TECHNICAL OFFICERS'
WORKING PARTY REPORT

WYE VALLEY AONB
JOINT ADVISORY COMMITTEE
4th July 2022

**AONB CLIMATE ACTION**

***Purpose***

To seek members support for the Statement of Commitment from AONB Chairs on Climate Action.

***Recommendations***

That the JAC:

A. Endorse the signing of the Statement of Commitment from AONB Chairs on Climate Action.

B. Welcome the Carbon Audits of the Wye Valley AONB Unit and wider landscape and the development of actions to achieve the target of Net Zero Carbon emissions.

***Key Issues***

- Climate change is a major challenge for society and the environment and a key priority for the conservation and enhancement of our National Landscapes.
- Climate change mitigation and adaptation requires collaborative action, working with partners, stakeholders, land managers and local communities to multiply the capacity and impact of individual and collective activity.
- AONB teams and partnerships must now more than ever confirm their leading role and ambition in addressing this challenge.
- AONB staff from across the country, supported by the National Association for AONBs, have created a collaborative Climate Action Framework and Toolkit with a programme of five workstreams.
- The Wye Valley AONB Unit has undertaken a carbon audit of operations with a plan of action to help achieve the target of Net Zero Carbon emissions by 2030.
- An audit of the organic carbon stocks and stores across the whole AONB as a landscape has estimated that there may be up to 5million tonnes of carbon stored in the AONB.
- A consumption-based assessment has been conducted on the Greenhouse Gas footprint of residents, businesses, tourism and land use in the AONB. The executive summary is appended, while the text of the Final report is being finalised.

***Reasons***

Areas of Outstanding Natural Beauty are designated for the nation. The combined climate and biodiversity crisis is one of the biggest challenges we face. Responding to climate change is fundamental to the conservation and enhancement of natural beauty.

Collaborative working is required to address the challenges of both the climate and biodiversity crisis, with local partners generating influence and action to help move entire communities in the right direction. The orientation and alignment of actions can also give more weight to the AONB designation.

The Climate Action Framework & Toolkit is being produced and co-ordinated by the National Association for AONBs (NAAONB). It is the result of a sustained collaborative endeavour involving over 40 people from 18 different AONBs. They have come together drawn by a sense of urgency and a need for clarity. The Statement was co-created with AONB Chairs and Lead Officers in parallel with the development of the Climate Action Framework & Toolkit.

***Implications***

<u>NAAONB Climate Action Framework & Toolkit</u>
The Climate Action Framework is aimed both internally and externally to set out positions for AONB teams & partnerships on key climate change related issues. The Toolkit is primarily aimed at AONB teams and key partners with practical guidance to support farmers, communities, planners and other relevant stakeholders in planning their own climate actions.

The Toolkit focuses on the five aspects of climate change which AONB teams & partnership can have direct impact and/or influence:

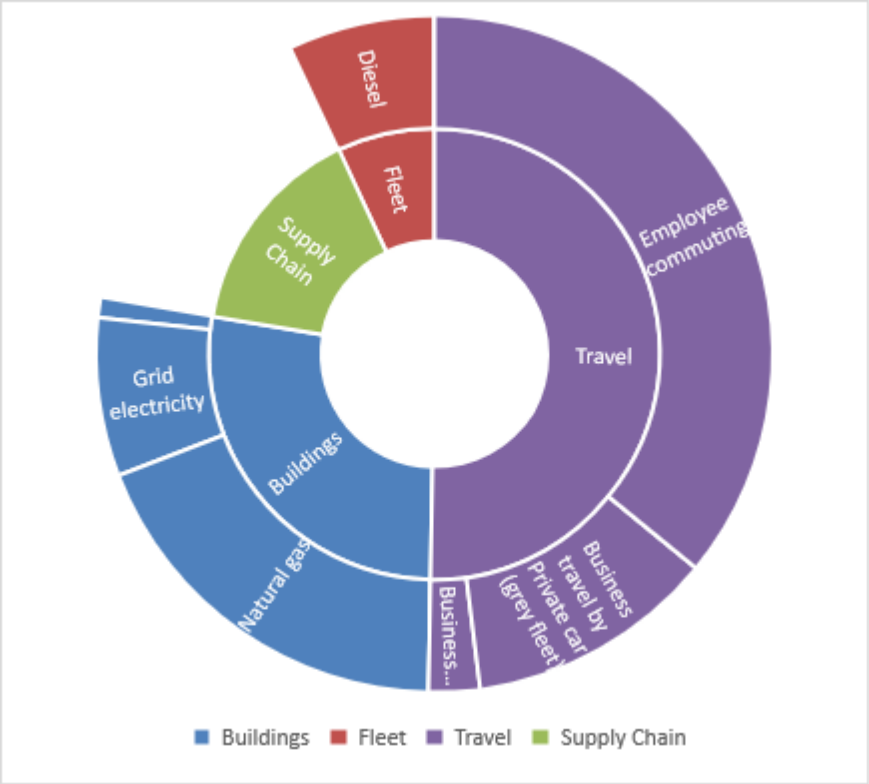
- ***Agriculture and Climate Change***: How can we support AONB farming communities to move towards more sustainable practices whilst maintaining food production and security?
- ***Nature-based Solutions***: How to integrate climate and nature recovery action through nature-based solutions in AONBs when there can be no one-size fits all solution?
- ***Building Design and Planning***: How can AONB teams contribute to solving the multi-faceted challenge of making existing and future homes and buildings resilient to climate change whilst minimising GHG emissions?
- ***Renewable Energy***: How can we reconcile landscapes with renewable energy deployment and serve both objectives in a coherent way?
- ***Sustainable Tourism and Transport***: How can we reduce the negative impacts of tourism and transport in AONBs whilst maintaining access to our landscapes?

