

REPORT TITLE: CARBON NEUTRALITY PROGRAMME – CARBON OFFSETTING

2 MARCH 2022

REPORT OF PORTFOLIO HOLDER: Councillor Hannah Williams, Cabinet Member for Climate Emergency

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WARD(S): ALL

PURPOSE

This paper explores the different carbon offsetting options that the council could use to net off its residual emissions and achieve its ambition of achieving its carbon neutrality targets.

RECOMMENDATIONS:

1. That the Policy Committee notes:
  - a. The high likelihood that there will be a need to offset remaining emissions in order to achieve our council carbon neutrality target by 2024;
  - b. That further work is undertaken to provide a more accurate estimate of the amount of offsetting that would be required to reach our carbon neutrality target;
  - c. The important role for the council in facilitating opportunities for others to offset their own carbon emissions across the district; and
  - d. That the Oxford Offsetting Principles propose a best practice approach to offsetting, to ensure that it is aligned with net zero targets.
2. That the committee endorses the following approach:
  - a. First maximise the delivery of carbon reduction measures throughout the council's operations and the district before using offsets to reduce carbon emissions.
  - b. Explore and select a portfolio of different offsetting options at both a

council and district-wide scale, generating offsets locally within the Winchester district if possible, instead of elsewhere in the UK or in another country:

- i. Renewable energy generation: continue investigating the feasibility of its land and assets for investment in renewable energy generation on council land.
  - ii. Woodland creation: maximise the carbon sequestration potential of trees throughout the district by mapping the areas with potential for woodland creation.
  - iii. Carbon offset fund: the opportunity to establish an offset fund to support net zero carbon development.
- c. Adopt approaches to address the local emissions that it does not have direct control over by:
- i. Mobilising – encouraging and incentivising businesses and communities to develop and invest in renewable energy and Negative Emissions Technologies (NETs)
  - ii. Facilitating – working with existing action and energy in businesses and communities and supporting them to develop renewable energy and NETs.
  - iii. Convening – creating powerful partnerships between local communities and other organisations such as voluntary groups and businesses with the purpose of creating renewable energy and NETs.
  - iv. Explore the Authority Based Insetting framework further to determine its relevance and the actions it could take in order to stimulate greater investment in carbon saving projects locally.
- d. That an offsetting policy be brought to Cabinet for approval.

## 1 RESOURCE IMPLICATIONS

- 1.1 There is a high likelihood that there will be a need to offset remaining emissions in order to achieve our target of being a carbon neutral council by 2024. The way in which this will be achieved is yet to be determined, but it will have a cost implication. Options could include:
- a) Devising a portfolio of offsetting options which meet the council's needs; considering our budget, geographical location, unique risks and opportunities, and mitigation targets;
  - b) Solar-farm development; and
  - c) Mapping the areas of council owned land with potential for woodland creation.
- 1.2 Costs are unclear at this stage, but initial modelling suggests that the solar farm option appears likely to be cost-neutral and may even generate a small revenue income. Woodland creation would have cost implications. For example, the standard cost for a tree sapling and guard is roughly £3.60. As set out in section 2.31, with a site of roughly 25 acres (10 hectares) in size, around 1600 trees could be planted per hectare bringing the total cost for trees and guards to £57,600. Further costs of £7,000-£11,000 would be needed for fencing to protect the site from grazers and deer. It is important to note that these cost estimates are indicative and will vary on a case by case basis. There are, however, funding streams which can be accessed to meet part of the cost of this and thereby reduce the overall cost to the council. There are grants available for the creation of woodland such as the Woodland Creation Planning Grant (WCPG) and the England Woodland Creation Offer (EWCO).
- 1.3 The report identifies work that would be required to underpin delivery of the recommended offsetting approach across the wider district. This requires further research into the options, but is likely to include:
- a) Creation and management of a district-wide carbon offset fund; and
  - b) Exploration of the Authority Based Insetting framework.

## 2 SUPPORTING INFORMATION

### **Background**

- 2.1 In June 2019, the council declared a Climate Emergency and committed to the aim of making its own activities carbon neutral by 2024 and the district carbon neutral by 2030. The council's Carbon Neutrality Action Plan (CNAP) sets out a comprehensive list of actions that will help address nearly all the council's carbon emissions by 2024 and contribute to reducing emissions district wide by 2030. These actions focus around reducing carbon emissions

across three priority sectors of transport, energy and property/housing, and then offsetting any remaining carbon.

