



**GEORGE  
LESLIE**

# Carbon Management Plan

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Prepared by:

Andy Newlands	Framework Manager	12.12.2022
Alastair Burt	Support Services Manager	12.12.2022
Daniel Nova	SHEW Advisor	12.12.2022
Gavin Pick	QCP Advisor	12.12.2022
Graeme Cowan	Head of Finance	12.12.2022
Paul Adderley	Carbon Advisor (External)	12.12.2022

Approved by:

David Ross	Managing Director	14 <sup>th</sup> Dec 2022
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# 1. Introduction

## 1.1. Background

George Leslie Ltd (GL) have an embedded culture of 'doing the right thing' and carbon reduction is at the heart of our business. We can make a difference and we are committed to playing a leading role within our industry by setting out carbon reduction target to achieve Net Zero Carbon Emissions by 2040. Under our Corporate Governance, our carbon champion will be Managing Director David Ross, who will take ownership of our carbon reduction process and drive its implementation at every level throughout GL.

We are in the early stages of exploring the use of products, services, renewables and initiatives to reduce our carbon footprint at head office and throughout our construction activities. We have been recording Scope 1 & 2 emissions since 2010, successfully reducing our emissions by 62%. However, no one can deliver the scale of the challenge on their own and to ensure Carbon reduction ambitions are achieved, it is critical that we collaborate with industry and clients alike on areas such as aligning carbon accounting, recording and reporting methodologies, reviewing collectively to highlight trends, measuring outcomes, sharing best practice and determine where reductions, improvements and areas worthy of further investment/investigations can be identified.

Our Carbon Management Plan will outline how GL are committed to achieving identified carbon emissions reduction milestones and supporting client and industry ambitions both in terms of operating carbon and project delivery. Whilst emissions will be targeted throughout project lifecycles, we will focus effort on our Carbon Principles of 'Build Nothing' and 'Build Less' during the optioneering and design phases as early stages are critical to unlocking the most significant carbon savings.

## 1.2. Our Commitment

In light of the climate emergency, there is a pressing need for the construction industry to address head on, its significant carbon footprint.

This will require a change in mind set for the whole industry, from the customer, through the design and construction process and beyond, ensuring that carbon is front and centre at every stage.

GL are a progressive business, committed to doing the right thing. We recognise the urgency of the climate change agenda and the role we have to play in decarbonising the economy for a greener, more resilient and sustainable future.

The GL Board of Directors are committed to the development and implementation of our Carbon Management Plan to show leadership within our business and the wider construction industry to drive change and to engage with our supply chain to take them with us.

The drive towards Net Zero by 2040 will require all departments of the GL business to do their part, contributing to incremental reduction in carbon over the next 17 years. We encourage all within GL and our supply chain to get involved in the carbon reduction journey, contributing to the goals and targets set out within this document.

This Carbon Management Plan has been reviewed and signed off by the George Leslie Board of Directors

David Ross, Managing Director

Date :

## 2. Context

### 2.1. Background to Carbon Management at GL

The twin crises of climate change and nature loss are the greatest threats facing humanity. Over the past 150 years, average global temperatures have risen by 1.2°C. We are also experiencing more extreme weather events, such as summer heatwaves, rising sea levels, reduced snow cover, very heavy rainfall and flooding. We are already seeing these impacts in Scotland. The issue is referred to as 'the global climate emergency' because urgent action is required to avoid potentially irreversible environmental damage. Scotland led the world in becoming one of the first nations to declare a global climate emergency in April 2019.

We are in a global climate emergency, carbon reduction and setting a goal of achieving Net Zero by 2040 is a challenge we all need to embrace. At GL, our culture is driven by our instinct to do the right thing and embracing this goal is not just another process to adopt.

Managing the impact of carbon within our organisation, supply chain and in the goods and services that we provide, is at the heart of our decision-making. We are committed to supporting the Scottish Governments Vision and aligning with the United Nations Global Goals by working towards a more sustainable future.

This is an opportunity to work differently, more collaboratively, promoting innovation, reducing the carbon emissions and costs associated with infrastructure delivery. Our work will generate pride within our teams, in the knowledge that we are making a difference and leaving a Flourishing Scotland for future generations

We are not daunted by the challenge; it is achievable as underpinned by our 62% carbon reduction achievement to 2021.

### 2.1.1. What is Carbon Management?

Climate change is being caused by greenhouse gas emissions from human activities, such as burning fossil fuels, which are harmful to the environment. Greenhouse gases include carbon dioxide, water vapour, nitrous oxide, methane and ozone. The most common greenhouse gas is carbon dioxide (CO<sub>2</sub>).

Many different human activities result in CO<sub>2</sub> emissions. For example, boiling a litre of water in an electric kettle (70g), driving a mile in an average car (710g), taking a return flight from Glasgow to London (500kg), using your mobile phone for an hour a day for a year (1.25 tonnes), and cutting down one hectare of trees (500 tonnes).

The average CO<sub>2</sub> emissions per person in the UK was almost 5.5 tonnes in 2019. This was more than the world-wide average of 4.7 tonnes. (Figures taken from Net Zero Nation)

Climate change and nature loss are linked. In Scotland we have already lost 25% of our wildlife and 11% of our species are currently facing extinction. Climate change is making this worse.

Unless we can rapidly reduce greenhouse gas emissions, these changes will rapidly accelerate and cause irreversible damage to our environment, economy and society.

By measuring our Scope 1, 2 and 3 emissions, we can concentrate on the more significant emissions and identify ways of reducing them. This is an ongoing, continuous process. It puts carbon reduction at the front of everything we do and makes it a driver within every decision we make. For example, we identified a reduction in vehicle movements to and from one of our projects, delivering a carbon saving of 23 tonnes over the project lifecycle.

We are keen to both learn from, and share, with others. Sharing ideas and best practice across countries and industries is key to us tackling this global climate emergency. GL has team members who sit on cross-industry construction groups where carbon reduction is discussed at length.

For our own operational emissions, we have calculated our Scope 1 (direct) and Scope 2 (indirect) emissions since 2009/10.

We are committed to gaining a better understanding of our Scope 3 emissions, particularly those associated with the goods we purchase. We will work closely with our supply chain to gain an accurate picture of the embodied carbon associated with their products.

For example, we will require as standard, that our suppliers include embodied carbon emissions in their technical datasheets, allowing us to use accurate figures in our calculations.

It is important that we understand our current position about Scope 3 carbon emissions: to baseline ourselves; to set achievable stretch targets; and develop effective reduction strategies. It is essential that GL offers transparent, documented results for the overall calculation of our carbon footprint.

