ISLE OF WIGHT DISTILLERY

Net zero report, July 2020

Good Business

1. Introduction

In February 2020, Good Business was commissioned by the Isle of Wight Distillery to support in its ambition to reach net zero emissions. This involved carrying out a carbon footprint exercise for the 2019-2020 financial year and identifying suitable projects to offset the emissions in scope. This report details the work we have conducted as part of this process and the results of this work.

2. Methodology

We closely followed the guidance set out in the Greenhouse Gas Protocol Corporate Standard, an international standard that is widely regarded as best practice for greenhouse gas (GHG) accounting and reporting, to conduct this carbon footprint. This has guidance for the various components of an organisation's carbon footprint and is focused on the following principles:

- Relevance
- Completeness
- Consistency
- Transparency
- Accuracy

Additionally, the Publicly Available Specification (PAS) 2050 greenhouse gas accounting standard was used to assess the carbon footprint of the products.

Here, we describe how we have taken the guidance and principles to measure the carbon footprint for both the Isle of Wight Distillery (as a business) and Mermaid Gin (as a product), including identifying the sources of emissions, collecting data, calculating the associated emissions, and aggregating this for the overall footprint.

2.1. Boundary

Firstly, the boundary of the carbon footprint was established based on initial screening questions, and incorporating the flows and processes mapped out for the Isle of Wight Distillery's operations in Fig. 1.

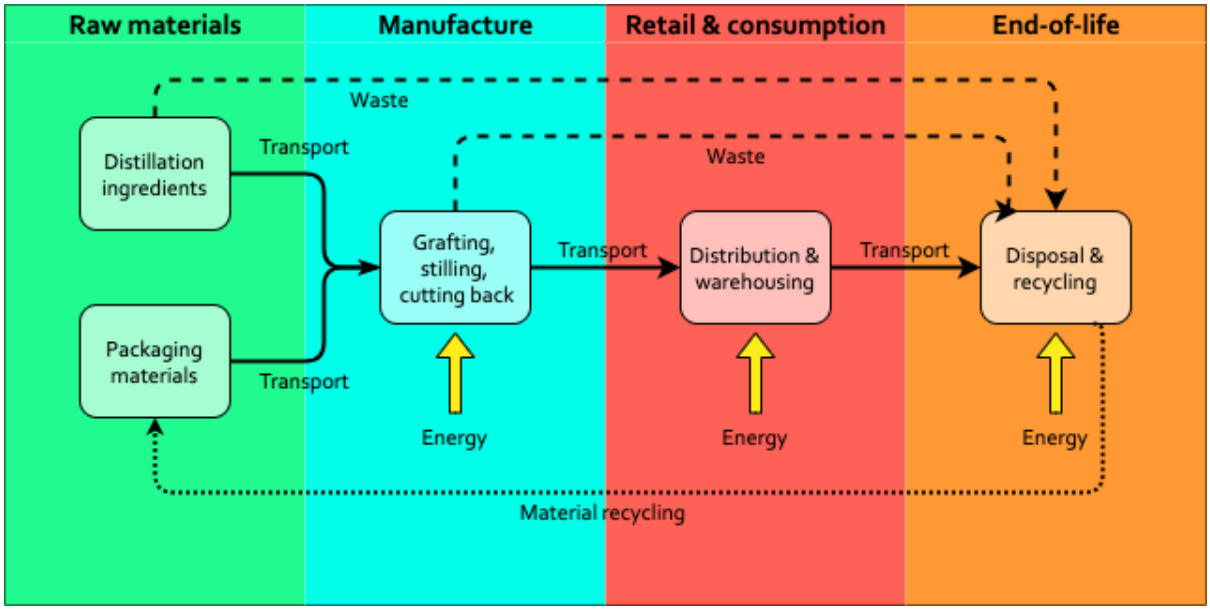

Figure 1. Emissions boundary

This includes all scope 1 and 2 emissions categories, as well as the majority of the fifteen scope 3 emissions categories established by the GHG Protocol.

Components that are considered insignificant (less than one percent of the total), and where data quality was limited, were considered as de minimis and were not included in the boundary. These components are:

- Water
- Waste from packaging materials
- Warehousing of sold products
- Viscose packaging

All six greenhouse gases covered by the Kyoto Protocol — carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF_6) — were included in the scope of the carbon footprint.

