

A photograph of a forest with sunlight streaming through the trees, creating a warm and natural atmosphere. The sun is positioned in the upper left, casting rays across the scene. The trees are tall and thin, with some green foliage and some bare branches. The ground is covered in fallen leaves and twigs.

# The User's Guide to The Woodland Carbon Market

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# Introduction

With the market for WCUs and PIUs still in its relative infancy, CarbonStore is particularly keen to support its healthy evolution by providing a service that is knowledgeable, honest, trustworthy and transparent.

One important element of that is developing a better understanding of the Woodland Carbon Code, its practices, and its principles, among both the companies buying PIUs and WCUs and the landowners selling them. It is for these reasons that we have produced this User Guide, so all parties have a clear understanding of the terminology and the processes involved in the selling and purchasing of woodland generated carbon units.

It is essential that companies buying PIUs and/or WCUs can trust the implicit claim that a WCU represents one tonne of sequestered carbon dioxide equivalent. In order to maintain this confidence, all schemes wishing to generate legally recognisable and saleable PIUs and WCUs must follow a series of complex and detailed checks and inspections. CarbonStore guides you through the process.

For the environmental and sustainability managers reading this User Guide, I hope it gives you confidence and reassurance about the integrity of the PIUs and WCUs which you are contemplating buying.

For the farmers and landowners, I hope it offers a useful explanation about the whys and wherefores of the various steps needed to generate saleable and increasingly valuable PIUs and WCUs.

While pursuing our quantitative targets, it is equally important that we maintain our qualitative standards. We must design, plant, and manage our prospective woodlands to the highest levels. Whether you are a landowner or a company, by working with CarbonStore you can rest assured that we will be guiding you with your best interests at the forefront of our service offering.



**Gavin Adkins**  
Managing Director  
Tilhill and CarbonStore

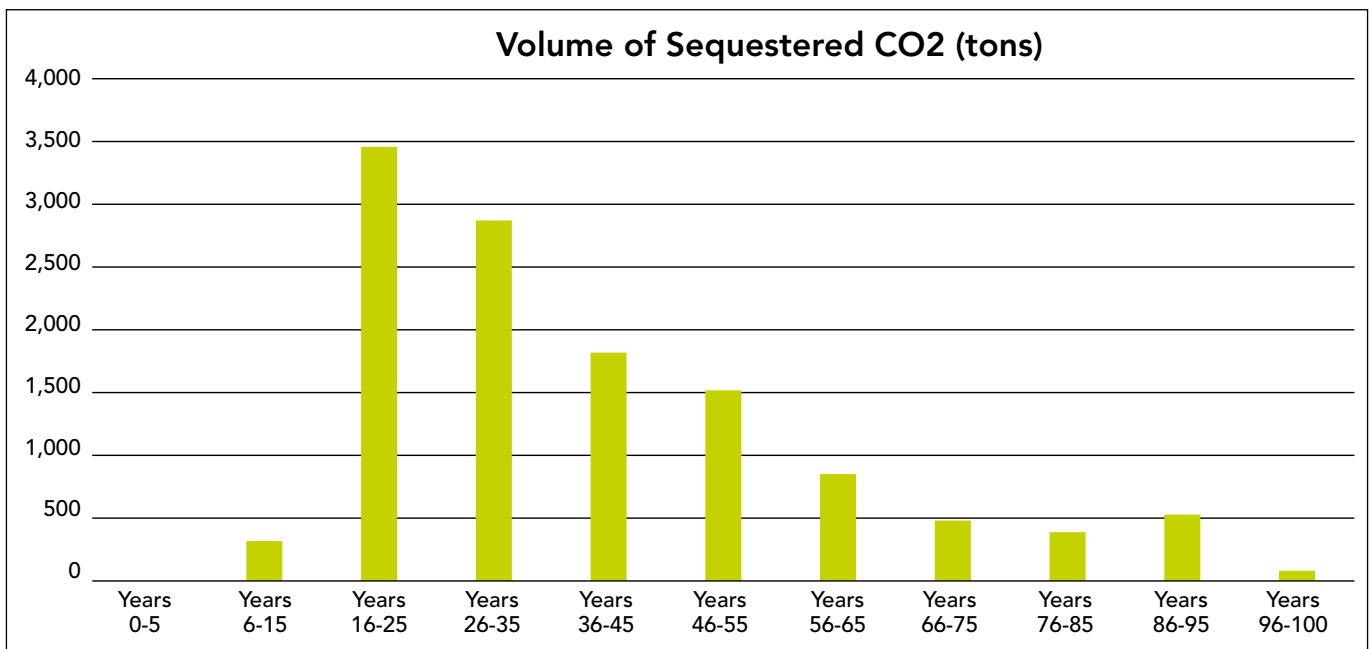
# Carbon Sequestration

## The Basics

Carbon sequestration describes the process in which carbon dioxide (CO<sub>2</sub>) is removed from the atmosphere and subsequently stored through biological, chemical, or physical processes. In the case of woodland creation, trees use solar energy to convert CO<sub>2</sub> and water into carbohydrates and oxygen through photosynthesis. These carbohydrates form the building blocks for the biomass of the tree and, therefore, the storage of carbon.

One often forgotten caveat is that trees not only photosynthesise but respire also. Through this process, trees convert some of these carbohydrates and oxygen back into CO<sub>2</sub>, water, and energy. As trees grow, the process of photosynthesis dominates that of respiration, sequestering carbon. Once they reach maturity, however, these processes are pretty much in equilibrium. Subsequently, the trees are emitting as much CO<sub>2</sub> as they are sequestering.

Chart 1: Chronology of Sequestration Volumes on a Standard Woodland Scheme.



This balance between photosynthesis and respiration is embedded in the Woodland Carbon Code’s carbon calculator. Its forecast for a standard woodland’s sequestration schedule over 100 years (see *chart 1*

*above*) shows that CO<sub>2</sub> removals peak between years 16 and 25 of a tree’s life. Thereafter, they gradually decline so that, by year 100, they are approaching equilibrium.

## A Carbon Source, Sink and Store

There is a lot of confusion surrounding terms such as 'carbon sink', 'carbon store' and 'carbon source'.

In a nutshell:

- A **carbon source** releases more carbon than it absorbs.
- A **carbon sink** is any reservoir that absorbs more carbon than it releases.
- A **carbon store/stock** maintains a constant amount of carbon.

These three terms are neatly illustrated during a woodland's life cycle. Initially, a planting project is a

carbon source, due to the ground disturbance, the use of tree guards, the fencing etc. Thereafter, as the trees grow, it becomes a (significant) carbon sink before, as *chart 1* shows, maturing into a carbon store. Depending on the species choice, the soil type and other factors, the time between these stages varies considerably but, generally speaking, the woodland is a **source** in years 0-5, a **sink** in years 5-100, and beyond that they act as **stores**.

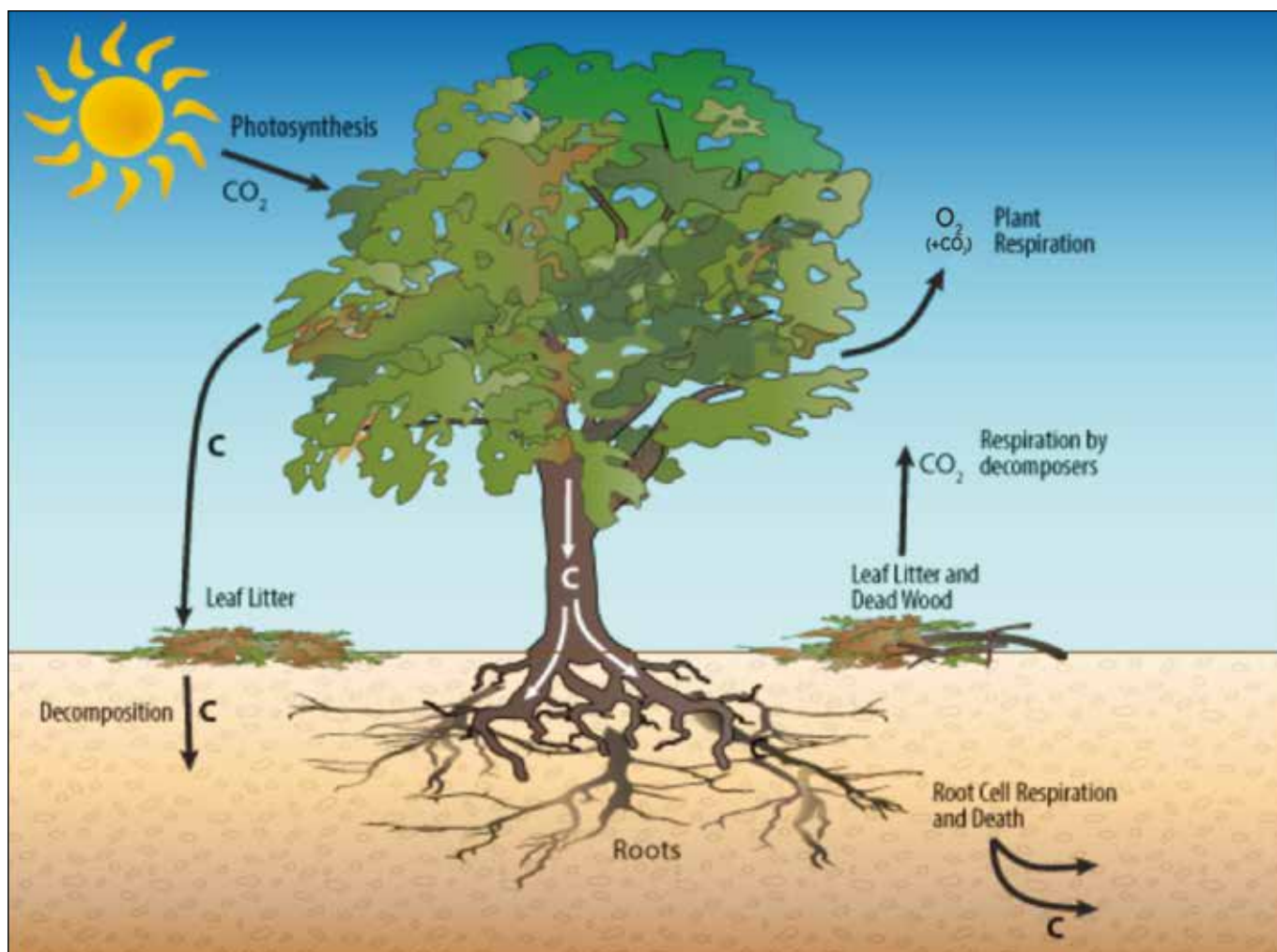


Image 1: The Carbon Cycle of a Single Tree.

