **Expansion of low-carbon energy supplies** - electricity production is zero carbon by 2035. There are new uses for clean electricity in transport, heating and industry, and electricity demand doubles or even trebles by 2050. Low-carbon hydrogen scales-up to be almost as large, in 2050, as electricity production in 2020; hydrogen is used as a shipping and transport fuel and in industry, and potentially in some buildings, as a replacement for natural gas for heating.
3. **Reducing demand for carbon-intensive activities** - the UK wastes fewer resources and reduces its reliance on high-carbon goods. Buildings lose less energy through a national programme to improve insulation across the UK. Diets change, there are fewer car miles travelled and demand for flights grows more slowly.
4. **Land and greenhouse gas removals** - there is a transformation in agriculture and the use of farmland while maintaining the same levels of food per head produced today. By 2035, 460,000 hectares of new mixed woodland are planted to remove carbon dioxide from the atmosphere and deliver wider environmental benefits. 260,000 hectares of farmland shifts to producing energy crops. Woodland rises from 13% of UK land in 2020 to 15% by 2035 and 18% by 2050. Peatlands are widely restored and managed sustainably.

Providing further detail on how this will be achieved, in October 2021, the UK Government published its Net Zero Strategy and the Heat & Buildings Strategy. In addition, Part L of the Building Regulations (relating to the conservation of fuel and power) was updated in December 2021, incorporating updated carbon factors reflecting a change in the sources for electricity generation, and higher minimum performance standards.

Across the UK many regional, city and local authorities have declared climate emergencies. This means that they will take action to reduce their impact on climate change through their own operations and through the activities they can influence. This includes Staffordshire County Council who have committed to achieving net zero carbon emissions by 2050, West Midlands Combined Authority who have a 2041 net zero target and Cannock Chase District Council which has the vision for the district to be net zero by 2030.

# 4. Baseline

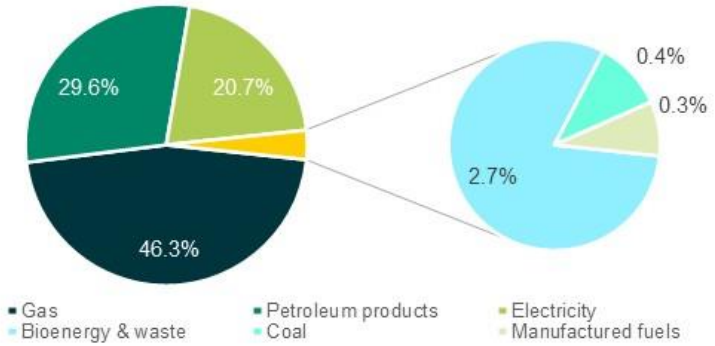
## 4.1 Energy consumption

In 2019 (the last year for which the Department for Business, Energy and Industrial Strategy (BEIS) has published data), total fuel consumption in Cannock Chase was approximately 1,642 GWh. This equates to 7% of all fuel consumption in Staffordshire. As illustrated in Table 1, the largest proportion of fuel consumed was gas (46%), with petroleum products and electricity accounting for 30% and 21%, respectively. Other fuels, including bioenergy & waste, coal, and manufactured fuels make up the remaining 3%.

**Table 1 - Fuel consumption (GWh) by sector and fuel type, Cannock Chase2019**

| | Industrial & Commercial | Domestic | Road transport | Other[1] | Total |
|---|---|---|---|---|---|
| Gas | 193 | 567 | 0 | 0 | **761** |
| Electricity | 184 | 156 | 0 | 0 | **339** |
| Coal | 0 | 6 | 0 | 0 | **6** |
| Petroleum products | 97 | 4 | 374 | 12 | **487** |
| Manufactured fuels | 0 | 4 | 0 | 0 | **5** |
| Bioenergy & waste | 0 | 27 | 17 | 0 | **45** |
| **Total by sector** | **475** | **764** | **391** | **12** | **1,642** |

**Figure 1 – Percentage fuel consumption by fuel type, Cannock Chase 2019**




[1] Comprising agriculture, public sector and rail energy consumption

**Figure 2 - Fuel consumption (GWh) by sector and fuel type, Cannock Chase 2019**

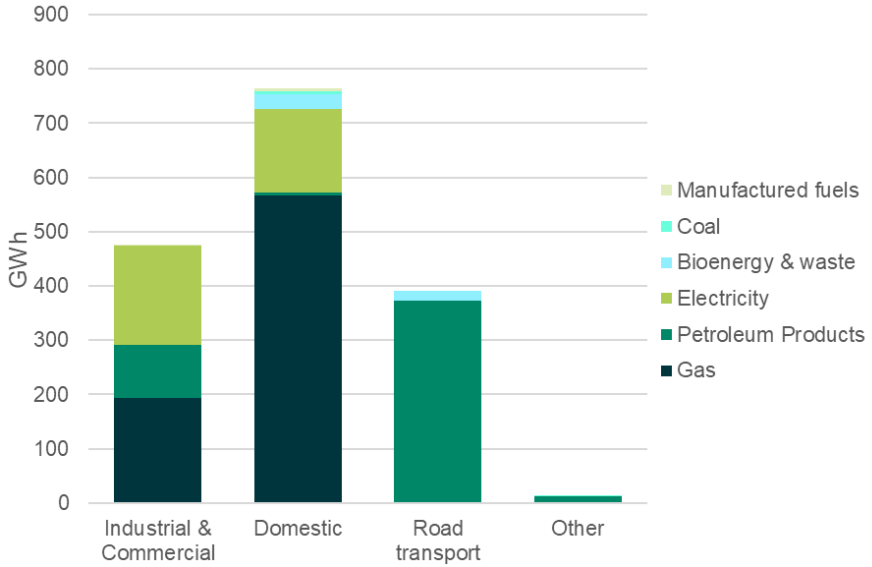



Figure 2 shows that the domestic sector accounts for the highest proportion of energy consumption, followed by industrial and commercial and then road transport. Within the domestic sector, approximately 74% of fuel consumed is gas and 20% is electricity. In the non-domestic sector (industrial and commercial), approximately 41% of fuel consumed is gas and 39% is electricity.

## 4.2 Carbon emissions

### 4.2.1 Scope

A baseline for Cannock Chase district has been ascertained using the UK local authority and regional carbon dioxide emissions national statistics which have been produced annually by BEIS since 2005. This provides estimated emissions, by sector, for each local authority in the UK allowing changes to be monitored over time and supports the targeting of mitigation actions.

Statistics cover territorial emissions, meaning those that occur within the UK's borders (in this case those within Cannock Chase) and are based on an "end user" basis. This means that emissions from energy use at the local level can be accounted for and does not penalise local areas for emissions from the production of energy which is then exported to and used in other areas.

### 4.2.2 Emissions

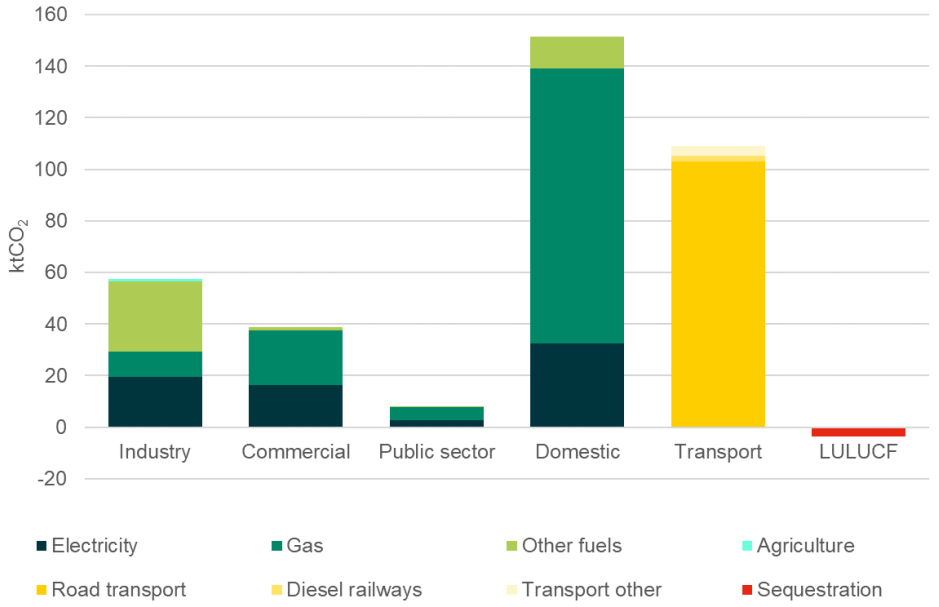
2019 baseline emissions in Cannock Chase are estimated to be 361.2 $ktCO_2$. Of this, emissions associated with gas (40%), road transport (28%) and electricity (20%) are the largest sources by fuel type. This illustrates that decarbonising heat, particularly in the domestic sector, will be a significant area of focus.

In terms of sectors, Table 2 and Figure 3 illustrate that the domestic and transport sectors are the largest contributors to Cannock Chase district's greenhouse gas emissions. This is reflected in the actions and subsequent costs in this action plan. Public sector emissions are a relatively small proportion of total emissions, responsible for 7.9 $ktCO_2e$, or 2%, of total emissions in 2019 (the last year for which BEIS have published data). Therefore, in order to achieve its net zero target, the Council will need to focus on emissions reductions outside of its immediate control.

**Table 2 - GHG emissions ($ktCO_{2e}$) by sector and fuel type, Cannock Chase 2019**

| | Industry | Commercial | Public sector | Domestic | Transport | LULUCF | Total |
|---|---|---|---|---|---|---|---|
| Electricity | 20 | 16 | 3 | 33 | - | - | **71** |
| Gas | 10 | 21 | 5 | 107 | - | - | **143** |
| Other fuels[2] | 27 | 1 | 0 | 12 | - | - | **41** |
| Agriculture | 1 | - | - | - | - | - | **1** |
| Road transport | - | - | - | - | 103 | - | **103** |
| Diesel railways | - | - | - | - | 2 | - | **2** |
| Transport other | - | - | - | - | 4 | - | **4** |
| Sequestration | - | - | - | - | - | -4 | **-4** |
| **Total** | **58** | **39** | **8** | **154** | **109** | **-4** | **361** |

**Figure 3 - GHG emissions by sector and fuel type, Cannock Chase 2019**

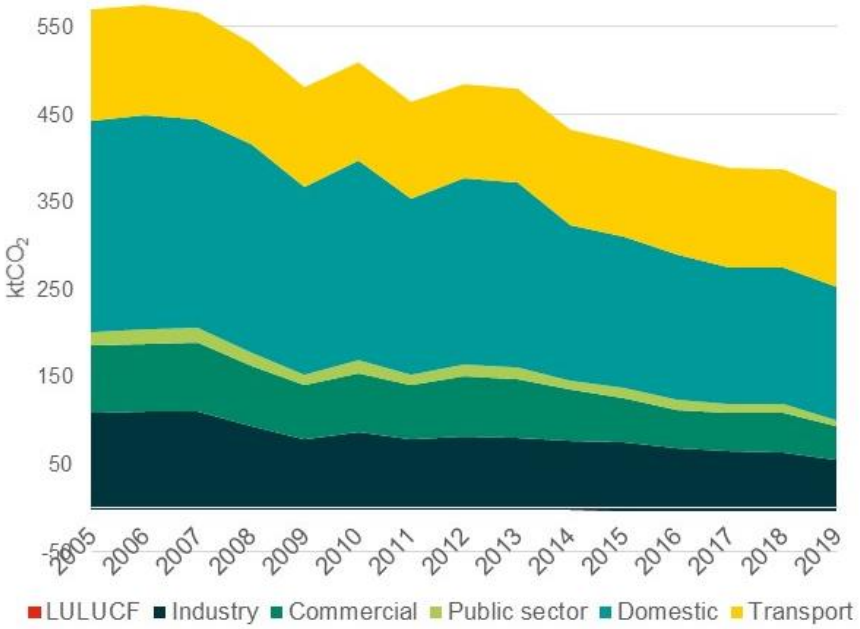



[2] Comprising coal, fuel oil and gas oil as explained in the UK Local and Regional Carbon Dioxide Emissions Estimates for 2005-2019 Technical Report (page 41)

Figure 4 illustrates that emissions since 2005 have reduced by 37% from 569 $ktCO_2$ to 361$ktCO_2$. However, when interpreting this it is important to note:

- Changes in carbon emissions do not necessarily reflect changes in fuel consumption or increased energy efficiency. For instance, an increase in electricity use could be offset by a decrease in electricity grid emissions (see risks in Section 8).
- Year-to-year changes in fuel consumption relate to factors such as weather and should therefore be interpreted with caution.

**Figure 4 – Historic emissions, Cannock Chase 2005-2019**




### 4.2.3 Cannock Chase District Council emissions

The BEIS UK local authority and regional carbon dioxide emissions national statistics encompass all public sector emissions within a Local Authority's geographic boundary as defined by subsections 84-87 of the UK Standard Industrial Classification. This encompasses:

- 84 – Public administration and defence, compulsory social security
- 85 – Education
- 86 - Human health activities
- 87: Residential care activities

In order to ascertain emissions resulting from the Council's activities in 2019, AECOM has completed a high level estimation based on information provided by the Council. This is shown below and illustrates that in 2019, for the areas covered in Table 3, total emissions were estimated at 2,521 $tCO_2e$. This represents 0.7% of total emissions for the district in 2019 or 32% of the total public sector emissions.

It is important to note that, at present, the Council does not have a formal reporting procedure to calculate emissions as the result of Council operations and activities. The Council may wish to undertake this annually as part of wider activities driven by Staffordshire County Council if resources and budget can be made available.

