



WMA Carbon Management Plan 2023

A Plan to reduce carbon emissions
by 50% by 2030

Introduction

In February 2023 we, the Water Management Alliance (WMA), published our first-ever full carbon audit allowing us to calculate and benchmark carbon emissions and enable the key sources of emissions to be identified. The WMA has worked hard to produce this Carbon Management Plan, to demonstrate we understand our responsibility to reduce our emissions, as we strive to reduce carbon emissions by 50% by 2030.

The Water Management Alliance would like to commit to the Government's ask of small businesses (SMEs) to take climate action in three ways:

- 50% reduction in greenhouse gas emissions before 2030. (Scope 1 and Scope 2)
- Achieve net zero emissions by 2050. (across Scope 1, 2 and 3)
- Disclose progress on a yearly basis.



Phil Camamile – CEO of Water Management Alliance

“Reducing carbon emission by 50% by 2030 is very challenging for us given the nature of our work and the impact the weather has on our operations. Producing the carbon audit in 2022 was our first step on the journey, providing us with the information to baseline our emissions and identify areas to focus on and monitor our progress to 2030.

This Initial Carbon Management Plan sets out steps we have already taken on the journey, and steps we look to take in the short, medium and long term to drive emission reductions between now and 2030”.

Our Carbon Footprint

The carbon audit is produced in line with the principles of the Greenhouse Gas (GHG) Protocol and UK Government Department for Business, Energy and Industrial Strategy (BEIS) GHG reporting guidance.

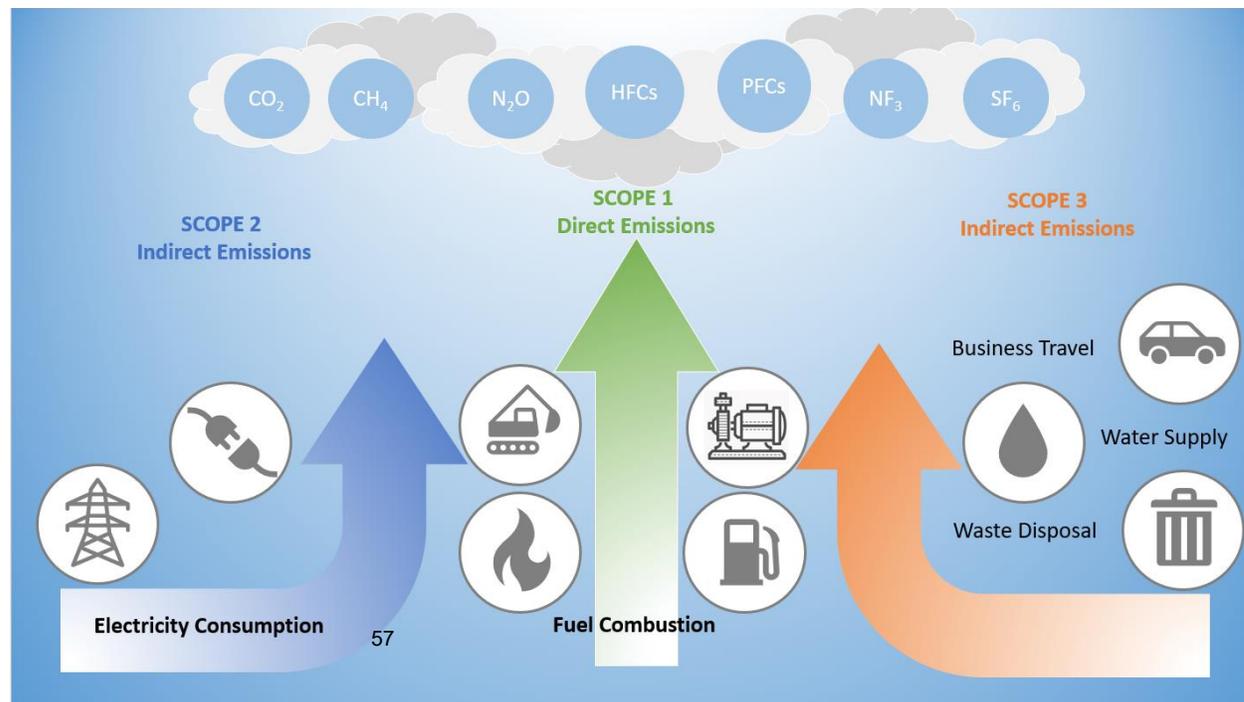
The Green House Gas Protocol defines 3 types of emission categories, referred to as Scopes.

