

# Carbon Footprint and SME Recommendation Report

## The Oyster Shack

06/04/2024

The Oyster Shack is located in Bigbury, South Devon (South Hams), UK. It is independently run and employs ten staff members full-time. The shack has a converted terrace where, in the summer, you can dine alfresco while enjoying the views of the Avon estuary, while in the winter, there is indoor seating. All year round, you can enjoy freshly caught, locally sourced seafood.

### Table of Contents

<b>1.0 Document Rationale</b>	<b>1</b>
<b>2.0 Overview</b>	<b>2</b>
<b>3.0 Baseline Carbon Footprint</b>	<b>3</b>
<b>4.0 Current Emissions Reporting</b>	<b>4</b>
<b>5.0 Carbon Hotspots &amp; progressing to Net Zero</b>	<b>5</b>
<b>6.0 Recommendations (Short, Mid, Long Term)</b>	<b>6</b>
<b>7.0 Declaration &amp; Sign Off</b>	<b>12</b>
<b>APPENDIX 1 – Detailed Decarbonisation Actions</b>	<b>13</b>
<b>APPENDIX 2 – Key Terminology &amp; Abbreviations</b>	<b>13</b>
<b>APPENDIX 3 – Useful Links, Guidance &amp; Resources</b>	<b>13</b>
<b>APPENDIX 4 – Carbon Reporting Methodology &amp; Disclaimer</b>	<b>13</b>

## 1.0 Document Rationale

This report is part of a larger project intended to guide SMEs through the early stages of the decarbonisation process, with council grant funding becoming available for engaged SMEs to benefit from. The wider project has been formulated to assist two local authorities of South Hams & West Devon to reach their Net Zero targets across their council areas.

The purpose of this document is to provide a Carbon Footprint of the Small/Medium sized Enterprise (SME) taken to date on its decarbonisation journey.<sup>1</sup> It also provides information about particular 'carbon hotspots' found within the business and indicates potential pathways to decarbonisation via a range of recommendations. This is intended to be used as a reference tool for the SME to generate their own resources (e.g. a Carbon Reduction Plan).<sup>2</sup>

## 2.0 Overview

The Oyster Shack restaurant space is heated by electric sources. Fridges & freezers create a large energy draw due to the nature of business operations. The commercial kitchen equipment uses propane gas, and most of the equipment is new (within ten years), with an average energy rating. The whole building is double glazed. The building is covered with a concrete corrugated roof with rafters. An oyster farm (located 10 miles away) is also part of the business operation.

The largest sources of emissions appear to be the use of propane gas for the restaurant operation & diesel from transport. Pragmatically, phasing out diesel for a less carbon intensive fuel (such as hydrotreated vegetable oil - HVO), then on to an electric vehicle (EV) (at the end of life) are a solution to be explored.

With relation to innovations & enhancements the business has completed to date, the following are observed:

- Invested in new commercial kitchen equipment (less than 10 years old)
- Double-glazed building throughout
- New accommodation block being built (at time of report writing)
- Potential carbon storage by oysters farm operation

We will explore options for decarbonising the business within this report.

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<sup>1</sup> As requested by West Devon and South Hams Councils

<sup>2</sup> This document should be reviewed in conjunction with aforementioned companies' other relevant documents (if available), such as: Carbon Policy, Company Environmental Policy, Carbon Reduction Plan (or Statement). The document should also be read with the SME Workbook, which provides: Additional context, abbreviations & definitions, additional company details.

## 3.0 Baseline Carbon Footprint

Baseline emissions are a record of greenhouse gases (GHG) that have been produced in a particular identified year. Baseline emissions are the reference point against which future emissions reduction can be measured, so ideally a would be produced prior to the introduction of any strategies to reduce emissions so effects can be tracked.<sup>3</sup>

### Carbon Baseline

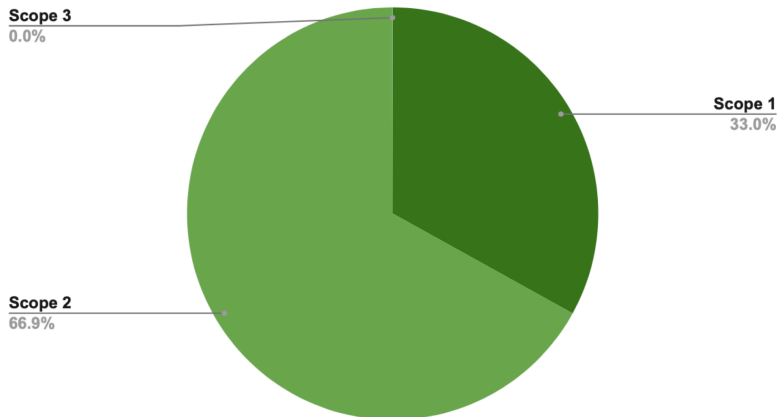
No prior attempts at Carbon footprinting have been undertaken, therefore this will form the first carbon footprint (baseline) for the business.