**Table 3 – Estimated Council emissions, 2019**

| Emissions type | Emissions source | Number | GHG scope | $tCO_2e$ | Source |
|---|---|---|---|---|---|
| Buildings | Council buildings - heating fuels | 10 | 1 | 890 | AECOM, Desktop energy audit of ten buildings, Mar 2022 |
| | Council buildings - electricity | 10 | 2 | 845 | |
| | Council buildings - Other | Unknown | N/A | 0 | Not currently recorded by the Council |
| | Council commercial buildings | Unknown | N/A | 0 | |
| | Council housing - Landlord areas | Unknown | N/A | 0 | |
| Transport | Refuse collection vehicles | 12 | 1 | 466 | Energy Saving Trust, Vehicle Fleet Report, Aug 2020 |
| | Heavy commercial vehicle | 5 | 1 | 26 | |
| | Light commercial vehicles | 77 | 1 | 185 | |
| | Car derived vans | 8 | 1 | 8 | |
| | Plant - tractors/mowers etc. | 25 | 1 | 48 | |
| | Unknown | 5 | 1 | 5 | |
| | Grey fleet | 162 | 3 | 48 | |
| **Total** | | | | **2,521** | |

# 5. Addressing the gap

## 5.1 Carbon reduction trajectories

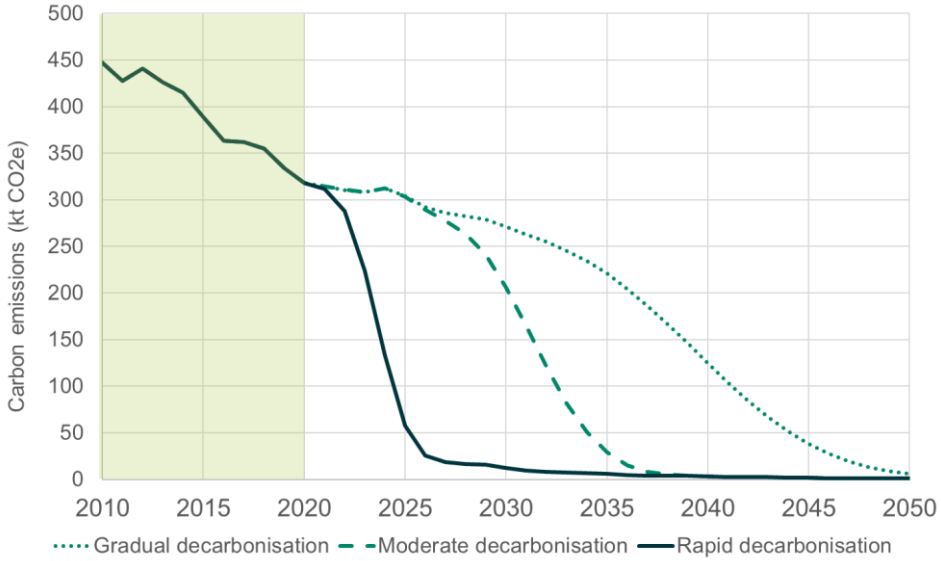
To understand how future carbon emissions could change, AECOM has developed three emissions trajectories for Cannock Chase district based on key external impacts:

1. **National electricity grid decarbonisation** – *based on the BEIS future grid emissions factors projections*
2. **Large scale uptake of Ultra Low Emission Vehicles (ULEVs)** - *based on the BEIS future grid emissions factors projections*
3. **Large scale uptake of heat pumps in buildings** - *based on the BEIS future grid emissions factors projections*
4. **Large scale deployment of renewable energy generation** - *based on possible local PV power generation for direct use on site*
5. **Small scale deployment of carbon sequestration** - *based on possible available land for tree planting*

The three trajectories have been based on analysis of historic energy use taking into account the above anticipated future external impacts. The trajectories are presented in Figure 5, along with historic emissions. Note these trajectories are based on assumed rates of changes in the building stock and vehicle fleets (i.e. these have not been modelled), with “rapid”, “moderate”, or “gradual” decarbonisation of about half of the stock / fleet within 4, 12 or 20 years respectively. Appendix D contains other key assumptions about how these trajectories were derived.

As Figure 5 shows, the total emissions would reduce by approximately 97% from 447 $ktCO_2e$ in 2010 to 12 $ktCO_2e$ by 2030 under a rapid decarbonisation scenario, or by 54% to 207 $ktCO_2e$ by 2030 under a moderate decarbonisation scenario. This represents the estimated total emissions that would need to be mitigated by 2030 to meet the net zero target.

**Figure 5 – Cannock Chase District carbon emissions: historic emissions for 2010-2020 and future projections for 2020-2050 for three trajectories**



## 5.2 Scale of activities required to achieve net zero

Based on analysis completed as part of the Staffordshire climate change adaptation mitigation study (2020), a high-level net zero pathway was developed for Cannock Chase in order to achieve net zero by 2050 (the UK Government net zero target date). This is present in Table 4 which provides an indication of the level of activity required to achieve net zero by 2050 (UK target) and what would be expected to be implemented by 2030 to support achievement of this.

**Table 4 – Pathway to net zero by 2050, Cannock Chase**

| | Activity to achieve net zero by 2050 |
|---|---|
| **Built environment** *(residential and non-residential)* | +32,300 heat pumps<br>+9,400 homes served by district heating<br>*Heating technology projections are based on the National Grid's FESs, where Heat Pumps make up 16% of all heating systems by 2030 and 57% by 2050.* |
| **Energy** | +17 MW of solar PV<br>+2 MW of onshore wind[3]<br>*Maximum unconstrained solar and wind capacities in the area, within SCC landholdings were estimated using the DECC (2010) methodology.* |
| **Natural capital** | +500 tCO2 sequestered annually<br>*Carbon sequestration projections were estimated by assuming 100% conversion of SCC landholdings in Cannock Chase to woodland.* |
| **Transport** | +86,000 ULEVs<br>*ULEV projections are based on the National Grid's FESs (Future Energy Scenarios) where ULEVs make up 30% of all vehicles by 2030 and 100% by 2050* |

### 5.2.1 Scale of activities to achieve net zero by 2030

It is important to recognise that the Council has set a net zero target date of 2030, which is 20 years in advance of the UK target as set out in Table 4. This is ambitious and will require strong and immediate actions if the target is to be met.

One key challenge will be that, due to the short timescales, carbon savings from national electricity grid decarbonisation are likely to be lower than if the target was set for 2050. As per the "rapid" decarbonisation trajectory in Figure 5, even if half of the entire building and fleet stock in Cannock Chase were decarbonised every four years, residual emissions would be 12 $ktCO_2e$ in 2030 and would therefore require the implementation of additional renewables and more carbon sequestration within the district.

Additionally, although there is expected to be a significant shift towards ULEVs, this transition is not likely to be complete by 2030. The Council will therefore need to accelerate the rate of uptake of ULEVs within the district to achieve its net zero target, including the associated charging infrastructure and local grid upgrades.

Finally, because carbon removal technologies have not yet been widely adopted at scale, additional tree planting and other nature based solutions are likely to be required, although it should be noted that these take up to a decade before they begin to sequester significant amounts of carbon and therefore would need to be introduced quickly. The majority of land in Cannock Chase lies within the green belt, and to the north of the district is the nationally significant Cannock Chase AONB which could offer opportunities to deliver environmental benefits. In addition, although these areas could potentially accommodate sensitively-designed renewable energy installations, the biggest opportunity for renewable electricity generation will be the provision of building-integrated solar PV, combined with battery storage as these are not accounted for in grid decarbonisation and therefore the figures produced by BEIS on which progress is measured.

In summary, in order to achieve carbon neutrality by 2030, the Council will need to:

- reduce energy demands from transport and buildings much faster
- seek to increase the provision of local renewable energy as much as possible
- take immediate actions to increase carbon removals from the atmosphere
- ensure a robust supply chain is in place to deliver activities at the scale required

Recognising that to achieve its net zero target the Council will have to accelerate action ahead of the UK-wide plans, this Net Zero Action Plan has been developed to identify how the "rapid" decarbonisation trajectory could be implemented.

[3] Appendix A – includes a note on dealing with renewables. Figures represent excess generation required over demand to ensure carbon reductions are reflected at the Cannock Chase level.

# 6. Indicative costs

The Net Zero Action Plan detailed in Section 7 provides the indicative estimated resource costs associated with actions that will support the Council to achieve its net zero target by 2030. In total this is expected to amount to approximately **£21.3 million**. This total does not include any of the expenditure identified in Section 6.4 (Indicative capital costs) which is expected to be the vast majority of costs, amounting to at least **£4.7 billion** between now and 2030. This is clearly shown in Figure 6.

The table below provides a breakdown of both estimated resource and capital costs, by year. As this shows, resources costs are broadly split in half in terms of internal (CDDC) and external resource. Information on the approach used to estimate resource costs is provided in Section 6.3.

**Table 5 – Indicative cost breakdown by strategic theme and staff resource type by financial year (£ million)[4] [5] [6]**

| | | | 22-23 | 23-24 | 24-25 | 25-26 | 26-27 | 27-28 | 28-29 | 29-30 | 30-31 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Grand totals** | **Resource** | CCDC | £1.50 | £1.58 | £1.39 | £1.26 | £1.20 | £1.11 | £1.10 | £1.09 | £1.09 | **£11.30** |
| | | External | £3.19 | £2.65 | £1.04 | £0.76 | £0.80 | £0.55 | £0.35 | £0.32 | £0.32 | **£10.00** |
| | | **Total** | £4.69 | £4.23 | £2.42 | £2.02 | £2.00 | £1.66 | £1.45 | £1.41 | £1.41 | **£21.30** |
| | **Capital costs** | **Total** | £0.15 | £6.16 | £100.07 | £635.49 | £1,596.13 | £1,596.13 | £635.49 | £100.07 | £6.31 | **£4,676.00** |
| | **Grand total** | | **£4.84** | **£10.40** | **£102.49** | **£637.51** | **£1,598.13** | **£1,597.79** | **£636.95** | **£101.48** | **£7.73** | £4,697.30 |
| **Energy** | | CCDC | £0.25 | £0.23 | £0.13 | £0.09 | £0.06 | £0.03 | £0.03 | £0.03 | £0.03 | **£0.88** |
| | | External | £0.34 | £0.35 | £0.19 | £0.11 | £0.04 | £0.01 | £0.01 | £0.01 | £0.01 | **£1.07** |
| | | **Total** | **£0.58** | **£0.58** | **£0.32** | **£0.20** | **£0.10** | **£0.04** | **£0.04** | **£0.04** | **£0.04** | £1.95 |
| **NaturalCapital & Nature Based Solutions** | | CCDC | £0.27 | £0.17 | £0.16 | £0.14 | £0.17 | £0.15 | £0.15 | £0.14 | £0.14 | **£1.47** |
| | | External | £0.43 | £0.11 | £0.07 | £0.04 | £0.09 | £0.07 | £0.05 | £0.02 | £0.02 | **£0.89** |
| | | **Total** | **£0.70** | **£0.28** | **£0.23** | **£0.18** | **£0.26** | **£0.21** | **£0.19** | **£0.15** | **£0.15** | £2.36 |
| **Non-Residential** | | CCDC | £0.15 | £0.16 | £0.19 | £0.15 | £0.13 | £0.13 | £0.13 | £0.13 | £0.13 | **£1.28** |
| | | External | £0.20 | £0.22 | £0.40 | £0.37 | £0.23 | £0.23 | £0.23 | £0.23 | £0.23 | **£2.33** |
| | | **Total** | **£0.35** | **£0.38** | **£0.58** | **£0.52** | **£0.36** | **£0.35** | **£0.35** | **£0.35** | **£0.35** | £3.60 |
| **Residential** | | CCDC | £0.37 | £0.45 | £0.44 | £0.45 | £0.44 | £0.44 | £0.44 | £0.44 | £0.44 | **£3.90** |
| | | External | £1.48 | £1.33 | £0.13 | £0.08 | £0.08 | £0.02 | £0.02 | £0.02 | £0.02 | **£3.16** |
| | | **Total** | **£1.84** | **£1.77** | **£0.57** | **£0.53** | **£0.52** | **£0.46** | **£0.46** | **£0.46** | **£0.46** | £7.06 |
| **Transport** | | CCDC | £0.44 | £0.51 | £0.46 | £0.40 | £0.37 | £0.36 | £0.36 | £0.36 | £0.36 | **£3.59** |
| | | External | £0.74 | £0.50 | £0.20 | £0.10 | £0.25 | £0.17 | £0.05 | £0.05 | £0.05 | **£2.11** |
| | | **Total** | **£1.18** | **£1.01** | **£0.65** | **£0.50** | **£0.62** | **£0.52** | **£0.40** | **£0.40** | **£0.40** | £5.70 |
| **Cross-cutting** | | CCDC | £0.03 | £0.07 | £0.02 | £0.03 | £0.03 | £0.02 | £0.01 | £0.01 | £0.01 | **£0.19** |
| | | External | £0.00 | £0.15 | £0.06 | £0.06 | £0.12 | £0.06 | £0.00 | £0.00 | £0.00 | **£0.45** |
| | | **Total** | **£0.03** | **£0.22** | **£0.08** | **£0.09** | **£0.15** | **£0.08** | **£0.01** | **£0.01** | **£0.01** | £0.64 |

[4] Figures have been rounded to the nearest ten thousand for ease of presentation. Further detail on costs can be found in Appendix A.
[5] Estimated capital costs are based on the figures as per Section 6.4.1 and profiled in line with the "rapid" decarbonisation trajectory.
[6] Prices as per 2022 and excluding VAT

**Figure 6 – Indicative costs split by resource and capital costs**

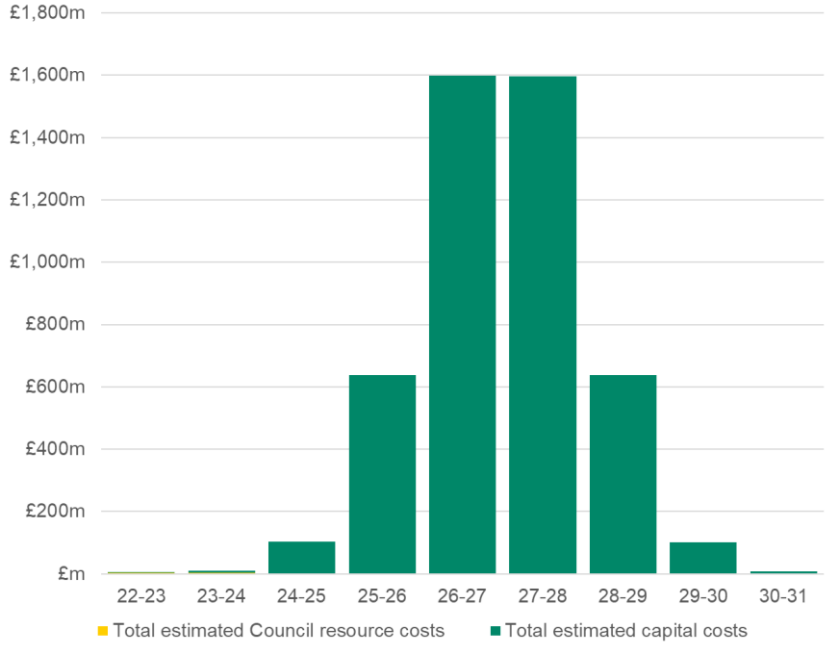
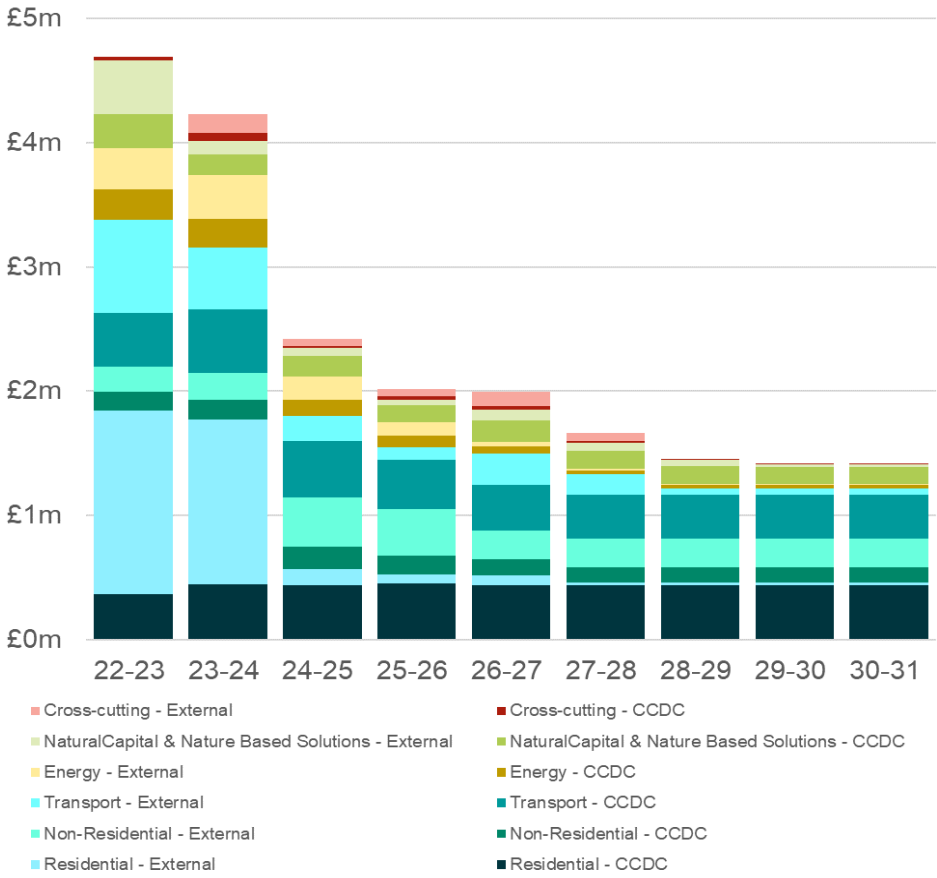



**Figure 7 – Indicative resource costs breakdown by strategic theme and staff resource type**




It should be noted that staff resource costs are highest in the first two years of the programme. This is when the Council will focus on mobilising, enabling and feasibility works, which completed early in the programme, will enable focused delivery in the medium and longer term. This is particularly relevant for the residential sector (40% of total year 1 and 2 costs), where early action on social housing will develop the market and supply chain for addressing the wider sector.