Scope 1 - Direct Emissions from activities under our control. Primarily relating to fossil fuel combustion

Scope 2 - Indirect Emissions from the electricity we purchase and use

Scope 3 - All other indirect emissions from activities/ sources we don't own or control

The GHG emissions have been calculated by multiplying activity data by the relevant emissions factor



What we found

The data shows that our two largest sources of Emissions are;

- Fuel Consumption (Scope 1) accounted for 40% of total emissions in 2019/20
- Electricity Consumption (Scope 2) accounted for 53% of total emissions in 2019/20

WMAs total emissions reduced in 2021/22 against our baseline year of 2019/20 due to the measures we had already taken.

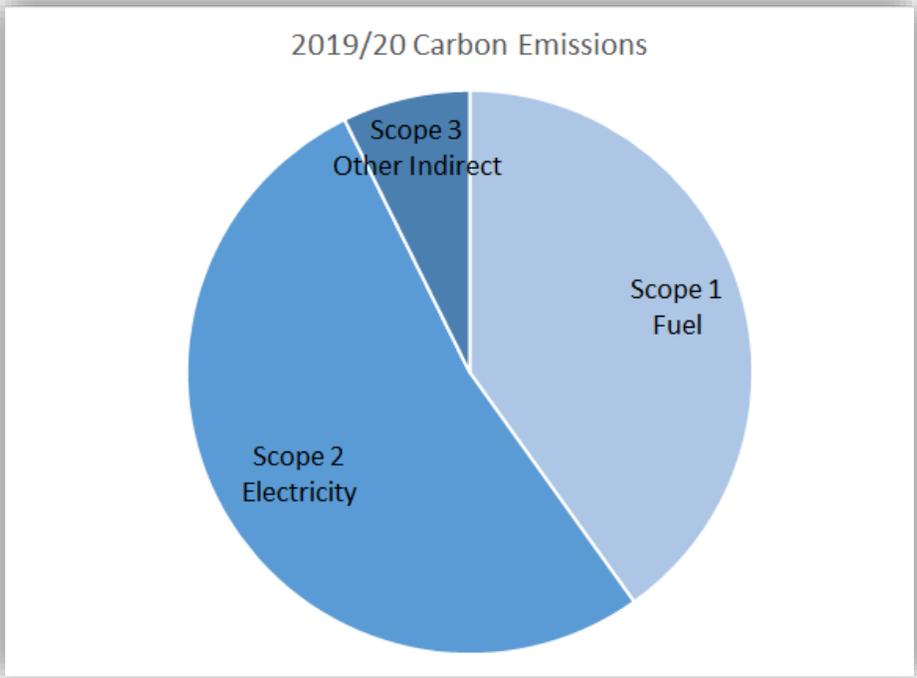


Figure 1: WMA Emissions breakdown 2019/20

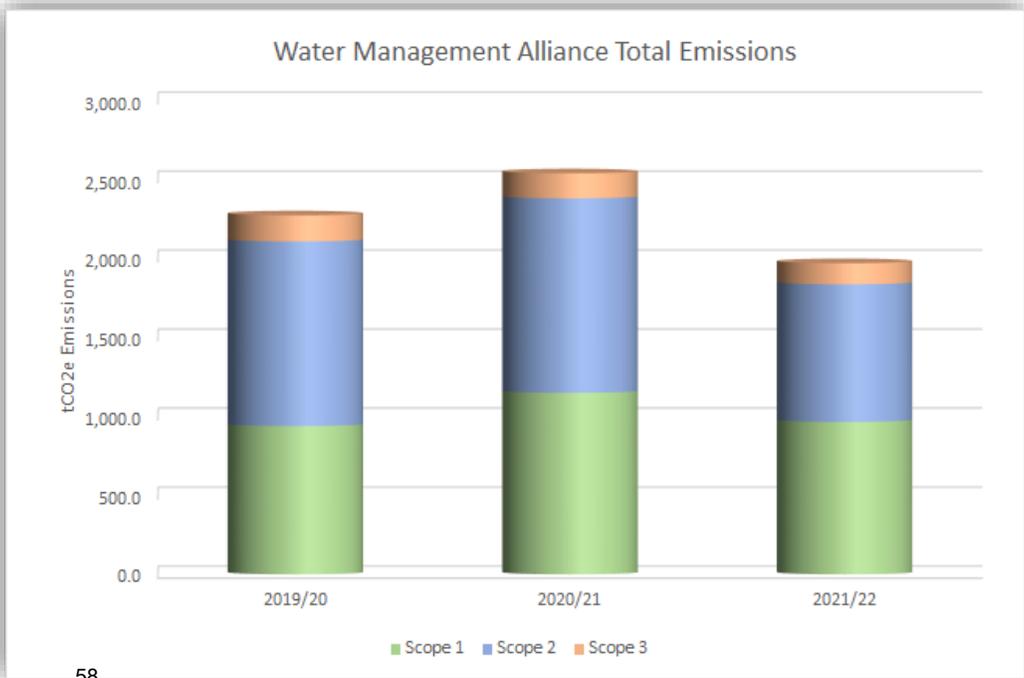


Figure 2: WMA Emissions per scope, per year

Our Carbon Management Plan

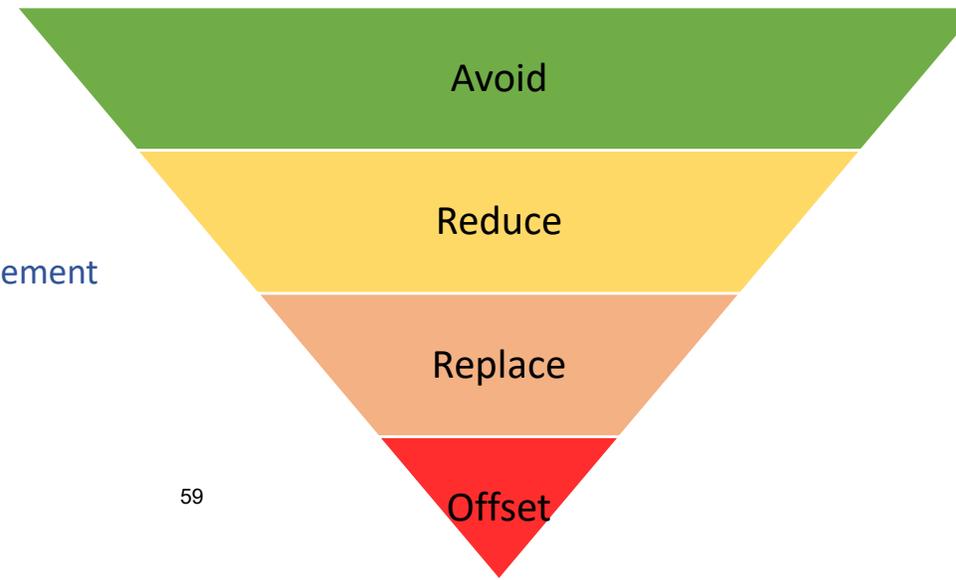
The aim is to achieve a 50% reduction in Scope 1 and Scope 2 emissions by 2030. The challenge of reducing emissions related to Fuel and Electricity is that we know the technology and infrastructure isn't ready now. Therefore, we need to acknowledge that we will have many steps on the journey to 2030 and our plan reflects this; phasing the approach over the next 7 years via short, medium and long-term steps.

As well as reducing emissions we can look to offset any remaining emissions through carbon offsetting methods.