- 2.2 Carbon offsetting is practiced by many businesses, public sector organisations and government, but there is no unifying definition which explains what it means. For the purpose of this report, carbon offsetting is defined as *'the practice of reducing or removing greenhouse gas emissions to balance ongoing greenhouse gas emissions, in order to achieve claims such as climate neutrality or net zero'* (Environment Agency, 2021). Carbon offsets are most commonly used in net-zero emission scenarios to account for processes that are exceptionally difficult, or impossible, to decarbonise completely through carbon reduction alone with current technology.
- 2.3 With over 300 local authorities declaring a climate emergency and many setting net zero targets, local authorities are now considering carbon offsets for the first time as a means to achieve their goals. While avoiding and reducing emissions remains the priority, the ability to achieve net zero by 2030 will be extremely difficult without a form of offsetting due to the scale of technology and investment required. Carbon offsetting offers a means for councils to bridge the gap to zero (i.e. residual emissions), and provides a necessary stopgap while industrial sectors such as transport develop technologies and infrastructure that are truly zero-carbon.
- 2.4 The council's residual emissions can be tackled through a transparent, well-defined policy of carbon offsetting. However, early emissions forecasting produced for the CNAP indicated that, whilst carbon reduction measures could contribute to a 2/3 reduction in council emissions by 2024 (based on 2019-20 baseline emissions), roughly 1500 tCO<sub>2</sub>e of residual emissions would be likely to remain (see Background Document No. 7).
- 2.5 Due to the significant level of uncertainty as to the cumulative effect of the carbon reduction measures outlined within the CNAP, it is difficult to predict at this stage what scale of offsetting might be required to achieve the district-wide carbon neutrality target.
- 2.6 We have researched the work of other councils on offsetting, considered examples of good practice and looked at other policies, strategies and evidence related to this complex subject. Section 2.12 expands on some of the best practice identified.
- 2.7 To gain a better understanding of the potential level of residual emissions across the district, it is recommended that further work is undertaken to provide a more accurate estimate of the amount of offsetting that will be required to reach our carbon neutrality target. This should be incorporated within the scope of the Decarbonisation Roadmap work that the council will commission in the coming months and will help the council to plan and select carbon offsetting options accordingly.

## Types of carbon offsets

- 2.8 Offsets can be generated through a variety of different activities. In most cases, offset activities are undertaken as discrete projects ranging in scale from very small (i.e. reducing 10s-100s tonnes of CO<sub>2</sub>e per year) to very large (i.e. thousands of tonnes of CO<sub>2</sub>e per year).
- 2.9 Carbon offsetting mechanisms can be divided into two types: emissions reductions and emissions removals. Appendix 1 shows a classification system and explains the five different types of carbon offsets (type I-V).
- 2.10 Emissions reductions (type I-III) - Many offsets available today are generated through emissions reductions. This mechanism uses offset projects to slow the rate of greenhouse gas (GHG) emissions entering the atmosphere but not remove any GHG from the atmosphere. See Appendix 1 for an explanation of type I-III offsets.
- 2.11 Emissions removal (type IV & V) - Offsets can also be generated through activities that remove GHG directly from the atmosphere and store it in geological, terrestrial, ocean reservoirs, or in products. There are many approaches to GHG removal. These encompass a variety of options for storing carbon, ranging from biomass and soils, to oceans and geological reservoirs, to long-lived products such as timber buildings or cement. See Appendix 1 for an explanation of type IV-V offsets.

## Carbon Offsetting Best Practice

- 2.12 While approaches to reducing greenhouse gas (GHG) emissions in the UK are relatively well documented and understood, those which enable offsetting of residual emissions have been less thoroughly explored. One of the most comprehensive reports assessing Carbon Offsetting in the UK to date was conducted by the Environment Agency (see Achieving net zero: A review of the evidence behind potential carbon offsetting approaches - Background Document No.3.). The study reviews the scientific evidence base relating to a variety of carbon reduction and removal approaches which could be implemented across the UK for carbon offsetting purposes. However, beyond this report, there is a noticeable absence of guidance around implementing offsetting in net zero scenarios, particularly for local authorities.
- 2.13 An initial scoping exercise into local authority best practice around carbon offsetting was conducted using Climate Emergency UK's Climate Action Plan Explorer (<https://data.climateemergency.uk/>). The exercise identified that carbon offsetting is a key component within the majority of council's carbon reduction/net zero pathways and features extensively in council climate action plans across the UK. Examples of local authority carbon offsetting projects and case studies are included throughout the later sections of the report. It is important to stress, however, that carbon offsetting remains a complex, contentious and often time-confusing topic within local governments across the UK. Across Hampshire, this has also been voiced within discussions with the Hampshire Climate Change Officers Group (HCCOG). With a distinct lack

of support and guidance available, particularly from central government, many local authorities are left to rely on support from external consultants to determine what offsetting options they should pursue. Horsham District Council, for example, is working with a consultant in 2022 to produce an offsetting strategy and methodology (see Progress updates on becoming a carbon neutral council - Background Document No.5.).

