

An aerial photograph of a dense, lush green forest, likely a tropical rainforest, with a variety of tree species and a thick canopy. The image is used as a background for the document.

Philip Payne

CARBON OFFSETTING  
**THE PHILIP PAYNE WAY**





DEVAUDEN, MONMOUTHSHIRE, UK





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# THE PHILIP PAYNE COMMITMENT

Philip Payne is part of the FW Thorpe Plc group of companies. FW Thorpe is fully committed to minimising the environmental impact of both its manufacturing processes and its products. However, even with the most responsible approach, some carbon dioxide (CO<sub>2</sub>) will be released into the atmosphere as an indirect result of factory and selling activities and customers' use of luminaires. In 2009 FW Thorpe designed an ambitious carbon-offsetting scheme to help compensate for these emissions.







## MINIMISING THE ENVIRONMENTAL IMPACT

In June 2019, parliament passed legislation requiring the government to reduce the UK's net emissions of greenhouse gases by 100%, relative to 1990 levels, by 2050. Doing so would make the UK a 'net zero' emitter. Net zero refers to achieving a balance between the amount of greenhouse gas emissions produced and the amount removed from the atmosphere. CO<sub>2</sub> is seen as the largest contributor to climate change.

Philip Payne, therefore aims to minimise energy consumption associated with its products, both directly during manufacturing and selling activities and indirectly via the users of its products (lighting accounts for 20% of the energy consumed globally). By continuing to design and manufacture luminaires that are as optically and energy efficient as possible, fewer luminaires are required on a lighting scheme and power consumption is reduced.

## WHAT IS A CARBON FOOTPRINT?

The carbon footprint is a measure of the amount of CO<sub>2</sub> and other greenhouse gases emitted by a human activity or accumulated over the full life cycle of a product or service. A manufacturing process or lighting installation will always have a carbon footprint. Philip Payne calculated that each luminaire indirectly creates an average of 1.6 kilograms of CO<sub>2</sub> during its production and marketing to the point where it leaves the factory and is delivered on a company vehicle.

## WHAT IS CARBON OFFSETTING?

Carbon offsetting is the compensation of CO<sub>2</sub> emissions by equivalent savings elsewhere. Carbon offsetting projects may include the installation of energy saving devices in developing countries, the investment in renewable energy schemes such as wind farms or "carbon bank" tree planting schemes.





An aerial photograph of a dense green forest. A large, golden-brown footprint is superimposed on the left side of the image, with the toes pointing towards the top left. The footprint is composed of a textured, grass-like material. A solid green rectangular box is positioned on the right side of the image, containing white text.