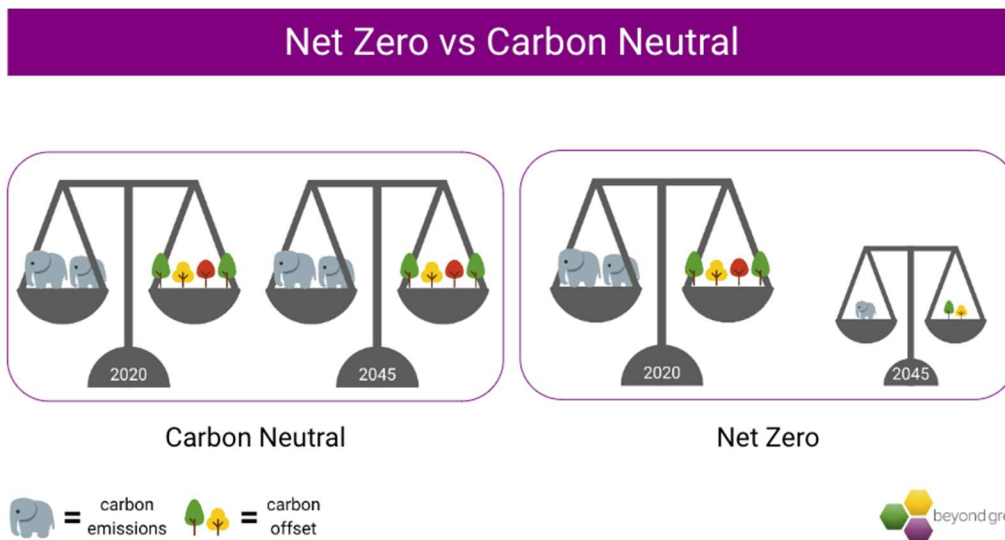
The GL Board updated our Environmental Policy to incorporate our carbon reduction ambitions. We are committed to a review of our accredited (ISO 14001) Environmental Management System, to ensure the capture of carbon emissions data and reduction is embedded throughout all our processes and procedures. Our baselines, targets and approach/strategy will be set out in this Carbon Management Plan, the key document in our Carbon Reduction Strategy.

### 2.1.2. What is Net Zero?

Achieving Net-Zero means ensuring GL business carbon emissions are in balance with the emissions GL can remove from the atmosphere. In practice, Net-Zero may involve a mixture of reducing emissions from avoiding wasteful practices, implementing greater energy efficiency and using renewable energy.

These measures will reduce the company’s carbon emissions and are likely to often deliver the greatest financial benefit to the business. However, it is recognised that Net-Zero will require the use of carbon offsetting (such as carbon sequestration from forest and changes in land use practices) to compensate for unavoidable emissions.

It is important to note that Net Zero, differs from the term Carbon Neutral. Net Zero requires a reduction in absolute emissions over time, whereas Carbon Neutral just requires that company’s offset the total emissions released to the atmosphere without necessarily any reduction in emissions. GL commitment is to pursue Net Zero by 2040 not Carbon Neutral. The diagram below aims to illustrate the two concepts.



See Beyond Green Net Zero Briefing from March 2022 (below) for further information:



Developing a Net Zero Strategy

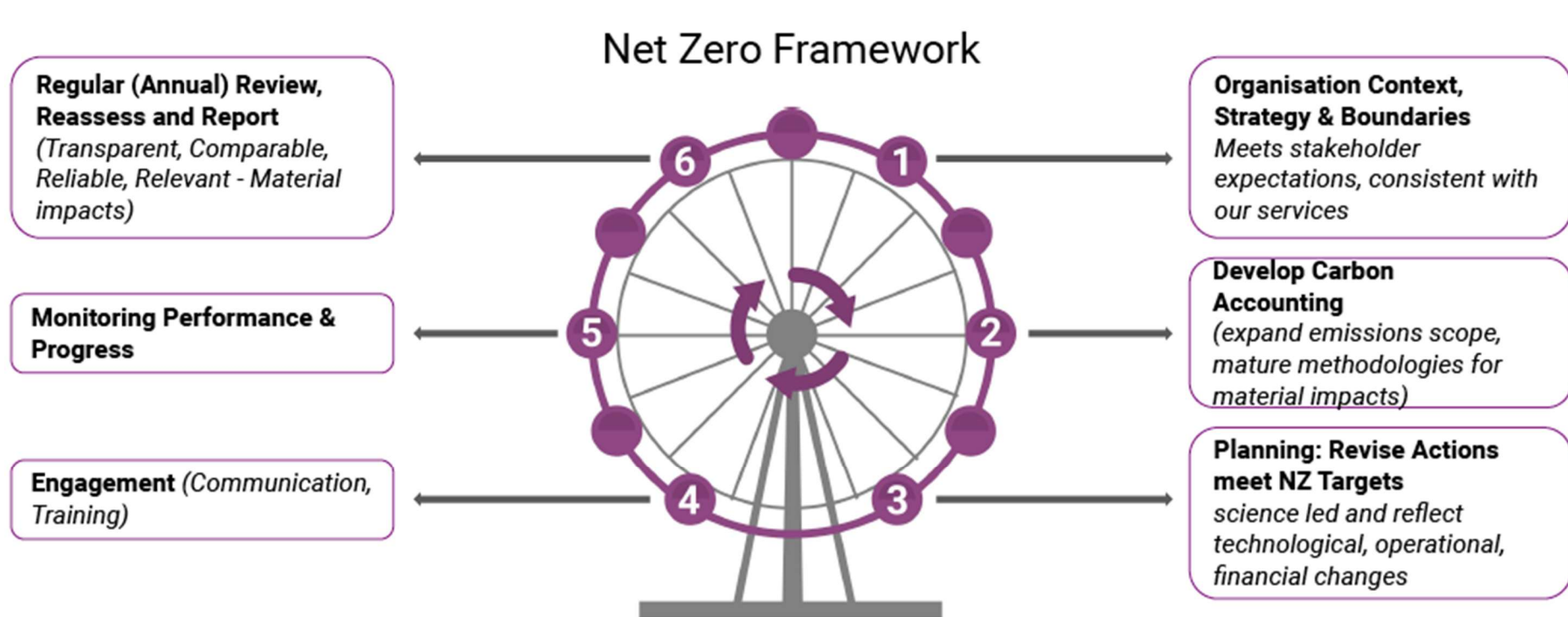


Presented on 23rd March 2022



### 2.1.3. Net Zero Framework

The diagram below provides an outline of the stages and process for establishing and implementing a Net Zero Framework:



### 2.1.4. Science Based Targets

Until recently, companies may have set their carbon reduction targets based on what they consider to be achievable or possible. These reduction targets were not usually connected to real scientific evidence relating to climate change, and the necessary carbon reductions required to limit global temperature rise to 1.5°C above pre-industrial levels by 2100.