Baseline Year: 01st January to 31st December 2023	
EMISSIONS	
Scope 1	<p><b>Company Vehicles</b></p> <p>Diesel car - 5,000 miles per year travelled  <math>5,000 \text{ miles} \times \text{emission factor of } 0.33722 \text{ litres} / 1,000 = 1.69 \text{ tCO}_2\text{e}</math></p> <p>Boat fuel - use 1,000 litres of diesel <math>1,000 \text{ litres} \times \text{emission factor of } 2.52058 \text{ litres} / 1,000 = 2.52</math></p> <p>On site power</p> <ul style="list-style-type: none"> <li>Propane Gas- use 11,825 litres per year . <math>11,825 \text{ litres} \times \text{emission factor of } 1.54354 \text{ litres} / 1,000 = 18.21 \text{ tCO}_2\text{e}</math></li> </ul> <p>Fugitive Emissions</p> <ul style="list-style-type: none"> <li>None reported</li> </ul> <p>Total Scope 1:  <b>22.42 tCO<sub>2</sub>e</b></p>
Scope 2	<p><i>Electric</i></p> <p><i>Use 30,000 kWh per year on a smart energy tariff.. Fuel mix Natural gas 60%, renewables 29%, coal 9%, nuclear 2%.</i></p> <p><math>30,00 \text{ kWh} / 100 = 300 \text{ kWh}</math></p> <p><math>300 \text{ kWh} \times 60\% \text{ natural gas} \times \text{emission factor of } 0.20188 \text{ kWh} = 36.34 \text{ tCO}_2\text{e}</math></p> <p><math>300 \text{ kWh} \times 9\% \text{ coal} \times \text{emission factor of } 0.33626 \text{ kWh} = 9.07 \text{ tCO}_2\text{e}</math></p> <p>Total Scope 2:  <b>45.41 tCO<sub>2</sub>e</b></p>

<sup>3</sup> To follow a consistent published format of carbon reporting, Procurement Policy Note 06/21 (PPN06/21) has been used as a guide. The SME may or may not be obligated to report against this.

Scope 3 (Included Sources)	Staff commuting- use 15 miles per year 15 miles x 4 x emission factor of 0.26735 litres /1,000 = 0.02 tCO <sub>2</sub> e Total Scope 3: <b>0.02 tCO<sub>2</sub>e</b>
<b>Total emissions</b>	<b>67.85 tCO<sub>2</sub>e</b> (for all reportable data)

**Carbon Footprint Scopes 1, 2 & 3**



**Organisation CO<sub>2</sub>e emissions for 2023 calendar year**

## 4.0 Current Emissions Reporting

As businesses progress through their carbon journey, the baseline year of reporting will be compared against previous years to demonstrate progression towards Net Zero. If a company is reporting against its carbon for the first time, its baseline year will also be its current year of reporting.

A follow up carbon footprint should ideally represent a “comparable year” of operation. This can be difficult for many companies, as operations tend to increase or decrease depending on market factors and thus carbon footprints will vary.

As noted in section 3.0, the business has previously undertaken a carbon footprint on its operations but this report was not submitted as part of the programme.

## 5.0 Carbon Hotspots & progressing to Net Zero

The following 'Hot Spots' have been identified as areas where potential carbon reductions could be achieved:

- **Use of diesel company vehicles and boat which form part of the business operation**
- **Energy use from propane gas used for commercial kitchen operation**

The Oyster Shack have enhanced their operations with some sustainability actions. However, targets or metrics for reduction of carbon or other factors were not submitted for inclusion in this report. The general mantra for increasing environmental performance is "if you don't measure it, you can't manage it". In order to continue progress to achieving Net Zero, the business can consider establishing a set of SMART carbon reduction targets if they are yet to be implemented.

SMART targets are:

- S – Specific
- M – Measurable
- A – Attainable
- R – Realistic
- T – Time Bound

Several benchmark standards have been developed to assist with the development of such targets and can help monitor progress towards meeting them.<sup>4</sup> Carbon and other environmental/social/other key performance indicators (KPIs) can be set by the organisation as part of its carbon policy and other performance goals. These could form part of the organisation's carbon reduction statement. Setting limits around energy & resource use would be an asset. Measuring & monitoring these by use of a Smart Meter would be a forward step.