Each of these major questions requires coordinated action ranging from research, data analysis, evidence collection and planning and delivery of actions.

<u>Wye Valley AONB Unit Carbon Audit</u>
Aquatera were commissioned by the 3 Welsh National Park Authorities and 3 of the 5 Welsh AONBs to undertake baseline assessments of each of respective organisations' Carbon emissions and offer guidance on where attempts can be made to achieve a target of Net Zero Carbon emissions by 2030. The baseline used operational figures from 2016/17 – 2019/20. The diagram below outlines the proportion of activities contributing to the AONB Unit's carbon emissions for that period.

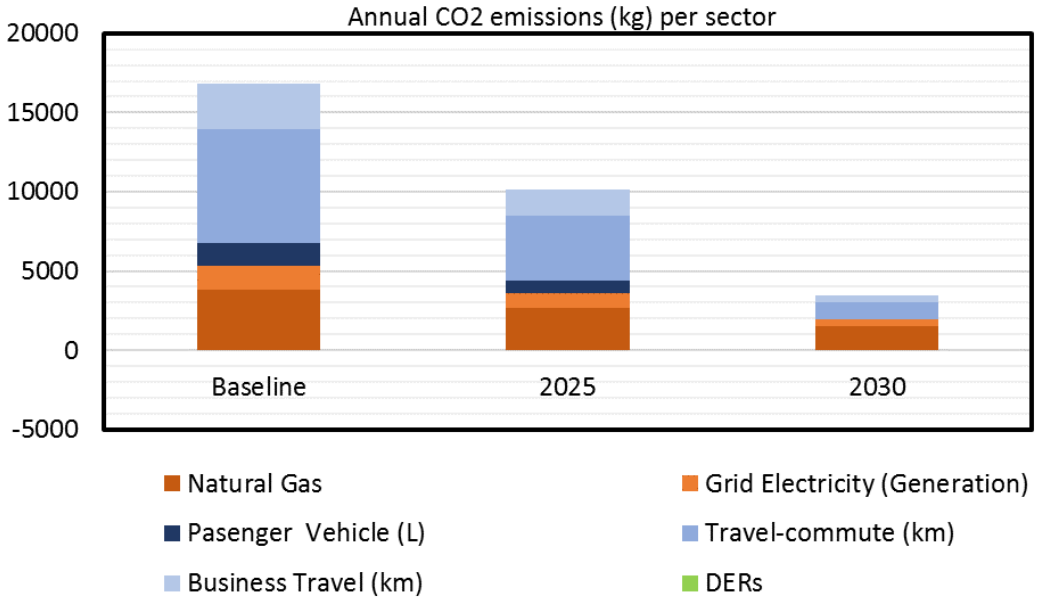
In 2021 the Wye Valley AONB Office had a complete refurbishment to help decarbonise operations, including improving the thermal efficiency of the building and the replacement of a diesel van with an electric van (EV). These actions should make a significant contribution to reducing Carbon emissions. The next highest carbon emitting activity of the AONB Unit is identified as travel and transport, including commuting. AONB staff are appraising

opportunities to reduce their carbon footprint to identify realistic opportunities to achieve net zero.




*Wye Valley AONB Baseline emissions summary chart*

The AONB Unit is improving the way trips were planned to make better use of the EV as a 'pool vehicle'. Commuting could be made more efficient by adopting more car sharing where appropriate and/or cycling (now the AONB Office has shower facilities). Working from Home (WFH) is also a more established procedure post-Covid, which helps reduce commuting emissions. However, the increase in home energy use WFH also needs to be considered.




*Wye Valley AONB Pathway to Net Zero*

Aquatera has provided an action plan focusing on eight areas to address the emissions reductions agreed as part of the Pathway modelling and the remaining residual emissions identified at the target date. These focus areas are:

- A decarbonisation programme covering vehicle fleet.
- Business Travel and Employee commuting.
- Decarbonisation Programme of Estates Assets (Buildings)
- Organisational Behaviours
- Policy, Procurement & Governance
- Supply Chain Management
- Waste Minimisation

The project has produced a comprehensive set of baseline models, options for emissions reductions and a realistic pathway objective for 2030 which has followed the current Welsh Guidance along with industry standard resources and PhD research designed tools and calculations. The commission was funded through Welsh Government's Sustainable Landscapes Sustainable Places collaboration programme.