PLANT YOUR  
TREES THROUGH  
THE PHILIP  
PAYNE SCHEME







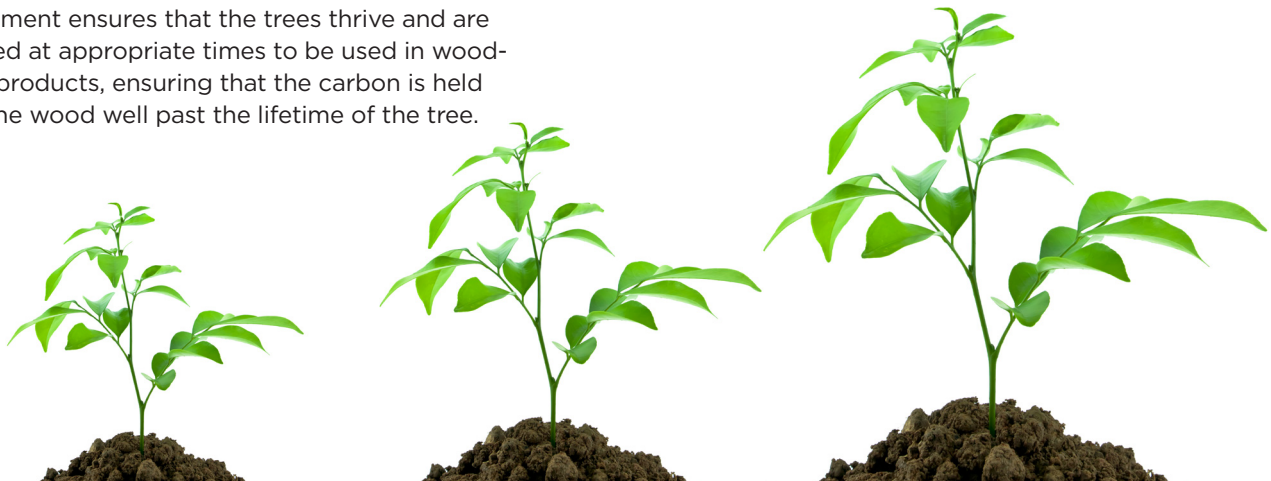
## THE PHILIP PAYNE CARBON OFFSETTING PROJECT

Philip Payne has chosen to plant trees. Why trees? Trees and other plants absorb CO<sub>2</sub> during photosynthesis. One tree grown to maturity in open space can absorb approximately 1 tonne of CO<sub>2</sub> over its lifetime. A forest covering many acres can effectively lock up CO<sub>2</sub>, creating a “carbon sink”. On 215 acres of land in Cwm Fagor, near Devauden in Monmouthshire, Philip Payne (and the F.W. Thorpe Plc Group) plans to plant enough trees to offset group emissions each year. 165,687 trees have been planted between 2009 and 2022. A further 13,725 trees will be planted by the end of 2023.

Native broadleaf species maximise the potential of the site, linking up adjoining ancient woodlands and so improving the local environment. Sustainable forest management ensures that the trees thrive and are harvested at appropriate times to be used in wood-related products, ensuring that the carbon is held within the wood well past the lifetime of the tree.

Forestry principles require that 4-5 trees are planted to ensure 1 grows to maturity, offsetting 1 tonne of CO<sub>2</sub>. Faster growing species will reach maturity faster and will be thinned to allow room for the slower growing species to form the remaining forest.

The project has been designed and is managed by a silviculturalist (an expert in the development and management of forests), with a view to long term accreditation by the FSC (Forest Stewardship Council). It has the backing of the Natural Resources Wales and is the first site in Wales to gain approval with the Woodland Carbon Code, a voluntary standard for woodland creation projects in the UK to monitor and assess claims about the CO<sub>2</sub> sequestered.





WOLVESNEWTON

 215 ACRES OF LAND





## DEVAUDEN PLAN

- Douglas Fir, Norway Spruce, Western Red Cedar
- Douglas Fir
- Alder, Oak, Hazel
- Douglas Fir, Oak, Mixed Broadleaves
- Oak, Mixed Broadleaves
- Oak, Wild Cherry, Mixed Broadleaves
- River
- Road

*No ash trees have been planted since ash dieback (chalara) was found in the UK*









# CURRENT STATISTICS

165,687

TREES PLANTED  
SINCE 2009

SEQUESTERING OVER

41,000

tCO<sub>2</sub>e OVER  
A PERIOD OF  
100 YEARS



# FUTURE PROJECTIONS

179,412

TOTAL  
CAPACITY

CAPABLE OF  
OFFSETTING

44,385

tCO<sub>2</sub>e OVER  
A PERIOD OF  
100 YEARS

The site has a net capacity of 36,413 tonnes of CO<sub>2</sub>e for offsetting of Thorlux (and FW Thorpe Plc) emissions



A photograph of a forest floor. The ground is covered with a thick layer of bright green moss. Several large, gnarled tree roots are visible, some running horizontally and others vertically. The roots are surrounded by a mix of dry, brown leaves and some small green plants. The text "QUESTIONS & ANSWERS" is overlaid in white, bold, sans-serif font in the center of the image.

# QUESTIONS & ANSWERS



## WHY IS CO<sub>2</sub> REDUCTION SO IMPORTANT?

In the greenhouse effect, the surface of the earth absorbs heat from the sun, re-emitting it as infrared radiation. This infrared radiation is absorbed by CO<sub>2</sub>, water, ozone, methane and chloro-fluorocarbons (CFCs) and radiated back to earth.

An unnatural increase in greenhouse gases may therefore raise global temperatures and could cause climate change with such resulting phenomena as adverse weather patterns, the melting of polar ice caps and rising sea levels.