## 6.1 Prioritising action

All actions considered for inclusion in this action plan (see Section 7.1) have been prioritised by considering three key metrics:

- **Carbon** – *Does the intervention significantly reduce emissions as accounted for in the Government's UK local authority and regional carbon dioxide emissions national statistics?*
- **Cost** – *How large is the scale of investment required? Is external funding available? Are commercial outcomes within Council investment norms?*
- **Achievability** – *Are technological solutions viable? Have they been implemented elsewhere? Can benefits can be clearly measured? Is a procurement route available and mature supply chain in place?*

Actions have been scored against each of the metrics from 1 (lowest) to 3 (highest) using criteria as shown in Table 6. A final score for each action was then calculated by multiplying the three criterion scores together, meaning that the worst score was '1', '8' is the centre point and '27' is the best score.

In order to prioritise actions, all those with a total score of 8 or higher have been carried forward into this plan. There are some instances where scores of less than 8 have been included, these are enabling actions that will allow delivery of an action scoring 8 or more. For example, NR21 in Table 18 is to engage with the Stoke and Staffordshire Chamber of Commerce Climate Change Advisor to identify opportunities for joint working. This will help enable the objective to support local private businesses to meet the net zero target.

**Table 6 – Scoring criteria**

| | | Criterion score | | |
|---|---|---|---|---|
| | | 1 | 2 | 3 |
| Criterion | Carbon | Does not reduce emissions as accounted for in BEIS "UK local authority and regional carbon dioxide emissions national statistics". Carbon emissions reductions likely to be low or this is an enabling action that will facilitate future carbon reductions. | Reduces emissions as accounted for in BEIS "UK local authority and regional carbon dioxide emissions national statistics". Carbon emissions reductions likely to be moderate. | Reduces emissions as accounted for in BEIS "UK local authority and regional carbon dioxide emissions national statistics". Carbon emissions reductions likely to be significant. |
| | Cost | The scale of investment requirement is very significant, is not currently available or understood and commercial outcomes are well outside Council investment norms. | The scale of investment requirement is large, may be available with additional funding, a procurement route may be available and commercial outcomes are outside The Corporation investment norms. | The scale of investment required is modest, is available and the commercial outcomes are within Council investment norms. |
| | Achievability | Technological solutions are novel/ have not been identified elsewhere.<br><br>Benefits cannot be measured.<br><br>No procurement route available. | Technological solutions are viable and have been implemented elsewhere.<br><br>Benefits can be measured.<br><br>A procurement route can be identified. | Technological solutions are viable and have been implemented elsewhere.<br><br>Benefits can be clearly measured.<br><br>A procurement route is available and mature supply chain in place. |

## 6.2 Indicative cost breakdown

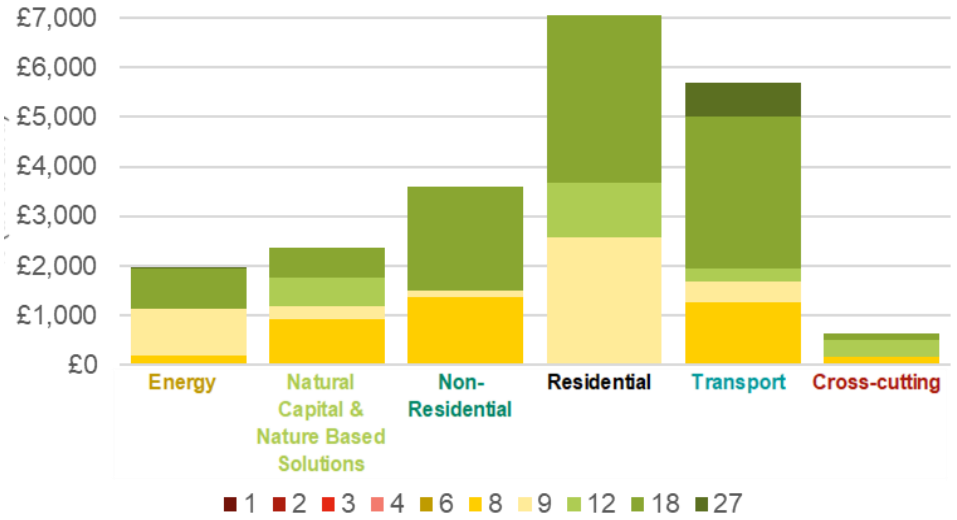
Figure 8 and Table 7 highlight resource costs by priority for each of the six strategic themes. As these demonstrate, the highest proportion of expected costs are associated with residential and transport decarbonisation activities. This is in line with significant areas of carbon emissions as highlighted in Section 4.

Figure 9 and Table 8 (next page) highlight costs by priority and year. Recognising that the Council may have budgetary restrictions that could limit the amount of activity that can be undertaken, this will enable financial planning for priority areas only if the whole plan cannot be funded.

61% of costs are associated with high priority actions (those scoring 12 or more). If only these actions were implemented, total costs would amount to ~£13.1 million up to financial year 2030/31 (based on 2022 prices).

It should be noted that a significant proportion of costs in financial years 2022/23 and 2023/24 have a priority score of 9. This reflects that a high proportion of mobilising, enabling and feasibility works are to be completed early in the programme to enable focused delivery in the medium and longer term (see Section 7.1). Therefore, it is recommended that if funding for the Net Zero Action Plan is limited, careful consideration is given to selecting which actions are taken forward as this may lead to unintended barriers to delivery in the future which could hinder achievement of the net zero target.

**Figure 8 – Indicative resource cost breakdown by priority and strategic theme**

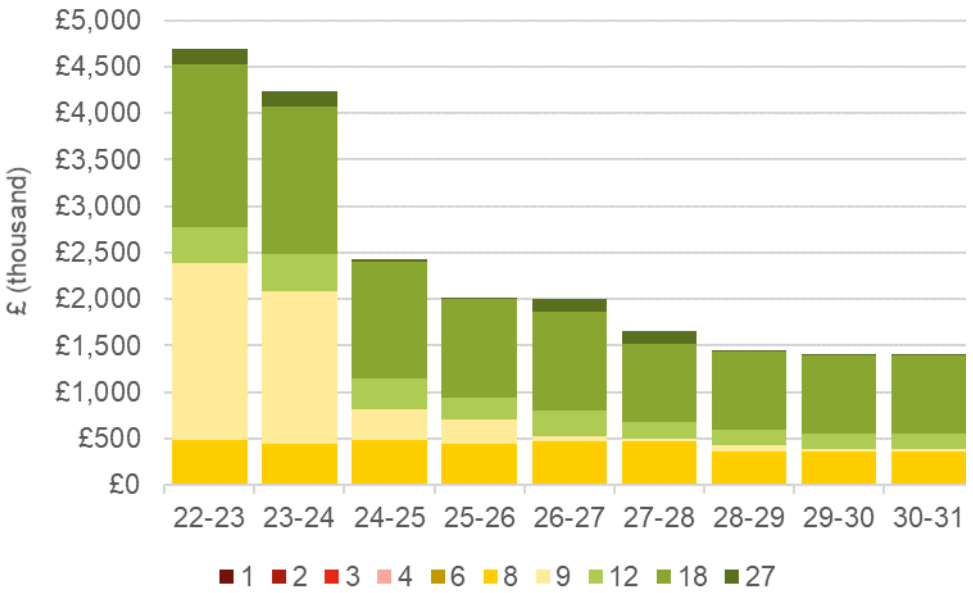



*Action priority score levels (see Section 6.1)*

**Table 7 – Indicative resource cost breakdown by priority and strategic theme (£k)**

| Priority score levels | Energy | Natural Capital & Nature Based Solutions | Non-Residential | Residential | Transport | Cross-cutting | Grand total |
|---|---|---|---|---|---|---|---|
| 1-4 | £0 | £0 | £5 | £0 | £0 | £0 | **£5** |
| 6 | £0 | £0 | £30 | £0 | £0 | £0 | **£30** |
| 8 | £182 | £924 | £1,325 | £0 | £1,254 | £150 | **£3,835** |
| 9 | £960 | £259 | £144 | £2,574 | £432 | £0 | **£4,369** |
| 12 | £0 | £589 | £0 | £1,103 | £261 | £355 | **£2,308** |
| 18 | £797 | £586 | £2,099 | £3,382 | £3,059 | £135 | **£10,058** |
| 27 | £10 | £0 | £0 | £0 | £690 | £0 | **£700** |
| **Total** | **£1,949** | **£2,358** | **£3,603** | **£7,059** | **£5,696** | **£640** | **£21,305** |

**Figure 9 – Indicative resource cost breakdown by priority and year**




*Action priority score levels (see Section 6.1)*

**Table 8 – Indicative resource cost breakdown by priority and year (£ thousand)**

| Priority score levels | 22-23 | 23-24 | 24-25 | 25-26 | 26-27 | 27-28 | 28-29 | 29-30 | 30-31 |
|---|---|---|---|---|---|---|---|---|---|
| 1-4 | £5 | £0 | £0 | £0 | £0 | £0 | £0 | £0 | £0 |
| 6 | £0 | £10 | £10 | £10 | £0 | £0 | £0 | £0 | £0 |
| 8 | £485 | £429 | £477 | £434 | £470 | £466 | £362 | £356 | £356 |
| 9 | £1,897 | £1,643 | £333 | £262 | £52 | £37 | £71 | £37 | £37 |
| 12 | £385 | £398 | £326 | £236 | £287 | £178 | £166 | £166 | £166 |
| 18 | £1,753 | £1,597 | £1,257 | £1,055 | £1,050 | £841 | £835 | £835 | £835 |
| 27 | £165 | £155 | £20 | £20 | £140 | £140 | £20 | £20 | £20 |
| **Total** | **£4,690** | **£4,232** | **£2,423** | **£2,017** | **£1,999** | **£1,662** | **£1,454** | **£1,414** | **£1,414** |

## 6.3 Approach to costing

As agreed with Cannock Chase District Council, detailed costs presented in this action plan are resource costs only. This has been agreed as many of the early actions identified in this plan are to complete audits, feasibility and enabling works etc. that would inform the capital costs for future works. In addition, at present there is no indication of external funding approaches the Council may wish to use for individual delivery activities and how the Council would plan to account for these in any costing approach. Costs are based on 2022 prices with no inflation rates included.

The general labour costing approach was conservative based on AECOM's assessment of the 'minimum meaningful effort' likely to be required to complete tasks. Based on previous project experience and with input from Cannock Chase District Council, the number of days required to complete an action was identified and multiplied by agreed day cost rates. It should be noted that all costs are indicative and may be subject to change depending on any specifications and scopes of work produced by the Council as well as any opportunities brought about from working in partnership with other organisations. Double counting between some actions is possible, although this should be mitigated by the conservative pricing approach.

## 6.4 Indicative capital costs

AECOM recognise that the Council may require an indication of the likely capital costs resulting from future actions in this plan to support future budgetary planning. A high level indication of which was provided previously in Table 5 and Figure 6. At this stage capital costs are extremely difficult to ascertain as this requires the completion of enabling works including energy audits and feasibility studies. Recognising that this plan is currently unfunded, and external funding (or project finance) would be required to ensure its success, this would also require the Council to identify and consider how they want to account for external funding approaches for individual activities.

### 6.4.1 Capital costs for net zero pathway

Table 4 (page 14) provides a high level, indicative pathway for achieving net zero in Cannock Chase district. Based on this, Table 9 (see next page) provides an estimate of the minimum capital costs required to achieve net zero in the district. As this shows, this could amount to **at least £4.7 billion**. This figure has been used as the basis for illustrating total capital costs in Table 5 and Figure 6.

.

**Table 9 – Minimum cost estimate to achieve Cannock Chase' net zero pathway**

| | Pathway to net zero | Indicative cost (£ million) | Commentary of cost build up |
|---|---|---|---|
| Built environment | +32,300 heat pumps | **£323.0** | Based on a domestic air source heat pump solution costing £10,000 per heat pump. Cost includes capital costs for the air source heat pump only as taken from the Energy Savings Trust website (accessed 01/04/2022) where the cost of a domestic air source heat pump is approximately £7,000 – £13,000 (median average taken). |
| | +9,400 homes served by district heating | **£77.7** | Cost based on district heating costs per dwelling type for a semi-detached, less dense home (£8,217) as identified in Table 35 of The potential and costs of district heating networks, Faber Maunsell, AECOM and Poyry, 2009 |
| Energy | +17 MW of solar PV | **£10.2** | Based on a ground mounted solar solution costing £600,000 per MW installed as per Table 12 |
| | +2 MW of onshore wind | **£1.2** | Based on a cost of £1,000,000 per MW installed as per Table 12 |
| Natural capital | +500 $tCO_2$ sequestered annually | **£0.1** | Based on sequestration via planting of broadleaf woodland for timber and carbon in England, using the median average between £140-245/$tCO_2e^{-1}$ cost-effectiveness to 2200. Taken from Forestry Commission, Comparing the cost-effectiveness of forestry options for climate change mitigation, Table 5 |
| Transport | +86,000 ULEVs | **£4,263.3** | Based on average cost of £49,573 per vehicle. Taken from Electric Vehicle database, Price of electric vehicles accessed (01/04/2022). Excludes charging infrastructure. |
| **Total** | | **£4,676** | |

### 6.4.2 Council buildings

AECOM have completed desktop energy audits on nine Council buildings. The detailed results of these are provided in an accompanying report included in Appendix C. As Table 10 below shows, the identified energy efficiency and carbon reduction measures may reduce total emissions from these buildings by **77%** in 2030 for a cost of between **£5.63 million** (low benchmark cost scenario) and **£7.47 million** (high benchmark cost scenario).