Our plan follows the principles of the Carbon Management Hierarchy, which provides a simple framework;

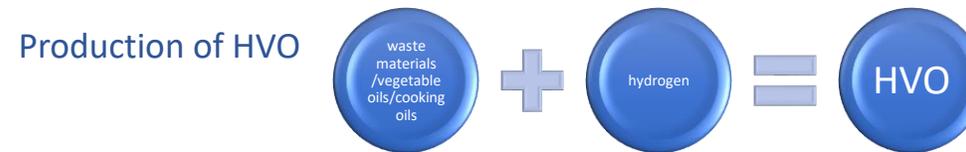
- Avoid – avoid carbon-intensive activities
- Reduce – Do whatever you do more effectively
- Replace – reduce high-carbon energy sources with low-carbon energy
- Offset – those emissions that cannot be eliminated by any of the above

Carbon Management Hierarchy



Scope 1 Fuel HVO

Fuel Consumption (Scope 1) accounted for 40% of total emissions in 2019/20, undertaking maintenance activities on 2,682km of watercourses within our board areas. A move to HVO would reduce fuel emissions by >90%, however we have engaged in numerous discussions, with suppliers and contractors, regarding their positions on the use of HVO fuel. In addition to this we have reviewed other research papers from academic and industry representatives.



Historically waste oil is used for animal feedstocks, however due to the increased demand for HVO from the fuel market palm oil is now often being used for the animal feedstock instead. This displacement activity is believed to be one reason for the global increase in Palm oil production, which is a major cause of deforestation and peatland drainage globally.

The supply chain for HVO production is convoluted and opaque, with limited information on the true source of the HVO being sold. There is a significant risk of non-sustainably sourced products finding their way into the supply chain. EU research has indicated that HVO derived from land use change is likely to be 3 times more damaging than standard fossil fuels.

Until the auditing process for Bio-Fuels is improved and a quality system is accepted by the British Government and EU, we have the potential to worsen the global situation by adding our demand to the HVO market. This position is also being taken by a number of other UK contractors.

We therefore believe it would be irresponsible for us to make this transition at present

Scope 1 Fuel HVO

Our key considerations regarding HVO are in the table below, which we will review annually

Pros	Cons
Reduction in Scope 1 fuel emissions in excess of 95% (930,000kgCO ₂ e in 19/20 would reduce to 10,000kgCO ₂ e with HVO)	The relatively small amounts which we would require cannot be guaranteed under the normal delivery timescales. We would therefore need to increase our ability to store more fuel through buying bigger storage tanks
Can be used without any need for vehicle modification	Would require manufacturers to guarantee plant and vehicle warranties
Can swap between HVO and diesel with no issues	To maximise carbon reduction, we would need our framework contractors to make the transition too. We would need to re-write and re-run our Tender Process, to capture this change
It has good cold weather properties and good long-term storage stability	Potential environmental impact, such as deforestation, which is said to be contributing up to 18% of global emissions.
	Currently, supply is limited and not matching demand
	Prices remain at a premium compared to regular diesel, gas oil and kerosene. ~20 pence per litre higher

Scope 1 Fuel Electric Plant

The key benefit of electric tools is that they produce no emissions. However, to achieve maximum carbon reduction the electricity used to charge them should also be green i.e. from a renewable source.

We have trialled some electric small tools, e.g strimmers, but unfortunately all electric heavy plant is still not realistic at this point in time. Industry leaders are looking more to Hydrogen as the fuel of the future, for these larger pieces of equipment.

Our key considerations for Electric plant are in the table below. We will review this annually as battery technology improves and costs come down.

Pros	Cons
Zero direct emissions	Plant working time each day can be reduced due to run time and charge lengths. This can extend a project timescale increasing overall cost
Battery powered small tools are lighter, with lower vibration	Slow to charge. Less reliable. Ad-hoc use can be challenging in terms of charge retention.
Reduced fuel costs and maintenance can make them more cost effective in the long run.	Charging infrastructure out on site is problematic
Improved air quality and noise on site	Excavators not yet available
	More expensive outlay