- 2.14 The 'Oxford Principles for Net Zero Aligned Carbon Offsetting', released in September 2020, provide one of the first attempts to define best practice for offsetting to ensure that it is aligned with net zero targets (see Oxford Principles for Net Zero Aligned Offsetting - Background Document No.6.). Organisations are encouraged to subscribe to four principles when using carbon offsets:
1. Cut emissions, use high quality offsets, and regularly revise offsetting strategy as best practice evolves.
    - a. Emissions should be reduced as much as possible through energy efficiency measures before any residual emissions are compensated for by using offsetting.
    - b. Use high quality offsets that are verifiable and correctly accounted for; have a low risk of non-additionality; have a low risk of reversal of that carbon back into the atmosphere; and do not create negative unintended consequences.
    - c. Maintain transparency by disclosing current emissions, accounting practices, targets to reach carbon neutrality, and the type of offsets employed.
  2. Shift to carbon removal offsetting (type IV & V)
    - a. Users of offsets should increase the portion of their offsets that come from carbon removals, rather than from emission reductions, ultimately reaching 100% carbon removals by 2050 to ensure compatibility with the Paris Agreement goals.
  3. Shift to long-lived storage offsets (type V)
    - a. Invest in scaling and improving the technologies that enable long-lived storage. Short-lived storage offsets (type IV) help buy time to reduce emissions and invest in long-lived storage, but they are not a long-term solution for achieving balance between sinks and sources due to the higher risk of carbon being re-emitted.
  4. Support the development of net zero aligned offsetting.
    - a. The market for high-quality offsets that use carbon removal with long-lived storage is immature and in need of early-adopters to support its evolution.
- 2.15 When selecting carbon offsets, it is recommended that the council recognises/notes the Oxford Offsetting Principles which propose a best practice approach for offsetting to ensure that it is aligned with net zero targets.

- 2.16 In line with Oxford Offsetting Principle 1, it is recommended that the council first maximises the delivery of carbon reduction measures throughout its operations and the district before using offsets to reduce carbon emissions. The introduction of carbon offsets should not replace, nor detract from, the rollout of carbon reduction measures across the council and district; offsets must only be used to remove residual CO<sub>2</sub>e emissions that are left over. At this stage it is unclear exactly what level of residual emissions will remain. For that reason, it is not proposed to determine a maximum level of emission that could be offset, but instead to focus on the principle of offsetting as a last resort.
- 2.17 It is important to note that the council will need sufficient time to prepare, implement, and develop robust and verifiable offsets. Waiting until 2024 or 2030 before introducing offsets may limit the viability and effectiveness of options available to the council. It is therefore recommended that the council should determine its offsetting strategy now, so that there is sufficient time to develop viable offsetting initiatives.
- 2.18 To expand on Oxford Offsetting Principle 2, a strong consensus is forming that carbon offsetting approaches which *reduce* emissions elsewhere (type I-III) will not be scientifically compatible with true 'net zero' in the long term. This is because with reduction type offsetting projects, there will always be net GHG emissions into the atmosphere. This does not, however, mean that carbon offsetting projects which reduce emissions should be entirely discounted. In fact in the short term they will play a useful role in accelerating the rate of GHG emission reductions, particularly as emissions removals technologies are still in the early stages of development and will take time to be scalable.
- 2.19 In addition to the four principles, as a local authority, it is important to note the additional benefits arising when carbon offsetting solutions are generated within the Winchester District administrative boundary instead of elsewhere in the UK or abroad. This ensures that any social, economic, or environmental co-benefits associated with offsetting projects will be retained locally for the benefit of the local citizens. Investing in an offset project overseas offers no social or economic return within the local region. This is covered in more detail in section 3.1-3.4.
- 2.20 **Options for offsetting council emissions**
- 2.21 There are a range of potential offset practices that could be established by the council to offset its predicted 1500 tCO<sub>2</sub>e of carbon emissions in 2024. These will have a cost implication, but the council will have to meet this cost if it wants to achieve its carbon neutral ambition by 2024. These offsets either reduce emissions (i.e. renewable energy generation) or physically remove emissions from the atmosphere (i.e. negative emissions technologies).

- 2.22 It is important to stress that all the approaches reviewed in this report have strengths and weaknesses with regard to their potential to be used for offsetting residual carbon emissions. No 'silver bullet' offset solution has been found. The council should explore and select a portfolio of different offsetting options rather than one singular option.