**Table 10 – Capital costs - Council buildings**

| Building name | GHG emissions ($tCO_2e$) | | Costs (£ million) | |
|---|---|---|---|---|
| | Baseline | 2030 | Low scenario | High scenario |
| Chase Leisure Centre | 729 | 138 *(-81%)* | £2.02 | £2.85 |
| Rugeley Leisure Centre | 546 | 110 *(-80%)* | £1.27 | £1.58 |
| Civic Centre | 344 | 143 *(-58%)* | £0.62 | £0.79 |
| Hawks Green Depot | 102 | 4 *(-96%)* | £0.68 | £0.85 |
| Prince of Wales Theatre | 67 | 14 *(-79%)* | £0.35 | £0.37 |
| Museum of Cannock Chase | 47 | 13 *(-72%)* | £0.36 | £0.54 |
| Rugeley Indoor Market | 19 | 5 *(-74%)* | £0.22 | £0.27 |
| New Cemetery Building | 3 | 1 *(-71%)* | £0.09 | £0.20 |
| 5's Building | 3 | -2 *(-183%)* | £0.01 | £0.02 |
| **Total** | **1,860** | **426** *(-77%)* | **£5.63** | **£7.47** |

### 6.4.3 Council social housing

For domestic buildings, the cost of installing energy efficiency measures can be three to five times higher if they are retrofitted, compared with installing them in new homes. In addition, the cost depends on which measures are installed but can range from around £16,000 per home (Committee on Climate Change, 2019) to upwards of £75,000 per home, as in the case of Energiesprong whole house, deep energy retrofitting projects where a wide range of measures are implemented alongside each other e.g. wall, loft and floor insulation, new double glazing, doors and draughtproofing, heating system replacements and renewables.

Based on Government statistics, the Council has 5,118 social homes (68% of total social housing stock in the district). Therefore, the capital cost of retrofitting all social homes in the district could range between **£82 - 384 million**. Action R1 below will address providing more accuracy on this wide range, helping the Council to understand the range of work and delivery standards required.

As stated above, capital costs depend on which measures are being installed. Table 11 provides indicative capital costs for a range of domestic retrofit measures for reference.

**Table 11 – Capital costs, domestic retrofit**

| | Installation cost (£) | Annual carbon savings[7] ($kgCO_2$) | |
|---|---|---|---|
| **Individual measures** | | | |
| Cavity Wall Insulation | £2,733 | | |
| External Solid Wall Insulation | £12,379 | 277 | |
| Internal Solid Wall Insulation | £7,500 | | |
| Loft Insulation | £1,124 | 95 | |
| Flat Roof Insulation | £10,636 | | [a] |
| Suspended Floor Insulation | £3,766 | 154 | |
| Air Source Heat Pump | £11,120 | 1,234 | |
| Solar Thermal | £6,535 | 103 | |
| Heating Controls | £637 | 103 | |
| Double or Triple Glazing | £4,399 | 86 | |
| Draught Proofing | £401 | | |
| Energy Efficient Windows and Doors | £2,239 | 86 | |
| Solar PV | £5,902 | 173 | |
| Energy Efficient Lighting | £377 | 31 | |
| **Whole house retrofit options** | | | |
| Whole house refurbishment (see notes below) | £6,895-£14,400 | 1,215 | [b] |
| Whole house refurbishment (Energiesprong) | £35,000-£75,000 | - | [c] |
| Whole house refurbishment (CCC, 2019) | £16,000-£25,000 | - | [d] |
| Whole house refurbishment (EnerPHit case study) | Approx. £39,000 | - | [e] |

**References:**

[a] Green Homes Grant Local Authority Delivery statistics, 21st August 2022

[b] AECOM, 'London Carbon Offset Price' (2017). Figures are based on the Green Deal impact assessment carried out by the Department of Energy and Climate Change in 2012. In this instance, 'Whole house refurbishment' includes wall, loft and floor insulation, new double glazing, doors and draughtproofing.

[c] Green Alliance, 'Reinventing Retrofit: How to scale up home energy efficiency in the UK' (2019)

[d] Committee on Climate Change, 'Costs and benefits of tighter standards for new buildings' (2019)

[e] Based on a case study reported by Passivhaus Trust, 'UK's first pre-certified step-by-step EnerPHit' (2018)

[7] Based on the year in which data was sourced

### 6.4.4 Renewable energy technologies

Actions in Table 16 – Energy (page 25) identify that area mapping is required to identify opportunities for renewable technologies across the district. This would then require subsequent feasibility studies in order to identify capital costs for specific renewable technologies at specific locations. Whilst capital costs would be subject to these feasibility studies, indicative figures are for common renewable energy technologies are provided in Table 12

**Table 12 – Capital costs, renewable energy technologies**

| | Installation cost (£) | Annual carbon savings ($kgCO_2$) | |
|---|---|---|---|
| 1MW wind turbine | £1,000,000 | 317,355 | [f] |
| 1MW ground-mounted solar | £600,000 | 117,283 | [f] |
| 1MW roof-mounted solar | £1,000,000 | 117,283 | [g] |
| Domestic solar water heating (approx. 3kW) | £4,615 | 289 | [a] |
| Switch to individual ASHP (per kW) | £1,004 | - | [h] |
| Switch to shared loop GSHP (per kW) | £980 | - | [h] |

**References**

[f] AECOM estimate 2020

[g] BEIS, 'MCS Installation Database - Small scale solar PV cost data' (2019)

[h] Element Energy, Assumptions Log for the Development of Trajectories for Residential Heat Decarbonisation to Inform the Sixth Carbon Budget (2020)

### 6.4.5 Fleet vehicle decarbonisation

As highlighted in the Vehicle Fleet Report completed by the Energy Saving Trust for the Council, when assessing the operation of ULEVs it is important to use a whole life cost (WLC) model which includes both the cost of purchasing and operating the vehicle. This is because ULEVs are more often more expensive to buy in the first instance, but cheaper to fuel and maintain. Therefore, a WLC model is the only way to compare them with the diesel equivalents.

Table 13 and Table 14[8] below illustrate the capital and WLC costs from switch existing diesel fleet vans and refuse collection vehicles to electric (eRCV) alternatives.

It is important to note that Table 13 does not include for charging infrastructure. This would also need to be considered as part of any project before switching Council fleet to ULEVs.

**Table 13 - Cost and GHG comparison, diesel and electric 3.2t vans at 6,000 miles per annum (fleet average)**

| Vehicle type | Capital cost | WLC | £/mile | Whole life $tCO_2e$ |
|---|---|---|---|---|
| Diesel van | £15,004 | £21,565 | £0.90 | 7.2 |
| Electric van 100kW/50kWh | £34,390 | £25,638 | £1.07 | 1.3 |
| Electric van 100kW/75kWh | £43,480 | £34,726 | £1.45 | 1.4 |

**Table 14 - Comparative whole life costs of an eRCV fleet (10 years eRCV, 7+3 diesel RCV)**

| Cost summary | Electric | Diesel | EV cost/saving |
|---|---|---|---|
| Total vehicle cost | £2,856,000 | £2,057,143 | £798,857 |
| Total energy cost | £338,053 | £1,452,433 | -£1,114,380 |
| AdBlue cost | £0 | £15,839 | -£15,839 |
| SMR cost | £360,000 | £600,000 | -£240,000 |
| VED + road user levy | £0 | £49,200 | -£49,200 |
| Euro VI Diesel CAZ levy | £0 | £0 | £0 |
| Total cost | £3,554,053 | £4,174,615 | -£620,562 |
| Charging infrastructure | £96,000 | N/A | £96,000 |

[8] Source: Energy Saving Trust - Vehicle Fleet Report, Cannock Chase DC, 30 August 2020

# 7. Net zero action plan

## 7.1 Development of the net zero action plan

Recognising its net zero commitments, and historic and forecast carbon emissions, AECOM have worked with the Council to develop this net zero action plan.

Central to the development of this were the following key considerations:

- **Scale and pace** - focusing on action that can be undertaken quickly and at sufficient scale to make meaningful reductions in district-wide carbon emissions
- **Public sector leadership** – leveraging Council buildings to support the development of markets and supply chains for wider sectors *e.g. focusing on social housing early to activate decarbonisation of the wider domestic sector*
- **Avoiding delays** – completing mobilising, enabling and feasibility works early in the programme to enable focused delivery in the medium and longer term
- **Council control** – recognising the influence of the Council and where it can meaningfully enable carbon reductions
- **Collaborative working** – action is already underway in Cannock Chase to support delivery of net zero ambitions, working collaboratively with external stakeholders will allow the Council to align efforts and maximise impact *e.g. Staffordshire County Council's Climate Change Action Plan - 2021/22, Zero Carbon Rugeley Project and Local Area Energy Planning*
- **Funding** - external funding will be required to deliver this plan

### 7.1.1 Stakeholder engagement

Achieving net zero will require collective effort from across Cannock Chase and beyond. Therefore, as part of the action plan development, stakeholders were identified and engaged to provide an opportunity to input into this plan, securing their buy-in and feedback for actions and identifying where existing action is being undertaken and what resources are being used.

To support this, AECOM completed an interactive workshop for the strategic themes, engaging 35 internal and external stakeholders, to identify a whole range of potential carbon reduction interventions whether technical, operational, behavioural or nature based that could be implemented across the district.

For transparency, all ideas and their assessment are included in the spreadsheet in Appendix A. It is recommended that these should be revisited and added to at regular intervals as the Council progresses towards net zero. This will allow the Council to reflect changes in technology, funding approaches, costs, commercial models and wider stakeholder action.

In addition, whilst they may not have scored highly in the assessment, we recognise that enabling and feasibility works are required to unlock delivery of some interventions. Where required, these have also been included in the action plan.

### 7.1.2 Start and end dates for action

In order to meet the Council's target of net zero by 2030, start and end dates have been assigned to each action. These are for guidance and intended to identify early projects that may inform other future actions and / or identify commitments that will require resourcing for a significant length of time.

Table 15 shows the general approach that has been applied to the majority of actions.

**Table 15 – Approach to ascertaining start and end dates**

| Action type | Start and end date comments |
|---|---|
| Obtaining external funding | Immediate start and resourced until 2030 as it is anticipated that funding initiatives will change, and new funding streams will be regularly created. It is also possible that funding will be available for short periods of time only and an agile approach will be required to capitalise on these. |
| Feasibility studies | Programmed early so that they can inform later work, with time to implement recommendations. |
| Engaging with stakeholders and creating working partnerships | Immediate start and resourced until 2030 as this will provide an opportunity to share good practice, understand policy changes, likely changes to funding and provide time for partnerships to develop. |
| Changes to planning and setting performance parameters | Takes place early as changes need to be in place prior to any major undertaking of projects at scale so that there is time to incorporate changes within projects. |

| Action type | Start and end date comments |
|---|---|
| 'One Stop' advice | Created following the results of initial feasibility studies and changes to planning and performance parameters so that advice will be current and will support new projects at conception stage through to site installation that may benefit from the Council project work already done. |
| Case studies | Case studies should be undertaken early as they are likely to take time to complete and are required to inform later work and to demonstrate to others what is possible. |
| Council projects | Major Council projects have been scheduled to start in the middle of the decade, to give time for feasibility work to be completed, but still acknowledging that significant time will be required to complete major work at scale. |
| Private sector projects | Private sector works have been scheduled to start following the completion of feasibility studies, changes to planning and guidance and once 'One Stop' advice centres have been set up. |

## 7.2 Action plan

The following pages detail the actions that have been prioritised for implementation to achieve the Council's net zero vision. For each strategic theme the following is provided:

- **Activity area** – high-level areas of concern that group together Objectives
- **Objective** – the result that groups of actions are intending to achieve
- **Key performance indicator (KPI)** – the quantifiable measure of performance for specific objectives
- **Action** – the activity that will be undertaken
- **Action owner** - the organisation, person or team responsible for completing a particular action
- **Resource type** – divided into two categories:
  - Internal – internal staff resource provided by Cannock Chase District Council employees
  - External – external staff resource provided by an organisation other than the Council
- **Estimated indicative staff resource cost per year** – provisional costs to deliver individual actions. These are subject to agreeing project scope, tender specifications, procurement routes and general prevailing market conditions. These have been agreed in consultation with the Council. Further information on the costing approach is provided in Section 6.3.

## Table 16 – Energy

| Activity area | Objective | KPIs | Ref | Action | Action owner | Prioritisation (Score 1-27) | Resource type | Total cost | Estimated indicative cost per year 21-22 | 22-23 | 23-24 | 24-25 | 25-26 | 26-27 | 27-28 | 28-29 | 29-30 | 30-31 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Battery storage** | Identify and implement opportunities for battery storage technologies | • MWh installed storage capacity<br>• $tCO_2e$/year saved compared to grid electricity<br>• Delivery in line with action plan timescales | En1 | Identify opportunities linked to solar pv to implement battery storage options (linked to solar photovoltaic and EV charging activities) (link to XC1) | | **8** | Internal | **40k** | | | 20k | 10k | 10k | | | | | |
| | | | | | | | External | **36k** | | | 36k | | | | | | | |
| | **Total** | | | | | | | **76k** | **0k** | **0k** | **56k** | **10k** | **10k** | **0k** | **0k** | **0k** | **0k** | **0k** |
| **District heating** | Identify and implement opportunities for district heat networks | • MWh heat delivered through heat network<br>• Number of buildings connected to heat network<br>• $tCO_2e$ saved by heat networks<br>• Delivery in line with action plan timescales | En2 | Update heat mapping and feasibility study for Cannock Town heat network using Government available funding such as Heat Networks Delivery Unit | | **18** | Internal | **30k** | | 20k | 10k | | | | | | | |
| | | | | | | | External | **60k** | | 60k | | | | | | | | |
| | | | En3 | Progress Rugeley heat network | | **18** | Internal | **50k** | | 10k | 10k | 10k | 10k | 10k | | | | |
| | | | | | | | External | **120k** | | 24k | 24k | 24k | 24k | 24k | | | | |
| | | | En4 | Engage with Severn Trent to identify heat opportunities from sewage works | | **8** | Internal | **60k** | | 20k | 10k | 10k | 10k | 10k | | | | |
| | | | | | | | External | **36k** | | 24k | 12k | | | | | | | |
| | | | En5 | Identify opportunities for additional heat networks (including anaerobic digestion, biogas, biomass, mine water heat, waste from heat, water heat sources) | | **9** | Internal | **40k** | | 20k | 20k | | | | | | | |
| | | | | | | | External | **72k** | | 36k | 36k | | | | | | | |
| | **Total** | | | | | | | **468k** | **0k** | **214k** | **122k** | **44k** | **44k** | **44k** | **0k** | **0k** | **0k** | **0k** |
| **Hydrogen** | Identify opportunities for hydrogen production | | En6 | *To be progressed after Government decision on hydrogen use in buildings after 2026* | | | Internal | **0k** | | | | | | | | | | |
| | | | | | | | External | **0k** | | | | | | | | | | |
| | **Total** | | | | | | | **0k** | **0k** | **0k** | **0k** | **0k** | **0k** | **0k** | **0k** | **0k** | **0k** | **0k** |
| **Renewables** | Identify and implement community renewable schemes | • Total kilowatts peak (kWp) installed<br>• $tCO_2e$/year saved compared to grid electricity<br>• MWh of renewable heat installed<br>• Number of installations<br>• Delivery in line with action plan timescales | En7 | Complete area mapping to identify opportunities for renewable technologies including both Council and non-Council owned buildings and land | | **9** | Internal | **80k** | | 10k | 20k | 20k | 20k | 10k | | | | |
| | | | | | | | External | **108k** | | | 60k | 36k | 12k | | | | | |
| | | | En8 | Complete feasibility studies based on the results of area mapping | | **9** | Internal | **30k** | | | 10k | 10k | 10k | | | | | |
| | | | | | | | External | **180k** | | | 60k | 60k | 60k | | | | | |
| | | | En9 | Engage with the local community to identify and gauge appetite for renewable installations | | **9** | Internal | **90k** | | 10k | 10k | 10k | 10k | 10k | 10k | 10k | 10k | 10k |
| | | | | | | | External | **108k** | | 12k | 12k | 12k | 12k | 12k | 12k | 12k | 12k | 12k |
| | Enabling actions | • £ funding secured<br>• Delivery in line with action plan timescales | En10 | Address planning requirements that may present a barrier to implementation e.g. in relation to Development Consent Orders to allow mass retrofit where planning consent may be needed for certain measures | | **9** | Internal | **30k** | | 10k | 10k | 10k | | | | | | |
| | | | | | | | External | **24k** | | 12k | 12k | | | | | | | |
| | | | En11 | Identify funding and financing options including crowdfunding and community energy funds | | **18** | Internal | **60k** | | 20k | 20k | 20k | | | | | | |
| | | | | | | | External | **108k** | | 36k | 36k | 36k | | | | | | |
| | | | En12 | Liaise with the District Network Operator (DNO) to understand local grid capacity (link with XC1) | | **9** | Internal | **10k** | | 5k | 5k | | | | | | | |
| | | | | | | | External | **0k** | | | | | | | | | | |
| | **Total** | | | | | | | **828k** | **0k** | **115k** | **255k** | **214k** | **124k** | **32k** | **22k** | **22k** | **22k** | **22k** |
| **Solar photovoltaics (PV)** | Solar PV installations on buildings across the district | • Total kilowatts peak (kWp) installed<br>• Number of installations<br>• Delivery in line with action plan timescales | En13 | Feasibility study to identify solar PV potential | | **9** | Internal | **20k** | | 20k | | | | | | | | |
| | | | | | | | External | **36k** | | 36k | | | | | | | | |
| | | | En14 | Investigate options to promote and increase uptake of solar schemes to the public and local businesses e.g. Solar Together | | **18** | Internal | **30k** | | 10k | 10k | 10k | | | | | | |
| | | | | | | | External | **72k** | | 24k | 24k | 24k | | | | | | |
| | Council car park solar PV installations | • Total kilowatts peak (kWp) installed<br>• Number of installations | En15 | Feasibility study to identify solar PV potential | | **9** | Internal | **10k** | | 10k | | | | | | | | |
| | | | | | | | External | **24k** | | 24k | | | | | | | | |