## Explaining Soil Carbon

An important but often overlooked store of carbon is the soil. On average, the top 1m of soils in UK woodlands contain three quarters of the 'in-forest' carbon stock (see *image 1*). This 'in-forest' stock accounts for the timber of the tree itself, all biomass in the leaf litter, other vegetation and the soil.

Even though the soil disturbance from ground preparation for tree planting will release carbon dioxide back into the atmosphere (primarily through microbial respiration), over the lifetime of the woodland the increase in biomass, improved soil stability and the mitigation of flooding means that the amount of carbon stored in the soil can increase dramatically.

# The Wider Benefits of Woodland Creation

Aside from the previously discussed benefits of trees as the most effective (and wholly natural) carbon sink available, woodland creation generates a multitude of other ecological, environmental, social and economic benefits:

- **Improve Biodiversity:** Woodlands provide essential habitats to a wealth of wildlife, including nesting birds, shade-loving plants (known as sciophytes), and fungi. Tree planting has a central role in our efforts to tackle our biodiversity crisis.
- **Flood Mitigation:** A mature tree captures over 700 gallons of water per year. A recent survey estimated that carefully planted patches of woodland across a river basin can stem the flow velocity in the neighbouring river, when rainfall is high, by almost 50%.
- **Water Filter:** Flood water often contains high levels of phosphorus pollutants and nitrogen. Without trees, that flood water would flow directly into rivers and lakes without being filtered. Trees break the rainfall allowing soil microbes to transform the pollutants.
- **Reducing Soil Erosion:** Wind and rain are the two largest natural forces eroding our soils. Raindrops have the power and momentum to penetrate soil when they hit the ground. If the land is dry, wind can do significant damage. Trees break up droplets of

rain and weaken their strength while roots hold the soil together and protect it from the effects of wind.

- **Health Benefits:** According to Forest Research: *“Woodlands provide an opportunity to exercise in a calm and restful environment. Exercise in woodlands relieves physical symptoms such as high blood pressure and obesity, as well as mental symptoms of stress and depression.”*
- **Timber’s Sustainability Benefits:** Timber has the lowest embodied energy (i.e. energy used in its processing, production, and transport, from tree to consumer use) of any mainstream building material, and significantly less than for steel, concrete, or aluminium.

These wide-ranging advantages of trees means that woodland creation can provide an entirely natural but almost perfectly designed antidote to many of our most serious challenges. We are suffering an unprecedented loss to our biodiversity in the UK. Extreme hydrological events are rising.

According to the Environment Secretary, we are *“30-40 years from a complete eradication of soil fertility in parts of the UK”*. Finally, we are increasingly in need of a home-grown timber resource to meet the government’s target for new homes.

## What Exactly is CO<sub>2</sub>e?

We talk about trees sequestering carbon and helping to mitigate climate change. But how does this tie up with the CO<sub>2</sub>e (Carbon Dioxide Equivalent) which we refer to elsewhere?

In practice, there are seven greenhouse gases (GHG) which the Kyoto Protocol identified as contributing to global warming. Carbon Dioxide (CO<sub>2</sub>) is the most prevalent, accounting for 80% of GHG emissions.

This is followed by Methane (CH<sub>4</sub>), which comprises 10%, and Nitrous Oxide (N<sub>2</sub>O) which makes up 7% of all GHG emissions. The remaining 3% is accounted for by the fluorinated gases, such as Hydrofluorocarbon, used in refrigerants and aerosol propellants.

Each of these GHGs absorb different levels of energy so have different effects on the earth’s warming. Scientists have therefore developed Global Warming Potential (GWP) to enable comparisons between the global warming impacts of different GHGs. Specifically,

GWP is a measure of how much energy the emissions of one tonne of a gas will absorb over a given period, relative to the emissions of one tonne of CO<sub>2</sub>.

The UK government estimates the GWP of Methane and Nitrous Oxide to be 25 and 298 respectively. This standardised metric then provides an easy benchmark for companies and offsetting projects alike who are attempting to balance emissions and suppressions. A company emitting four tonnes of Methane must sequester (4 x 25) 100 tonnes of CO<sub>2</sub>e to neutralise its impact on the earth’s warming.

By using one tonne of CO<sub>2</sub>e as a benchmark against which we can measure the impact on global warming of other GHG emissions, companies and offsetting projects are able to work on the same, easily understood and readily exchangeable unit of offsetting currency.



# The UK Government's Targets for Woodland Creation

In January 2020, the Committee for Climate Change (CCC) released its 123-page report: *"Land Use: Policies for a Net Zero UK,"* in which it explained that:

*"Sustainably managed forests are important for reducing emissions across the economy. They provide a store of carbon in the landscape and harvested wood can be used sustainably for combustion and carbon sequestration in the energy sector (e.g. when used with Carbon Capture and Storage (CCS) technology) and as wood in construction, creating an additional stock of carbon in the built environment."*

The report noted that, in 2017, the total emissions from agriculture, land use and peatlands across the UK was 58 million tonnes of CO<sub>2</sub>e (carbon dioxide equivalent). However, the CCC argued that, *'with ambitious steps,'* these emissions could be reduced by 64% to 21 Mt CO<sub>2</sub>e by 2050.

Indeed, afforestation and agro-forestry would play a central role in these land use related emissions reductions. By increasing UK woodland cover from 13% to at least 17%, through planting 30,000 hectares each year until 2050, our newly planted forests and woodlands would be sequestering 14 Mt CO<sub>2</sub>e by 2050.

With the government legally committed to achieving net zero emissions in the UK by 2050 and simultaneously conscious of the wider societal challenges, its 2019 manifesto also committed it to planting 30,000 hectares across the UK by 2025. Within this target, 10,000 hectares would be planted in England, 15,000 in Scotland, 2,000 in Wales and 3,000 in Northern Ireland.