Science Based Targets (SBTs) therefore, are targets driven by science to achieve a Net Zero pathway to 2050 which is critical to avoid runaway climate change. In simple terms this means around a 40-50% reduction in carbon emissions by 2030 compared to 2020 baseline, and effectively zero by 2050, or 2045 in Scotland. There are some detailed technicalities where overall reduction in emission levels can be below 40% to 2030.

To contribute to societal Net Zero goals, companies must deeply reduce emissions and counterbalance the impact of any emissions that remain. Therefore SBTs, drive companies to reduce Scope 1, 2, and 3 emissions to zero or to a residual level that is consistent with reaching Net Zero emissions at the global level to limit warming to 1.5°C above pre-industrial levels.

Any residual emissions that remain at Net Zero target year of 2030 and any GHG emissions released into the atmosphere thereafter will be compensated by a credible carbon offset scheme.

Science based targets are separated into two-time frames and reduction pathways

- I.Near Term between 2025 and 2030
- II.Long Term by 2050

For near term targets to 2030 SBT guides companies to consider two pathways based on limiting global warming with different target rates.

Net Zero Pathway <i>(limit of global temperature above pre industrial levels)</i>	SBT Reduction Targets from 2020 to 2030	
	Scope 1 & 2 Emissions	Scope 3 Emissions
1.5°C	4.2%pa (42%)	4.2%pa (42%)
< 2.0°C	4.2%pa (42%)	2.5%pa (25%)

This Net Zero Roadmap focuses on actions for a near term target to 2030 and within the 1.5°C pathway.

For information in SBT can be found here <https://sciencebasedtargets.org/>

### 2.1.5. Policy drivers

This section outlines the key policies and global, national and sector level drivers that this CMP is contributing to carbon reduction as well as other aims and goals.

#### Global

- **The Paris Agreement:**

Through the 2015 Paris Agreement, world governments committed to curbing global temperature rise to well-below 2°C above pre-industrial levels and pursuing efforts to limit warming to 1.5°C. In 2018, the Intergovernmental Panel on Climate Change warned that global warming must not exceed 1.5°C to avoid the catastrophic impacts of climate change.

To achieve this, GHG emissions must basically halve by 2030 – and drop to net-zero by 2050.

(<https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement> )

- **United Nations Sustainable Development**

GL are committed to work along with other organisations towards the Sustainable Development Goals (SDGs) adopted by all United Nations Member States in 2015. We aim to contribute to several goals related to our business:



***Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all***



***Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation***



***Ensure sustainable consumption and production patterns***

***Make cities and human settlements inclusive, safe, resilient and sustainable***



***Take urgent action to combat climate change and its impacts***

We also recognise that in the pursuit of Net Zero reducing carbon emissions must not diminish the success of the other global goals.

**- COP 26 Glasgow**

In November 2021, a record-breaking number of delegates gathered in Glasgow for this critical Climate Change conference. This COP was particularly important because since 2015, for the first time ever, something momentous happened: every country agreed to work together to limit global warming to well below 2 degrees and aim for 1.5 degrees, to adapt to the impacts of a changing climate and to make money available to deliver on these aims.

The Glasgow Climate Pact is the climax of two years of fervent diplomacy and ambition raising. The Presidency's work focused on delivering the Glasgow Climate Pact and driving action across the globe on:

- Mitigation - reducing emissions.
- Adaptation - helping those already impacted by climate change.
- Finance - enabling countries to deliver on their climate goals.
- Collaboration - working together to deliver even greater action.

**National**

Since 1990 the UK has almost halved the greenhouse gas emissions. In 2019, the UK became the first major economy in the world to legislate to finish the job with a binding target to reach net zero emissions by 2050. Environmental Reporting Guidelines can be found in:

(<https://www.gov.uk/government/publications/net-zero-strategy>).

The landmark legislation commits Scotland to becoming a net-zero society by 2045 – five years before the rest of the UK and in line with the advice from the government's independent expert advisors, the UK Committee on Climate Change.

The Scottish Government will also respond to the global climate emergency by adopting an ambitious new target to reduce emissions by 75% by 2030 – the toughest statutory target of any country in the world for this date going above and beyond what the Intergovernmental Panel on Climate Change said is required worldwide to limit warming to 1.5 degrees. To ensure we continue to take an evidence-based approach the Scottish Government will commission new advice from the Committee on Climate Change on the UK wide pathway to 2030.

It should be noted that GL's target for net zero is 2040, a further five years earlier than the Scottish Government target.

### **Construction Sector**

The Civil Engineering Contractors Association (CECA), of which GL are a member, works with agencies and academia to bring forward solutions to assist CECA members meet net-zero carbon targets embedded within contracts.

#### **2.1.6. Other compliance requirements (to)**

This CMP supports and compliments GL compliance with regulations and other compliance requirements.

- Scottish Water SR21 Framework – This CMP will assist GL with our requirement to support Scottish Water Carbon Reduction Targets by providing carbon emission data associated with our and our supply chain services.
- GL are required to comply with Phase 3 of Energy Saving Opportunity Scheme (ESOS). There are synergies between ESOS and this CMP because both require, in effect, the calculation of total energy consumption and identification of energy reduction opportunities. Such opportunities identified in section 4.2 of this CMP will support ESOS compliance and any opportunities identified through the ESOS audits, to be conducted during 2023, will be included in subsequent iterations of this CMP.
- At present, GL are not required to comply with The Companies (Directors' Report) and Limited Liability Partnerships (Energy and Carbon Report) Regulations 2018 (commonly known as SECR)<sup>1</sup>, however this could change with future growth in the company. This current CMP is expected to support compliance if/when required.

## 2.2. Customers and Stakeholders

This section outlines key customer expectations or contractual requirements and expectations of other stakeholders, many of which have their own carbon targets and Net Zero strategies.

### 2.2.1. Customers and contractual requirements

Following CoP26 – Glasgow, which focused on the role of business in the journey to Net Zero and tackling climate change, local and global business communities across the value chain will need to demonstrate credible action. It is expected that in the coming months and years other key customers will be requesting detailed information about GL Net Zero strategy and Carbon Management Plan.

Scottish Water:

One of our key customers is Scottish Water (SW) who have clearly established Carbon Reduction targets. GL have taken the decision to align our own Carbon reduction targets with SW.

SW investment emissions intensity is 140-210,000 tonnes CO<sub>2</sub>e per annum (a range of 200-300 tonnes CO<sub>2</sub>e per £1m at current spend levels). This is the basis of their Net Zero Emissions investment metric to track their journey to delivering net zero emissions.