2.2. Data collection

Data were collected during May and June 2020 for the previous financial year, 1st April 2019 to 31st March 2020. The data collection included both primary data, collected from the Isle of Wight Distillery and its suppliers, and secondary data sourced from online databases. These include the UK Government's annual conversion factors for company reporting and supply chain emissions database, as well as more specific research for a lifecycle assessment of the grain neutral spirit.

The primary data collection was prioritised in the following way, reflecting the level of accuracy:

- Mass of greenhouse gas emitted
- Activity data (e.g. weight of raw material, distance travelled)
- Proxy data (e.g. spend on office equipment)

More attention was given to identifying the most accurate primary data for categories that contributed the most to the overall footprint.

2.3. Calculation

Activity data and proxy data are converted into GHG emissions by multiplying them by emissions factors. These factors relate an activity to the GHG emissions produced, converting all six types of GHG into a common unit (carbon dioxide equivalent, or CO_2e), based on their Global Warming Potential (GWP) over a 100-year period.

2.4. Assumptions and uncertainty

Accurate and reliable primary and secondary data are not always readily available for all activities within the boundary of a carbon footprint. Therefore, the following assumptions were made when calculating this carbon footprint:

- The volume of waste produced across the 2019-2020 financial year was estimated based on the amount of waste disposed of by the waste contractor in the month of May 2020, when these figures started being collected in more detail. This month was considered to be representative of the reporting period.
- The disposal method of the glass and cardboard packaging was estimated based on UK average.

Roughly 27% of the total carbon footprint was calculated using proxy data; in most cases, spend data.

3. Results

The carbon footprint exercise shows that the Isle of Wight Distillery has a carbon footprint of 365 tonnes of CO_2e for the 2019-2020 financial year across its own operations and its supply chain.

3.1. Emissions by source

The vast majority of these emissions are produced in the supply chain as indirect (scope 3) emissions. Direct (scope 1) emissions (resulting from direct combustion, processes releasing greenhouse gases and leaks of fugitive gases), and emissions from purchased electricity, heat and steam (scope 2) only contribute a small portion of total emissions. More detail on the sources of emissions in each of the categories set out by the Greenhouse Gas Protocol is given in Table 1.

Table 1. Emissions breakdown by source

Category	GHG emissions ($kgCO_2e$)	Sub-total ($kgCO_2e$)
Scope 1		
Stationary combustion of fuels	16,126	18,906
Mobile combustion of fuels	2,779	
Process emissions	0	
Fugitive emissions	0	
Scope 2 (location-based[1] / **market-based**[2])		
Electricity	5,254 / **5,940**	5,254 / **5,940**
Scope 3		
[Cat 5] Waste	348	218,823
[Cat 12] Disposal of sold goods	7,421	
[Cat 2] Capital goods	12,709	
[Cat 1] Purchased goods & services	266,927	
[Cat 8] Leased assets	3,552	
[Cat 9 & 4] Transport & distribution	24,188	
[Cat 6] Business travel	15,869	
{cat 7] Employee commuting	9,706	
TOTAL (location-based / market-based)	364,879 / 365,566	364,879 / 365,566

As well as considering the total emissions for the business, Fig. 2 shows that the carbon footprint of the products produced by the Isle of Wight Distillery can be isolated, based on the emissions categories set out in PAS 2050. Fig. 3 shows the large influence that the raw materials have, contributing to over three-quarters of the product carbon footprint.