CO<sub>2</sub> is identified by the Intergovernmental Panel on Climate Change (IPCC) in their 2007 report "Climate Change 2007: Synthesis Report", as the single biggest contributor to climate change.

## WHAT SPECIES OF TREE WILL PHILIP PAYNE PLANT?

We will plant native broadleaf species - oak, hornbeam, birch, willow and wild cherry. The faster growing trees will be harvested (to FSC guidelines) to allow room for the slower growing species to mature.

## WHY NATIVE BROADLEAF TREES?

Some non-native species can absorb greater levels of CO<sub>2</sub> however they will have a negative effect on local wildlife. Native species will improve the natural environment and provide a habitat for indigenous natural wildlife.

## ISN'T THERE ENOUGH WOODLAND IN THE UK?

The UK was approximately 98% forest before man settled. At the start of the 1900's most of the forest had gone; only 5% of the UK was forest.

Now, at the beginning of the 21st century, this figure is back up to 12%, but only 2% of the UK is covered in native species, the remainder being covered in fast growing conifers for the timber trade. Much of the UK's indigenous wildlife is unable to survive in these conifer forests, hence the importance of increasing the coverage of native trees.

## MAY I VISIT THE SITE AND SEE MY TREES?

Yes, you are welcome to visit. You will receive an e-mail detailing what you have purchased and the location of the site. The site will be open with free access all year round.



## HOW DID PHILIP PAYNE CALCULATE ITS CARBON FOOTPRINT?

To quantify Philip Payne's carbon footprint, we measured all electricity, gas and fuel used (including by company owned vehicles but excluding sub-contractors' activities) in our UK factory and selling activities. We multiplied these quantities by factors provided by the Department for Business, Energy and Industrial Strategy in its "Greenhouse Gas Reporting: conversion factors 2019" to estimate the total CO<sub>2</sub> produced.

By dividing the total CO<sub>2</sub> produced by the number of luminaires that Philip Payne produces each year, we calculated that each luminaire creates an average of 1.6kg CO<sub>2</sub> in its production and delivery.

## HOW DO TREES OFFSET CO<sub>2</sub>?

Trees absorb CO<sub>2</sub> during photosynthesis. (Trees and other plants use CO<sub>2</sub> and water in the presence of light to produce energy-containing carbohydrates.)

The CO<sub>2</sub> remains in the tree until it dies and decomposes. Through sustainable management, trees can be harvested and used in wood products, therefore trapping the CO<sub>2</sub> and not releasing it back into the atmosphere.

## HOW DO I CALCULATE HOW MANY TREES WILL I NEED TO PLANT?

It may be necessary to plant as many as 5 trees to achieve one tonne of sequestration due to forestry management requirements. Conditions will be monitored and adjusted as required by the silviculturalist and the Woodland Carbon Code. Each tree that grows to maturity will absorb approximately 1 tonne (1000kg) of CO<sub>2</sub> over 100 years. 1 tonne of CO<sub>2</sub> equates to approximately 3600kWh of electricity (0.277kg per kWh, 2019 figure). Divide your total carbon footprint (kg CO<sub>2</sub>) for a year by 1000 to provide the total number of trees required that year. Alternatively, divide your energy use in kWhs by 3600.

## WILL OFFSETTING REVERSE CLIMATE CHANGE?

Carbon offsetting alone is not a cure for climate change. The most effective action you can take is to reduce your emissions. However, carbon offsetting can help reduce the impact of our energy consumption, and it makes us think more carefully about our effect on the environment.







## WHAT IS THE FSC (FOREST STEWARDSHIP COUNCIL)?

The FSC is an international organisation to promote responsible management of the world's woodlands. For further information, see [www.fsc.org](http://www.fsc.org).

## WHAT IS THE NATURAL RESOURCES WALES?

Natural Resources Wales is a government department established for looking after the environment, with a division dedicated to forest management. For further information, see [naturalresources.wales](http://naturalresources.wales).