SW and our Carbon reduction targets are 25% by 2023, 50% by 2025, 60% by 2027 and 75% by 2032.

The following key objectives have been identified as needing to be embraced to achieve the above carbon reduction targets:

- Embracing the circular economy
- Transforming our emissions
- Enhancing the natural environment

This CMP, along with robust carbon reporting and GL's adoption of SW's 22 Golden Rules for Carbon Reduction will support the requirements and expectations of our key customer.

### 2.2.2. Other important Stakeholders

The climate emergency and the need for carbon reduction is highly publicised and understood within society. It therefore makes sense that carbon reduction is important to GL employees and that their employer takes the same view. This CMP and associated documentation clearly articulates GL targets for achieving carbon reduction in the workplace.

Suppliers:

GL want to lead by example and realise that our supply chain needs to be brought along on our carbon reduction journey. By developing this CMP, we are clearly sign posting our reduction targets and areas where we will require input from our supply chain.

Regulators:

Although there are no specific regulations relevant to business in general and GL, public bodies, local authorities and other non-government agencies across the UK are tasked with driving the policy landscape. Policies at all levels are directed by The Climate Change (Scotland) Act 2009 and by the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 setting out the ambition of Scotland's emissions reduction targets to net zero by 2045.

### 2.2.3. Embedding Carbon Management Plan within the company

GL's environmental and sustainability policy statements show our commitment to achieve net zero carbon emissions by 2040. We aim to apply all available technology and the most efficient methods of production at our hand to drive this objective forward.

The GL Carbon Reduction Working Group, the GL SHEW department and our external sustainability consultant are making efforts to drive the cultural change throughout the company and ensure we set a solid data baseline to monitor the improvement through the years. All organisational levels of the company are actively involved in the changes the business will face in the future in order to minimise carbon emissions.

### 3. Our Carbon Baseline

#### 3.1. What is a Carbon Baseline?

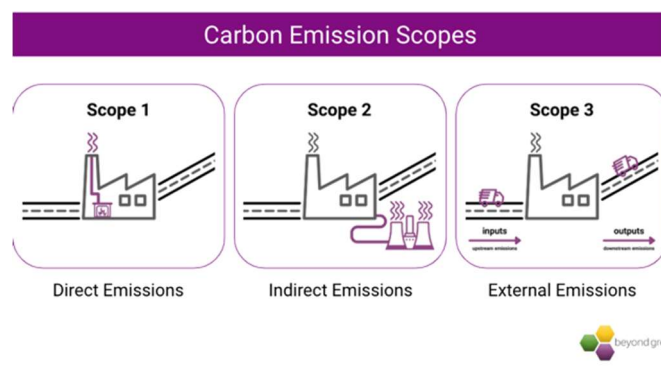
A carbon baseline is typically the annual emissions (tonnes of CO<sub>2</sub> equivalent or tCO<sub>2</sub>e) from the company’s operations as calculated for a designated year. For GL, we have restated our expanded carbon baseline for our Net Zero strategy for the year ending 31 March 2020: and supersedes our 2010 baseline for scope 1 and 2 emissions.

The baseline forms the starting point from which carbon reduction goals and targets are set. It is also used to monitor progress with emissions reductions, by comparing year to year emissions.

A carbon baseline is based on all the carbon emissions related to a company's activities and are separated into three scopes depending on the level of control or influence the company has over the cause of emission.

##### 3.1.1. Emissions Scopes

A carbon baseline, carbon reduction plans, and carbon reporting outline the standard scopes 1, 2 and 3 for carbon reporting.



Scope 1 – direct emissions from site use of fuels such as gas, diesel etc.

Scope 2 – indirect emissions from use of grid electricity

Scope 3 – all other emissions including travel, purchased goods & services, waste generated etc, Appendix 7.2.1 lists the Scope 3 emission categories

Further information is also available within the Beyond Green Briefing contained in section 2.1.2 of this document and also at the web link below:

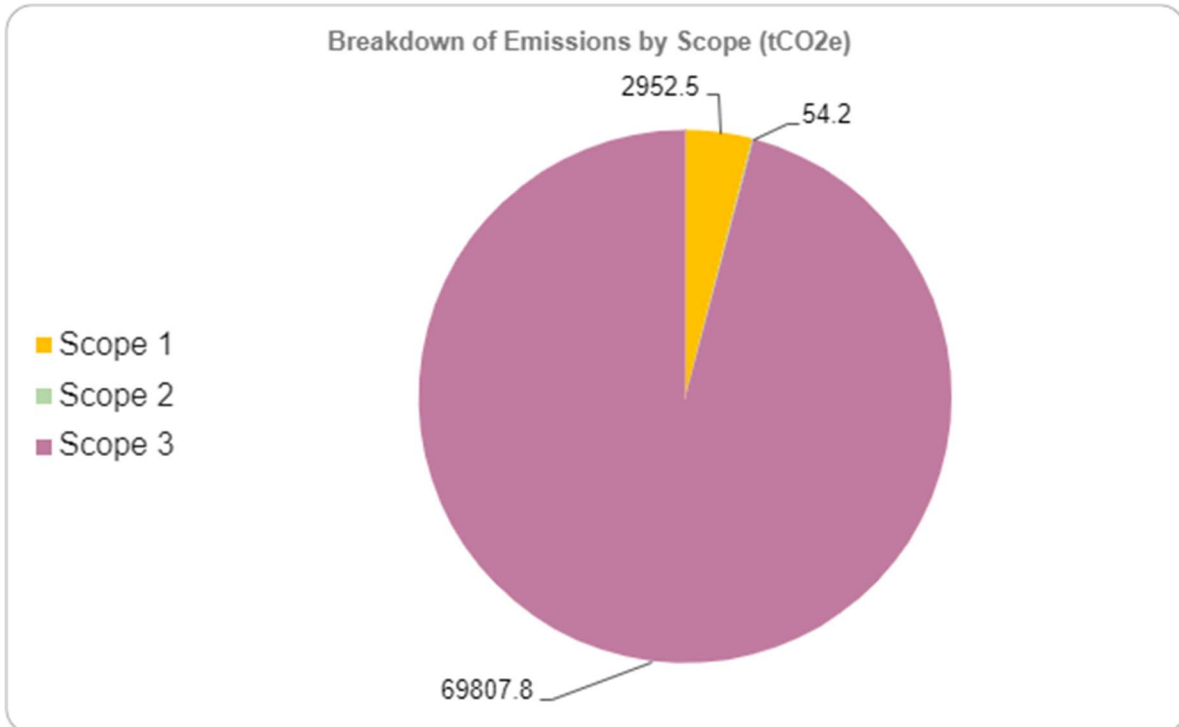
<https://www.carbontrust.com/resources/briefing-what-are-scope-3-emissions>