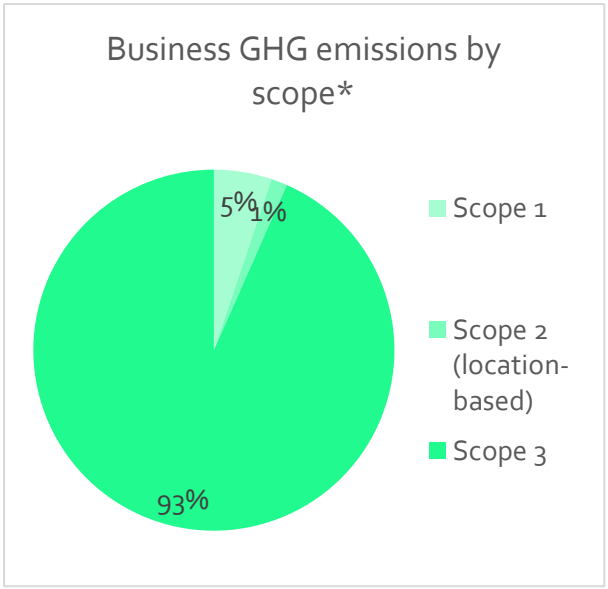

Figure 2. Business GHG emissions by scope, according to the emissions categories set out by the GHG Protocol Corporate Standard

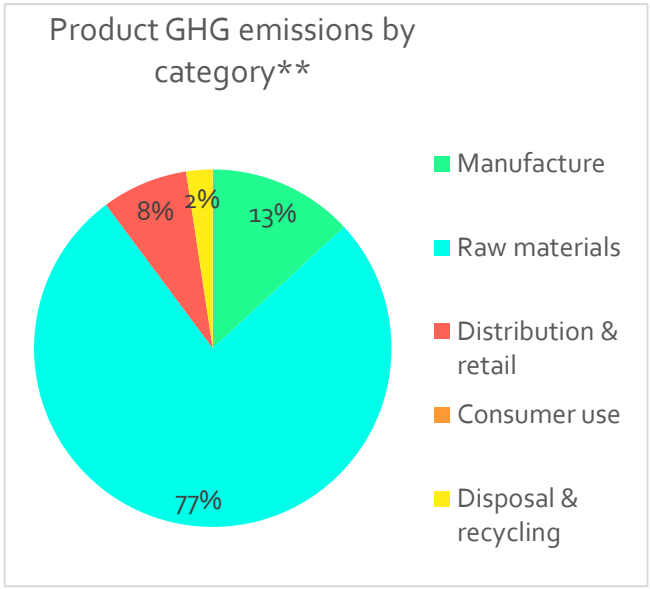

Figure 3. Product GHG emissions by category, according to the emissions categories set out by PAS 2050

[1] The location-based calculation for scope 2 emissions uses an average emissions factor that relates to the grid on which energy consumption occurs. This usually relates to a country-level electricity emissions factor.
[2] The market-based method for scope 2 emissions applies if the company has operations in any markets where energy certificates or supplier-specific information are available. The method involves using an emissions factor that is specific to the electricity purchased.

The high concentration of emissions in one category – purchased goods and services – warrants further investigation. Breaking the emissions from this category shows that the glass bottles and grain neutral spirit account for a considerable source of emissions, shown in Fig. 4.

