

Parc Helyg Carbon Reduction Plan

Business name Parc Helyg CBC

CRN: 14005184

Address: 3 Yeomans Avenue, Haverfordwest, SA61 1FD

Description of Business:

Parc Helyg is a 1.3 acre community garden on the outskirts of Haverfordwest, Pembrokeshire. It has 30 plots used by individuals and community organisations to grow vegetables. It is run by the growers who have formed a community interest company with five directors. The growers help each other by participating in constant discussion, sharing experience, and sourcing and sharing the material requirements for the garden. It was established in April 2022. The land belongs to a group of farmers, Pembrokeshire Agricultural Society (PAS) who support the project.

The Carbon Reduction Plan

It was agreed to suggest a carbon reduction plan to the wider membership of growers at a directors meeting on 10.06.22. The committee agreed to headline the carbon plan on publicity and agreed to display the plan on their website, pending support from members.

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1. Tenants of Net Zero/Negative Carbon Commitment

Our commitment towards Carbon reduction is based on three principles that are followed by Parc Helyg Members;

1. Recycling resources and making our own resources wherever possible.
2. Buying local, sustainable and from natural resources wherever possible.
3. Minimising car journeys wherever possible whilst recognising the **local transportation context**.

2. Local Transportation Context

The Parc Helyg site is situated 4km outside of Haverfordwest, a rural town in Pembrokeshire. There is no direct bus route to the site and while there is a cycle lane on part of the route into town it does not provide complete coverage of the journey. In addition, steep hills in Haverfordwest and a transport system that is predominantly focussed on car use provide challenges for our members to cycle to the community garden.

3. Estimate of Carbon emissions from transportation

An estimate of Carbon Emissions is provided in figure 1. This is a broad estimate based on a number of assumptions that may differ from actual.

Figure 1.

Total km Travelled pa	Total CO2 emissions /kg pa
27776	3999.744

Some of the assumptions include

- A higher frequency of journeys for March - October
- All journeys are made by Car
- An average fuel consumption of 38 mpg or 0.06 L/km
- Each Journey distance being 8 km in total distance

Further analysis of journeys in future will allow us to refine this estimate to give a truer estimate of emissions from journeys. It is important to note that we have not included the carbon footprint of resources used in setting up each clwt as there is a large variation between members.

4. Estimate of Carbon Offset from growing vegetables

A number of different factors provide challenges to provide an estimate of offset carbon for growing vegetables. The estimations below use the carbon emissions associated with vegetables from a supermarket; this can vary between 0.4 kg and 3 kg of CO₂ per kg of vegetable. Figure 2. shows how the type of vegetable grown could affect the amount of carbon offset, however it is important to note that a wide range of vegetables will be grown on each clwt, providing a challenge to assessing carbon offset.

Figure 2.

Example Vegetables	Carbon offset per kg of Vegetables	Total Carbon Offset/ kg pa	Transport Emissions	Carbon emissions /kg pa
Root Vegetables, Onions, Leeks	0.50	2764.8	3999.744	1234.944
Peas	1.00	5529.6	3999.744	-1529.856
Wheat, Rye, Maize	1.50	8294.4	3999.744	-4294.656
Tomatoes	2.00	11059.2	3999.744	-7059.456

Another factor here is the amount of vegetables grown per m². Again, this will vary between Clwts, Figure 3 shows how the productivity of the clwt affects the carbon emissions of the Community Garden.

Figure 3.

Vegetables produced per m2	Total Carbon Offset/ kg pa	Transport Emissions	Carbon emissions /kg pa
0.8	2764.8	3999.744	1234.944
1.2	4147.2	3999.744	-147.456
1.6	5529.6	3999.744	-1529.856

A rough estimate of possible carbon emissions is given below in Figure 4. This is based on upper estimates of 1.6 kg produced per m² and 1 kg of Carbon offset per 1 kg of Vegetables. It suggests that, if we can reach these figures, once the Garden is fully established we will be Carbon Negative.

Figure 4.

Total km Travelled pa	Total CO2 emissions /kg pa	Total Food Produced / kg pa	Total Carbon Offset/ kg pa	Carbon emissions /kg pa
27776	3999.744	5529.6	5529.6	-1529.856

5. Resources used on the site

Due to the variety of agricultural methods it would be difficult to provide an estimate of the carbon footprint of the infrastructure of the site, though this may be done in future. Many of the resources are second hand or recycled which will minimise carbon emissions.

The types of infrastructure that have been installed are as follows;

- Small sheds
- IBC water containers and Water Butts
- Poly Tunnels
- Fencing around site
- Fencing around Clwts
- Security gates

6. Carbon reduction action points

Parc Helyg's No2Co2 plan will be incorporated into the organisation's publicity. Further engagement and monitoring will be discussed and undertaken. Investment to achieve the plan will be pursued. Links to wider No2Co2 initiatives will be welcomed.

Further action points to reduce carbon have been discussed and may be updated in future.

1. Buy local resources wherever possible.
2. Use recycled resources wherever possible.
3. Water collection on site.
4. Generate Compost on site.
5. Use low carbon methods of agriculture.
6. Use natural materials for infrastructure wherever possible.
7. No concrete used in the community garden
8. Encourage the use of bikes as transport.
9. Encourage Lift Shares as a possible rota or on community days.

Confirmation of Grwp Resilience support

Grwp Resilience confirms that it has supported Parc Helyg in developing a Carbon reduction plan initiative, and ongoing support is available.

7. References

The following sources have been used as estimated for Carbon emission for vegetables and for food production quantities on allotments.

The Carbon Footprint of the Food Supply Chain, Dorothy Neufeld, 2020	https://www.visualcapitalist.com/visualising-the-greenhouse-gas-impact-of-each-food/
Feeding a city – Leicester as a case study of the importance of allotments for horticultural production in the UK, Jill L Edmondson, Dylan Z. Childs, , Miriam C Dobson, Kevin J. Gaston, Philip H. Warren, , Jonathan R Leake, 2019	https://www.researchgate.net/figure/Citywide-estimate-of-a-the-amount-of-allotment-fruit-and-vegetable-and-potato-production_fig2_337777518
Environmental Impacts of Food Production, Hannah Ritchie and Max Roser, 2020	https://ourworldindata.org/environmental-impacts-of-food