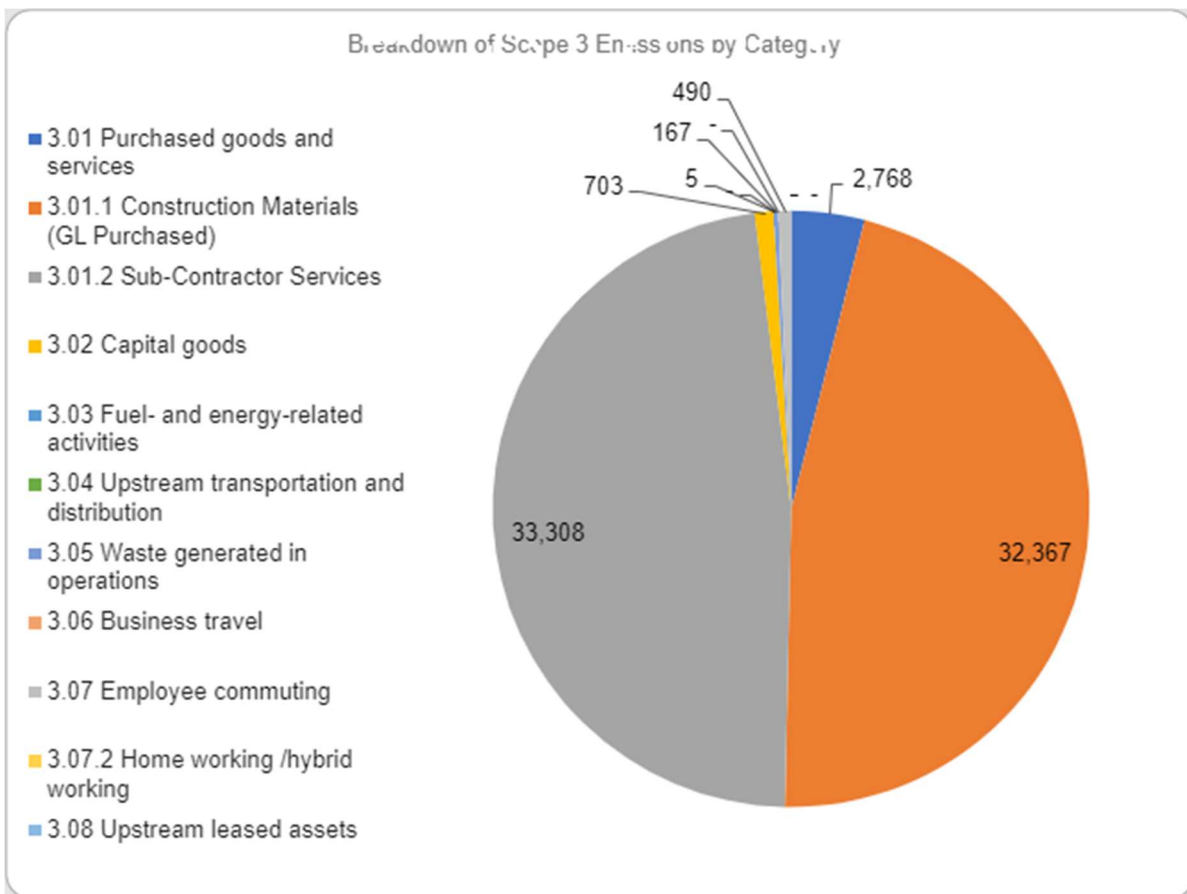
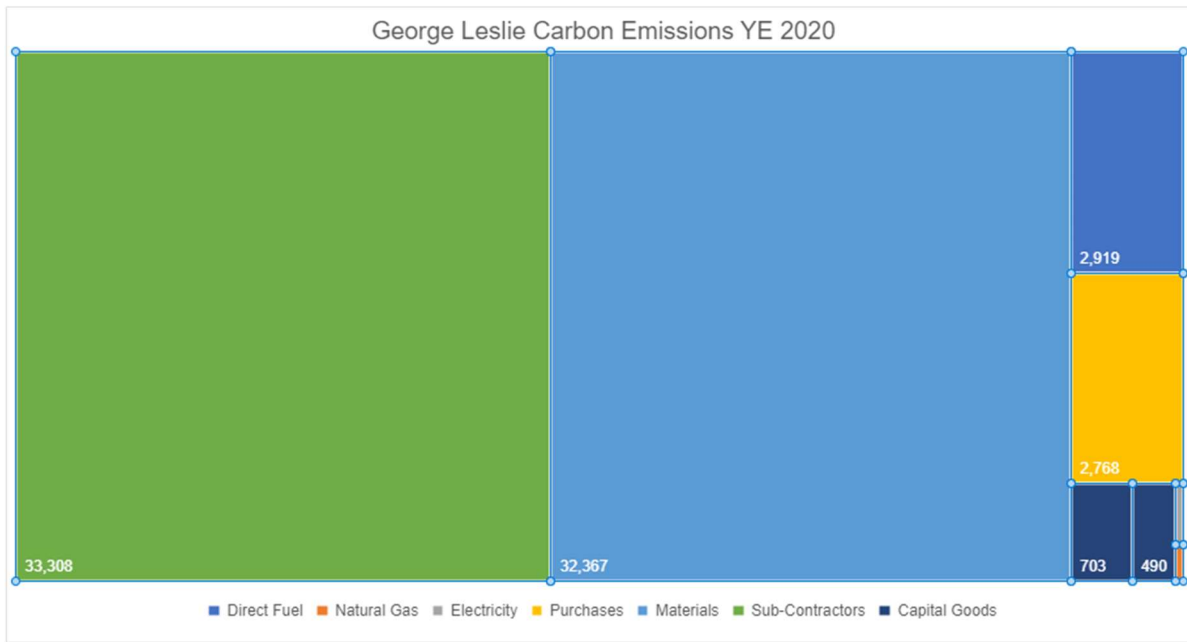
### Important Limitations

This CMP recognises that there are important limitations to calculating an initial Net Zero roadmap and carbon baseline due to availability of suitable reliable data for some scope 3 emission categories. Developing GL's initial Net Zero baseline takes a pragmatic approach by including material sources of scope 3 emissions where reliable data is realistically accessible. The CMP aims to continually improve the data gathering and carbon accounting methodologies in order to expand GL carbon footprint boundaries by including other Scope 3 emissions.

### 3.2. George Leslie's Carbon Baseline

The following charts show the breakdown of GL Carbon Baseline for the year 2019-2020.





A summary of our Carbon Baseline can be found in Appendix 7.2.