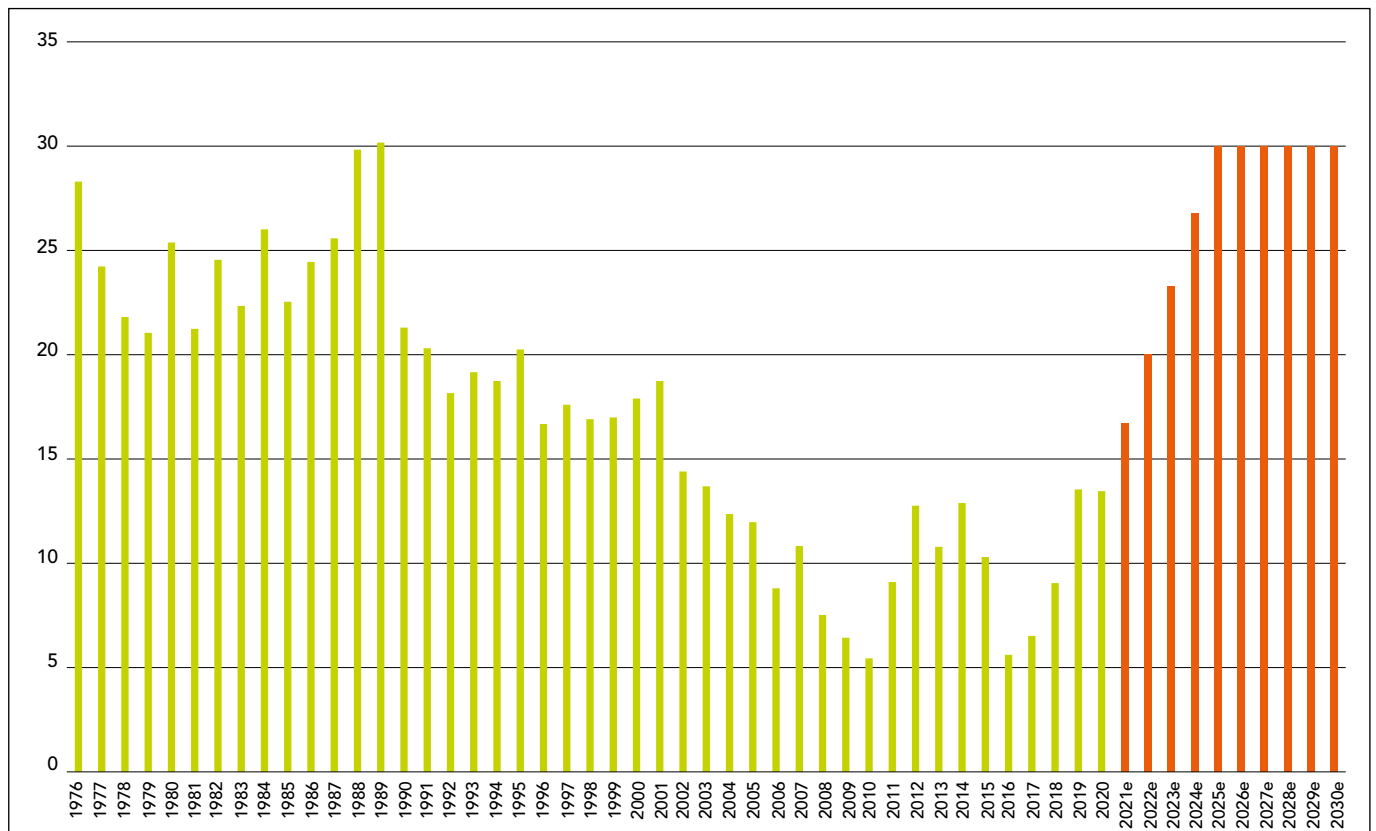
## A New Incentive to Plant Trees

As *chart 2* illustrates, these are ambitious targets. Within 5 years, we must increase the area of annual tree planting across the UK by x2.2 back to a level that we have achieved just once (in 1989) in the past 45 years. We must then maintain this level for the next 25 years.

Realising these goals requires the development of an entirely new market for the valuable services which woodlands provide. As we have seen, trees are one of the best natural carbon sinks available and therefore play a central role in helping us to reduce our carbon in the atmosphere and combat climate change.

The UK government has developed a standard which, by quantifying these benefits (it calculates the tons of CO<sub>2</sub>e sequestered per hectare of woodland) and regulating the issuance of woodland-related carbon credits, creates a valuable, credible and saleable product (used by carbon-emitting organisations to offset their emissions) and an incentive for landowners to plant more trees.

Chart 2: Area of New Woodland Creation in the UK, 1976-2030e ('000 hectares).





# The Woodland Carbon Code: An Introduction



## Outlining the Code's Credentials

The Woodland Carbon Code (WCC) is that standard and, reflecting the value of its work, it enjoys strong credentials. It was launched by the Forestry Commission in 2011, it is operated by Scottish Forestry, the science underpinning its calculations has been developed by Forest Research and it is backed by the UK government.

The Woodland Carbon Code has also been granted international endorsement by ICROA, the International Carbon Reduction and Offset Alliance. Companies, which have bought carbon units issued and authorised by the WCC can therefore take confidence that their carbon credits meet all the standards required of international offsetting schemes.

*The Woodland Carbon Code Enjoys High Level Support.*



## The Purpose of the Woodland Carbon Code

As we explained earlier, landowners need an incentive to plant trees. They enjoy various potential uses for their land, such as livestock, dairy or arable farming and, being understandably keen to maximise the income generated from that land, need a convincing financial incentive to deploy it as woodland.

In the meantime, with technology still insufficient for companies to run their operations free of carbon emissions and many announcing net zero targets, there is a strong demand for "carbon credits" which allow companies to offset the unavoidable emissions which are generated by their factories, offices, company cars etc.

Between companies looking to buy and landowners seeking to sell woodland carbon credits, robust

regulatory oversight is necessary. Companies need to trust the sequestration claims of woodland-generated carbon credits i.e. that they represent the permanent removal of one tonne of CO<sub>2</sub>e. Landowners also need clear, standardised guidance when calculating the number of units which they are allowed to sell to companies.

The Woodland Carbon Code provides this oversight. By outlining a consistent, uniform and rigorous set of procedures, inspections and practices which landowners must follow when applying for woodland carbon-related funding, it ensures companies can have confidence in the veracity and credibility of the woodland carbon credits they are buying.

## The Principles Underpinning the Woodland Carbon Code

How does the Code ensure trust in their woodland-generated carbon units? It upholds the key principles of carbon offsetting which all ICROA-endorsed schemes obey. In practice, this involves respecting six basic rules to confirm that their emissions reductions are:

- i) **Real:** All emission reductions and removals must be proved to have genuinely taken place. *(In the case of woodland, this test is straightforward; are the trees standing and alive?).*
- ii) **Measurable:** All emission reductions and removals shall be quantifiable. *(The WCC has developed its carbon calculator to measure a woodland's sequestration capacity).*
- iii) **Permanent:** Carbon credits shall represent permanent emission reductions and removals. *(With woodlands liable to storms, fire, and disease, the WCC has developed its own solution to this test – we explain more below).*
- iv) **Additional:** The project must demonstrate that, without carbon funding, the project would not have been developed i.e. it must be additional to that which would have occurred anyway. *(The WCC supplies the additionality spreadsheet to test this issue).*
- v) **Independently Verified:** All emission reductions and removals shall be verified to a reasonable level of assurance by an independent third party. *(The WCC have currently appointed the Soil Association and Organic Farmers and Growers to undertake this audit).*
- vi) **Unique:** Only one carbon credit can be associated with a single emission reduction or removal as one tonne of CO<sub>2</sub>e. *(This explains the WCC's rigid rules on permissible claims).*

### Comparing the WCC to other carbon offsetting platforms for investors

The voluntary carbon offsetting market can be rather overwhelming with countless projects on many different platforms. From solar panels in India to cook stoves in Africa, from Gold Standard to the Verra registry. With so much choice available, deciding on what is right for you and your company can be quite a challenge. The good news is, you don't have to pick one alone. Selecting a variety of carbon projects to help offset your residual carbon emissions is often the best way to suit the needs of your organisation, balancing costs, location, project type and all other associated benefits effectively. This blended approach helps you to maximise your Environmental and Social Governance objectives, and your decision can help to support your wider organisational goals.

We firmly believe that carbon units purchased through the UK Woodland Carbon Code are the best of the best. For UK based organisations, investing in local, tangible woodland creation projects offers a host of benefits, making these projects incredibly popular. One special aspect of working with CarbonStore is the ability to become involved in the woodland creation project before it is planted. This means that you can not only help design the project, but also have employees and customers get involved and plant some of the trees and visit the woodland as it grows!

As we shall see, the Woodland Carbon Code requires many spreadsheets to be completed, forms to be filled out and evidence of claims to be provided. As the annotations (in italics above) explain, these are essential steps in complying with ICROA's basic principles.

It is therefore important to understand that this time-consuming paperwork meets an important need – by rigidly upholding ICROA's principles, it maintains the credibility of the units which are authorised by the Woodland Carbon Code and, in so doing, also protects their value.

# The Woodland Carbon Code: A Step-by-Step Guide

## Important Terms and Definitions

The Woodland Carbon Code has its own unique set of terms and definitions. Any basic understanding of the WCC requires some familiarity with these phrases and vocabulary. The glossary (at the back of this brochure) provides a comprehensive list of definitions however, the following outlines the most important and frequently used terms:

### i) Pending Issuance Units

Trees take many years to sequester carbon dioxide. In contrast, landowners planting those trees require a more immediate income from their land. The WCC therefore issues landowners with Pending Issuance Units, known as PIUs, soon after the trees are planted. Because these can be sold to companies, they offer landowners the opportunity to generate income from their woodland creation.

A PIU represents a promise, by a landowner, to sequester one tonne of CO<sub>2</sub>e as the trees grow and mature. Moreover, because a PIU is a 'future' carbon credit, companies cannot use them to offset their current emissions. Instead, PIUs allow them to say they are 'on the path to' or 'en route to' carbon neutrality.