#### Renewable energy generation (type I)

- 2.23 The Climate Change Committee is an independent, statutory body established under the Climate Change Act 2008 which advises the UK and devolved Governments on tackling and preparing for climate change. It has indicated through the UK's 6<sup>th</sup> Carbon Budget, approved by Parliament in 2021, that the UK will need to double its onshore wind capacity and increase its solar capacity six fold in order to achieve net zero by 2050 (see Background Document No 2.). In order for the Winchester district to achieve its own carbon neutral targets, a significant increase in local renewable energy provision will be required. As a local planning authority, Winchester City Council has a key role in the development of renewable generation. However, it can also play a more direct role in enabling renewable energy projects as a landowner, developer or purchaser of power.
- 2.24 The council is currently reviewing the potential for developing large-scale renewable generation projects on its own land (see previous committee report HEP016). A particular focus has been given to ground mounted solar farms, due to the significant planning constraints associated with the development of new onshore wind turbines. In terms of utility-scale solar, there is significant potential to address most of the council's residual carbon emissions (~1500 tCO<sub>2</sub>e) as well as potentially target some of those emissions across the wider district.
- 2.25 It is important to note that the carbon savings from a large-scale renewable energy installation will decrease year on year as both yield reduces and the UK decarbonises its electricity generation system. Because the CO<sub>2</sub>e savings from renewable technologies are measured by the amount of grid electricity they displace, as the grid decarbonises, more renewable energy generation is needed to offset the same amount of CO<sub>2</sub>e emissions. There is also potential for long-term revenue generation, as well as complementary activities alongside solar installations such as the growth of wildflowers, tree planting, grazing of sheep, nitrate mitigation and biodiversity net gain.
- 2.26 There is still a lot of work that needs to be done to identify, plan, and deliver a large-scale solar farm on council land. The council will continue investigating the feasibility of its land and assets for investment in renewable energy generation on council land. However, at this stage it is uncertain whether the council will have a large-scale solar farm fully installed and operational by the target deadline of 2024. Therefore the council will need to explore how to provide other carbon offsetting alternatives in case it cannot meet its offsetting requirements through large scale solar farms.



### Emissions removals / Negative Emissions Technologies (type IV & V)

- 2.27 This section focuses on three different types of Negative Emissions Technologies (NETs):
- a) nature-based solutions,
  - b) technological solutions, and
  - c) hybrid solutions.
- a) *Nature-based solutions (NbS)*
- 2.28 There has been growing interest in the potential of NbS as an offsetting option to help meet net zero targets reflecting the importance of natural ecosystems as sinks for GHGs. There are a large variety of NbS available for consideration (see Appendix 2 – Summary of nature-based offsetting solutions). The Environment Agency’s report (see Background Document No. 3.) gives a detailed overview of each of the potential carbon offsetting approaches.
- 2.29 Woodland creation is one of the most established and well known NETs, reflected by the creation of the Woodland Carbon Code (<https://www.woodlandcarboncode.org.uk>). This is an independently verified code for calculating the amount of carbon sequestration produced by woodland creation projects in the UK. CO<sub>2</sub> sequestration will mainly occur through photosynthesis, resulting in carbon storage in above- and below-ground biomass. In addition, carbon will be sequestered in soils by the transfer from biomass through litter fall, dead roots and leaching from roots. Planting trees provides an inexpensive and effective way to sequester carbon from the atmosphere and bring the council and district closer to its council and district target. Woodland creation can also provide a range of co-benefits for biodiversity, flood risk mitigation, and recreation.
- 2.30 The council has already committed to using tree planting as a way to offset its carbon emissions. Indeed, the CNAP sets out aims to:
- a. Collaborate with partners and landowners to identify up to 100 hectares of land to support additional tree planting and/or creation of grassland and wetland habitats; and
  - b. Develop a programme of rewilding starting with planting at least 100 trees annually on council land.
- 2.31 In order to explore this offsetting option further, a Masters student at the University of Southampton undertook some research to show how the council could best undertake an offset project using tree planting in the district. The work suggested that the council identify and/or purchase 200 acres (~80 hectares) of land that can be used for mixed planted trees and wildflower grassland. However as it is unlikely that a single parcel of land equating to

200 acres will be found in the district, costs were calculated for separate groups of 25 acres, with different species used in each area to maximize diversity. The study calculated that, over the full 200 acres, the project could sequester 500 tCO<sub>2</sub>e per year after 5 years, and nearly 1500 tCO<sub>2</sub>e per year after 15 years.

- 2.32 In terms of reaching the 2024 carbon neutrality target, planting trees alone does not provide a viable option. As outlined in the work above, planting 200 acres of trees will likely sequester all 1,500 tCO<sub>2</sub>e/year of council residual emissions, but only after 15 years of planting. The challenge is that nature-based sequestration projects require significant scale and time before they begin to sequester meaningful amounts of carbon, relative to the districtwide footprint and energy avoidance projects such as solar PV. A decision would need to be made to implement alternative NETs in order to offset the remaining emissions by 2024 if the council desires official recognition of becoming a carbon neutral council.
- 2.33 Nevertheless, it is strongly encouraged that tree planting should form a key part of the council's offsetting strategy to reach net zero across the *district* by 2030, tree planting should begin as soon as possible as the establishment of trees and the early growth needed to reach the point of peak carbon sequestration takes several years (typically around 10 to 30 years). It is recommended that the council maximises the carbon sequestration potential of trees throughout the district by mapping the areas with potential for woodland creation. It should also play a key role in leading tree planting initiatives throughout the district, and organising/encouraging the uptake of community-based tree planting.

#### *b) Technological solutions*

- 2.34 Technological carbon removal solutions, such as bioenergy carbon capture and storage (BECCS) and direct air carbon capture and storage (DACCS), were initially considered in the preliminary stages of this report. However, these technologies are in early stage of development, and there is insufficient evidence to provide realistic estimates of their carbon removal capabilities. It is extremely unlikely that technological solutions will be available for widespread application by 2024 or 2030. While technological approaches must not be discounted, it is recommended that they are deployed in the future once these technologies become more readily available.