| Activity area | | Objective | KPIs | Ref | Action | Action owner | Prioritisation (Score 1-27) | Resource type | Total cost | Estimated indicative cost per year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 21-22 | 22-23 | 23-24 | 24-25 | 25-26 | 26-27 | 27-28 | 28-29 | 29-30 | 30-31 |
| | | | • Delivery in line with action plan timescales | En16 | Investigate options to promote and increase uptake of solar schemes to the public and local businesses e.g. Solar Together | | **18** | Internal | **20k** | | 10k | 10k | | | | | | | |
| | | | | | | | | External | **24k** | | 12k | 12k | | | | | | | |
| | | Enabling actions | • Delivery in line with action plan timescales | En17 | Liaise with the District Network Operator (DNO) to understand local grid capacity (link with XC1) | | **9** | Internal | **10k** | | 5k | 5k | | | | | | | |
| | | | | | | | | External | **0k** | | | | | | | | | | |
| | | | | En18 | Address planning requirements that may present a barrier to implementation e.g. in relation to Development Consent Orders to allow mass retrofit where planning consent may be needed for certain measures | | **9** | Internal | **40k** | | 20k | 20k | | | | | | | |
| | | | | | | | | External | **48k** | | 24k | 24k | | | | | | | |
| | | | | En19 | Identify funding and financing options | | **18** | Internal | **90k** | | 10k | 10k | 10k | 10k | 10k | 10k | 10k | 10k | 10k |
| | | | | | | | | External | **0k** | | | | | | | | | | |
| | | **Total** | | | | | | | **424k** | **0k** | **205k** | **115k** | **44k** | **10k** | **10k** | **10k** | **10k** | **10k** | **10k** |
|  | **Zero Carbon Rugeley** | Fully exploit Zero Carbon Rugeley (ZCR) outcomes | • Delivery in line with action plan timescales | En20 | The Council to continue to support Zero Carbon Rugeley | | **8** | Internal | **10k** | | 5k | 5k | | | | | | | |
| | | | | | | | | External | **0k** | | | | | | | | | | |
| | | | | En21 | Identify how outputs from Zero Carbon Rugeley can be used at other locations in the district – Cross cutting action linked to Residential, Non-Residential, Transport and Natural Solutions | | **18** | Internal | **10k** | | 5k | 5k | | | | | | | |
| | | | | | | | | External | **12k** | | 6k | 6k | | | | | | | |
| | | | | En22 | Ensure Natural Capital and Nature Based Solutions thinking is incorporated within Zero Carbon Rugeley. This includes consideration on land use e.g. installation of renewables vs sequestration/natural capital opportunities | | **18** | Internal | **5k** | | 5k | | | | | | | | |
| | | | | | | | | External | **6k** | | 6k | | | | | | | | |
| | | **Total** | | | | | | | **43k** | **0k** | **27k** | **16k** | **0k** | **0k** | **0k** | **0k** | **0k** | **0k** | **0k** |
|  | **Partnership working** | Engage with key stakeholders | • Number of stakeholders engaged<br>• Number of engagement events<br>• Number of partnership projects completed | En23 | Engage with Energy Innovation Zones to gain lessons learnt and identify opportunities for joint working | | **18** | Internal | **10k** | | 5k | 5k | | | | | | | |
| | | | | | | | | External | **0k** | | | | | | | | | | |
| | | | | En25 | Engage with Staffordshire County Council with establishment of their Sustainability Board. | | **18** | Internal | **45k** | | 5k | 5k | 5k | 5k | 5k | 5k | 5k | 5k | 5k |
| | | | | | | | | External | **0k** | | | | | | | | | | |
| | | | | En26 | Engage Stakeholder Panel and incorporate identified actions in this action plan (applies to all Sections of the Action Plan) | | **18** | Internal | **45k** | | 5k | 5k | 5k | 5k | 5k | 5k | 5k | 5k | 5k |
| | | | | | | | | External | **0k** | | | | | | | | | | |
| | | | | En27 | Complete Local Area Energy Planning via Energy Systems Catapult to develop a holistic approach to energy system decarbonisation | | **27** | Internal | **10k** | | 5k | 5k | | | | | | | |
| | | | | | | | | External | **0k** | | | | | | | | | | |
| | | **Total** | | | | | | | **110k** | **0k** | **20k** | **20k** | **10k** | **10k** | **10k** | **10k** | **10k** | **10k** | **10k** |
| **Theme total** | | | | | | | | | **1,949k** | **0k** | **581k** | **584k** | **322k** | **198k** | **96k** | **42k** | **42k** | **42k** | **42k** |

## Table 17 – Natural capital and nature based solutions

| Activity area | Objective | KPIs | Ref | Action | Action owner | Prioritisation (Score 1-27) | Resource type | Total cost | Estimated indicative cost per year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 21-22 | 22-23 | 23-24 | 24-25 | 25-26 | 26-27 | 27-28 | 28-29 | 29-30 | 30-31 |
| **Partnership working** | Support people to understand the value of the natural environment | • Number of meetings attended with partners<br>• Number of partnership projects | Na1 | Develop and implement a public awareness campaign, linked with key stakeholders (e.g. AONB, Staffordshire Wildlife Trust, Forestry Commission) | | **9** | Internal | **120k** | | 20k | 10k | 10k | 20k | 10k | 10k | 20k | 10k | 10k |
| | | | | | | | External | **84k** | | 36k | | | 24k | | | 24k | | |
| | | | Na2 | Engage and collaborate with existing community groups to identity opportunities for joint working | | **9** | Internal | **45k** | | 5k | 5k | 5k | 5k | 5k | 5k | 5k | 5k | 5k |
| | | | | | | | External | **0k** | | | | | | | | | | |
| | | | Na3 | Engage Stakeholder Panel and incorporate identified actions in this action plan (applies to all Sections of the Action Plan) | | **18** | Internal | **45k** | | 5k | 5k | 5k | 5k | 5k | 5k | 5k | 5k | 5k |
| | | | | | | | External | **0k** | | | | | | | | | | |
| | **Total** | | | | | | | **294k** | **0k** | **66k** | **20k** | **20k** | **54k** | **20k** | **20k** | **54k** | **20k** | **20k** |
| **Heat islands** | Use Nature Based Solutions to reduce heat islands | • % of roof area covered by green roofs | Na5 | Establish a requirement on all public buildings for a percentage of green roof provision and implement a green roof programme. This includes looking at how this can be included via the Local Plan e.g. urban greening factors | | **8** | Internal | **60k** | | 20k | 5k | 5k | 5k | 5k | 5k | 5k | 5k | 5k |
| | | | | | | | External | **36k** | | 36k | | | | | | | | |
| | **Total** | | | | | | | **96k** | **0k** | **56k** | **5k** | **5k** | **5k** | **5k** | **5k** | **5k** | **5k** | **5k** |
| **Local Plan** | Increase natural capital and nature based solutions for new Council and private developments | • Defined green infrastructure metrics<br>• Operational Carbon Offset Fund<br>• Updated Local Plan<br>• Number of green corridors<br>• Delivery in line with action plan timescales | Na6 | Develop and enforce natural capital and nature based solution standards for all new developments (linked to net zero standards) including setting metrics for green infrastructure and linked to urban greening | | **18** | Internal | **110k** | | 20k | 10k | 10k | 10k | 20k | 10k | 10k | 10k | 10k |
| | | | | | | | External | **84k** | | 36k | 12k | 6k | | 24k | 6k | | | |
| | | | Na7 | Oblige developers to plant more trees through planning policy - revise tree policy and tree strategy | | **12** | Internal | **55k** | | 10k | 5k | 5k | 5k | 10k | 5k | 5k | 5k | 5k |
| | | | | | | | External | **0k** | | | | | | | | | | |
| | | | Na8 | Establish a Carbon Offset Fund that developers can contribute to in lieu of on-site CO2 savings to deliver carbon offsetting and reduction projects such as afforestation and peatland restoration with a preferred for action in Cannock Chase district | | **8** | Internal | **200k** | | 30k | 20k | 20k | 20k | 20k | 30k | 20k | 20k | 20k |
| | | | | | | | External | **168k** | | 72k | 24k | 12k | 6k | 6k | 24k | 12k | 6k | 6k |
| | | | Na9 | Ensure all requirements of the new Environment Act are embedded in the Local Plan including biodiversity net gain | | **18** | Internal | **40k** | | 20k | 10k | 10k | | | | | | |
| | | | | | | | External | **36k** | | 36k | | | | | | | | |
| | | | Na10 | Integrate natural based solutions in tandem with planned infrastructure works (e.g. road developments) to develop green corridors, design requirements/active travel corridors (reference other actions in this spreadsheet), supplementary planning documents | | **8** | Internal | **110k** | | 20k | 20k | 10k | 10k | 10k | 10k | 10k | 10k | 10k |
| | | | | | | | External | **144k** | | 36k | 24k | 12k | 12k | 12k | 12k | 12k | 12k | 12k |
| | **Total** | | | | | | | **947k** | **0k** | **280k** | **125k** | **85k** | **63k** | **102k** | **97k** | **69k** | **63k** | **63k** |
| **Woodlands** | Increase woodland planting in the District | • % increase in green space<br>• Number of trees planted<br>• Investment in UK offset schemes<br>• £ million funding secured | Na11 | Identify sites with low development value for tree planting/woodland allocation and plant trees via accredited UK offset schemes | | **18** | Internal | **95k** | | 20k | 10k | 10k | 5k | 10k | 10k | 10k | 10k | 10k |
| | | | | | | | External | **36k** | | 36k | | | | | | | | |
| | | | Na12 | Target wards with lower green space provision/tree canopy cover for tree planting projects and plant trees via accredited UK offset schemes | | **12** | Internal | **100k** | | 20k | 10k | 10k | 10k | 10k | 10k | 10k | 10k | 10k |
| | | | | | | | External | **36k** | | 36k | | | | | | | | |
| | | | Na14 | Expand the Urban Forest project at Pye Green | | **18** | Internal | **50k** | | 10k | 5k | 5k | 5k | 5k | 5k | 5k | 5k | 5k |
| | | | | | | | External | **0k** | | | | | | | | | | |
| | | | Na15 | Utilise Government/charity funding e.g. Woodland Trust, Tree Council, Urban Tree Challenge Fund etc. | | **18** | Internal | **90k** | | 10k | 10k | 10k | 10k | 10k | 10k | 10k | 10k | 10k |
| | | | | | | | External | **0k** | | | | | | | | | | |
| | | | Na17 | Investigate using the Cannock Heritage Trail to develop connectivity of green spaces | | **9** | Internal | **10k** | | | 5k | 5k | | | | | | |
| | | | | | | | External | **0k** | | | | | | | | | | |

| Activity area | | Objective | KPIs | Ref | Action | Action owner | Prioritisation (Score 1-27) | Resource type | Total cost | Estimated indicative cost per year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 21-22 | 22-23 | 23-24 | 24-25 | 25-26 | 26-27 | 27-28 | 28-29 | 29-30 | 30-31 |
| | | **Total** | | | | | | | **417k** | **0k** | **132k** | **40k** | **40k** | **30k** | **35k** | **35k** | **35k** | **35k** | **35k** |
| | **Heathland** | Heathland restoration at Cannock Chase | • Area of heathland restored | Na18 | Increase and expand heathland restoration project at Cannock Chase | | **12** | Internal | **120k** | | 20k | 20k | 20k | 10k | 10k | 10k | 10k | 10k | 10k |
| | | | | | | | | External | **72k** | | 36k | 24k | 12k | | | | | | |
| | | **Total** | | | | | | | **192k** | **0k** | **56k** | **44k** | **32k** | **10k** | **10k** | **10k** | **10k** | **10k** | **10k** |
| | **Street trees** | Increase the number of street trees in the District | • Number of trees planted | Na19 | Implement a street tree planting programme (links with Na7, Na10, Na11, Na12 and Na14) | | **12** | Internal | **110k** | | 20k | 10k | 10k | 10k | 20k | 10k | 10k | 10k | 10k |
| | | | | | | | | External | **96k** | | 36k | 12k | 12k | | 24k | 12k | | | |
| | | **Total** | | | | | | | **206k** | **0k** | **56k** | **22k** | **22k** | **10k** | **44k** | **22k** | **10k** | **10k** | **10k** |
| | **Council owned land** | Carbon sequestration | • $tCO_2e$/year sequestered | Na21 | 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) | | **8** | Internal | **110k** | | 20k | 10k | 10k | 10k | 20k | 10k | 10k | 10k | 10k |
| | | | | | | | | External | **96k** | | 36k | 12k | 12k | | 24k | 12k | | | |
| | | **Total** | | | | | | | **206k** | **0k** | **56k** | **22k** | **22k** | **10k** | **44k** | **22k** | **10k** | **10k** | **10k** |
| **Theme total** | | | | | | | | | **2,358k** | **0k** | **702k** | **278k** | **226k** | **182k** | **260k** | **211k** | **193k** | **153k** | **153k** |