Scope 1 – Fuel PLAN



Scope 1 - Fuel

Removing unnecessary assets from our portfolio to reduce our energy consumption	Update plant replacement policies to ensure all fleet replacements consider zero emission alternatives where possible and practicable	Add a low carbon checkpoint for our suppliers within our framework procurement process	All new fleet and plant vehicles to be zero emission by 2030 or before if the technology exists at the point of purchase (in line with the plant replacement policy)
Research transition to HVO	Write to all subcontractors highlighting that carbon footprint will be a specific element for scoring at next tender period	Formally re-review alternative fuels in light of advancing technology 1. HVO 2. Electric hand tools 3. Electric Fleet vehicles & plant 4. Hydrogen	Actively support zero carbon supply chains
Replace many petrol driven hand-tools with electric powered tools	Prioritise contracts to local businesses where reasonable, to minimise travel carbon emissions	Develop Infrastructure at offices, depots and sites, so that it is ready and in place for carbon neutral fleet	Back up generators to be zero emission by switching to renewables including hydrogen, wind and solar power
Telematics in plant to alert us to higher fuel use or inefficient engine management	Remain fully engaged with the fleet industry regarding the changes in technology for carbon improvements	Ensure all new Pumping stations have the scope for infrastructure for a carbon neutral fleet	
All Plant operating on Bio-oils, rather than mineral oil. This requirement is also stipulated to all of our Framework contractors	Update plant replacement policies to ensure all new fleet replacements consider extending replacement cycle to align with the next Euro Engine standard - ensuring we always prioritise the cleanest technology in the replacement decision		
Continue to operate new and efficient plant, which is replaced at regular intervals, such that the most efficient engines are being used	Trial new MEICA camera & telemetry system including remote management, control and automation to reduce vehicle movements 63	Install new telemetry system including remote management, control and automation within funded capital projects to reduce vehicle movements	Retrofit new telemetry system including remote management, control and automation on existing pumping stations to reduce vehicle movements

Scope 2 Electricity

Electricity Consumption (Scope 2) accounted for 53% of total emissions in 2019/20, due to running 3 offices and 105 pumping stations. The Electricity usage, and subsequent emissions, are directly affected by seasonal weather and the severity of weather conditions. When rainfall is high, we need to run our pumps for longer or more often, to evacuate water from our districts. In wet winters such as Winter 2020, some of our pumps ran 200% more than average.

We therefore need to assess how we can reduce emissions by looking at Green Energy solutions which have little to no emissions. This either means moving over to true 'Green Tariffs' where 100% of the energy is produced by renewable sources, i.e. solar or wind turbines or through producing our own green energy. We have installed solar panels and battery storage at our new Pierpoint Office which produce 33.5MWh per year, making our office 60% self-sufficient.

Producing our own green energy will not be easy as we require land at a sufficient scale, capital investment and the ability to produce electricity when required or store it for when we use it.

A potential solution to this is a sleeving agreement, whereby the electricity we produce is stored in the grid and re-sold to us when required at a cheaper rate.

Scope 2 – Electricity PLAN



**Scope 2 -
Electricity**

<p>New head office; LED Lighting, insulation, new windows, automatic light & heating system controls, air source heat pump</p> <p>PV Solar array 76 KW, and batteries to store 60 KWh</p>	<p>We will write and agree renewable energy policies with our respective boards which support the implementation and installation of green energy infrastructure. We will use this policy to justify the capital implementation of green energy infrastructure, as part of our asset replacement programme.</p>	<p>We will install green energy generation capacity across our board area, as part of any capital replacement project where funding allows.</p>	<p>Consider potential transition to Hydrogen if the technology develops</p>
<p>We are currently on Green Electricity Tariffs</p>	<p>Undertake detailed research on sleeving agreements, such that we can fully utilise these as our assets are replaced and energy policies are implemented.</p>	<p>Through energy sleeving agreements, we will generate, store and use the green energy we generate to operate our assets and fulfil our function. Where excess power is generated to that required by the board, we will work across the WMA group to fully utilise the energy in a beneficial and responsible way</p>	<p>We will assess the various boards land holdings to establish the possibility of utilising them to host facilities for clean energy generation and use by the WMA member boards.</p>
<p>Improve actual electricity reads at pumping stations to improve our consumption data</p>	<p>Build pumping station replacement business cases around estate decarbonisation, maximising opportunities for newer, more efficient assets and green energy infrastructure</p>	<p>Ensure new PS telemetry settings are set up to maximise electrical efficiencies, through prioritising the use of stored energy, renewable energy and lowest demand period pumping</p>	
<p>where possible we have amended pumping station control philosophy to maximise cost and energy grid demand by running overnight with cheaper electricity tariffs</p>	<p>Review all PS run protocols to ensure settings ensure the most energy efficient running periods are being selected</p>	<p>Present the boards with cost equivalents of True Green Tariffs, such that the cost can be assessed as part of other financial objectives</p>	

Scope 3 – Business Travel & Waste Disposal PLAN

Scope 3 accounted for 7% of our Emissions in 2019/20. This included emissions from business mileage, emissions from waste and recycling, water use and treatment.