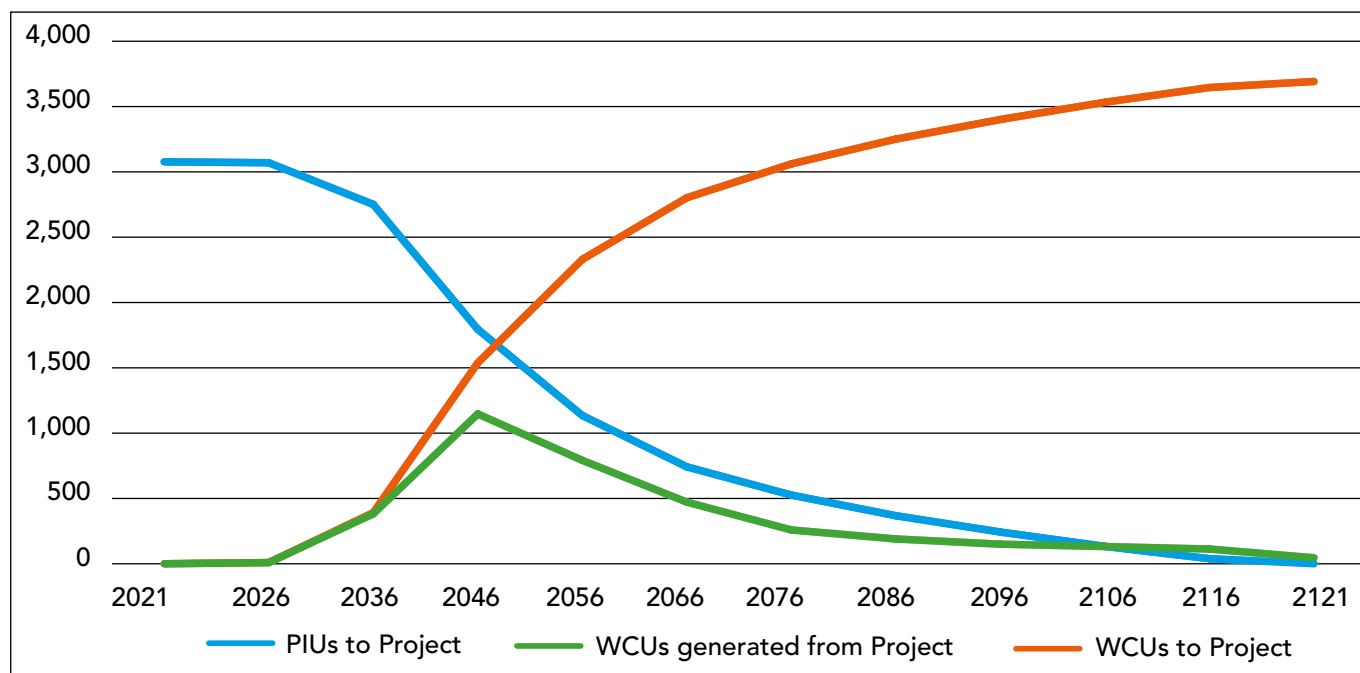
### ii) Woodland Carbon Units

A Woodland Carbon Unit, often referred to as a WCU, represents one tonne of sequestered CO<sub>2</sub>e. Throughout a WCC-registered woodland's life (or its duration), it is subject to a series of inspections by a third-party auditor, and these are known as verifications.

Verification occurs initially five years after planting and thereafter (at least) every ten years. At each verification, the auditor checks that the trees have grown as expected and sequestered the predicted volume of carbon dioxide. Assuming it has, the relevant number of PIUs (i.e. promises to deliver) are commuted into WCUs (i.e. promises delivered upon).

Thus, all of the units generated will initially be classed as PIUs. As the woodland grows and sequesters carbon dioxide, a growing proportion of these PIUs are then converted into WCUs. *Chart 3* illustrates the conversion of PIUs into WCUs on a standard woodland project with a duration of 100 years.

Chart 3: Timeline of Conversion from PIUs into WCUs on a 100-Year Project.





### iii) The Land Carbon Registry

The UK Land Carbon Registry is the database that stores and publicly displays data about the status of Woodland Carbon Code (and Peatland Code) projects, their ownership and the use of carbon units. Managed by IHS Markit, it records transactions and provides a public and transparent picture of UK-based Woodland (and Peatland) Carbon Units.

All Projects and Carbon Units must be recorded on the UK Land Carbon Registry. In order to register a project on the registry, you must:

- EITHER open your own account. This means that you are the Project Developer (see glossary) and will submit the carbon calculator, file the registration details and, in time, complete the validation and verification processes (see more below).
- OR you can register your project under CarbonStore/Tilhill's master account. This carries no greater commitments for you but allows us to help register the project, complete the carbon calculator, finalise the validation and manage your project's PIUs and WCUs, on your behalf, on the registry.

The UK Land Carbon Registry.

Name	Category	Standard Name	Project Type	Status	Additional Certification	Validator	Developer	Country	Details
Accurach	Carbon	UK Woodland Carbon Code	No thinning or clearfell	Under Development		Soil Association Certification Ltd	Tilhill Forestry	Scotland, Argyll and Bute	<a href="#">View</a>
Ardachuple	Carbon	UK Woodland Carbon Code	Mixed mainly clearfell	Under Development		Soil Association Certification Ltd	Tilhill Forestry	Scotland, Argyll and Bute	<a href="#">View</a>



## Registering a Project on the UK Land Carbon Registry

The registration of a project is similar to opening a new bank account. Although it holds nothing in it at this stage, it establishes a depository where they can be safely held once the project is validated or verified, and PIUs or WCUs are issued. Registration requires two basic documents and project details:

- The Woodland Carbon Code's carbon calculator
- A map of the project and some basic details outlining its purpose, its location and its duration.

### i) The Woodland Carbon Code's carbon calculator

The carbon calculator allows us to predict the volume of CO<sub>2</sub>e which a woodland, of any size, species mix and duration, planted in any place, will sequester. The science underpinning this calculator was developed by Forest Research, the Forestry Commission's world-leading silvicultural research department, and it is the recognised template for such predictions.

It comprises four basic sections:

- **Project Basics:** This illustrates the key details of any project: when planting was completed (the project start date), how long it will operate under the Woodland Carbon Code (the duration) and the net planting area. These provide the key parameters for the following sections.

*Example project used for illustrative purposes.*

Project Basics	
Project start date	01 April 2021
Project duration (years)	100
Total net planting area – excluding open space (ha)	10.00
Country	Scotland
If in England, are you applying for the Woodland Carbon Guarantee?	N/A
If applying for the Woodland Carbon Guarantee, 10-yearly or 5-yearly verifications?	N/A

- **Emissions from Establishment:** As we explained earlier, the creation of a woodland generates carbon emissions. This section quantifies the volume of CO<sub>2</sub>e emitted from fencing, spraying, tree shelters and any road building and subtracts these emissions from the volumes sequestered by the woodland.
- **Species, Spacing and Yield Class:** Each compartment of the woodland has its own species, its own yield class, it may have different felling dates, and it will most likely be in different sizes. This section allows you to input each compartment's individual features so that the calculator can assess the volume of CO<sub>2</sub>e to be sequestered based on specific parameters.

Emissions from Establishment	Spacing (m)	Area (ha)	tCO <sub>2</sub> e/ha	tCO <sub>2</sub> e
Seedlings	Please select	0.00	Please select	0.0
Ground Preparation (Fuel)		0.00	-0.06	0.0
Tree Shelters		0.00	-0.82	0.0
Fencing		0.00	-1.64	0.0
Herbicide		0.00	-0.001	0.0
Road Building		km	tCO <sub>2</sub> e/km	tCO <sub>2</sub> e
Roads		0.00	-43.13	0.0
Emissions from removal of trees or other vegetation at the start of the project				

- **Pending Issuance Units by Vintage:** The final section maps out the timing when PIUs will be commuted to WCUs during a project's duration. A *vintage* represents the period between each verification and the *Total PIUs to Project* are the total volume of PIUs which a landowner is able to sell to a company once the project has been validated and the PIUs issued however this figure requires a more detailed explanation.

Verification: years since start date	Vintage start date	Vintage end date	Total PIUs in vintage to be listed	PIUs to Buffer	PIUs to Project
5	01 April 2021	31 March 2026	32	6	26
15	01 April 2026	31 March 2036	508	102	406
25	01 April 2036	31 March 2046	2159	432	1727
35	01 April 2046	31 March 2056	1211	242	969
45	01 April 2056	31 March 2066	885	177	708
55	01 April 2066	31 March 2076	380	76	304
65	01 April 2076	31 March 2086	250	50	200
75	01 April 2086	31 March 2096	180	36	144
85	01 April 2096	31 March 2106	151	30	121
95	01 April 2106	31 March 2116	145	29	116
100	01 April 2116	31 March 2121	49	10	39
<b>Total</b>			<b>5950</b>	<b>1190</b>	<b>4760</b>

### The Discounts Applied to the Total PIUs to Project

*Total PIUs to Project* account for just 64% of the total volume of CO<sub>2</sub>e which the carbon calculator expects the project to sequester over its duration. Conscious that PIUs only represent a promise to deliver, cautious of any undue optimism in its underlying scientific assumptions and recognising that natural capital assets, such as woodlands, are susceptible to natural disasters, the Woodland Carbon Code has applied two discounts before reaching the 4,760 PIUs available for sale in the example above.

#### The First 20% Discount

This is applied before any figures are displayed on the carbon calculator and is, effectively, an insurance policy by the Woodland Carbon Code, to minimise the risk that its underlying assumptions on tree growth are too optimistic and an unrealistically large number of PIUs are sold (or promises are made) before the trees mature.

To illustrate this using the example above, the 20% discount has already been subtracted from the 5,950 *total PIUs in vintage to be listed*. This means that the Woodland Carbon Code actually expects this project to sequester (120% x 5,950) 7,140 tons CO<sub>2</sub>e i.e. 1,190 tonnes more than are available to be sold when the scheme is validated.

It is important to note that this initial discount is returned to the woodland owner when the PIUs are verified and commuted to WCUs. Indeed, receipt of this rebate simply requires the trees to 'have grown as they normally would'. If this is the case, woodland owners can expect to receive 20% more WCUs than the PIUs listed in each vintage.

#### The Buffer – the Second 20% Discount

As ICROA's key principles outline, all verified carbon units must represent a permanent emissions removal. For the Woodland Carbon Code, whose projects are inherently susceptible to natural disasters, such as storms, disease and fire, this guarantee of permanence represents a challenge; If the woodland were to burn down, any verified WCUs would, quite literally, go up in smoke.

The Woodland Carbon Code therefore requires all schemes to contribute 20% of their total verified WCUs to a centralised 'buffer' account which provides a pot from which the WCC can draw unused WCUs if the trees in a verified scheme are damaged and the guarantee of permanence is jeopardised.

#### ii) A Map of the Project

The registration process also requires projects to submit a map of the scheme detailing the site boundary and a plan of the planting. This map, like the carbon calculator, will be publicly accessible so the WCC has strict requirements regarding the content, the scale, and the inclusion of a grid reference. Further details are available under 'mapping guidance' on the Woodland Carbon Code's website.