#### *c) Hybrid solutions*

- 2.35 Hybrid solutions utilise technology to supplement the natural CO<sub>2</sub> removal processes from natural solutions.
- 2.36 A carbon capture garden, for example, is a green area that after being treated with dolerite, calcite and compost, can sequester up to 85 tCO<sub>2</sub>/ha/per/year. It also provides the option to function as allotments, an educational area or community space amongst other usages. The carbon capture garden can also

be treated with biochar; this soil amendment product can be used to boost soil carbon sequestration further and promote soil health as a co-benefit.

- 2.37 Another example of this approach for noting is Green City Solutions' CityTree that uses a vertical installation of moss integrated into a bench to absorb as much carbon as 275 trees in only 3 sq. m of space.

### **Options for offsetting district-wide emissions**

- 2.38 The offsetting of carbon emissions at a district level is not the council's responsibility. However, the development of offsetting mechanisms is something in which the council can play a leading role, though not alone. All businesses, organisations, community groups and individuals will need to take responsibility for offsetting their own emissions.

### Carbon Offset Fund

- 2.39 An option is for the council to set up a carbon offset fund to support net zero carbon planning policies. In order to set up a carbon offset fund, the council would need to adopt a planning policy which requires new developments to achieve the maximum carbon savings possible on-site through highly efficient building fabric and on-site renewables. Developers would then be required to pay into a fund to offset any residual carbon emissions from the development. The council would need to develop and publish a price for offsetting carbon (i.e. price per annual tonne of carbon) based on either a nationally recognized carbon pricing mechanism, or the cost of offsetting carbon emissions. Currently developers provide prices from £95 per tonne in the London Plan to over £200 in Southampton. The council could establish a dedicated offset fund or administer the funds through the Section 106 legislation and policy if appropriate. In either case, the funds should be ring-fenced for the sole purpose of delivering carbon reduction and sequestration projects across the district, with the overall effect being net zero carbon development.
- 2.40 The council could follow a similar model to Southampton City Council's Offset Fund. Southampton City Council requires developers to contribute to a carbon offset fund for regulated emissions for a one year period. The offset fund is then used to support energy efficiency and carbon reduction programs for vulnerable communities within the district. At Southampton, Council Offset Fund monies are available to support vulnerable, fuel poor households to install energy efficiency measures that will result in a carbon saving. Households can access the funding through the council's local affordable warmth advice and support service, Southampton Healthy Homes, delivered by the Environment Centre (tEC) – an experienced environmental charity based in Southampton who also undertake fuel poverty work on behalf of Southampton City Council.
- 2.41 Throughout the UK, several local authorities are either in the process of setting up, or have already set up carbon offset funds, so there is a wealth of experience to draw upon should Winchester decide to set up its own offset fund. In addition to Southampton City Council, these include: several London-

based authorities; West of England Authorities (Bath and North East Somerset, Bristol, South Gloucestershire, North Somerset); Greater Manchester Combined Authority; and Milton Keynes. There is also interest from other neighbouring Local Authorities to work in collaboration on this such as Portsmouth, Southampton, Test Valley, and Basingstoke.

2.42 A carbon offset fund is an option that the council is already considering: the council states in its Carbon Neutrality Action Plan that it aims to introduce the use of Section 106 obligations to pay for carbon neutral initiatives and offsetting following review of the Local Plan. During the recent Local Plan Consultation on the Strategic Issues and Priorities, respondents were asked to answer the following questions about carbon offset funds:

- Do you agree or disagree with the following statement? “A carbon offsetting fund should be used as a last resort”.
- If you agree with the establishment of a carbon offsetting fund, how should this money be used?

The results of the Local Plan Consultation have been analysed and there was very little support for the establishment of a carbon offset fund, even though it was stressed that it would be a last resort measure. It is also important to stress that it could be easy to fall into the trap of thinking that a carbon offset fund can pay for the wholesale decarbonisation of the region. The reality of course is that all this activity is achieving is compensating roughly for the additional carbon emissions from new development, NOT reducing pre-existing residual emissions. Within current practice, there is also an acknowledgement that 1:1 carbon savings will be unlikely to be achieved, so whilst a developer might pay a contribution calculated to offset 50 tonnes of CO<sub>2</sub>, it will be rare that the offset projects funded will actually save 50 tonnes CO<sub>2</sub>. Should the council opt to pursue this option, it would be important to consider how to maximise the offsetting delivered on-site and avoid creating an opt-out for developers.

#### Other opportunities

2.43 In order to reduce residual emissions across the wider district, other offsetting projects such as renewable energy installations and NETs will need to be deployed. The council will not act alone in developing offsetting options, but it has an important part to play in helping others tackle the emissions that it does not have direct control over, by:

- Mobilising – encouraging and incentivising businesses and communities to develop and invest in renewable energy and NETs
- Facilitating – working with existing action and energy in businesses and communities and supporting them to develop renewable energy and NETs.