## Table 18 - Non-residential actions

| Activity area | Objective | KPIs | Ref | Action | Action owner | Prioritisation (Score 1-27) | Resource type | Total cost | Estimated indicative cost per year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 21-22 | 22-23 | 23-24 | 24-25 | 25-26 | 26-27 | 27-28 | 28-29 | 29-30 | 30-31 |
| **Council owned buildings** | Decarbonise Cannock Chase District Council existing buildings | • kWh/$m^2$/year energy consumption of Council buildings<br>• $tCO_2e$/year from Council buildings<br>• £ million Government funding secured<br>• Number of completed feasibility studies<br>• % of staff trained<br>• Delivery in line with action plan timescales<br>• % of total energy consumption covered by green tariffs | NR1 | Complete net zero audits of Council owned and operated buildings (including commercial properties) | | **9** | Internal | **10k** | | 10k | | | | | | | | |
| | | | | | | | External | **24k** | | 24k | | | | | | | | |
| | | | NR2 | Following the retrofit of a Council owned and operated building, use this as a showcase to demonstrate leadership to local businesses/stakeholders | | **9** | Internal | **25k** | | | | 10k | 10k | 5k | | | | |
| | | | | | | | External | **36k** | | | | 36k | | | | | | |
| | | | NR3 | Following net zero audits, develop a strategy for hard to treat buildings | | **9** | Internal | **10k** | | 5k | 5k | | | | | | | |
| | | | | | | | External | **24k** | | 24k | | | | | | | | |
| | | | NR4 | Explore the impact of flexible working and the opportunity to reduce occupied space (linked to T4) | | **9** | Internal | **0k** | | | | | | | | | | |
| | | | | | | | External | **0k** | | | | | | | | | | |
| | | | NR5 | Identify opportunities to link upgrade works with wider public sector retrofits including social housing and one public estate to achieve economies of scale (linked with XC1) | | **18** | Internal | **30k** | | 10k | 10k | 10k | | | | | | |
| | | | | | | | External | **0k** | | | | | | | | | | |
| | | | NR6 | Identify “trigger points” when the retrofit of commercial properties can take place e.g. at lease breaks/planned refurbishments and develop decarbonisation plan | | **9** | Internal | **5k** | | 5k | | | | | | | | |
| | | | | | | | External | **0k** | | | | | | | | | | |
| | | | NR7 | Engage with commercial tenants to identify and bring forward net zero retrofits e.g. through incentives, sharing energy savings etc (linked with XC1) | | **18** | Internal | **145k** | | 30k | 30k | 30k | 30k | 5k | 5k | 5k | 5k | 5k |
| | | | | | | | External | **600k** | | 120k | 120k | 120k | 120k | 24k | 24k | 24k | 24k | 24k |
| | | | NR8 | Identify opportunities for Council buildings to connect to heat networks | | **18** | Internal | **20k** | | 10k | 10k | | | | | | | |
| | | | | | | | External | **48k** | | 24k | 24k | | | | | | | |
| | | | NR9 | Implement programme of building retrofits including a focus on decarbonisation of building heat (linked with XC1) | | **18** | Internal | **250k** | | 10k | 30k | 30k | 30k | 30k | 30k | 30k | 30k | 30k |
| | | | | | | | External | **480k** | | | 60k | 60k | 60k | 60k | 60k | 60k | 60k | 60k |
| | | | NR10 | Utilise Government grant funding including the Public Sector Decarbonisation Scheme | | **18** | Internal | **270k** | | 30k | 30k | 30k | 30k | 30k | 30k | 30k | 30k | 30k |
| | | | | | | | External | **0k** | | | | | | | | | | |
| | | | NR11 | Align Council Estates Strategy to net zero ambitions | | **18** | Internal | **20k** | | 20k | | | | | | | | |
| | | | | | | | External | **0k** | | | | | | | | | | |
| | | | NR12 | Deliver net zero and energy management training to key Council staff and contractors | | **18** | Internal | **0k** | | | | | | | | | | |
| | | | | | | | External | **24k** | | 12k | 12k | | | | | | | |
| | | | NR14 | Move Council energy supplies to 100% green tariffs | | **9** | Internal | **10k** | | 10k | | | | | | | | |
| | | | | | | | External | **0k** | | | | | | | | | | |
| | Decarbonise Cannock Chase District Council new buildings | • % of new developments achieving net zero standards | NR15 | Develop and enforce net zero design standards for all new Council developments that go beyond current Building Regulations | | **18** | Internal | **35k** | | | | 5k | 5k | 5k | 5k | 5k | 5k | 5k |
| | | | | | | | External | **132k** | | | | 60k | 12k | 12k | 12k | 12k | 12k | 12k |
| | **Total** | | | | | | | **2,198k** | **0k** | **344k** | **331k** | **391k** | **297k** | **171k** | **166k** | **166k** | **166k** | **166k** |
| **Commercial and industry** | Support local private businesses to meet the net zero target | • Number of engagement events<br>• Number of attendees at engagement events<br>• Number of businesses participating<br>• Delivery in line with action plan timescales<br>• Number of partnership projects completed<br>• % of new developments achieving net zero standards | NR16 | Building on the Sustainability Masterclasses, Zellar project and Low Carbon Business Evolution Programme (LCBEP), increase climate change and net zero advice (including help with submitting funding applications) to support SMEs | | **8** | Internal | **35k** | | | 10k | 25k | | | | | | |
| | | | | | | | External | **840k** | | | | 120k | 120k | 120k | 120k | 120k | 120k | 120k |
| | | | NR17 | Investigate how business rates reductions can be implemented for low carbon buildings | | **6** (enabling action) | Internal | **30k** | | | 10k | 10k | 10k | | | | | |
| | | | | | | | External | **0k** | | | | | | | | | | |
| | | | NR19 | Develop strategic links with local businesses to identify opportunities for joint working e.g. through connections to heat networks, land use for renewables etc. | | **8** | Internal | **60k** | | | 20k | 20k | 20k | | | | | |
| | | | | | | | External | **0k** | | | | | | | | | | |

| Activity area | Objective | KPIs | Ref | Action | Action owner | Prioritisation (Score 1-27) | Resource type | Total cost | Estimated indicative cost per year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 21-22 | 22-23 | 23-24 | 24-25 | 25-26 | 26-27 | 27-28 | 28-29 | 29-30 | 30-31 |
| | | | NR20 | Develop and enforce net zero design standards for all new private developments that go beyond current Building Regulations | | **8** | Internal | **270k** | | | | 10k | 10k | 50k | 50k | 50k | 50k | 50k |
| | | | | | | | External | **120k** | | | | | 60k | 12k | 12k | 12k | 12k | 12k |
| | | | NR21 | Engage with Stoke and Staffordshire Chamber of Commerce Climate Change Advisor to identify opportunities for joint working | | **4** (enabling action) | Internal | **5k** | | 5k | | | | | | | | |
| | | | | | | | External | **0k** | | | | | | | | | | |
| | **Total** | | | | | | | **1,360k** | **0k** | **5k** | **40k** | **185k** | **220k** | **182k** | **182k** | **182k** | **182k** | **182k** |
| **Partnership working** | Engage with partners to overcome current barriers | • Number of stakeholders engaged<br>• Number of engagement events | NR22 | Engage Stakeholder Panel and incorporate identified actions in this action plan (applies to all Sections of the Action Plan) | | **18** | Internal | **45k** | | 5k | 5k | 5k | 5k | 5k | 5k | 5k | 5k | 5k |
| | | | | | | | External | **0k** | | | | | | | | | | |
| | **Total** | | | | | | | **45k** | **0k** | **5k** | **5k** | **5k** | **5k** | **5k** | **5k** | **5k** | **5k** | **5k** |
| **Theme total** | | | | | | | | **3,603k** | **0k** | **354k** | **376k** | **581k** | **522k** | **358k** | **353k** | **353k** | **353k** | **353k** |

### Table 19 – Residential actions

| Activity area | | Objective | KPIs | Ref | Action | Action owner | Prioritisation (Score 1-27) | Resource type | Total cost | Estimated indicative cost per year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 21-22 | 22-23 | 23-24 | 24-25 | 25-26 | 26-27 | 27-28 | 28-29 | 29-30 | 30-31 |
|  | **Social housing** | Decarbonise Cannock Chase District Council existing social housing | • Number of homes retrofitted<br>• Number of homes in each EPC band<br>• Tonnes of carbon saved<br>• £ million Government funding secured<br>• Number of completed feasibility studies<br>• Delivery in line with action plan timescales | R1 | Complete energy audits and stock condition surveys of social housing to identify decarbonisation opportunities | | **9** | Internal | **40k** | | 20k | 20k | | | | | | | |
| | | | | | | | | External | **2,400k** | | 1,200k | 1,200k | | | | | | | |
| | | | | R2 | Assess and update social housing 30 year plan to plan for social housing retrofit works (linked with XC1) | | **18** | Internal | **5k** | | 5k | | | | | | | | |
| | | | | | | | | External | **30k** | | 30k | | | | | | | | |
| | | | | R3 | Develop tenant communications plan and develop a brand (like Zero Carbon Rugeley) to support retrofit activities | | **18** | Internal | **5k** | | 5k | | | | | | | | |
| | | | | | | | | External | **30k** | | 30k | | | | | | | | |
| | | | | R5 | Identify opportunities to link upgrade works with wider public sector retrofits including one public estate to achieve economies of scale (linked with XC1) | | **18** | Internal | **20k** | | 10k | 10k | | | | | | | |
| | | | | | | | | External | **0k** | | | | | | | | | | |
| | | | | R6 | Complete retrofit of social housing via. a whole house approach where possible to use this sector as the market maker for wider domestic works in the district | | **18** | Internal | **850k** | | 50k | 100k | 100k | 100k | 100k | 100k | 100k | 100k | 100k |
| | | | | | | | | External | **420k** | | 120k | 120k | 60k | 60k | 60k | | | | |
| | | | | R7 | Utilise Government grant funding including the Green Homes Grant, Local Authority Delivery, Home Upgrade Grants and Social Housing Decarbonisation Scheme | | **18** | Internal | **180k** | | 20k | 20k | 20k | 20k | 20k | 20k | 20k | 20k | 20k |
| | | | | | | | | External | **0k** | | | | | | | | | | |
| | | | | R8 | Increase Council staff resources to support social housing decarbonisation | | **18** | Internal | **410k** | | 10k | 50k | 50k | 50k | 50k | 50k | 50k | 50k | 50k |
| | | | | | | | | External | **0k** | | | | | | | | | | |
| | | | | R9 | Investigate the option to implement "warm rents"/heat as a service in social homes to help address the landlord/tenant split incentive | | **9** | Internal | **50k** | | | 10k | 30k | 10k | | | | | |
| | | | | | | | | External | **0k** | | | | | | | | | | |
| | | Decarbonise Cannock Chase District Council new social housing | • % of new homes achieving net zero standards | R10 | Develop and enforce net zero design standards for all new social housing developments that go beyond current Building Regulations | | **12** | Internal | **90k** | | 10k | 10k | 10k | 10k | 10k | 10k | 10k | 10k | 10k |
| | | | | | | | | External | **108k** | | 60k | 6k | 6k | 6k | 6k | 6k | 6k | 6k | 6k |
| | | Enabling actions | • Delivery in line with action plan timescales | R11 | Address planning requirements that may present a barrier to implementation | | **9** | Internal | **30k** | | 10k | 10k | 10k | | | | | | |
| | | | | | | | | External | **0k** | | | | | | | | | | |
| | | | | R12 | Liaise with the District Network Operator (DNO) to understand local grid capacity (links with XC1) | | **9** | Internal | **10k** | | 5k | 5k | | | | | | | |
| | | | | | | | | External | **0k** | | | | | | | | | | |
| | | **Total** | | | | | | | **4,678k** | **0k** | **1,585k** | **1,561k** | **286k** | **256k** | **246k** | **186k** | **186k** | **186k** | **186k** |
|  | **Owner-occupier and private rented** | Decarbonise existing housing | • % compliance amongst landlords reviewed<br>• Number of homes retrofitted<br>• Number of homes in each EPC band<br>• Delivery in line with action plan timescales<br>• Number of stakeholders engaged<br>• Number of partnership projects completed | R13 | Enforce Minimum Energy Efficiency Standards for domestic private rented properties | | **12** | Internal | **900k** | | 100k | 100k | 100k | 100k | 100k | 100k | 100k | 100k | 100k |
| | | | | | | | | External | **0k** | | | | | | | | | | |
| | | | | R14 | Complete area analysis of EPCs to identify target communities for improvement | | **9** | Internal | **8k** | | 8k | | | | | | | | |
| | | | | | | | | External | **36k** | | 36k | | | | | | | | |
| | | | | R15 | Provide “One Stop Shop” advice to owner-occupiers and private renters including promotion of Government funding incentives | | **18** | Internal | **900k** | | 100k | 100k | 100k | 100k | 100k | 100k | 100k | 100k | 100k |
| | | | | | | | | External | **0k** | | | | | | | | | | |
| | | | | R16 | Investigate opportunity to join up works with Staffordshire County Council and other Districts | | **12** | Internal | **5k** | | 5k | | | | | | | | |
| | | | | | | | | External | **0k** | | | | | | | | | | |
| | | Decarbonise new housing | • % of new homes achieving net zero standards | R18 | Capacity building and enforcement for net zero design standards for all new housing developments in Cannock Chase | | **18** | Internal | **310k** | | | | 10k | 50k | 50k | 50k | 50k | 50k | 50k |
| | | | | | | | | External | **132k** | | | | 60k | 12k | 12k | 12k | 12k | 12k | 12k |
| | | **Total** | | | | | | | **2,291k** | **0k** | **249k** | **200k** | **270k** | **262k** | **262k** | **262k** | **262k** | **262k** | **262k** |
| | **Partnership working** | Engage with partners to | • Delivery in line with action plan timescales<br>• Number of | R19 | Engage and lobby Government to change Council tax to reflect a dwellings energy efficiency | | **18** | Internal | **45k** | | 5k | 5k | 5k | 5k | 5k | 5k | 5k | 5k | 5k |
| | | | | | | | | External | **0k** | | | | | | | | | | |

| Activity area | Objective | KPIs | Ref | Action | Action owner | Prioritisation (Score 1-27) | Resource type | Total cost | Estimated indicative cost per year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 21-22 | 22-23 | 23-24 | 24-25 | 25-26 | 26-27 | 27-28 | 28-29 | 29-30 | 30-31 |
|  | overcome current barriers | stakeholders engaged<br>• Number of engagement events | R21 | Engage Stakeholder Panel and incorporate identified actions in this action plan (applies to all Sections of the Action Plan) | | 18 | Internal | **45k** | | 5k | 5k | 5k | 5k | 5k | 5k | 5k | 5k | 5k |
| | | | | | | | External | **0k** | | | | | | | | | | |
| | **Total** | | | | | | | **90k** | **0k** | **10k** | **10k** | **10k** | **10k** | **10k** | **10k** | **10k** | **10k** | **10k** |
| **Theme total** | | | | | | | | **7,059k** | **0k** | **1,844k** | **1,771k** | **566k** | **528k** | **518k** | **458k** | **458k** | **458k** | **458k** |