## Validating a Project under the Woodland Carbon Code

A key criterion for all ICROA-endorsed offsetting standards, such as the Woodland Carbon Code, requires that:

*"...offset projects and carbon reduction claims are independently validated and verified. Validation and verification must be carried out by a suitably qualified, independent organisation."*

In line with this mandate, the Woodland Carbon Code outlines the protocols and procedures for validating woodland projects and two independently appointed bodies, Organic Farmers and Growers, and The Soil Association, validate the projects.

### i) The Simple Steps to Validation

In practice, validation is a desk-based exercise when the auditor reviews the 34-page Project Design Document (see more below) and the additionality spreadsheet (mentioned earlier), among other things, to ensure that the scheme complies with ICROA's principles of carbon offsetting.

According to the Code, a project must be validated within three years of it being registered and cannot be validated until the planting has been completed. Most projects are validated within 2-3 months of planting. Soon after validation, the project's account on the Land Carbon Registry is issued with legally recognised PIUs which the woodland owner can sell to whomever, whenever they choose.

### ii) The Documents and the Tests Needed for Validation

#### Proving the Project is Additional

We explained earlier that all ICROA-endorsed standards require their offsetting schemes to prove that, without carbon funding, the project would not have proceeded i.e. the project is additional to that which would have occurred anyway.

The Woodland Carbon Code has therefore devised four tests to establish whether a project is additional. All projects must pass tests 1 and 2. They must also pass either test 3 or test 4 to be validated:

- **Test 1 – Legal:** This is simply asking whether there is any legal obligation to plant the land already. For example, compensatory planting for woodland clearance from a housing development would not pass this test.
- **Test 2 – Contribution of Carbon Finance:** Carbon finance must equate to at least 15% of the project's planting and establishment costs up to year 10.

*The Independent Auditors: Organic Farmers and Growers and the Soil Association*



These costs exclude validation, verification, land acquisition and income foregone.

- **Test 3 – Investment:** The purpose of this test is to demonstrate that, without carbon finance, woodland creation is either: (a) not the most economically or financially attractive option for that area of land (i.e. woodland creation is profitable, but less so than grazing or other likely non-woodland uses) or (b) is not economically or financially viable on that land at all (i.e. woodland creation is not profitable).
- **Test 4 – Barrier:** If the investment test is not passed, there may be cases where other barriers prevent a woodland creation project from taking place that the WCC could help overcome. These barriers could be economic, social, or environmental. Realistically, this option is rarely considered.

#### The Additionality Spreadsheet

The Additionality Spreadsheet has been devised by the Woodland Carbon Code to assess tests 2 and 3. It therefore seeks to answer three questions:

- Does carbon-related income account for a meaningful portion of a project's costs?
- Would the land have been planted with trees anyway?
- Does carbon funding make woodland creation a viable use of the land?

It answers these questions by considering all incoming and outgoing cashflows both through years 1-10 (test 2) and over the project's lifetime (test 3). All relevant costs, including the ground preparation, the young trees, trees guards, and labour costs are calculated. Opportunity costs, such as foregone farming income, are also considered.

The spreadsheet then tallies up the various sources of income from the proposed woodland, such as that from thinning, letting sporting rights, grant funding and timber. A discount factor is also applied to these various costs and incomes to reflect both the time value of money and the risks associated with woodland creation.

With this information gathered, estimated carbon income is compared to the project's costs in its first ten years. If it exceeds 15%, test 2 is passed. The spreadsheet then considers the net present value (NPV) of the project both with and without carbon income. If the NPV is either very low or negative without carbon funding but highly positive with carbon funding, the project also passes test 3.

### The Project Design Document (PDD)

The PDD is a 28-page report that must be completed by the project developer and describes how the project will meet the various requirements of a project operating under the WCC. There are five principal sections, each of which require supporting evidence:

#### 1. Eligibility

The code needs to establish that the project is eligible for carbon funding. The project developer therefore needs to supply the key project dates, show that the land hasn't previously been woodland (for at least 25 years), provide evidence of ownership (or a tenancy agreement) as well as confirmation that the landowner will comply with the law and conform with the UK Forestry Standard.

#### 2. Project governance

The WCC wants confirmation that the landowner will abide by the rules of the Woodland Carbon Code, that a long-term management plan is in place for the woodland, that the local community and interested parties have been consulted, that risks have been considered and that an agreement is in place to monitor and maintain verification of the project.

#### 3. Carbon sequestration

Although a carbon calculator was submitted when the project was registered, the WCC requires projects to consider the baseline carbon sequestered in the previous land use and any potential carbon leakage because of the project. This allows a more accurate assessment of the net carbon sequestration from the project.

#### 4. Environmental quality

Projects need to demonstrate that they have considered the environmental aspects of sustainable forest management when designing the woodland. They should therefore provide an Environmental Impact Assessment, if required or, if not, evidence that environmental impacts of the project are likely to be positive.

#### 5. Social responsibility

Both the WCC and companies buying PIUs and WCUs care strongly about the social impact of potential projects. Any benefits to the local economy, the neighbouring community, the local wildlife or the local water resources should all be highlighted.



### iii) The Cost of Validation

The expense of taking a project through to validation is mainly comprised of fixed costs and CarbonStore can help with this at every step. For services related to project development, we charge an hourly rate and the time taken to register a project and prepare the Project Design Document change little, whether the project is 10 hectares or 100 hectares.

Landowners should be aware of the other costs. The Code's appointed validation bodies (see *earlier*) charge approximately £1,200 to validate a project. The UK Land Carbon Registry also charges £0.06 per PIU for the administrative costs processing their issuance. In total, a landowner should expect fixed costs of roughly £1,800 for validating an individual scheme.

*Fixed Costs Associated with Validating a Project.*

Fixed Costs		£
Cost of Validation	Standard charge levied by auditor	-1,200
Markit Registry Fees for Establishing PIUs in Account	10,000 PIU's at £0.06 per PIU	-600
<b>Total Costs</b>		<b>-1,800</b>

### iv) Group Projects

It is possible to group projects together to reduce the fees paid to the auditors for validating (and verifying) projects. For example, each project in a group containing 5 schemes will pay approximately £650 for validation (as opposed to £1,200 as an individual project).

Each group requires a group manager, similar to a project developer, who coordinates interactions with the auditors during validation and verification, and CarbonStore is able to undertake this role.

We would require the landowner to sign up to the group agreement, provide information promptly and accurately and inform us of significant changes to the woodland.

Each of these projects must pass its own additionality tests (see *above*) before being validated (and verified) in the same way as individual projects. You can group schemes together from different areas or owners and each group has a maximum of 15 standard-sized (i.e. larger than 5 hectares) projects.



## Verifying a Project under the Woodland Carbon Code

Verification represents the second stage of the third-party audits and, according to the Woodland Carbon Code, it is:

*"...the ongoing evaluation of the project against the requirements of the Woodland Carbon Code. Verification will assess the carbon sequestration that has actually occurred as well as continuing management to the UK Forestry Standard."*

As we explained earlier, being the point when sequestration is confirmed, it is also the time when a portion of the PIUs get commuted into WCUs.

### i) Explaining the Process of Verification

The first verification takes place 5 years after the project's start date, the second must be within 15 years of the start date and thereafter, verification occurs (at least) every 10 years. As with validation, the Woodland Carbon Code has currently appointed

Organic Farmers and Growers and The Soil Association to verify projects. The process can take up to 6 months so, given the deadlines mentioned above, it is important to book an appointment and arrange the paperwork (see below) well in advance.

### ii) The Cost of Verification

As with validation, the costs of verification are broadly fixed. The time taken to prepare the Project Progress Report (see below) varies little, irrespective of the project's size. A mensuration survey is required to assess the volume of standing timber.

The auditors' fees are approximately £1,100 per project though, like validation, grouped projects incur approximately half the audit fees. Finally, Markit also charges £0.03 per converted PIU for administrative and handling costs associated with the UK Land Carbon Registry.

*Fixed Costs Associated with Verifying a Standard Project.*

Years from Validation		5	15	25	35	Total
Cost of Verification	Standard auditors fee	-1,100	-1,100	-1,100	-1,100	-4,400
Cost of mensuration report	Assume £300 per report	-300	-300	-300	-300	-1,200
Markit Registry Fees	£0.03 per WCU	34	113	206	22	375
<b>Total Costs £</b>		<b>-1,434</b>	<b>-1,513</b>	<b>-1,606</b>	<b>-1,422</b>	<b>-5,975</b>

### iii) The Documents and Reports Needed for Verification

#### The Project Progress Report

This 19-page document is an important element of the verification process. It is, in effect, a 'mini-PDD-update' which details and confirms the project's ongoing compliance with the Woodland Carbon Code.

#### The Monitoring Report

This involves an on-site survey of the woodland by an accredited practitioner, such as Tilhill. The Woodland Carbon Code has published detailed guidelines for the first verification in year 5 and will soon publish guidelines for appropriate methodologies for subsequent verifications.

### iv) Converting the PIUs into Verified WCUs

The final stage involves securing receipt of the WCUs on the Land Carbon registry. The project developer will receive an automated email providing instructions to the account holder to confirm the number of units being verified. They will then submit a request for the corresponding number of WCUs to be issued to the project.