- Convening – creating powerful partnerships between local communities and other organisations such as voluntary groups and businesses with the purpose of creating renewable energy and NETs.

Some work is already under way that demonstrates how this might be achieved by others:

- Third Party Solar - the council has been working with Marwell Zoo and Biffa to install solar PV panels on the roofs of their buildings. The panels are expected to save 19t CO<sub>2</sub>e each year at Marwell and 11t CO<sub>2</sub>e at the Biffa depot through the reduced demand for electricity from the national grid
- Community Energy - in collaboration with Community Energy South, Hampshire County Council is providing support to establish new community energy groups and projects throughout the county. Hampshire County Council was successful in a bid for over £205,000 to support expanding this across other districts across the county including the Winchester District
- LoCASE – The Low Carbon Across the South and East programme is supported by the European Regional Development Fund to provide a free business support programme in the South and East. The aim is to help businesses to become more competitive and profitable while protecting the environment and encouraging low carbon solutions. The Partnership consists of local authorities and universities across four Local Enterprise areas which are SELEP, Coast to Capital, Enterprise M3 and Solent.

2.44 Authority Based Insetting is a project that commenced in March 2021. It is led by Anthesis with the funding and support from 13 local authorities across the UK: Blackburn with Darwen Council, Brighton & Hove City Council, Cheshire East Council, Horsham District Council, Leicester City Council, Leicestershire County Council, Oxford City Council, Richmond upon Thames London Borough Council, Shropshire Council, Solihull Metropolitan Borough Council, Trafford Council, Wandsworth London Borough Council, and West Sussex County Council.

The ABI project set out to develop a mechanism that that will help UK Local Authorities to:

- a) Make more projects happen: Stimulate greater investment in carbon saving projects locally, within their borough
- b) Enable better reporting: Quantify and report the carbon impacts in a robust and consistent manner and 'set the standard' for UK local authorities on this topic.

2.45 Building on the principles of traditional 'insetting' – carbon reduction or removal projects co-ordinated and run by a business within its value chain –

ABI shifts the focus of the carbon saving from a value chain into the geographic boundary of a local authority. ABI applies relevant principles and learnings from traditional offsetting, including the use of credits to raise finance. However, it also seeks to retain insetting's potential to connect local stakeholders and generate mutual benefits (see Appendix 3).

- 2.46 Unlike traditional offsets, which are recommended to be only used as a last resort, ABI can be used concurrently with other direct emissions savings activities. This is because ABI is ultimately a means by which more direct emissions savings can occur (see Appendix 4 which shows how ABI can be used in a local authorities route to decarbonisation). The ABI Concept Framework was published in November 2021 (see Background Document No. 1.).
- 2.47 It is recommended that the council explores the ABI framework further to determine its relevance and the actions it could take in order to stimulate greater investment in carbon saving projects locally. Anthesis is committed to continuing the progression of the ABI framework and will be developing a second phase of the project which will be focused on how to put ABI into practice.

### 3 OTHER OPTIONS CONSIDERED AND REJECTED

#### **Out-of-boundary investments (i.e. carbon offset credits and schemes)**

- 3.1 Traditional offsetting options such as carbon offset credits and schemes were also considered as an option for Winchester City Council. Traditional offsetting typically involves purchasing a tradeable unit from an offsetting scheme, known as a carbon offset credit, which represents an emission reduction of one metric tonne of CO<sub>2</sub>, or an equivalent amount of other GHGs. Although they can be stored and traded like a commodity, they are not material things; offset credits are not literally 'tonnes of carbon' but stand in for them. The purchaser of an offset credit can 'retire' it to claim the underlying reduction towards their own GHG reduction goals. There are two classes of carbon credit - compliance or voluntary.
- 3.2 Several projects are readily available that offer high quality certified offsets. One such project is offered by Carbon Footprint Ltd, an organisation that Winchester City Council uses to calculate its organisational carbon footprint. Carbon Footprint Ltd operates within both the voluntary offset market and the compliance offset market, and offers a diverse portfolio of offset projects to choose from, both in developing countries and the UK. Carbon Footprint Ltd produced a carbon footprint appraisal report for Winchester City Council which assessed WCC's GHG emissions between 1st April 2019 and 31st March 2020. The report recommended Winchester City Council support 'the UK or Kenya tree planting programmes (both buddied with a reduced deforestation project in the Brazilian Amazon) as a way of 'contributing to projects which reduce GHG emissions through sequestration and prevention of forest burning, as well as providing income and livelihoods to local communities in Brazil and Kenya'. They also highlighted that it would help

meet the council's internal goal of planting 100 trees annually. If the council was to offset their emissions in this way, Carbon Footprint would be able to certify WCC as a 'Carbon Neutral Organisation'.