### 3.2.1. Our Carbon Boundaries

From the baseline year's emissions, we will identify the 'material' emissions by scale and define the boundaries for emissions that will be reported and measured. E.g., some emissions categories have very small emissions and therefore it may not be worth calculating as precisely as the more material categories.

The boundaries are also dependent on the level of control – e.g., GL is dependent on using diesel trucks until a viable alternative is available and affordable.

Carbon boundaries and reporting scopes may change in the future, but they need to be recorded so that emissions can be compared to the baseline on a like-for-like basis.

### 3.2.2. Carbon Accounting

The overall methodology adopted by GL follows the Corporate Accounting and Reporting Standard, published by The Greenhouse Gas Protocol, an international recognised organisation and standard setter. In addition to the overarching accounting standard, GL carbon accounting methodology draws on GHG Protocol's technical guides, Corporate-Value-Chain-Accounting-Reporting-Standard, and Technical Guidance for Calculating Scope 3 Emissions.

In accordance with these standards, recognised conversion factors provided by reputable sources, such as UK Government, GHG protocol are used. In some instances, other industry carbon conversion factors may be required.

UK Government Carbon Conversion factors are available at the following location:

<https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting>

<i>Scope</i>	<i>Emission</i>	<i>Data Source</i>
<i>Scope 1</i>	<i>Direct Combustion</i>	<i>All Star Fuel Record</i>
<i>Scope 1</i>	<i>Natural Gas</i>	<i>Gas Supplier</i>
<i>Scope 2</i>	<i>Electricity</i>	<i>Electricity Supplier</i>
<i>Scope 3</i>	<i>Purchased Goods and Services</i>	<i>Accounts</i>
<i>Scope 3</i>	<i>Capital Goods</i>	<i>Accounts</i>
<i>Scope 3</i>	<i>Fuel and Energy Related to Production</i>	<i>Electricity Supplier</i>
<i>Scope 3</i>	<i>Waste from Operations</i>	<i>Monthly site reporting figures and Waste Collector Data</i>

<i>Scope 3</i>	<i>Employee Commuting</i>	<i>Accounts and HR Department</i>
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## Key Assumptions

### Purchased Good and Services:

Unit of measurement varies across some categories and therefore assumptions have to be made to align the unit of measurement. In general, carbon emissions are calculated based on kgCO<sub>2</sub>e per £ spend that is a reasonable match to the underlying activity.

Construction Materials Purchased directly by GL

Carbon emissions relating to construction materials are based on estimating the tonnage of the top six materials, such as concrete, steel, plastic pipes, etc, and applying the relevant carbon factor. These six material types account for 75% of total spend on materials. For the remaining 25% of material spend, a weighted average emissions factor, based on the 75% of identified materials, has been applied to the spend amount.

Sub-Contractors Services

This weighted average method has also been used to calculate emissions of spend with sub-contractors for the material component (assumed to be 30% of total sub-contractor spend. For the remaining 70%, a generic carbon factor (kgCO<sub>2</sub>e per £) for the construction supply chain has been used.

### Waste from Operations:

Unit of measurement in financial reporting varies between monetary value, tonnes and quantum of loads removed from source. In general, unit of measurement is tonnes of waste disposed, however for some waste management options the tonnage is estimated by taking average load value to calculate number of loads and then convert to weight per load. For each waste type and its waste treatment (landfill, recycle, reuse or RDF), a suitable carbon factor is used to calculate carbon emissions.

### Employee Commuting:

Emissions relating to employee commuting reflect journeys taken by office staff, GL site operatives, and site agency workers for their period of employment or contract. Assumptions have been made as to the commuting travel patterns for site operatives with GL operatives traveling from home to Barrhead, and agency is assumed to be Barrhead to site, unless greater than 200km. For the calculated distance for each type of worker (employee and agency) the carbon emissions factor applied is for the average car or average van.

At present agency workers commuting travel is based on invoices for the top 30 sites, which represents 66% of total labour only invoices. GL will be investigating methods to improve data collection for commuting to site as it is a significant aspect of travel and transport related emissions.

## 4. Our Carbon Goals and Targets

Since GL began carbon accounting, there has been a significant reduction of all scope 1 and 2 emissions. In ten years (2010-20), the electricity consumed at the head office and sites have decreased saving more than 182 tonnes of CO<sub>2</sub>e. Gas consumption has reduced 42% and fuel used for transport has reduced approximately 56% (diesel) and 77% (petrol). In total, GL emitted 968 tonnes of Co<sub>2</sub>e less in the period 2019/20 compared to the period 2009/2010.

Our historic performance shows we can rise to the challenge that Net Zero places upon us.

### 4.1. Broad Goal - Net Zero by 2040

In line with SBT (refer to section 2.1.4), GL has a long-term goal to be Net Zero by 2040 as its overall Net Zero Strategy and to direct its carbon reduction plan. GL follows some key principles about target setting as outlined in the Science Base Target Initiative's Net-Zero-Standard.

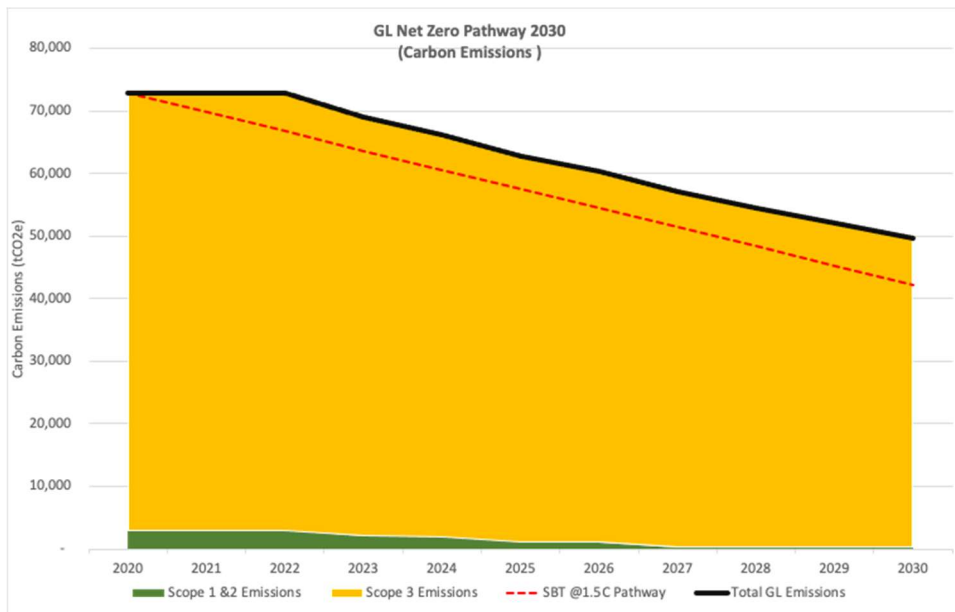
GL fully recognise that we cannot achieve this long-term goal on our own. Therefore, we shall seek to collaborate with our clients and our supply chain in developing materials, products, methods and processes that assist us in achieving our carbon reduction targets.