# CarbonStore: Supporting the Woodland Carbon Market

## Our Services Cover All Aspects of the Woodland Carbon Market

The Woodland Carbon Code is complicated. It uses many acronyms and much jargon. It requires a large volume of paperwork and two quite detailed spreadsheets to be completed. There are (at least) three legal agreements to be signed, relating to the Code, the group agreement (see above) and the corporate buying the carbon units. Finally, the UK Land Carbon Registry can seem puzzling.

The development of the woodland carbon market also represents the evolution of a new and significant trend. Until now, there has been little overlap between the rural and urban economies; the two sectors have operated in broadly separate spheres.

However, the woodland carbon market, by facilitating the flow of money from mainly urban-based companies into the rural economy, with the former securing the services of the latter, represents a growing interconnection between these two disparate sectors.

At CarbonStore, we have designed our services specifically to meet these various requirements:

### **i) Advice related to the Woodland Carbon Code**

We can help landowners gather and complete the lengthy and complicated documents and spreadsheets necessary to register, validate and verify a project under the Woodland Carbon Code.

### **ii) Act as Project Developer for Schemes Registered under the Woodland Carbon Code**

This is a more involved relationship. We help gather and complete the documents but we also undertake the commitments relating to those of a Project Developer, such as maintaining verification. It also involves representing the landowner's interests on the Land Carbon Registry.

### **iii) Co-ordinate Group Schemes and Act as Group Project Manager**

As we have seen, group schemes represent an opportunity for landowners to significantly reduce their costs of validation and verification. Our knowledge of the Code, our experienced team and the volume of projects which we handle enables us to provide an efficient and effective Group Manager service.

### **iv) Arranging the Sale and Purchase of PIUs and WCUs by Landowners and Companies**

CarbonStore has strong connections in both the rural and corporate sectors. With feet firmly established in both camps, we are ideally placed to help landowners sell their PIUs or WCUs and companies to buy them.

The variety of schemes available means we have a strong offering for companies seeking to buy carbon credits. That, in turn generates more interest from companies who have confidence in our ability to help them fulfil their offsetting requirements.



## Some Background Context to the Woodland Carbon Market

Until now, global voluntary carbon markets have developed their own unique and slightly opaque modus operandi. This is as true for cooking stove offsetting projects in Sudan and solar energy projects in India as it is for woodland-based offsetting schemes in the UK.

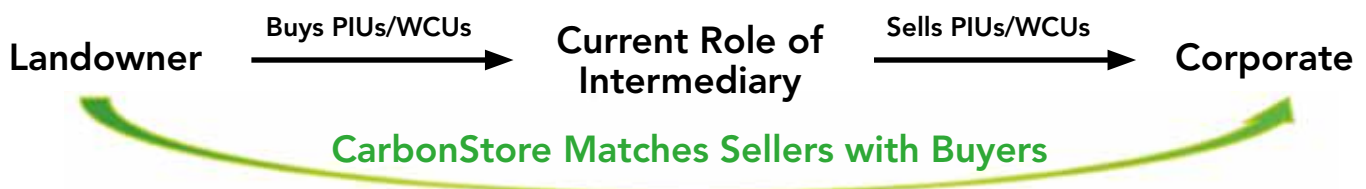
The main elements matching these offsetting projects and their carbon credits with their end-users, the companies wishing to offset their carbon emissions, have been intermediary organisations. Although such intermediaries fulfil an important role, akin to a broker, they have blurred the market.

### The Conventional Approach to Selling PIUs and WCUs

This 'blurring' is neatly illustrated by the conventional approach used to sell woodland carbon in the UK. Until now, intermediary-type companies have purchased carbon units directly from landowners. They then hold them on their balance sheet before selling them onto companies in a separate transaction (see *diagram below*).

Although such companies often undertake the validation and verification for landowners, their profits are ultimately influenced by the price difference between their purchase cost from the landowner and their sales price to the corporate. As a result, the true value of PIUs and WCUs has become blurred.

*The Traditional Approach to Selling PIUs/WCUs vs CarbonStore Approach*



## CarbonStore's Approach to Selling PIUs and WCUs

CarbonStore adopts a wholly different approach which, by matching landowners wanting to sell PIUs and WCUs directly with companies wanting to buy them, ensures complete transparency in the prices paid to or by each party in the transaction.

Moreover, CarbonStore, by charging a percentage-based commission fee for arranging the transaction ensures that the rewards and costs of woodland-based carbon offsetting services are equitably distributed between the two most important parties in the transaction.

### Developing a More Informed and Engaged Landowning Base

With prices for PIUs and WCUs rising, carbon funding is becoming an increasingly significant source of income from woodland creation. However, for landowners to access this revenue properly, it is important they understand the Woodland Carbon Code, the commitments it asks of landowners and the various forms, spreadsheets, and inspections which it entails.

We, at CarbonStore, hope this brochure, by explaining the key principles underpinning the Woodland Carbon Code and the main steps involved, helps to achieve that goal. However, it would require intensive tuition to explain every aspect of the Code.



## Helping Landowners Register, Validate and Verify Projects

We recognise that many landowners will need support and advice when undertaking the various steps necessary to generate PIUs and WCUs from their woodland projects. As we have previously explained, CarbonStore offers these services in two distinct formats:

### a) Woodland Carbon Advisory Service

For landowners acting as their own Project Developers with their own account on the Land Carbon Registry, we help them compile the documents necessary for registering, validating, and verifying their schemes with the Woodland Carbon Code.

### b) Project Developer Service

The main elements matching these offsetting projects and their carbon credits with their end-users, the companies wishing to offset their carbon emissions, have been intermediary organisations. Although such intermediaries fulfil an important role, akin to a broker, they have blurred the market.

### Outlining the Project Developer's Service

As landowner's using our carbon advisory services can pick and choose the tasks which they would like us to complete for them, our services are best explained by outlining the full scope of our Project Developer service so that those seeking our advice or help can understand where they might need it.

#### i) Registering the Project

Registration requires three forms: a map of the project (compliant with the Code's requirements), the carbon calculator and certain key details about the scheme's duration, start date, location and purpose which we have aggregated into an easily completed table.

We will help you draw up the carbon calculator so that you maximise the WCUs generated by the project. We then register your scheme onto the Land Carbon Registry under Tilhill's master account, liaising with the Woodland Carbon Code to ensure they are satisfied with all the details provided.

#### ii) Validating the Project

Validation starts by ensuring your scheme passes the additionality test and this requires completing the Code's cashflow spreadsheet. Assuming this proves the additionality of carbon funding, we then book a validation slot with the auditors.

With a slot reserved and a schedule set, we can help gather the documents necessary for the Project Design Document (PDD). These include Environmental Impact Assessments, soil surveys, grant funding contracts, land registry records and management planning documents and are necessary to provide proof of the claims made regarding ownership, land use or environmental impact, in the PDD.

These documents are then submitted to the auditors who usually have various queries requiring clarification or changes. If these are satisfactorily rectified, the auditor issues a validation statement which they upload to the Registry who we then liaise with to ensure the PIUs are issued.

#### iii) Verifying the Project

As we mentioned earlier, verification must be undertaken five years after planting is completed and thereafter at least every 10 years. These deadlines are strict so we need to start the process in good time. We can help with the mensuration survey and to complete the 14-page Project Progress Report and we will help arrange any onsite visits.

Assuming these are properly completed, the auditors issue a verification statement which permits the transfer of PIUs into WCUs on the Land Carbon Registry. Again, we will complete these final tasks so that you (or the company to which you've sold the PIUs) become the owner of verified Woodland Carbon Units.

## Helping Landowners to Sell and Companies to Buy PIUs and WCUs

The sale of PIUs and WCUs involves five straightforward steps (see *diagram*):

### i) Promoting the Project

The first step involves promoting the scheme to potential buyers. CarbonStore produce a brochure detailing the project's key details and its benefits to the local ecology, community, and economy. This is marketed through the 'Carbon Opportunities' page on our website and distributed via our social media platforms as well as emailed to our corporate clients.

### ii) Attracting a Buyer

As discussed earlier, CarbonStore enjoys strong links in the corporate sector which we are actively developing. These connections ensures that your project will enjoy the widest possible awareness and the maximum interest from the target audience.

### iii) Agreeing Price, Access and Signage Rights

A transparent and equitable price for PIUs and WCUs is vital to the woodland carbon market's success. Accordingly, we publish a monthly newsletter offering updates on recent pricing trends and transactions across the market. We will help both parties agree a price which fairly reflects the species mix, ecological merits, location and accessibility of the woodland.

### iv) Completing the Legal Agreements

We explained earlier that the sale of a PIU represents a promise, by a woodland owner, to sequester one tonne of CO<sub>2</sub>e as their trees grow so that, in time, they deliver a verified WCU. This is an important commitment which, for the sake of the wider market, must be upheld.