- 3.3 In order to calculate the estimated costs of purchasing offsets from Carbon Footprint Ltd, the calculator provided on their website was utilised (<https://www.carbonfootprint.com/carbonoffsetprojects.html>). For these costs, it is assumed that Winchester City Council has roughly 1500 tCO<sub>2</sub>e of residual emissions that will need to be offset by 2024. The estimated costs to offset 1500 tCO<sub>2</sub>e range from £9,000-£19,350 (see Appendix 5).
- 3.4 Whilst carbon offset schemes may provide a cost effective way to offset residual emissions, it is recommended that the council does not pursue this type of offset. As discussed in section 2.19, there are additional social, economic and environmental benefits from prioritising carbon offsetting solutions that are generated within the administrative boundary of the council. The majority of offsetting schemes, however, operate in developing countries detached from the sphere of influence of many organisations that purchase offset credits. Moreover, the offsetting schemes available in the UK are limited. The only UK-based offsetting schemes available are nature-based, for example, the Woodland Carbon Code and the Peatland Code. The demand for offsetting in the UK is increasing, pushing up the price of UK based certified offsets. Ultimately, investing in a carbon offset scheme outside of the Winchester District will not generate the positive co-benefits that would otherwise be stimulated by offsetting measures based within the district. We also expect that local resident taxpayers will object to the council investing their money in an offset scheme if it offers no social or economic return within the local region.

#### BACKGROUND DOCUMENTS:-

##### Previous Committee Reports:-

HEP016 – Carbon Neutrality Programme – Energy Policies and Actions

##### Other Background Documents:-

1. Anthesis (2021). Authority Based Insetting: A Concept Framework – <https://www.anthesisgroup.com/authoritybasedinsetting/>
2. Climate Change Committee (2021). Sixth Carbon Budget – <https://www.theccc.org.uk/publication/sixth-carbon-budget/>
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#### APPENDICES:

Appendix 1 – Summary of nature-based offsetting solutions

Appendix 2 - A visual comparison of ABI compared to traditional offsetting and inssetting

Appendix 3 - Diagram showing a potential route to decarbonisation for a local authority using ABI

Appendix 4 - Example selection of offsetting schemes provided by Carbon Footprint Ltd