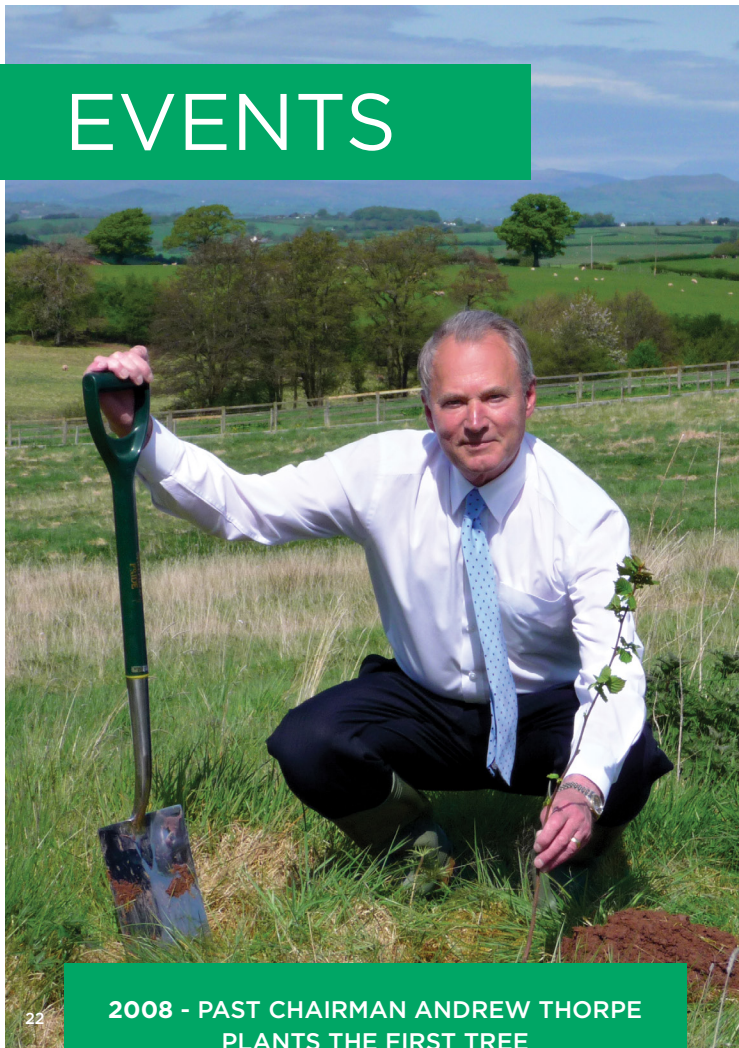
## WHAT IS THE WOODLAND CARBON CODE?

The FW Thorpe Woodland project is the first site in Wales to gain approval with the Woodland Carbon Code, a voluntary standard for woodland creation projects in the UK to monitor and assess claims about the CO<sub>2</sub> sequestered. See [woodlandcarboncode.org.uk](http://woodlandcarboncode.org.uk).





# EVENTS



**2008 - PAST CHAIRMAN ANDREW THORPE  
PLANTS THE FIRST TREE**



**2012 - MINISTER JOHN GRIFFITHS  
VISITS DEVAUDEN**











# AWARDS

In 2018 and 2019 the F W Thorpe carbon offsetting scheme was recognised at the prestigious woodland awards held at The Royal Welsh Show. Twenty two estates were judged throughout South Wales with the FW Thorpe woodland (Cwm Fagor) winning four awards:

## 2018:

- The Milford Silver Medal for Best Broadleaf entry in Stand classes A,B and C
- Best Managed Woodland 51-200 hectares
  - **Silver**
- Broadleaf planting or restocking under 10 years old
  - **Gold**

## 2019:

- Broadleaf planting or restocking under 10 years old
  - **Gold**

Acknowledging the hard work of the silviculturalist, the judges praised the quality and health of the woodland and commented on the overall conservation impact including the abundance of wild flowers, butterflies and birds.



# OFFSET YOUR CARBON FOOTPRINT



Designers, manufacturers and suppliers  
of professional lighting systems

A DIVISION OF FW THORPE PLC

Philip Payne Carbon Offsetting Project:

**[www.PhilipPayne.com/trees](http://www.PhilipPayne.com/trees)**

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