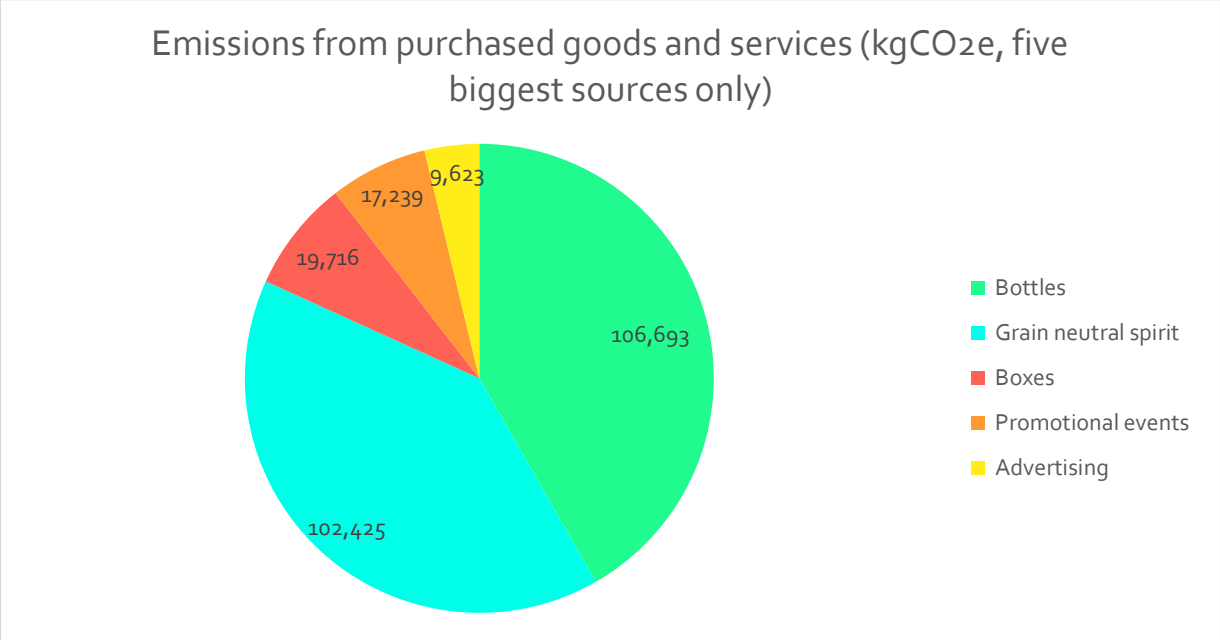

Figure 4. Emissions from purchased goods and services (five biggest sources only)

3.2. Intensity benchmark

Calculating the carbon footprint of a business is the first step towards identifying how the business and product compares to its competitors.

In order to compare like-for-like, there are several intensity measures that can be used, including physical measures (such as litres of spirit produced), financial measures (such as revenue), and other operational measures (such as number of employees).

Currently, the amount of high-quality and comparable carbon intensity data from competitors is limited. However, this is expected to change as more companies undergo this same process and strive for more transparency in their reporting.

The carbon intensity benchmark used the most comparable: litres of spirit produced, Fig. 5.

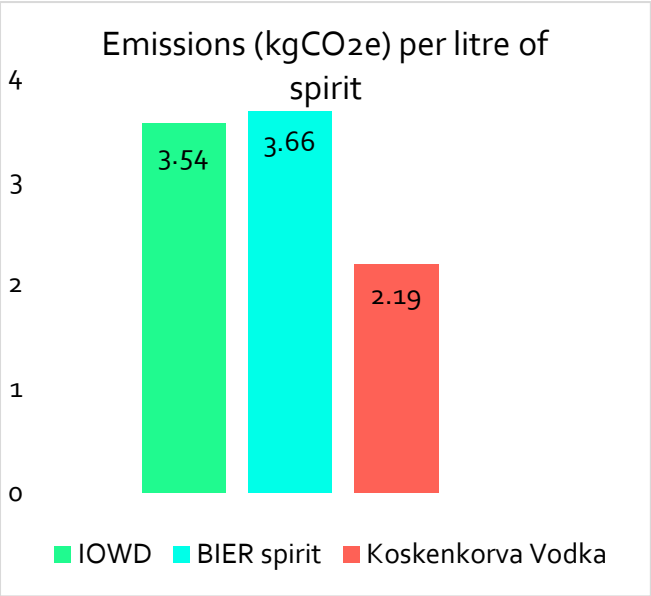

Figure 5. Emissions intensity benchmark – litres of spirit

The emissions per litre of spirit produced are in the region they would be expected to be in. The figure of 3.54 kilogrammes CO_2e per litre is very close to the 3.66 kilogrammes CO_2e per litre that was reported by the Beverage Industry Environmental Roundtable (BIER) in its benchmark of member distilleries. The other comparable example is Koskenkorva Vodka, which produces 2.19 kilogrammes CO_2e per litre. It is not surprising that this is lower than both IOWD and BIER members, since Koskenkorva Vodka is further down the line in taking measures to mitigate its environmental impact, having already committed to using renewable electricity and a biomass boiler, as well as having experimented with lower impact packaging options.

4. Mitigation

Identifying the sources of emissions paves the way for targeted strategies to reduce these emissions and, therefore, the impact the business has on the environment. There are a number of factors that determine how feasible different measures may be, including how much control the business has over the source of emissions, what alternatives are available, and the cost of any investment or additional costs associated with less carbon-intensive alternatives. This section is intended to give an idea of what some of the options are that could help reduce the carbon footprint and, where possible, to estimate what the potential savings could be.