<u>Wye Valley AONB landscape Carbon Audit</u>

Funded by Natural England, the National Association for Areas of Outstanding Natural Beauty (NAAONB) commissioned Cranfield University to undertake an audit of carbon across all 34 AONBs in England, using pre-existing datasets. Data for the Wye Valley AONB covers the whole AONB in England and Wales.

The primary goal of the project was to provide an estimate of organic carbon stocks and stores carried out in a consistent manner across all AONBs in England. The methodology used readily available national soil datasets as well as estimates based on data of carbon stocks under different priority and non-priority habitats published in literature that are relevant to British conditions. This was followed by an estimation of carbon sequestration potential of each habitat, based again on data available in literature. The assessments are based on the natural capacity of habitats to store and sequester carbon in soils and biomass and do not include land management and land use impacts on the carbon stores.

The work concerned the estimation of organic carbon stocks and stores as well as fluxes from different habitat across the AONBs. In nature, and particularly in soils, carbon can occur in both organic and mineral forms, a sum of which constitutes the total carbon. Whilst mineral carbon is considered as a more stable fraction, soil organic carbon is subject to processes of accumulation, respiration and decomposition, and may contribute either to increased storage of carbon in the soils, or to emissions of carbon to the atmosphere in the form of greenhouse gases, which contribute to climate change.

The report uses a number of different terms for the type of process considered:

- *Carbon stocks*: are the amount of carbon contained within soils or biomass at a given time, described in terms of mass per standardised unit area, for example tonnes per hectare or kilograms per metre square, and often referred to as carbon density.
- *Carbon store*: refers to the amount of carbon stored in soils or biomass within a subjectively defined area. Carbon stores are directly derived from carbon stocks and are expressed in the units of mass, such as tonnes or kilograms.
- *Carbon fluxes*: refer to the overall capacity of a habitat to remove or release carbon from or to the atmosphere, often expressed in the units of mass of carbon dioxide per area per time. Carbon emissions from soil/biomass to the atmosphere are often reported as the positive flux to the atmosphere, whilst carbon sequestration is removal from the atmosphere to soils/biomass. Carbon fluxes are often expressed as

CO2 equivalents, taking into account the global warming potential, i.e., the amount of warming a gas causes over a period of time (typically taken to be 100 years), of various greenhouse gasses. CO2 has the global warming potential (GWP100) of 1 whilst for methane it is 25.

- *Carbon sequestration*: is the capacity of a habitat to accumulate carbon within soils or biomass over time, expressed in the units of mass per standardised area per time, eg tonnes C per hectare per year or tonnes of CO2 per hectare per year. A habitat that accumulates (captures) carbon from the atmosphere constitutes a carbon sink.
- *Carbon emissions*: is the release of carbon from soils or biomass to the atmosphere due to processes of respiration or combustion. Apart from CO2, habitats may emit methane. A habitat that emits carbon to the atmosphere constitutes a carbon source.

Two approaches were undertaken to estimate the carbon stocks and stores in soil and biomass within priority and non-priority habitats across the English AONBs.

- One approach allowed for assessment of soil organic carbon stocks and stores by using the NATMAP Carbon dataset that maps organic carbon stocks at a national scale.
- The second involved the attribution of habitat patches with typical values of organic carbon stocks in soils and biomass found in literature, based on NERR09 report - Gregg et al., (2021), which constitutes a compilation of data on carbon stocks and fluxes from various habitat types in the UK. Carbon stocks in soil based on values reported in literature were standardised to the 0-30cm depth, wherever possible, to ensure comparability to the soil carbon stock values reported by the NATMAP Carbon dataset at this depth.

The results spreadsheet provided for the each AONB contains a great deal of information which needs further analysis to provide more detailed insight. Carbon stores, stocks and fluxes are broken down into habitat types, with low, medium and high ranges provided, as well as figures for different soil depths. Results based on the Literature and NATMAP approaches vary and can be compared with each other.

For the Wye Valley AONB, results from Literature, based on a 'high estimate' incicate that up to 2,350,799 tonnes of carbon are stored in soils and 1,698,749 stored in biomass, a total of 4,049,549 tonnes.

NATMAP data shows up to 5,236,605 tonnes of carbon are stored in Wye Valley AONB soils (up to 1.5m deep). The levels of carbon stores and stocks depend on the depth of soil and the report provides figures at depths of between 0-30cm and 0-150cm.

However, without wider context these figures mean little and results will be analysed further in due course to provide a more detailed and comprehensive picture of carbon in the AONB.

<u>Consumption-based assessment of the Greenhouse Gas footprint for the AONB</u>

The Executive summary is appended for the consumption-based assessment of the Greenhouse Gas footprint for each National Park and AONB in Wales, however final report is still being proof-read. The report contains a consumption-based assessment of the greenhouse gas emissions attributable to residents and visitors, including travel to and from the landscape, and a set of Paris-aligned target recommendations for transitioning to a low-carbon economy. This uses the methodology developed with the National Park Authorities in England. The commission was funded through Welsh Government's Sustainable Landscapes Sustainable Places collaboration programme.