Smart metres should be provided free of charge by energy providers as part of the UK Government mandate. These are plug in and give a reasonably accurate real time display of energy use. Additionally, all domestic & commercial buildings are required to be in possession of an Energy Performance Certificate, with E rating or above required for commercial buildings under the Minimum Energy Efficiency Standards (MEES) 2023. This is an owner requirement in owned commercial facilities. Periodic re-testing following implementations or enhancements (such as additional insulation being installed) is encouraged (including air tightness or leakage testing), although certificates are valid for 10 years from point of issue.

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<sup>4</sup> Schemes such as [Science Based Targets Initiative \(SBTI\)](#) and [International Standards Organisations Environmental Management Systems \(ISO14001:2015\)](#) offer indicative benchmark standards.

## 6.0 Recommendations (Short, Mid, Long Term)

The overarching aim of undertaking this work is to reduce the emissions (carbon) from the Oyster Shacks operations. The following recommends future actions to facilitate this process. Actions have ranked actions on several factors as per the headings of the tables below, with most suitable, feasible & priority actions in chronological order for each section.

### Future Emission Reduction Actions - Recommended

Through the process of assessing the current business operation as well as undertaking a carbon footprint of the aforementioned business, the following potential short, medium and long term initiatives are suggested. These have been further split out by those most suitable for incorporation for the business, along with an indicative time & cost to implement.

Some key innovations and enhancements are suggested::

- Investigating the use of HVO fuel for diesel of company road vehicle & boat
- Procurement of EV to replace diesel road vehicle
- New staff accommodation block - fabric first approach to construction to be applied
- Long term phasing out of propane gas use

Further ideas on decarbonising your business are listed in Appendix 1. These are generic for all SMEs. The focus of this report was to recommend the most suitable, innovative and impactful carbon reduction methods specific to the SME and these are noted in the sections below.

## Short Term

Actions already underway or potential quick wins which can be brought about by (minimal) new investment, behavioural or organisational change, structures and partnerships being put in place. These will generally be:

- Low cost (generally £0-£1000 per initiative)
- Easy to implement (not requiring complex systems & processes or business changes)
- Quickest to implement (0-6 months) and not listed in any order of priority

Implementation	Indicative Cost (£)	Time to Implement	Other Considerations	Potential emission saving (CO <sub>2</sub> e)
Switch energy to a renewable Tariff	Free / cancellation charge	Up to 6 months	<ul style="list-style-type: none"> <li>• Lower carbon emissions</li> <li>• Cleaner fuel sources</li> </ul>	Unknown - currently, energy is from a fully fossil fuel energy provider.
Set a company's environmental policy	Free (may incur minor consultancy costs if external consultant engaged)	Up to 6 months	<ul style="list-style-type: none"> <li>• First step to make changes</li> <li>• Show a commitment to reducing the restaurant's environmental impact</li> </ul>	70% to 90% reduction in Carbon dioxide(CO <sub>2</sub> )
Install EV charge point	£3,000 (unit and installation)	Currently in high demand - 6-9 months from procurement	<ul style="list-style-type: none"> <li>• Safety &amp; Security of the vehicle when charging unattended (relating to fire loading risk)</li> <li>• Load capacity</li> <li>• Can be a green marketing tool for the business</li> </ul>	Unknown
Internal insulation	£500 - £3,000 (cheaper if install is undertaken without the use of a contractor (recommended))	2 to 8 weeks	<ul style="list-style-type: none"> <li>• The Retrofit community promotes a 'Fabric First' approach to reduction of carbon emissions - insulating &amp; making buildings airtight first before utilising renewables &amp; offsets. Roof/loft insulation (roll &amp; board) is a cost-effective way of increasing thermal comfort in a building. This can be installed at low cost as this is relatively easy to do without specialist training. Materials such as Knauf Eko &amp; Xtratherm PIR boards Roll (other</li> </ul>	Up to 40% reduction in energy used from heating. (decreasing carbon emissions by the same degree (if electricity supply is non-renewable))

			products available) perform well with the BRE Green Guide rating system.	
Procure a smart metre	Free of energy supplier	4-12 weeks (currently a delay on supply due to demand)	<ul style="list-style-type: none"> <li>To truly understand the electricity, use &amp; carbon emissions of the business and how it is performing.</li> <li>Helps further reduce energy &amp; electricity use via active management.</li> <li>Aids behavioural change</li> <li>A smart app system for the TADO controls is however already in operation</li> </ul>	Average 3.5% reduction in energy use