#### 4.1.1. Interim Goals and Milestones

In line with SBT (refer to section 2.1.4), GL has established near term goal of 32% reduction in emissions by 2030, with annual milestones based on quantified targets. The Net Zero trajectory for GL, Scottish Water and Scottish Government is show in the chart below.

##### GL Net Zero Pathway to 2030

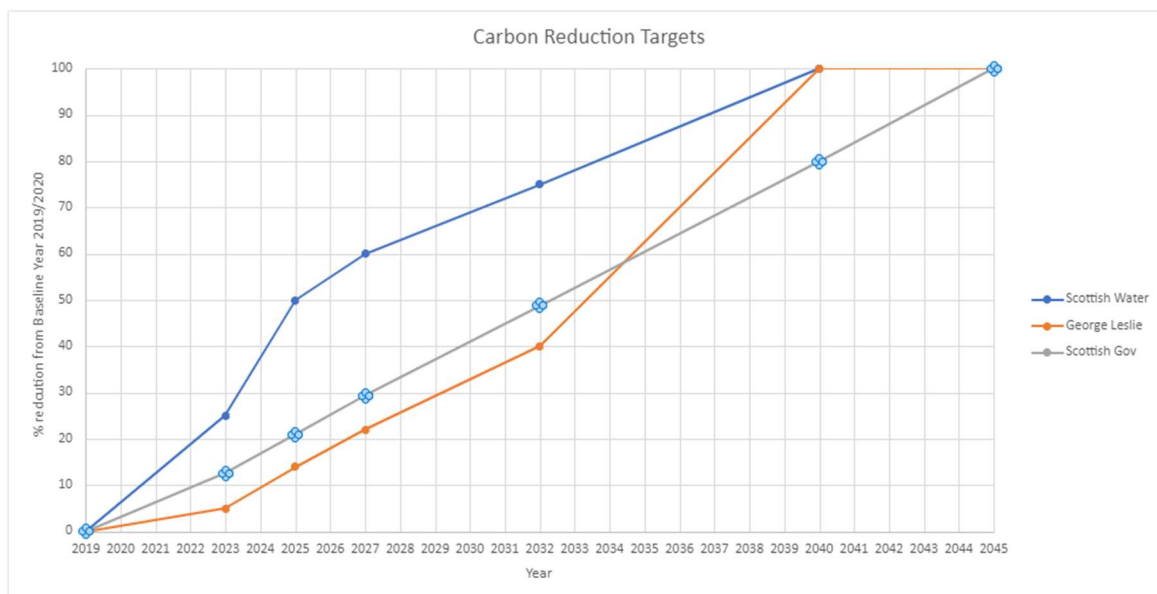
Based on current quantified carbon reduction opportunities, as outlined in detail in section 4.2, our baseline emissions are projected to fall by 32% by 2030. Although this is below the SBT 1.5oC pathway, our baseline includes a comprehensive set of scope 3 emissions. With regular review of carbon reduction opportunities, we expect our pathway to approach the near term goal of 1.5oC.



The pathway in the chart above shows that energy related emissions under our control (scopes 1 and 2) will reduce to almost zero by 2027.

The current Net Zero pathway does not reflect actual carbon emissions reductions resulting from changing business practices due to the impact of COVID-19. The Net Zero pathway outlined above will be updated for actual emissions as at 31 March 2022. Such reductions are expected to impact Scope 1 and 2, and travel related scope 3 emissions.

The chart below shows the profile for carbon reduction targets for George Leslie, Scottish Government and Scottish Water (extrapolated profiles) based on available data.



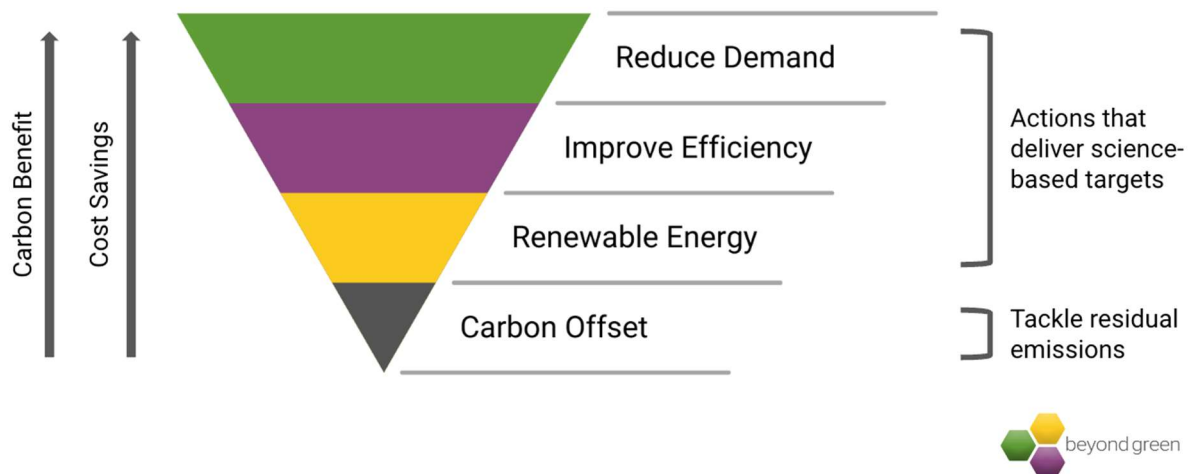
At present, the carbon reduction profile outlined in the chart above does not consider the impact of future business growth on GLs absolute emissions nor any interaction between different measures, which if occurs would lower the reductions stated. In addition, the

gradual reduction of emissions from electricity use from the decarbonisation of the UK Grid electricity over the period is not reflected. While GL current trajectory is shown below the Scottish Government and Scottish Water profile it is similar to other organisations when calculating initial baselines and future opportunities. It would be expected to see a reduction from baseline of 25-35% by 2030.

The above graph does highlight the scale of the challenge to achieve Net Zero and that further opportunities have to be identified and implemented to hit the target date of 2040. At GL we will be continually monitoring progress and improving upon the trajectory set out above.

## 4.2. Our Carbon Targets

When establishing targets, GL has aimed to substantiate its carbon reduction plan, as far as practically possible from known developments at a strategic level, operational and project level. Through developing Targets, GL has considered the Carbon Management hierarchy, as illustrated in the diagram below.