Despite the carbon footprint broadly identifying where these opportunities are, there are some areas of the carbon footprint that would benefit from further investigation to better quantify the impact they have. Conducting a carbon footprint is not a one-off exercise. Working with suppliers to establish better data collection systems will help improve the quality of carbon footprints in the future, help identify opportunities for reducing the carbon footprint, and better show how and where improvements are made year on year.

4.1. Areas to explore

4.1.1. Energy

Energy is the area that the organisation has the most control over, forming almost all of the scope 1 and scope 2 emissions in the 2019-2020 reporting period.

Natural gas consumption contributes to 54% of scope 1 and 2 emissions. Natural gas consumption can be reduced by looking into measures to improve energy efficiency. Although renewable natural gas (biomethane) is relatively hard to come by in the UK, there are some suppliers that have tariffs that include renewable natural gas, which could reduce these emissions to zero. Natural gas can be replaced entirely as a heating source by switching to lower carbon sources of heat, such as biomass boilers, heat pumps, and hydrogen.

Although it does not reduce the carbon intensity of heat generation itself, heat cycling outside of the distillery can reduce emissions, as it is allocated between more end-users. Although this is likely to be more costly than other methods of reducing the emissions from energy, it can create powerful social benefits where feasible (see case study: Bowmore Distillery).

Bowmore Distillery

Bowmore Distillery is one of the oldest surviving distilleries in Scotland. In 1990, it installed a waste heat recovery system that recycles heat produced by the kiln, which is used to heat its visitor centre and the local swimming pool, with the heat controlled by a computer system. The swimming pool is owned by the community and is the only pool on the island of Islay. It was built in one of the old warehouses of the distillery, funded in part by the distillery itself. The heat recovery system remains in operation today and has received wide coverage in the press.

One of the easiest changes that can be made is switching to a renewable electricity tariff. There are many tariffs available and there is often no cost premium. However, this will only reduce scope 2 emissions from electricity under one of the two calculation methods, the market-based method, which uses a supplier-specific emissions factor. Emissions from electricity can be reduced in the location-based calculation by reducing electricity consumption, which can be achieved through a range of energy efficiency measures.

Electricity emissions can also be reduced by installing on-site renewable generators, such as solar panels or wind turbines. This has the added benefit of creating operational savings, with an estimated payback period of 15 years in the UK for solar panels.

4.1.2. Raw materials

Glass bottles accounted for 29% of total emissions in the reporting period and provide a big opportunity for emissions reductions in the future. The first option is reducing the quantity

of glass used by looking at ways to reduce the amount of glass per bottle, whilst retaining the character of the bottles. Reducing the mass of the 70cl bottles will reduce 7.4 tonnes of CO_2e (based on 2019-2020) output per 50 grams reduction per bottle. The emissions intensity of the glass used in the bottle can also be reduced by working with the bottle manufacturer to identify sources of glass cullet segregated by colour. This has the potential to reduce emissions by 0.3 kilogrammes CO_2e per 70cl bottle, or 39 tonnes CO_2e based on 2019-2020 output.

There is also potential to reduce the emissions by reducing the amount of packaging per bottle sold. Bottle refill schemes (see case study: Cooper King) allow customers to return with their empty containers and pay for a direct refill, benefiting from a discount from avoiding packaging, and encouraging people to visit the distillery and bar and repeat their custom.

Cooper King bottle refills

Cooper King distillery in York has a strong focus on sustainability and its main external facing programme is its bottle refill scheme. Customers are invited to the distillery with empty bottles and receive a 15% discount on refills. It has also worked with a local artist in the past who has upcycled bottles into lamps and sold them, with profits going to charity.

4.1.3. Operations

A lot of scope 3 emissions come from partners in the supply chain, such as logistics and transport contractors, advertising, and promotional events. Engaging with these partners to calculate and reduce their own carbon footprints will have a benefit for IOWD's carbon footprint, as well as their other customers, and will expose them to the broader benefits of managing their environmental impact. This can take a variety of forms, including calculating their carbon footprint, setting targets to reduce emissions, or identifying less carbon-intensive options for their products and services used by IOWD. Where this is not viable, switching to suppliers already engaged in this process can reduce IOWD's scope 3 emissions. In transport and distribution, for example, DPD offers carbon-neutral deliveries, while GEODIS has an environmental strategy that includes measuring and reporting emissions to customers, and supporting its customers in delivering lower-carbon transport options.