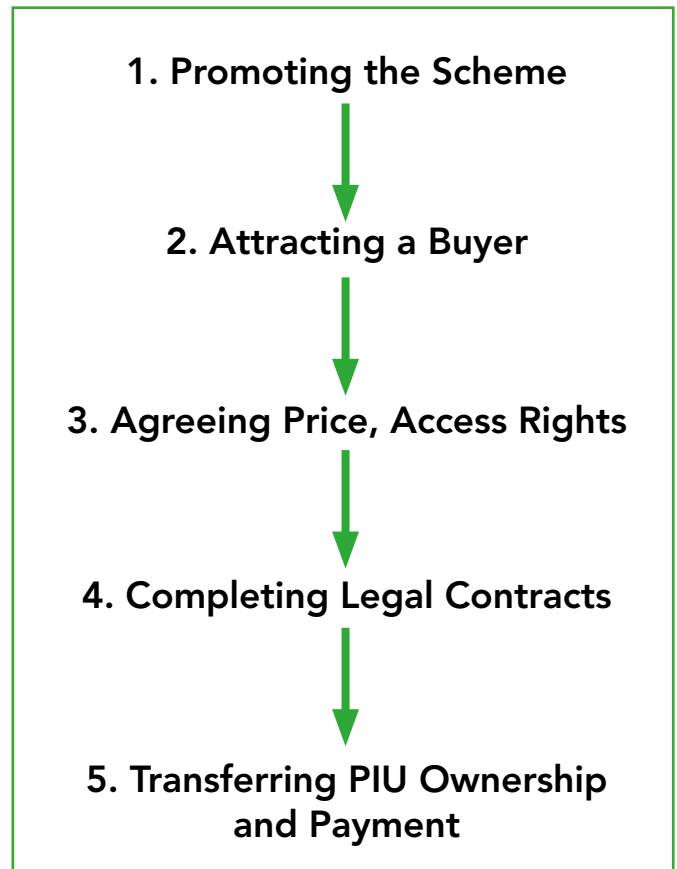
Woodlands are a natural asset and this can leave them susceptible to unavoidable events, such as wind, disease, and fire. These are no one's fault and it is important that their risks are reasonably apportioned in any agreement between the buyer and seller of a PIU.

On the other hand, crop failure may result from poor woodland management. Unlike the force majeure circumstances previously described, poor silviculture is wholly avoidable and we believe it is important to reflect this in the legal agreements.

### v) Transferring Ownership of the PIU

This final task is undertaken by the Project Developer on the UK Land Carbon Registry. Once the agreed payment has been received, the Project Developer transfers the units to the corporate buyer's account on the registry.

*The Five Steps to Securing the Sale of Carbon Units*



Please note that an important obligation of both landowners and project developers, contained in the Landowner Commitment Statement and the Project Developer Agreement, is that they ensure buyers of PIUs and WCUs 'make true and accurate carbon statements about the project'.

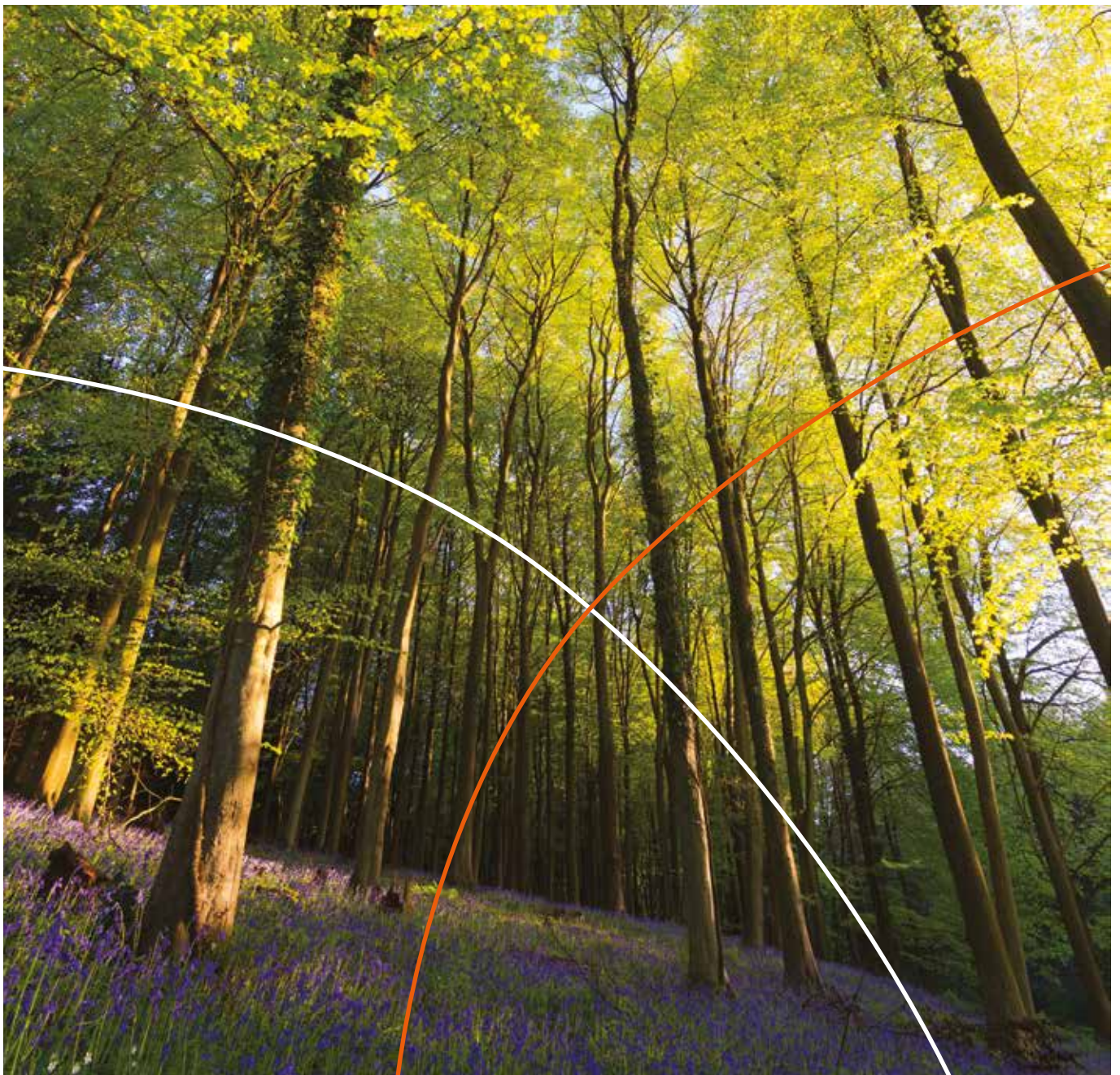


## A Healthy and Constructive Relationship between Landowners and Companies

Understandably, both landowners and companies want to ensure that they are selling or buying units to or from a partner that they are comfortable with. It is important to many landowners to know that the companies buying their units are reputable, and that they are already doing everything they possibly can to reduce their Greenhouse Gas (GHG) emissions. For investors, they want to invest in the best possible projects in the market, maximising the social, environmental and ecological benefits that the woodland creation can provide. Therefore, at CarbonStore, we introduce landowners to potential investors as early as we possibly can in the process, helping to develop this crucially important relationship from day one. This can even be pre-planting!

Of course, the objectives and needs of one company can vary enormously to those of another, and this is the same for landowners. CarbonStore helps to match the most appropriate projects with the most suitable companies, to ensure that both the landowners and investors are happy. There are a variety of wants and needs from companies that landowners should be aware of, but the landowner should feel confident that they only need to agree to those objectives that they themselves feel comfortable with.

For example, many companies are interested in bringing staff or customers to the woodland to plant some of the trees themselves. This can really help to highlight how important the woodland creation is to the company, and to strengthen the attachment to the woodland for the staff and customers. Although, if the landowner would prefer to keep all the woodland planting 'in house' then that is absolutely fine, and they are under no obligation whatsoever to allow more access than they are comfortable with.





# Glossary of Terms

**Additionality** – A project is ‘additional’ if it, and the activities supported by it, are not legally required and could not have taken place without carbon finance.

**Area** – Carbon can be claimed for the net woodland area rather than the gross area.

- **Net woodland area** is the area of a project planted with trees or allowed to regenerate naturally. It excludes any designed or other open areas.
- **Gross woodland area** is the area of a project including any open areas. This can include designed open ground as well as other open land or water bodies.

**Assignment** – Labelling/Assigning a Pending Issuance Unit on the UK Woodland Carbon Registry with the name of the buyer. Assigned units cannot be re-sold, but they can be used and ‘retired’ once they are verified.

**Barrier** – Any obstacle to reaching a goal that can be overcome by a project or measure.

**Baseline** – The projected changes to carbon on the site if the project weren’t to go ahead (the ‘business as usual’ scenario). This is a reference projection to which the carbon benefits of project activities can be compared over the project lifetime.

**Buffer** – A carbon pool of ‘unclaimed carbon’ to cover unavoidable potential losses which may occur from the project over time, thus ensuring the permanence of verified Woodland Carbon Units. The unit type for buffer credits is ‘PIU Reserve’ or ‘WCU Reserve’.

**Carbon pool** – A system that can store and/or accumulate carbon, e.g. above-ground biomass, leaf/needle litter, dead wood and soil organic carbon.

**Carbon reporting** – Involves a carbon owner or organisation reporting carbon sequestration in their annual environmental or greenhouse gas report. This can only be done once, after the carbon is sequestered, and the relevant number of units should have been ‘retired’ from the UK Woodland Carbon Registry. See *Carbon statement*.

**Carbon sequestration** – Direct removal of carbon dioxide from the atmosphere through land-use change, afforestation, reforestation and/or increases in soil carbon.

**Carbon statement** – a statement of what a project will sequester or has sequestered to date. It can be

restated by more than one party with an interest in a project. See *Carbon reporting*.

**Carbon dioxide (CO<sub>2</sub>)** – A naturally occurring gas and by-product of burning fossil fuels or biomass, land-use changes and industrial processes. It is the principal anthropogenic (caused by human activity) greenhouse gas that affects the Earth’s climate.