## Medium Term

Actions already underway or potential quick wins which can be brought about by (minimal) new investment, behavioural or organisational change, structures and partnerships being put in place. These will generally be:

- Some more substantial costs involved (generally £1,000-10,000 per implementation)
- More investment in time and budget
- Typically have a 6-24 months timeline

Implementation	Indicative Cost (£)	Time to Implement	Other Considerations	Potential emission saving (CO <sub>2</sub> e)
Install solar panels	Unknown	Up to 24 month timeline (priority)	<ul style="list-style-type: none"> <li>• Produce renewable energy</li> <li>• No carbon being emitted</li> <li>•</li> </ul>	The Oyster Shack has a high energy usage. By installing solar panels it will reduce demand on the national grid.
Investigate hydrotreated vegetable oil (HVO) fuel for boating and vehicles	HVO is approx. 10% more expensive than diesel .	2-4 months (dependent on supplier availability)	<ul style="list-style-type: none"> <li>• Cleaner fuel source</li> <li>• Lower carbon emissions</li> <li>• HVO may not be compatible</li> </ul>	Unknown - HVO can be a lower carbon fuel, ideal for transitioning towards net zero, with a 70-90% reduction in Carbon dioxide(CO <sub>2</sub> )and 30% reduction Nitrous oxide (NOX) can be observed.



Analyse year 2 data	Free (may incur minor consultancy costs if external consultant engaged)	September 2026	<ul style="list-style-type: none"> <li>To truly understand the carbon emissions of the business and how the business is performing year to year</li> </ul>	Unknown
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## Long Term

Actions will require significant time and cost investment as well as leadership from company seniors.

These will generally be:

- Potentially higher cost (£10,000+ per implementation)
- More strategic (likely to require significant procedural updates, organisational changes &/or senior level sign off)
- Longer term (taking 24 months to fully implement)

Implementation	Indicative Cost (£)	Time to Implement	Other Considerations	Potential emission saving (CO <sub>2</sub> e)
Procurement of EV to replace fossil fuel vehicle	£20k-£200k for a like for like switch (depending on new or pre-owned)	5-7 years (when the current vehicle is at the end of its life)	<ul style="list-style-type: none"> <li>• Potential grant funding/loans may be available for EV purchase</li> <li>• EV Charge point set is 1<sup>st</sup> step to make the transition smooth</li> </ul>	Unknown – currently the vehicle is diesel.
Procurement of commercial kitchen equipment that is electric	Unknown	7 years	<ul style="list-style-type: none"> <li>• Lowers carbon emissions (as long as on a green tariff)</li> <li>• Using cleaner fuel source</li> <li>• Planned to transition at 2030 in line with Net Zero aspirations of the council</li> <li>• Transition when other equipment comes to end of life</li> </ul>	Unknown

## **Guidance Narrative**

### **1. Energy efficiency, security & solar PV potential**

On site renewable energy provides energy security and better cost certainty as well as ensuring a low/no fossil fuel source of energy. No quotes have been provided as part of this programme so cannot be commented on.

It is important to look at the payback period (return on investment) on the proposed system. In the UK, most solar arrays have a payback period of around 14-22 years (depending on location, orientation, shading etc.). Generally, unit prices for electricity used are at today's rates, with a minor increase in line with inflation factored in. The South-West of England benefits from good light intensity compared to the rest of the UK, although regional weather systems & patterns lead to variability. The property is not overshadowed and thus the efficiency of solar is not impacted with that regard. South facing properties benefit from the best solar gain. Panel angle should be between 23-27 degrees for optimal efficiency.

Solar PV panels should hold a 25 year warranty, with inverter & battery units holding a 10 year warranty period as standard. Therefore, the cost of replacement of a battery unit and inverter would need to be factored into the operational life cost of the solar set up. Quotes should include install as well as additional costs such as scaffolding for access. The solar PV provider should confirm the suitability of the roof structure to support the weight load of the solar array they quote for. Solar PV will add energy independence & price cost certainty, aiding in future proofing & resilience of the business.