4.2. Targets

Setting targets is an effective way to drive progress and show commitment to reducing environmental impact externally. These can apply to specific areas, such as targets for renewable energy procurement, to targets for engaging suppliers with their carbon footprints, to targets for the organisation's whole carbon footprint.

The Science Based Targets Initiative (SBTi) has an internationally known and well-respected method framework for setting targets that are aligned with the limits agreed on by the scientific community to keep global warming below 1.5°C. The process involves setting targets for a period of between five and fifteen years that covers the majority of direct emissions, which is then validated by the SBTi. This is then publicised online and through social media, and there are communications materials available for the company submitting targets. There is a cost associated with this process, however it is smaller for SMEs.

5. Carbon offsets

The purpose of the carbon footprint exercise was twofold: firstly, to form the foundation of a credible emissions management strategy, and secondly, to quantify the emissions that need offsetting to become net zero. Net zero is a concept that is picking up momentum among businesses and consumers looking to manage their environmental impact and involves offsetting the unavoidable emissions using projects that sequester the equivalent amount of greenhouse gases produced during a particular period of time.

This section brings together the offset projects that we have found that are currently available and suitable. Over the long term, the plan is to set up a carbon sequestration programme within IOWD's own value chain, a practice known as 'insetting', which will create broader benefits within the value chain and provide a better opportunity to tie the net zero work to the brand narrative.

5.1. Methodology

We first defined compliance and preference criteria. Compliance criteria are those an offset option must fulfil, which are:

- Third party certified or meeting the criteria of good quality offsets
- Retire-able within 12 months
- Delivering sequestration benefits and not avoided emissions

Then, where possible, preference criteria were pursued as follows:

- Local
- Brand relevant
- Cost effective

To find suitable carbon offset options, we looked for relevant offsets in the registries of well-established and trusted offset certifications, such as the Gold Standard, Plan Vivo and Verified Carbon Standard (VCS). These certifications are awarded to offsetting projects that follow a specific methodology in calculating credits and managing projects holding up under the strictest scrutiny, fulfilling the first criteria. Within these databases we looked specifically for offsets that fulfil these other criteria, including those that were brand relevant (coastal) and local (UK) to provide further options. However, there are currently few offset projects that meet more than three of the six criteria defined above.

5.2. Available offsetting projects for 2019

Overview

	Option 1	Option 2	Option 3
Description	Forestation program in Panama or Ethiopia	Forestry programs in various UK locations	Sea grass seeding project in Puerto Rico
Certification	Gold Standard certification	UK Government Woodland Carbon Code certification	Delivered by Ocean Foundation, no certification
Project type	Carbon dioxide removal	Carbon dioxide removal	Carbon dioxide removal
Estimated cost	$18 per ton	£25 per ton	£15.80 per ton
Comment	The least expensive option but the least relevant to brand	The UK woodland market is extremely tight with under 400 credits in total available across 9 projects. There is an availability risk. Less obvious SDG benefits	Equivalent in cost to the forestry project but delivered through seagrass. Not certified but does claim to meet the criteria required

5.2.1.1. Option 1

For a biodiverse reforestation project in Panama protecting coastal wetlands that is Gold Standard certified, credits sell for $18 per tonne. This project consists of reforesting degraded pastureland with a mix of native tree species and teak. The resulting forests offer a natural habitat for native animals and plants, protect and enrich the soil, save and filter water, and contribute to the mitigation of climate change.

5.2.1.2. Option 2

For a collection of reforestation and conservation projects around the UK certified by the Woodland Carbon Code, credits sell for £25 per tonne. The partner in this project, Forest Carbon, has planted over 7 million trees in the UK, in woodlands independently audited and certified under the UK Woodland Carbon Code – the government-backed standard that offers corporate partners complete assurance about the high quality of their carbon investment.

5.2.1.3. Option 3

For the Ocean Foundation's Seagrass Grow project, restoring and protecting coastal wetlands, credits purchased through donation cost £15.80 per tonne. These credits are

uncertified but ostensibly meet required criteria. The Ocean Foundation is currently restoring the Jobos Bay Reserve in Puerto Rico. This reserve is the second biggest estuary in Puerto Rico and is home to seagrass, mangroves and endangered species, such as manatees.