## Table 20 – Transport actions

| Activity area | | Objective | KPIs | Ref | Action | Action owner | Prioritisation (Score 1-27) | Resource type | Total cost | Estimated indicative cost per year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 21-22 | 22-23 | 23-24 | 24-25 | 25-26 | 26-27 | 27-28 | 28-29 | 29-30 | 30-31 |
|  | **Council business travel** | Reduce Council emissions from business travel | • % total electric/low carbon vehicles<br>• % of total journeys completed by green travel<br>• Delivery in line with action plan timescales | T1 | Replace internal combustion engine (ICE) van and pool vehicles with electric/low carbon alternatives as part of fleet replacement cycle | | **12** | Internal | **45k** | | 5k | 5k | 5k | 5k | 5k | 5k | 5k | 5k | 5k |
| | | | | | | | | External | **24k** | | 12k | | | | 12k | | | | |
| | | | | T2 | Develop and implement a Staff Travel Plan - including fleet and taxi use | | **18** | Internal | **50k** | | 10k | 10k | 10k | 10k | 10k | | | | |
| | | | | | | | | External | **24k** | | 24k | | | | | | | | |
| | | | | T3 | Implement a cycle hire/cycle to work scheme | | **18** | Internal | **30k** | | 10k | 10k | 10k | | | | | | |
| | | | | | | | | External | **24k** | | 24k | | | | | | | | |
| | | | | T4 | Investigate and implement policies to reduce grey fleet emissions e.g. through travelling for work policy and expenses processes | | **18** | Internal | **30k** | | 10k | 10k | 10k | | | | | | |
| | | | | | | | | External | **24k** | | 24k | | | | | | | | |
| | | | | T5 | Explore the impact of flexible working and the opportunity to reduce transport emissions (linked to NR4) | | **9** | Internal | **10k** | | 10k | | | | | | | | |
| | | | | | | | | External | **0k** | | | | | | | | | | |
| | | **Total** | | | | | | | **261k** | **0k** | **129k** | **35k** | **35k** | **15k** | **27k** | **5k** | **5k** | **5k** | **5k** |
|  | **Council fleet** | Improve capacity of electric vehicle (EV) charging | • Number of chargers installed by type (e.g. ultra-rapid, rapid, fast etc.)<br>• Area coverage of charging points<br>• % total electric/low carbon vehicles<br>• Delivery in line with action plan timescales | T6 | Increase EV charging at Council sites, particularly depots (linked with XC1) | | **18** | Internal | **60k** | | 10k | 10k | 5k | 5k | 10k | 5k | 5k | 5k | 5k |
| | | | | | | | | External | **48k** | | 24k | | | | 24k | | | | |
| | | | | T7 | Investigate how Council chargers can be used by the public | | **18** | Internal | **10k** | | | 5k | 5k | | | | | | |
| | | | | | | | | External | **12k** | | | 12k | | | | | | | |
| | | **Total** | | | | | | | **130k** | **0k** | **34k** | **27k** | **10k** | **5k** | **34k** | **5k** | **5k** | **5k** | **5k** |
|  | **Electric vehicles** | Improve capacity of electric vehicle (EV) charging | • £ million Government funding secured<br>• Delivery in line with action plan timescales<br>• Number of chargers installed by type (e.g. ultra-rapid, rapid, fast etc.)<br>• Area coverage of charging points<br>• % total electric/low carbon vehicles | T9 | Undertake feasibility studies for electric vehicle charging points within Cannock Chase District - includes for taxis | | **9** | Internal | **25k** | | 10k | 5k | 5k | 5k | | | | | |
| | | | | | | | | External | **210k** | | 120k | 30k | 30k | 30k | | | | | |
| | | | | T10 | Engage Staffordshire County Council to influence the development of their EV Infrastructure Strategy and Low Emissions Vehicle Infrastructure Action Plan | | **18** | Internal | **5k** | | 5k | | | | | | | | |
| | | | | | | | | External | **0k** | | | | | | | | | | |
| | | | | T11 | Enable/vision a programme for installation of district-wide EV charging infrastructure (linked with XC1) | | **27** | Internal | **190k** | | 30k | 20k | 20k | 20k | 20k | 20k | 20k | 20k | 20k |
| | | | | | | | | External | **480k** | | 120k | 120k | | | 120k | 120k | | | |
| | | | | T12 | Utilise Government, Office for Zero Emission Vehicles funding e.g. On-street Residential Chargepoint Scheme | | **18** | Internal | **90k** | | 10k | 10k | 10k | 10k | 10k | 10k | 10k | 10k | 10k |
| | | | | | | | | External | **0k** | | | | | | | | | | |
| | | Enabling actions | • Delivery in line with action plan timescales | T13 | Liaise with the District Network Operator (DNO) to understand local grid capacity (linked to XC1) | | **9** | Internal | **5k** | | 5k | | | | | | | | |
| | | | | | | | | External | **0k** | | | | | | | | | | |
| | | **Total** | | | | | | | **1,005k** | **0k** | **300k** | **185k** | **65k** | **65k** | **150k** | **150k** | **30k** | **30k** | **30k** |
|  | **Green travel** | Support local people to make green travel choices | • Number of people engaged<br>• Delivery in line with action plan timescales<br>• £ incentives administered | T14 | Complete feasibility study in to local travel schemes including e-cargo bikes and cycle hire (conventional and e-bike mix scheme) | | **18** | Internal | **40k** | | 20k | 20k | | | | | | | |
| | | | | | | | | External | **120k** | | 60k | 60k | | | | | | | |
| | | | | T15 | Plan for and provide “One Stop Shop or Community/Mobility Hubs” advice and actively promote green transport options including promotion of Government funding incentives. | | **18** | Internal | **850k** | | 50k | 100k | 100k | 100k | 100k | 100k | 100k | 100k | 100k |
| | | | | | | | | External | **312k** | | 120k | 60k | 12k | 12k | 60k | 12k | 12k | 12k | 12k |
| | | | | T16 | Identify opportunities to incentivise local people and business to make sustainable and active travel choices (linked to T15) e.g. Coventry car scrappage scheme. | | **8** | Internal | **120k** | | 20k | 20k | 20k | 10k | 10k | 10k | 10k | 10k | 10k |
| | | | | | | | | External | **180k** | | 60k | 60k | 60k | | | | | | |

| Activity area | | Objective | KPIs | Ref | Action | Action owner | Prioritisation (Score 1-27) | Resource type | Total cost | Estimated indicative cost per year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 21-22 | 22-23 | 23-24 | 24-25 | 25-26 | 26-27 | 27-28 | 28-29 | 29-30 | 30-31 |
| | | | | T18 | Increase Council staff resources to support transport decarbonisation | | 18 | Internal | 900k | | 100k | 100k | 100k | 100k | 100k | 100k | 100k | 100k | 100k |
| | | | | | | | | External | 0k | | | | | | | | | | |
| | | Reduce emissions relating to school transport | • Number of partnership projects completed<br>• Delivery in line with action plan timescales | T20 | Engage Staffordshire County Council on workstream to ensure effective vehicle utilisation for entitled home to school transport pupils | | 8 | Internal | 90k | | 10k | 10k | 10k | 10k | 10k | 10k | 10k | 10k | 10k |
| | | | | | | | | External | 0k | | | | | | | | | | |
| | | | | T21 | Engage Staffordshire County Council to investigate the potential of using pick up points for Home to School transport and Special Educational Needs (SEN) pupils | | 8 | Internal | 90k | | 10k | 10k | 10k | 10k | 10k | 10k | 10k | 10k | 10k |
| | | | | | | | | External | 0k | | | | | | | | | | |
| | | | | T22 | Link with Staffordshire County Council to investigate the impact of introducing a standard requirement for Euro5 or better for home to school transport contracts. | | 8 | Internal | 50k | | 10k | 5k | 5k | 5k | 5k | 5k | 5k | 5k | 5k |
| | | | | | | | | External | 0k | | | | | | | | | | |
| | | Support the implementation of low carbon transport | • Delivery in line with action plan timescales | T23 | Undertake an initial feasibility study to investigate how very light rail may improve low carbon mobility with the district, including how the ongoing research and development work in Coventry may be leveraged (linked with XC1) | | 12 | Internal | 40k | | | 20k | 20k | | | | | | |
| | | | | | | | | External | 72k | | | 36k | 36k | | | | | | |
| | | **Total** | | | | | | | **2,864k** | **0k** | **460k** | **501k** | **373k** | **247k** | **295k** | **247k** | **247k** | **247k** | **247k** |
| | **Local Plan update** | Utilise the Local Plan update to support green travel objectives | • Inclusion in Local Plan<br>• Number of chargers installed by type (e.g. ultra-rapid, rapid, fast etc.)<br>• Area coverage of charging points<br>• Delivery in line with action plan timescales | T24 | Implement policies requiring landowners and developers to allocate land for walking, cycling and EV charging infrastructure (linked with XC1) | | 18 | Internal | 40k | | 20k | 20k | | | | | | | |
| | | | | | | | | External | 120k | | 60k | 60k | | | | | | | |
| | | | | T25 | Identify opportunities to streamline Section 106 contributions to enable sustainable and active travel projects | | 8 | Internal | 90k | | 10k | 10k | 10k | 10k | 10k | 10k | 10k | 10k | 10k |
| | | | | | | | | External | 0k | | | | | | | | | | |
| | | | | T26 | Seek to ensure new/additional settlements allow/design in active and low carbon travel e.g. 15 min neighbourhood concept | | 8 | Internal | 110k | | | 20k | 20k | 20k | 10k | 10k | 10k | 10k | 10k |
| | | | | | | | | External | 0k | | | | | | | | | | |
| | | | | T27 | Make development rule changes to trigger actions relating to air quality improvements / transport decarbonisation as part of new developments. This includes Government requirements for EV charging. | | 8 | Internal | 110k | | | 20k | 20k | 20k | 10k | 10k | 10k | 10k | 10k |
| | | | | | | | | External | 0k | | | | | | | | | | |
| | | **Total** | | | | | | | **470k** | **0k** | **90k** | **130k** | **50k** | **50k** | **30k** | **30k** | **30k** | **30k** | **30k** |
| | **Partnership working** | Engage with key stakeholders | • Number of stakeholders engaged<br>• Number of engagement events<br>• Number of partnership projects completed | T28 | Engage and collaborate with Staffordshire County Council to ensure action is aligned with Local Transport Plan | | 27 | Internal | 10k | | 5k | 5k | | | | | | | |
| | | | | | | | | External | 0k | | | | | | | | | | |
| | | | | T29 | Engage and collaborate with existing community walking and cycling groups to identity opportunities for joint working | | 18 | Internal | 45k | | 5k | 5k | 5k | 5k | 5k | 5k | 5k | 5k | 5k |
| | | | | | | | | External | 0k | | | | | | | | | | |
| | | | | T30 | Engage Stakeholder Panel and incorporate identified actions in this action plan (applies to all Sections of the Action Plan) | | 18 | Internal | 45k | | 5k | 5k | 5k | 5k | 5k | 5k | 5k | 5k | 5k |
| | | | | | | | | External | 0k | | | | | | | | | | |
| | | **Total** | | | | | | | **100k** | **0k** | **15k** | **15k** | **10k** | **10k** | **10k** | **10k** | **10k** | **10k** | **10k** |
| | **Walking and cycling** | Encourage district residents to shift from cars to walking and cycling | • £ invested in walking and cycling projects<br>• Number of meetings attended with partners<br>• Number of joint projects implemented<br>• Number of people completing training | T31 | Building on the Local Cycling and Walking Infrastructure Plan (LCWIP), complete further network mapping and planning to identify additional cycle network improvements/segregation | | 9 | Internal | 50k | | 20k | 10k | 10k | 10k | | | | | |
| | | | | | | | | External | 132k | | 60k | 24k | 24k | 24k | | | | | |
| | | | | T32 | Invest in cycling infrastructure including segregation of bikes and cars | | 12 | Internal | 80k | | | 10k | 10k | 10k | 10k | 10k | 10k | 10k | 10k |
| | | | | | | | | External | 0k | | | | | | | | | | |

| Activity area | Objective | KPIs | Ref | Action | Action owner | Prioritisation (Score 1-27) | Resource type | Total cost | Estimated indicative cost per year | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | 21-22 | 22-23 | 23-24 | 24-25 | 25-26 | 26-27 | 27-28 | 28-29 | 29-30 | 30-31 |
| | | | T33 | Utilise Government funding from Department for Transport e.g. linked to Gear Change strategy | | **18** | Internal | **90k** | | 10k | 10k | 10k | 10k | 10k | 10k | 10k | 10k | 10k |
| | | | | | | | External | **0k** | | | | | | | | | | |
| | | | T34 | Engage and collaborate with Staffordshire County Council to ensure action is aligned with LCWIP | | **27** | Internal | **10k** | | 5k | 5k | | | | | | | |
| | | | | | | | External | **0k** | | | | | | | | | | |
| | | | T35 | Engage and collaborate with local partners including Canal and River Trust, Historic England, Sustrans and Wildlife Trust to identify potential cycling and walking routes | | **18** | Internal | **90k** | | 10k | 10k | 10k | 10k | 10k | 10k | 10k | 10k | 10k |
| | | | | | | | External | **0k** | | | | | | | | | | |
| | | | T36 | Build on training provided by Staffordshire County Council to provide cycle training to residents (adult and children) | | **8** | Internal | **90k** | | 10k | 10k | 10k | 10k | 10k | 10k | 10k | 10k | 10k |
| | | | | | | | External | **324k** | | 36k | 36k | 36k | 36k | 36k | 36k | 36k | 36k | 36k |
| | **Total** | | | | | | | **866k** | **0k** | **151k** | **115k** | **110k** | **110k** | **76k** | **76k** | **76k** | **76k** | **76k** |
| **Theme total** | | | | | | | | **5,696k** | **0k** | **1,179k** | **1,008k** | **653k** | **502k** | **622k** | **523k** | **403k** | **403k** | **403k** |

## Table 21 – Cross-cutting themes

| Activity area | Objective | KPIs | Ref | Action | Action owner | Prioritisation (Score 1-27) | Resource type | Total cost | Estimated indicative cost per year 21-22 | 22-23 | 23-24 | 24-25 | 25-26 | 26-27 | 27-28 | 28-29 | 29-30 | 30-31 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Energy system electrification** | Implications of electrification of buildings, transport, and industry, coupled with smart energy systems and storage | • Delivery in line with action plan timescales | XC1 | Undertake district-level technical analysis to improve understanding of how increased electrification may impact on infrastructure in the district including the electricity distribution network, and to then make recommendations on further actions | | **18** | Internal | **30k** | | 10k | 20k | | | | | | | |
| | | | | | | | External | **60k** | | | 60k | | | | | | | |
| | **Total** | | | | | | | **90k** | **0k** | **10k** | **80k** | **0k** | **0k** | **0k** | **0k** | **0k** | **0k** | **0k** |
| **Hydrogen economy** | Implications of the emerging hydrogen economy for buildings, transport, and industry, including identification of high priority applications that need to be supported, e.g. within industry | • Delivery in line with action plan timescales | XC2 | Undertake high-level technical analysis to improve understanding of how the emerging hydrogen economy may impact on buildings, transport and industry within the district, and to then make recommendations on further actions | | **8** | Internal | **30k** | | | | | 10k | 10k | 10k | | | |
| | | | | | | | External | **120k** | | | | | | 60k | 60k | | | |
| | **Total** | | | | | | | **150k** | **0k** | **0k** | **0k** | **0k** | **10k** | **70k** | **70k** | **0k** | **0k** | **0k** |
| **Circular economy** | Soft market testing and pilot studies to stimulate the local circular economy | • Delivery in line with action plan timescales | XC3 | Stimulate the growth of the circular economy to avoid waste and unnecessary use of resources by improving the Council's in-house procurement processes, promoting opportunities in the local economy to improve exploitation of existing waste streams across the district, and encouraging design for repair and re-use. e.g. initial focus on reducing single use plastics. | | **12** | Internal | **55k** | | 5k | 20k | 10k | 10k | 10k | | | | |
| | | | | | | | External | **210k** | | | 30k | 60k | 60k | 60k | | | | |
| | **Total** | | | | | | | **265k** | **0k** | **5k** | **50k** | **70k** | **70k** | **70k** | **0k** | **0k** | **0k** | **0k** |
| **Non-combustion greenhouse gas emissions** | Baseline and mitigation feasibility study concerning non-combustion related greenhouse gas emissions | • Delivery in line with action plan timescales | XC4 | Undertake district level techno-economic analysis to improve understanding of current non-combustion greenhouse emissions, and to then make recommendations for mitigating actions | | **12** | Internal | **30k** | | 10k | 20k | | | | | | | |
| | | | | | | | External | **60k** | | | 60k | | | | | | | |
| | **Total** | | | | | | | **90k** | **0k** | **10k** | **80k** | **0k** | **0k** | **0k** | **0k** | **0k** | **0k** | **0k** |
| **Partnership working** | Engage with partners to overcome current barriers | • Number of stakeholders engaged<br>• Number of engagement events | XC5 | Engage Stakeholder Panel and incorporate identified actions in this action plan (applies to all Sections of the Action Plan) | | **18** | Internal | **45k** | | 5k | 5k | 5k | 5k | 5k | 5k | 5k | 5k | 5k |
| | | | | | | | External | **0k** | | | | | | | | | | |
| | **Total** | | | | | | | **45k** | **0k** | **5k** | **5k** | **5k** | **5k** | **5k** | **5k** | **5k** | **5k** | **5k** |
| **Theme total** | | | | | | | | **640k** | **0k** | **30k** | **215k** | **75k** | **85k** | **145k** | **75k** | **5k** | **5k** | **5k** |