**Scope 3 -
Business Travel &
Waste / Recycling**

Staff encouraged to car share to all meetings including board meetings	Support for cycling to work scheme and other low carbon salary sacrifice schemes to be reviewed	Explore options for EV or Hybrid work vehicles, at the replacement cycles	We will aim to recycle the majority of all waste from depots and offices
Transition to hybrid board meetings to save travel for both staff and board members	Continue to find facilities to enable all board meetings to become Hybrid	We will develop a travel policy which prioritises sustainable travel wherever possible	We will aim to hold paperless, net zero, board meetings.
We have reduced paper use board meetings	We will not produce any paper board reports or rate demands unless specifically requested	We will look into carbon offsetting programs to compensate for our business travel	
EV charging points installed at Pierpoint House to support staff to transition to electric vehicles	Provide EV charging points at IDB office and depot locations where appropriate	We will work with our teams to encourage the use of reuseable containers and materials	
Waste company has been chosen that does not send waste to landfill. Recycling stations in the office for card, paper, plastics, batteries, ink cartridges etc	Develop scope 3 reporting arrangements	We will ensure that our capital replacement projects use circular economy principles, focussing on longevity, repairability and recyclability of the proposed designs	
IT - purchase of new IT equipment is limited and IT re-distributed of equipment is mandated	We will review flexible work schedules to allow employees to combine business trips or schedule meetings more efficiently, reducing the overall number of trips required		

Carbon sequestration, offsetting & Biodiversity

We may not be able to eliminate all our emissions, as we must continue to provide our important role in land drainage. Therefore, sequestration and offsetting will be important tools to help us achieve our reduction targets.

Within the board areas there is 13,456 hectares of designated habitat (SSSI, SAC, SPA, RAMSAR) and significant areas of lowland peatland.

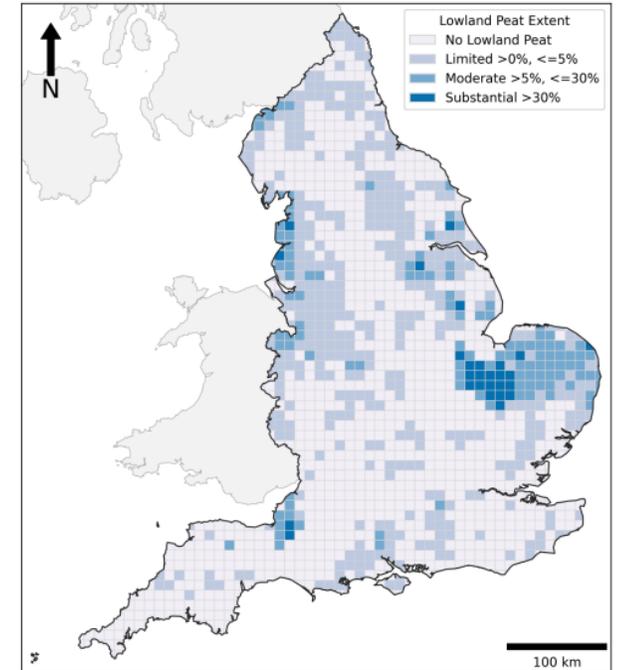
Biological carbon sequestration involves storing carbon dioxide in vegetation, like grasslands or forests and our green environment provides the perfect opportunity to both improve our environment, support biodiversity and sequester carbon.

Peat in the East of England is degrading following the draining of land for agricultural use. When peatlands degrade the carbon they preserve is released primarily as carbon dioxide to the atmosphere. If we can help manage our areas more sustainably, the science suggests that lowland peat soils can be retained, and emissions reduced.

In January 2021, Defra established the Lowland Agricultural Peat Task Force to explore how this might be done. The [Caudwell Report](#) suggests one example of more sustainable farming model is Palludiculture – a profitable production of wetland crops.