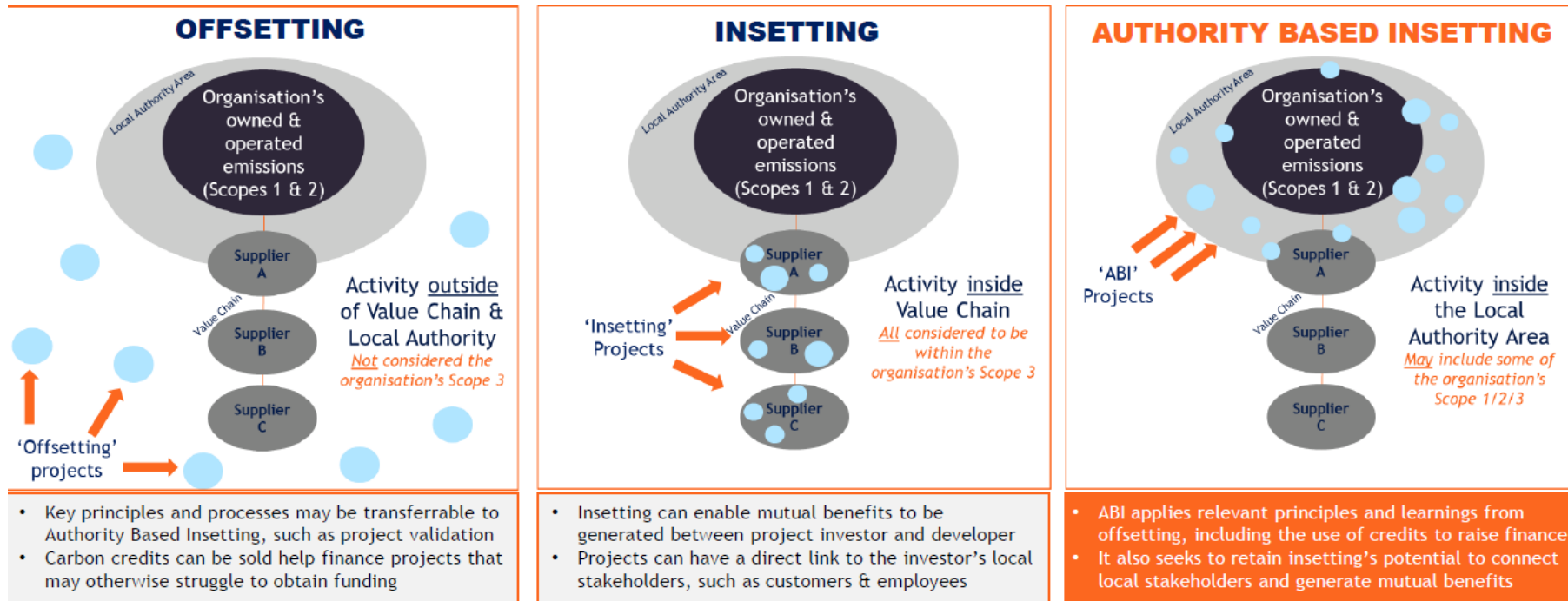


## Appendix 1 – Summary of nature-based offsetting solutions

Approach	GHG emission reduction or removal?*
Upland peat restoration	Reduction and potentially removal
Lowland peat restoration	Reduction and potentially removal
Woodland creation	Removal
Grassland management	Removal
Freshwater wetlands – flood plain restoration	Removal
Freshwater wetlands – constructed wetlands	Removal
Saltmarsh restoration	Removal
Seagrass restoration	Removal
Kelp restoration	Removal
Agricultural soil management practices - arable land	Removal and reduction
Agricultural soil management practices - pasture land	Removal and reduction
Hedges and trees outside woodland	Removal
Enhanced weathering	Removal
Biochar	Removal

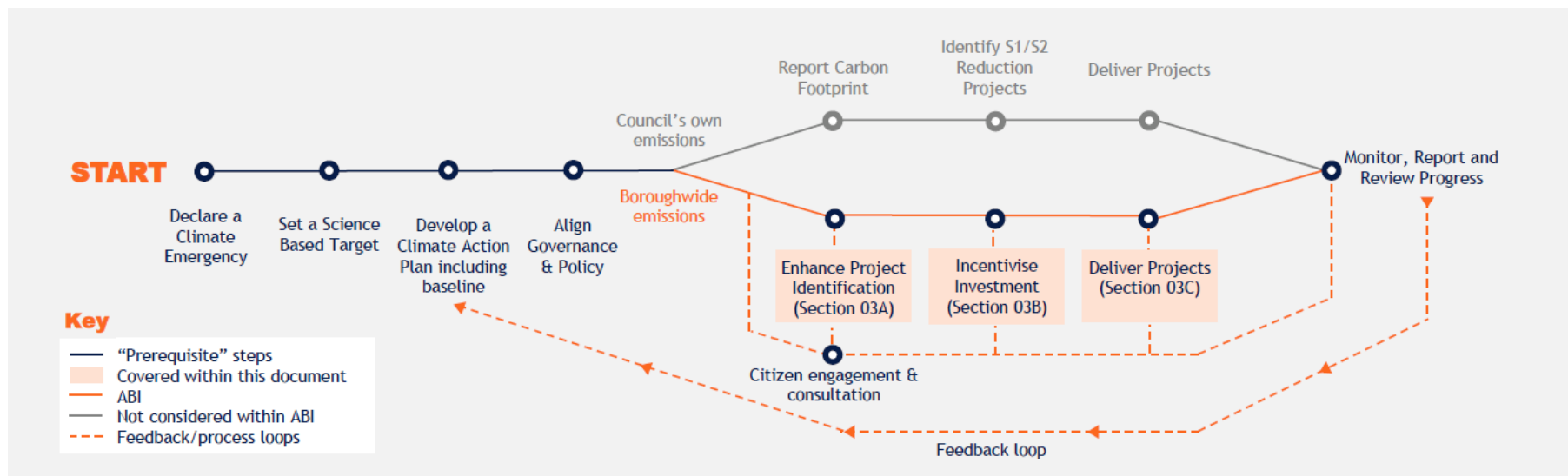
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Appendix 2 – A visual comparison of ABI compared to traditional offsetting and insetting



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Appendix 3 – Diagram showing a potential route to decarbonisation for a local authority using ABI



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## Appendix 4 – Example selection of offsetting schemes provided by Carbon Footprint Ltd.

<b>Offset project</b>	<b>Details</b>	<b>Price per tonne CO2</b>	<b>Price for 1500 tCO2</b>
UK Tree Planting	Funding supports the planting of trees in a UK region of your choice. The project mainly plants in school locations, helping to educate children and support wildlife habitats whilst sequestering carbon emissions. For each tCO2e offset, one tree is planted in the UK and an additional tCO2e is offset through a VCS Tree Budding project to guarantee the emission reductions	£12.90 incl. 20% VAT per tonne	£19350 incl. 20% VAT
Reforestation in Kenya	Funding supports the planting of native broad leaved trees in the Great Rift Valley, and supports its developing community. For each tCO2e one tree is planted and an additional tCO2e is offset through a VCS Tree Budding project to guarantee the emission reductions.	£9.50	£14250
Community Projects	Funding supports a carefully selected range of projects from within developing countries that have strong additional benefits beyond reducing carbon emissions. These include health benefits, saving low-income families money and reducing deforestation. All projects in this portfolio are certified to the Gold Standard and include efficient household cook stoves and clean drinking water projects.	£8.00	£12000
Global Portfolio	Funding supports VCS certified carbon reduction programmes across the world via a range of projects that include carbon avoidance, clean and renewable energy generation. Many are within developing countries, where they also provide additional social benefits.	£6.00	£9000