**Carbon offsetting** – A way of compensating for greenhouse gas emissions by making an equivalent carbon dioxide saving elsewhere. This currently involves calculating emissions and then purchasing Kyoto compliant ‘credits’ from emission-reduction projects elsewhere. Kyoto compliant woodland creation can currently only occur outside the UK. This will change in 2020 once the Paris Agreement comes into effect.

**Climate change** – Change or changes in the climate which can be directly or indirectly attributed to human activity (UNFCCC Article 1).

**CO<sub>2</sub>e (Carbon Dioxide Equivalent)** - This is a standard unit for measuring carbon footprints. The idea is to express the impact of all major greenhouse gases in terms of the amount of CO<sub>2</sub> that would create the same amount of warming. That way, a carbon footprint consisting of lots of different greenhouse gases can be expressed as a single number.

**Compensatory planting** – New woodland created to compensate for woodland lost elsewhere which provides at least the equivalent woodland-related net public benefit embodied in the woodland which was removed (e.g. for development (windfarms or in urban areas) or where woodland is removed to restore open habitats).

**Deforestation** – Permanent or long-term removal of woodland; the direct, human-induced conversion of forested land to another land use, or the long-term reduction of the tree canopy cover below the minimum 20% threshold.

**Double-counting** – There are a number of issues which might result in double-counting:

- **Double-selling** – The same carbon unit is sold more than once to different parties. The incidence of this can be minimised by the use of a carbon unit registry.
- **Double certification** – The same carbon project is validated/verified against two or more carbon

standards. The incidence of this can be minimised by insisting that projects only use one registry and carbon registries ensure that a project is not already registered on another carbon registry.

- **Double-monetisation** – A carbon unit in an Annex 1 country is monetised once as a voluntary unit by a project and a second time by the project host-country's government as an allowance (Assigned Amount Unit or Removal Unit). This is an issue in most Annex 1 countries.
- **Double-claiming** – An organisation or government makes a claim about the same unit of carbon reduction as another organisation. It may be perceived as satisfactory that an organisation claim 'we created a carbon neutral product' and another organisation claims 'we sell a carbon neutral product' or government claims 'we reached our emissions reduction target'.

**Environmental Impact Assessment (EIA)** – These regulations apply to forestry related projects. If the Forestry Commission/Natural Resources Wales/Forest Service considers that project proposals may have a significant effect on the environment then the proposer must obtain consent for the work from the relevant body and submit an Environmental Statement as part of the application for consent.

**Forest** – See 'Woodland'.

**Greenhouse Gases (GHGs)** – The gases which are causing the warming of the Earth's atmosphere that is leading to climate change. The Kyoto Protocol deals with six of these: carbon dioxide, hydrofluorocarbons, methane, nitrous oxide, perfluorocarbons and sulphur-hexafluoride. These contribute to the 'greenhouse effect'.

**Group Scheme** – A group of projects that work together to gain validation/verification. These projects will be coordinated and overseen by a group scheme manager. The group scheme manager is responsible for ensuring that all projects within the group conform to the Code.

**ICROA** – The International Carbon Reduction and Offset Alliance is a non-profit organisation made up of the leading carbon reduction and offset providers in the voluntary carbon market.

**IHS Markit Registry** – The online register of properties that have registered for the WCC is held by a consultancy company called IHS market.

**Individual Project** – A project that is registered, validated and verified under the Woodland Carbon Code by itself, in its own name by a Project Developer, in contrast to a group scheme.

**Kyoto Protocol** – the Kyoto Protocol is an international agreement linked to the UNFCCC. The major feature of the Kyoto Protocol is that it set binding targets for 37 industrialised countries and the EC for reducing GHG emissions in the first accounting period of the Protocol (2008 and 2012). In 2012 the Durban Agreement has set accounting rules for the second accounting period (2013– 2020). See also the Paris Agreement at [www.unfccc.int](http://www.unfccc.int).

**Landowner Commitment Statement** – This details all the commitments required of the landowner in order to validate their project with the Woodland Carbon Code. Further details are available on the Code's website.

**Land Carbon Registry** – see *IHS Markit Registry*.

**Leakage** – is GHG emissions outside the project boundary as a result of the project (e.g. displacement of agricultural activities might result in deforestation or intensification of use of non-wooded land elsewhere).

**Long-term average carbon stock** – The mean carbon stock over the long-term in a woodland, averaged over several whole rotations, if clearfelling. For projects where there is no clearfelling the long-term average is assumed to be no less than the carbon predicted to be sequestered by Year 100, for a given scenario. For sites where clearfelling is proposed, then the long-term average is calculated over several whole rotations of a given length, where the carbon stock onsite varies from zero at the start of each rotation to a maximum just prior to clearfelling.

**Monitoring Report** – A report/spreadsheet summarising the results of monitoring by field survey carried out prior to each verification.

**Organic Soil** – Soil which contains more than 50cm deep organic (or peat) surface horizon overlaying the mineral layer or rock.

**Paris Agreement** – the Paris Agreement, which came into force in 2016, is the international agreement, following on from the Kyoto Protocol, in which every country determines, plans and regularly reports its contribution to mitigate climate change. At the time of writing it had been ratified by over 85% of 197 countries. See also the Kyoto Protocol at [www.unfccc.int](http://www.unfccc.int).

**Pending Issuance Unit (PIU)** – The purpose of these units is to demonstrate the quantity of potential future sequestration. PIUs will help to keep track of up-front sales/purchases but they cannot be retired or used/ reported.

**Permanence** – The issue of ensuring that removal of carbon dioxide from the atmosphere is permanent, and not reversed at a future point in time. Woodland projects carry a risk of reversibility and as such safeguards must be in place to minimise that risk and to guarantee replacement or alternative woodland should a reversal occur.

**Project Design Document** – A document created by the project developer for validation to describe how the project meets the requirements of the Code at the outset.

**Project Developer** – The individual or company who represents a project/group through the validation/ verification process or in the UK Woodland Carbon Registry. The project developer could be the landowner, a third party representing the landowner, or the group manager.

**Project Developer Agreement** – The commitments undertaken by the project developer when agreeing to supervise a project through validation and verification.

**Project Duration** – The time over which project activities are to be monitored, verified and carbon sequestration claims are to be made. Projects can be up to 100 years in duration.

**Project End Date** – The last day a project accounts for carbon sequestration. Project end date = project start date + project duration. If start date = 01/04/2013 and project duration is 100 years, then end date is 31/03/2113.

**Project Implementation Date** – The date when planting begins (or fencing/deer control for natural regeneration).

**Project Progress Report** – A report created by the project developer for verification to demonstrate how the project continues to meet the requirements of the Code.

**Project Registration Date** – The date when a project moves from 'Draft' to 'Under Development' status in the UK Woodland Carbon Registry.

**Retire** – Moving a Woodland Carbon Unit on the UK Woodland Carbon Registry to a publicly available 'retirement' account to show it has been taken out of circulation and cannot be used again.

**Reversal** – A reversal is when the net greenhouse gas benefit of a project, taking into account the baseline, leakage and project carbon sequestration, is negative in a given monitoring period. The size of the reversal is the net carbon sequestration at the current verification minus the net carbon sequestration at the previous verification.

**'Small'** – Project is a single project with five hectare net planting area or less where the small project process is used.

**Standard Project** – Single woodland creation project which can be any size but and can constitute several individual blocks of woodland with planting spanning up to a five consecutive planting seasons; blocks of woodland must be part of a contiguous land ownership unit or must be under the same ownership and management plan.

**UK Woodland Carbon Registry** – the official record of the location of projects, the predicted and actual carbon sequestration as well as the owners and retirement of carbon units.

**Validation** – The initial evaluation of a project against the standards of the Woodland Carbon Code, undertaken by a certification body accredited by the UK Accreditation Service.

**Validation/Verification Body** – independent third-party organisations accredited by the UK Accreditation Service to validate or verify Woodland Carbon Code projects.

**Verification** – The ongoing evaluation of a project against the standards of the Woodland Carbon Code, undertaken by a certification body accredited by the UK Accreditation Service to assess against the WCC. Verification assesses the carbon sequestration that has actually occurred as well as continuing sustainable forest management.

**Vintage** – The time period in which credits are delivered. For the Woodland Carbon Code, the delivery of carbon is predicted and verified in five or ten-yearly blocks (e.g. 2017–2027); each time period is known as a vintage.

**Voluntary Carbon Market** – The Voluntary Carbon Market (VCM) was formed with the aim of driving finance to activities that reduce greenhouse gas (GHG) emissions.

**WCaG** – Woodland carbon guarantee (the £50m fund set aside by government to buy Woodland carbon units at auction)

**WCC** – Woodland Carbon Code (the standard).



**WCF** – Woodland carbon fund (a separate grant scheme in England).

**Woodland** – Land under stands of trees with a canopy cover of at least 20% (25% in Northern Ireland), or having the potential to achieve this. This definition includes integral open space and felled areas that are awaiting restocking (replanting) (This definition is also applicable to 'forest').

**Woodland Carbon Unit (WCU)** – When a project is verified, PIUs which have been confirmed as sequestered will be transferred to WCUs. These units can be considered as guaranteed, delivered carbon 'credits', and as such can be retired and used/ reported.

**Woodland creation** – The direct, human-induced conversion to woodland of land that has not previously been forested according to historical records. The Code sets a threshold of a continuous absence of woodland over the previous 25 years.



## Contact Us

For more information on CarbonStore and how we can help you offset your carbon emissions, just get in touch:

Call us

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