# 8. Challenges and risks

Delivery of this Net Zero Action Plan, and subsequent achievement of the net zero target by 2030 will be subject to numerous challenges and risks. Whilst it is expected individual project risks will be identified, analysed, mitigated and monitored as part of project delivery, the table below sets out a summary of some of the key challenges and risks that may seriously impact on the goal of achieving net zero or be inadvertently caused by the drive to do so.

| Risk type | Risk | Description | Proposed mitigations |
|---|---|---|---|
| External | **Grid decarbonisation does not occur at sufficient pace** | National activities to decarbonise the UK electricity grid are key to supporting local decarbonisation. For example, decreasing the carbon intensity of electricity will support the move to zero/low carbon heating technologies such as heat pumps and/or will potentially require less renewables to be installed within the district. This is subject to activities largely outside of the Council's direct control. | Action plan includes objectives focused on reducing primary energy demand as well as installing renewables within the district. |
| External | **Uptake of ULEVs does not occur at sufficient pace** | National and county-level activities to support the uptake of ULEVs are key to support local decarbonisation. | Action plan includes objectives focused on:<br>• Encouraging modal shift away from vehicle use (see green travel and walking and cycling objectives)<br>• Supporting electric charging infrastructure<br>• Engaging with partners to collaborate and leverage action<br>• Using the Local Plan to support sustainable transport |
| Deliverability | **Finance** | At present this Net Zero Action Plan is unfunded and the scale of investment needed is not available from the Council. External funding from regional and national government will be identified and secured (see proposed mitigations) but this is unlikely to bridge the funding gap. The potential for increased costs from procuring zero carbon goods and services may also result in increased running costs for the Council which at present could not be justified through the business case process. | Every strategic theme includes partnership working activities to support the sharing of resources, collaboration and alignment of efforts to maximise impact. Actions to identify and secure external funding (where available) are included in the action plan. |
| Deliverability | **Timescales** | The Council's target means that there are 8 years/Council budget rounds to achieve a net zero district. This is 20 years ahead of both the UK and Staffordshire County Council target. Such timescales risk that there is not enough time for technical viability, funding approaches, costs, commercial models and wider stakeholder action to develop to support deliverability in the district. | Three decarbonisation trajectories to 2050 have been developed as part of this action plan – see Section 3.2.4. |
| Deliverability | **Staff resource** | At present this Net Zero Action Plan is not fully resourced. In addition, to support the scale of net zero activities required, the Council will need additional internal and external staff at a time when the Council's budget is still shrinking due to Government cuts. | Action plan includes activities to increase staff resource. Furthermore, the scoring of actions and identification of internal/external resource splits will allow the Council to prioritise limited resources if all activities cannot be undertaken. |
| External | **Influence and control** | The Council have committed to net zero targets for whole borough. With the public sector accounting for 2% of total emissions across the district this requires engagement and action on areas that are outside of the Council's immediate influence and control. | This action plan incorporates considerations from the Climate Change Committee's six 'spheres of influence':<br>1. **Direct control** – action plan objectives focus on Council buildings, social housing and fleet<br>2. **Procurement and commissioning** – delivery of this action plan will support development of new supply chains and markets in the district |

| Risk type | Risk | Description | Proposed mitigations |
|---|---|---|---|
| | | | 3. **Place shaping** – Local Plan actions will leverage the Council's powers to control development<br>4. **Showcasing -** activity NR2, social housing actions and "One Stop Shop" advice share good practice and innovation as well as scaling up activities towards net zero<br>5. **Partnerships** – each strategic theme has objectives around partnership working<br>6. **Involving, engaging and communicating** – see Section 9 and actions relating to Stakeholder Panel |
| Economic | **Just transition** | Some changes to achieve net zero, particularly in the area of transport and electrification, risk affecting vulnerable groups. For example, electrification of heat risks putting people into fuel poverty and low carbon transport options such as e-scooters or bicycles may not be appropriate for the elderly or disabled. Consideration around equity and fairness need to be embedded to ensure a just transition to net zero. | The Stakeholder Panels will seek to gain stakeholder approval and support for actions, minimise opposition and satisfy needs as far as possible, anticipate what risks and opportunities might arise from actions and enable plans to be laid and managed successfully. |
| Deliverability | **Regional and national policies** | Many of the policies required to help the Council to achieve net zero are set at the regional (county) or national level. These are outside of the Council's immediate control. For example, a relaxation of energy efficiency standards for new buildings, Minimum Energy Efficiency Standard or the withdrawal of support for electric vehicles or heat pumps would adversely impact net zero carbon efforts. | Each strategic theme has objectives around partnership working to help identify, influence and address any barriers relating to regional and national policies. |
| Technical | **Mobilising and enabling actions** | This is the Council's first plan to support achievement of its net zero vision. As such much of the early action is focused on mobilising, enabling and feasibility works, which will support future informed decision making and enable focused delivery in the medium and longer term. The result of these activities may identify current "unknown, unknowns" which will incur further costs. | Ongoing management of action plan included in Section 10.<br>. |
| Technical | **Supply chain capacity and capability** | This Net Zero Action Plan requires rapid delivery over the next 8 years. For example, just to retrofit all 5,118 social homes between now and the end of the FY 2030/31, would require two homes a day to achieve net zero standards. At present it is unclear whether the supply chain has capability and capacity to deliver actions at the scale, pace and quality required to achieve Council's net zero target. | The Council's leadership in addressing the climate emergency will leveraging assets to support the development of markets and supply chains for wider sectors e.g. focusing on social housing early to activate decarbonisation of the wider domestic sector. Furthermore, "One Stop Shop" provision will support training and education to support supply chain development. |

# 9. Communication and engagement

## 9.1 Communications

To support delivery of the Net Zero Action Plan, the Council has created a marketing and communications strategy (Appendix D), the aim of this is to promote the work being undertaken by the Council and to encourage residents, businesses, organisations, and visitors to get involved and help towards reducing carbon emissions across the district. Other community initiatives will also help raise awareness of the local climate emergency and messages will be embedded into future work. Examples of this include the Council's district-wide health improvement programme "Cannock Chase Can" being launched in September 2021.

The objectives of the marketing and communications strategy are:

- To promote the positive 'net zero carbon work' being undertaken by the Council and wider district
- To raise awareness of the importance of reducing carbon emissions across Cannock Chase district
- To inform and educate people and local businesses about the local climate emergency and its associated actions - within the context of the global climate emergency and that what we do as a district will feed into this
- To change attitudes and behaviour towards carbon neutrality
- To encourage people to take practical steps towards reducing their own carbon footprint
- To promote specific actions that are proven to work that can be taken by residents, businesses, and organisations to reduce their carbon footprint

## 9.2 Engagement

One of the key considerations of developing this Net Zero Action Plan was collaborative working to promote the sharing of knowledge and resources and align effort to maximise impact. As previously mentioned, each strategic theme has identified partnership working activities to support and promote stakeholder engagement.

Furthermore, the Council will establish a number of Stakeholder Panels to provide a platform for engaging on the climate emergency agenda with wider stakeholder groups across the district. In the format of a mini-Assembly, five panels will be set up, each aligned with one of the following strategic themes from this action plan: Energy, Nature, Non-residential, Residential and Transport.

Each panel is proposed to have two engagement sessions. The first will feature an expert presenting the Net Zero Action Plan and allow for panel members to ask questions and gain knowledge. Panel members would then be asked a series of questions to take home with them in preparation for the next meeting. The second session will be for feedback and discussion on questions from session one. A report would then be produced and fed back to each panel showing how their comments will be incorporated into the plan.

Once this focused engagement has been completed, panel members will be asked if they would like to continue engagement in order to work with Council through the implementation in future years.

# 10. Ongoing management of action plan

## 10.1 Annual review

This Net Zero Action Plan provides a list of the actions and indicative costs needed to achieve the Council's net zero vision by 2030. Recognising that this is the first such plan for the Council, it is focused on implementing actions that are ready to be advanced now whilst progressing feasibility and enabling actions to unlock future actions.

It is recommended that this plan should be reviewed at least annually to ensure that it remains fit for purpose. This should include:

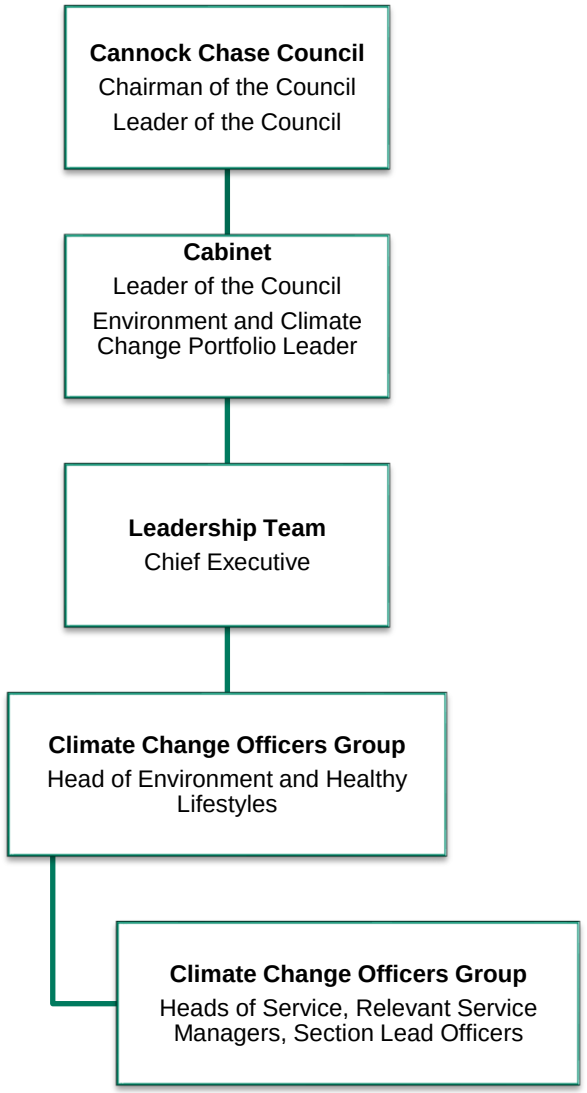
- Measuring and reporting against action plan KPIs and district carbon emissions as reported in UK local authority and regional carbon dioxide emissions national statistics
- Comparing estimated time to complete actions against actual time spent
- Re-assessing action timescales
- Reviewing actions against strategic goals to ensure its continuing suitability, adequacy and effectiveness
- Identifying opportunities for continued improvement including new actions due to changes in technologies, funding approaches, costs, commercial models and wider stakeholder actions
- Identifying additional actions that become apparent following outputs of audits, feasibility and enabling actions

## 10.2 Governance

Embedding governance and strategic ownership of the Net Zero Action Plan into existing structure and reporting arrangements of the Council will be crucial to its success. It is also essential that Councillors and senior management continue to have an overview of the programme in order to encourage successful delivery and to identify and remove any blockages hindering progression and implementation. To support this the following reporting structure has been established to support delivery of the Net Zero Action Plan.

The Climate Change Officers Group will be central to activities, providing oversight and coordination of actions presented in this plan.

**Table 22 – Climate emergency reporting structure**



# Appendix A – Dealing with renewables

For renewable heat and building integrated renewables (such as photovoltaic panels on the roofs of buildings), these will indirectly reduce the consumption of grid electricity and combustion of fossil fuels for heat, and therefore any carbon reduction from these forms of renewables will be reflected in the emissions data recorded at the Cannock Chase level.

For any grid connected renewables (such as on-shore wind), the output from these schemes would be accounted for in the carbon data for Cannock Chase if generation is higher than demand. As the calculation uses the average UK electricity grid emissions factor for any given year, any generation from schemes in Cannock Chase would of course play its part in reducing the overall UK grid average emissions factor over time and in the future; notwithstanding this, for the purposes of this study only, the excess renewable electricity generated in any given year is presented. This approach is used for illustrative purposes only and does not form part of any more widely accepted carbon accounting methodology.

# Appendix B Long list actions and workshop outputs

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ctionPlan-Actions&Cc

# Appendix C – Desktop building energy audits, Cannock Chase District Council buildings

CCDC -
Non-domestic Buildin

# Appendix D - Marketing and communications plan

Marketing and Communications Stra

# Appendix E – Key assumptions for decarbonisation trajectories

The decarbonisation trajectories presented in 5.1 have been based on a number of key assumptions as follows:

1. The national electricity grid for the UK will decarbonise according to the projections published by the Department for Business, Energy & Industrial Strategy (BEIS).
2. Historic energy end use data for Cannock Chase District published by BEIS have been used as the basis for the trajectories.
3. The trajectories are based on assumed rates of changes in the building stock and vehicle fleets (i.e. these have not been modelled), with 'rapid', 'moderate', or 'gradual' decarbonisation of about half of the stock / fleet within 4, 12 or 20 years respectively.
4. The historic trends in energy use since 2010 by the vehicle fleet continue to 2050.
5. All road vehicles are eventually replaced with EVs.
6. For the purposed of this analysis, total energy demands for domestic and non-domestic buildings are assumed to remain constant at the 2010-2020 average values. This may lead to an overstatement of predicted energy consumption as total energy demand will decrease by replacing gas boilers with heat pumps.
7. Over time, all gas space heating and domestic hot water production in domestic and non-domestic buildings is replaced by heat pumps.
8. Over time, all direct electric space heating and domestic hot water production in domestic and non-domestic buildings is replaced by heat pumps.
9. 100 trees are planted per year until 2050, eventually each removing 250 kg$CO_2$e per year from the atmosphere.
10. Over time, one half of petroleum use by industry is replaced by direct electric heating, and the other half by heat pumps.
11. Every dwelling in the district is eventually installed with 2 $kW_p$ of PV, of which half of the energy output is used directly without being supplied to the national grid, with adjustment for non-optimal locations.
12. Emissions from agriculture have been excluded.

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