5.2.2. Discussion

In this first year of operation we recommend a pragmatic approach of purchasing Gold Standard reforestation offsets [Option 1].

If the ambition is to develop a relationship or get involved with a more local project using seagrass offsets, we would suggest making a small purchase from the Ocean Foundation [Option 3] and leveraging this into a partnership. This could either be as a proportion of the total (e.g. 50 tons from the total of 312) or as a smaller additional purchase (e.g. 25 tons). For communications purposes this would allow a narrative of partnering with the Ocean Foundation to develop the potential of a Sea Grass carbon offset project for the Isle of Wight. It would simultaneously help provide access to the latest research around operational methodologies and certification as well as credibility with potential UK partners.

5.3. Offsetting projects for future options

The Blue Carbon Initiative, in partnership with Conservation International, ACES and Plan Vivo, is working to create a global methodology for assessing carbon stocks and emissions factors in mangroves, tidal salt marshes, and seagrass meadows. ACES has already successfully issued carbon credits for a mangrove project and will be issuing more early next year, whilst working on a grassland project to create a certifiable methodology.

The Hampshire and Isle of Wight Wildlife Trust, Natural England and the Southern and Sussex Inshore Fisheries and Conservation Authorities are all exploring the potential for seagrass revival around the Isle of Wight. IOWD could play a role in supporting this and generate carbon credits for its net zero programme.

The peatland code is a new voluntary certification standard for UK Peatland projects wishing to market the climate benefits of peatland restoration. The Isle of Wight has a lowland peat source at Alverstone, for which restoration projects are being considered.

6. Net zero

Purchasing offsets from sequestration projects equivalent to the emissions produced is what is required for net zero. However, there are some considerations that need to be taken into account that inform how net zero is communicated – the scope of emissions to be offset, the timeframe and commitment to offsetting, and the use of any certification.

6.1. Boundary

The first thing to establish in becoming net zero is the boundary – either net zero business, net zero products, or both – as this will determine which emissions need offsetting. The amount of emissions that needs to be offset for IOWD in the 2019-2020 financial year is shown below.

Category	Emissions ($kgCO_2e$)
Net zero business	74,271
Net zero product	262,418
Net zero business & product	312,182

Making the products net zero allows for on-bottle communications. However, it only requires an additional cost of 20% to include the additional emissions required for net zero business too, so we strongly recommend offsetting the total emissions required; in this case, 312 tonnes CO_2e. This is a different figure to the total carbon footprint (365 tonnes CO_2e), due to emissions from some activities not being included in the scope for net zero, including purchased services (part of scope 3 category 2, purchased goods and services), leased assets, and capital goods.

Based on the three projects considered above, the estimated costs for becoming net zero are as follows:

	Option 1	Option 2	Option 3
Estimated cost	£4,600	£7,900	£5,100

To get a better understanding of how this translates to the products, this table gives an estimate of the offset costs per bottle, based on the emissions required for net zero business and net zero products.

	Option 1	Option 2	Option 3
70cl	3p	5.4p	3.5p
35cl	1.5p	2.7p	1.8p
5cl	0.2p	0.4p	0.25p

6.2. Time period

The timeframe is also important for how net zero is communicated. Offsetting the emissions in the recent carbon footprint will make IOWD net zero for the 2019-2020 financial year retrospectively. In order to claim net zero business and/or products, there will need to be a clear commitment to go through the same process and procure offsets for subsequent years. This can be done retrospectively in the future too, however, there needs to be a clear public commitment to offset these emissions.

6.3. Certification

The way we have calculated the emissions required for net zero aligns with existing standards for carbon neutral, including Natural Capital Partner's Carbon Neutral Protocol, PAS 2060, and the Greenhouse Gas Protocol Corporate Standard for the carbon footprint. However, none of the standards and guidance is focused specifically on net zero, which has some slightly different requirements to carbon neutrality. Good Business currently has its own net zero standard under development, building on the carbon neutral standards that already exist. We are working towards this being available in the near future and will follow up with more detail as this progresses.