### **2. Transition to HVO**

Transition to HVO could be considered for The Oyster Shack restaurant vehicle. HVO can be utilised as a 'plug & play' solution for diesel vehicles, without adapting or retrofitting the engine. The fuel can also be used in conjunction with diesel in the same fuel tank simultaneously. Many vehicle & plant manufacturers now endorse its use in writing. This substitution has been proven to not negatively affect engine performance and is a strong option for reducing Scope 1 emissions from. However, it is still not widely available. Generally, providers are still operating a bulk fuel delivery service to a fuel tanker (which can be provided as part of the service, usually with in-built telematics to easily track fuel used). These systems generally work well with large volume deliveries to urban sites with a high fuel usage (this system was recently set up and operated effectively to a central Plymouth construction site). Rural areas with low volume, irregular & low intensity fuel use are not generally suitable; although a 'boxed' fuel option is available (however this comes at a premium). Products such as Green D+ are available in the local area.

The ultimate aim should be to transition to EVs. This is not advised at this point due to the current vehicle being reliable and fully operational. A transition plan to Net Zero by 2030 (to align with many organisations Net Zero commitments) could see the transition to an EV in this time frame. With EV production rapidly increasing, the price point will likely decrease and a significant amount of second hand EVs should come into circulation by 2030.

Grant funding may be available to support the installation of an EV charge point. This could be installed prior to transition to an EV to prepare the business for carbon net zero, both for its owned (Scope 1) and customer, staff & volunteer vehicles (Scope 3).

### **3. EV Charging Point**

Small scale, on-wall solutions currently cost around £1,500-£3,000 for purchase & install. This could be installed prior to transition to an EV to prepare the business for carbon net zero, both for its owned (Scope 1) and customer vehicles (Scope 3). Utilisation of funding could future proof the transport of the operation. New systems like bolt can be installed & managed by external providers but add utility and a green marketing point for businesses.

### **4. Transition to EVs**

For the long term plan for decarbonising The Oyster Shacks operation, it is recommended that the restaurant transition to an electric vehicle. This should be undertaken in a progressive way, so as to not adversely affect operation of the business or hinder cash flow. Progressively phasing out the older diesel vehicles with EV or hybrid is a sensible long term decarbonisation option.

As recommended in the short term The Oyster Shack should install an EV charging station, to enable a smooth transition to an electric vehicle. The Transition to an EV could be utilised as a green marketing tool. The existing diesel company vehicle should not be replaced for an EV until it reaches the end of its life.

### **5. Transition to electric commercial kitchen equipment**

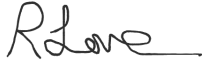
Replacing kitchen equipment which is powered by fossil fuels with electric like for like substitution should be a process adopted by The Oyster Shack. This should be undertaken in a progressive way, so as to not adversely affect operation of the business or hinder cash flow. This can be achieved by progressively phasing out older equipment once it has come to the end of its life to maximise the reduction of carbon.

## 7.0 Declaration & Sign Off

This report has been completed in accordance with a standardised format for carbon reporting.

Emissions have been reported and recorded in accordance with the published reporting standard for Carbon Reduction Plans and the GHG Reporting Protocol corporate standard and uses the appropriate Government emission conversion factors for greenhouse gas company reporting.

Scope 1 and Scope 2 emissions have been reported in accordance with the UK Government's Streamlined Energy and Carbon Reporting requirements, and the required subset of Scope 3 emissions have been reported in accordance with the published reporting standard for Carbon Reduction Plans and the GHG protocol.



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**Richard Love, Programme Director**  
Libraries Unlimited | BIPC Devon

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**Kieron Vanstone**  
Director, The Oyster Shack

## APPENDIX 1 – Detailed Decarbonisation Actions

A detailed list of general decarbonisation actions (additional to those specific to the SME noted in this report) are available in Appendix 3 of the [SME Workbook](#).

## APPENDIX 2 – Key Terminology & Abbreviations

Please refer to Appendix 1 of the [SME Workbook](#) provided as part of this project.

## APPENDIX 3 – Useful Links, Guidance & Resources

Please refer to Appendix 2 of the [SME Workbook](#) provided as part of this project.

## APPENDIX 4 – Carbon Reporting Methodology & Disclaimer

This report is focussed on the organisational carbon footprint (Scopes 1 & 2) only. It is not focussed on the products produced by SMEs involved. Some additional reporting relating to Scope 3 emissions may be provided where information is clear, evidenced & substantiated. Any inclusions or omissions have been clearly stipulated in the body of this report, with the aim of reporting carbon transparently. UK Government standardised emission factors have been applied where required or suitable as provided below: <https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting>

This report has been provided with the best information available (either as evidence collected from the SME noted at the top of this report or by the use of up to date, best practice industry information & guidance on carbon reporting & decarbonisation). Any advisory recommendations are to be utilised at the SMEs discretion based upon the organisation and particulars of the business. Please refer to the corresponding [disclaimer](#) issued with this report.

**End of Report**