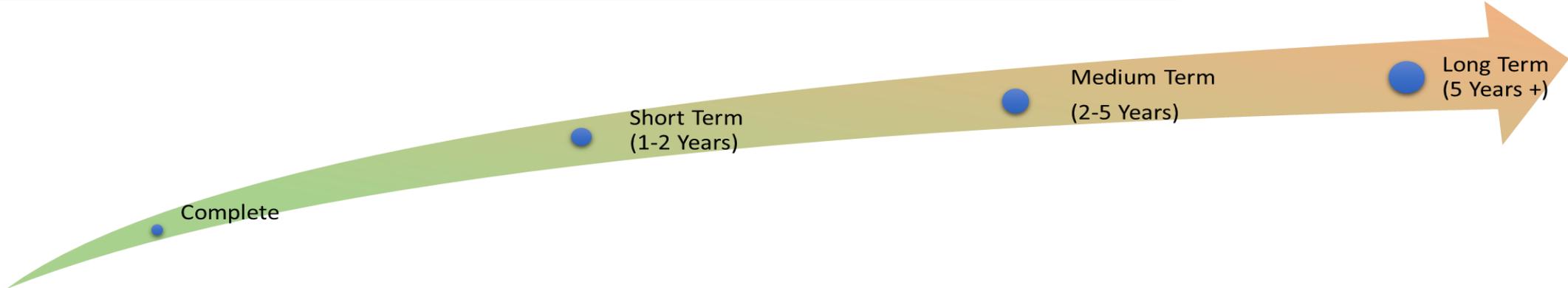
Palludiculture has the most potential to slow peat soil loss and, in some instances, could even lead to carbon sequestration and net greenhouse gas removal.

Our role in this is as an enabler for actions of others, however where we own land we can also be directly involved in these projects.



Sources: Office for National Statistics licensed under the Open Government Licence v.3.0. Contains OS data © Crown copyright and database right 2022. Contains information licensed under the Non-Commercial Government Licence v2.0. BGS, Cranfield University (NSRI) and OS acknowledged for Peaty Soils Location (England) data.

Carbon sequestration, offsetting & Biodiversity PLAN



We have collaborated with working groups undertaking projects in this field, enabling knowledge to be built and shared (Horsey)

Develop our knowledge and understanding of how income can be generated from these initiatives, such that we can either understand how to use our own land or to advise (at a high level) when required.

Develop and agree a paper for board approval which sets out how we should go about using our land to undertake carbon sequestration and offsetting work. Further to this aim to develop a Carbon sequestration, offsetting policy document

Further to the aforementioned policy discussions look to develop detailed projects for carbon reduction initiatives, this could include how we use our own land or new land to focus on achieving our offsetting objectives

[Example - CANAPE Horsey Wet Farming Trial](#)

Propose a carbon reduction fund that each board contributes to. This will enable us to have a budget with which we can undertake or contribute to initiatives which directly link to tangible carbon reduction activities

Investigate viability of purchasing areas of land for planting trees/hedges for carbon offsetting and Biodiversity net gain purposes

Full review of all board owned land, to enable the carbon reduction options to be reviewed (tree planting, wetting up, re-wilding, etc)

Investigate sites and work with partners to identify where the installation of structures to support peatland restoration would be suitable and obtain opportunistic grants to complete this work

Carbon sequestration, offsetting & Biodiversity

Implementing the Plan

We now have a plan with a phased approach over the next 7 years via short, medium and long-term steps.

With no obvious choice for reducing Fuel emissions at the current time and question marks over relying on 'Green Tariffs' to reduce Electricity emissions, there is much to do to reduce our emissions by 50% by 2030.

We have an active Carbon Management working group that will lead on reviewing and implementing the actions identified in this Carbon Management Plan and monitoring the reduction of carbon emissions resulting from the actions identified and taken via the annual carbon audit.

The journey to Net-Zero requires us to embrace new technology - but it shouldn't mean chasing inefficient solutions and quick wins when other more sustainable solutions will become available in the longer term.

It is recommended that the actions stated in this document are implemented with a review of progress completed at regular intervals - no less than annually.