The first three actions in the diagram above, are often considered to be genuine emission reductions that contribute to science-based carbon reduction targets and will deliver strategic, commercial and operational benefits to our business. It is recognised that achieving Net-Zero will require carbon offsetting to compensate for the residual carbon emissions from the company’s activities.

The following opportunities have been identified for targeted action to achieve our carbon reduction ambitions:

### 4.2.1. Carbon Reduction Opportunity – Adoption of HVO Fuel

- Brief summary of what the target involves –

Currently our construction plant and commercial vehicles are run on white diesel, target a transition to HVO. The potential reduction is based on HVO supplier stated reduction of 90% CO<sub>2</sub>e.

- Forecast emissions reductions in % and tCO<sub>2</sub>e –

We shall target reduction in three equal stages:

- o Stage 1: 30% (823tCO<sub>2</sub>e) overall reduction
- o Stage 2: 60% (1,646tCO<sub>2</sub>e) overall reduction
- o Stage 3: 90% (2,469tCO<sub>2</sub>e) overall reduction

- Why the target has been set –

Easy adoption with new engines and better supply logistics through Client frameworks. Significant carbon reduction. Phasing out of old engines and increasing adoption by engine manufacturers results in 2027 forecast.

- Who is responsible –

Plant Department under direction from Commercial Director

- When will action be taken – target end date and interim stage dates. –

- o Stage 1: 2023
- o Stage 2: 2025
- o Stage 3: 2027

- What resources are required (staff time, financial, materials & purchases etc) –

Investment in Browsers with telemetry for sites and yard, potential central storage identified for Stage 1, reliable supply of HVO.

- How will progress be measured and tracked –

This will be measured via purchase records showing transition to HVO held by Finance Dept

- Outline key risks and limitations to this target –

Restriction in supply, price fluctuations / volatility, technology developments of engine manufacturers

- Outline key benefits and savings (cost reduction, reputation benefits, programme efficiencies, workforce welfare etc ) –

Reduced emissions from fossil fuels, workforce welfare (respiratory), reduction in servicing requirements, reputation in achieving carbon reduction

#### **4.2.2. Carbon Reduction Opportunity – Adoption of Hybrid power (eg Hussh Pods) for site power generation as standard**

- Brief summary of what the target involves –

Sites are normally powered by temporary diesel generators for electricity supply. This burns a significant quantity of diesel. We are to switch to hybrid power (diesel generator with electric power pack) which will allow a proportion of site power to come from electric battery rather than diesel generation.

- Forecast emissions reductions in % and tCO<sub>2</sub>e –

reduction from “4.2.1 Adoption of HVO Fuel” leaves 10% carbon still to be saved from fuels. Those fuels power site plant and site welfare. We shall target one third of that 10% to be reduced through the use of hybrid power on site, i.e. 415tCO<sub>2</sub>e.

- Why the target has been set –

Technology currently exists to readily facilitate this opportunity. There is a corresponding commercial benefit in saving overall fuel costs.

- Who is responsible –

project teams under direction from senior management

- When will action be taken –

target end date and interim stage dates. - 100% by 2023

- What resources are required (staff time, financial, materials & purchases etc) –  
potential training in site welfare behaviours of using the Hussh Pods, ie switching off non-required devices

- How will progress be measured and tracked –

reports obtained via supplier portal for each site.

- Outline key risks and limitations to this target –

availability of hybrid power unit, needs to have a welfare generator to recharge the pod, therefore not fully eliminating the use of HVO or diesel

- Outline key benefits and savings (cost reduction, reputation benefits, programme efficiencies, workforce welfare etc) –

savings can be made across most projects, with a corresponding commercial benefit, workforce welfare (respiratory and noise reduction), good neighbour (noise reduction), reduction in servicing requirements

#### 4.2.3. Carbon Reduction Opportunity – Electric Tools and Plant

- Brief summary of what the target involves –

introduction of electric plant and tools to reduce the use of fossil fuels on site. The switch from diesel to HVO has already been accounted for in 4.2.1, therefore this opportunity only considers petrol.

- Forecast emissions reductions in % and tCO<sub>2</sub>e –  
Reduction target is 100% of 29tCO<sub>2</sub>e
- Why the target has been set –  
advances in battery power and sustainability of products for tools is bringing this within reach with other benefits
- Who is responsible –  
project teams, in particular foremen to realise opportunities to reduce carbon impact and other benefits
- When will action be taken –  
target end date and interim stage dates. - 100% battery hand tools by 2023
- What resources are required (staff time, financial, materials & purchases etc) –  
staff allocation for research and trialling of the plant and tools; procurement for hiring/purchasing of equipment; additional training in upskilling of workforce
- How will progress be measured and tracked –  
periodic review of hire costs of traditional equipment (ie generators, leads etc) and procurement of electric plant/tools, along with reviewing reduction in use of fossil fuels
- Outline key risks and limitations to this target –  
availability and development of plant using electric power; more expensive to hire/procure;
- Outline key benefits and savings (cost reduction, reputation benefits, programme efficiencies, workforce welfare etc) –  
avoid requirement for petrol on site (environmental/DOMS benefit); increase in productivity with availability of hand tools on site; workforce welfare (HAVS reduction, manual handling)

#### 4.2.4. Carbon Reduction Opportunity – Use of recycled (secondary) aggregates

- Brief summary of what the target involves –  
reduce our reliability on quarried aggregates when a secondary (recycled) aggregate is available

- Forecast emissions reductions in % and tCO<sub>2</sub>e –  

Target is to reduce virgin quarried aggregates by 90% (213tCO<sub>2</sub>e) by 2028. This shall be done in 3 stages.
- Why the target has been set –  

as well as aiding in the carbon emissions reduction, the availability of quarried material is dwindling, so an alternative material needs to be sought
- Who is responsible –  

project teams, with direction from senior management; staff to further investigate the suitability of secondary aggregates in construction
- When will action be taken –  

target end date and interim stage dates. - secondary aggregates are being used currently at a major project, with further projects to be identified to potentially use secondary aggregates as an alternative. Due to the industry yet to be able to confirm the availability of all required aggregates from a secondary source we shall target a 50% reduction in carbon in 2023, a further 20% by 2025, and a further 20% by 2028.
- What resources are required (staff time, financial, materials & purchases etc) –  

staff time to investigate/review the suitability of the material, purchase information from projects to establish the carbon benefit.
- How will progress be measured and tracked –  

review of procurement of secondary aggregate materials against quarried aggregates, with a year-on-year increase on the use of secondary aggregate
- Outline key risks and limitations to this target –  

clients, designers and consultants rejecting the suitability of secondary aggregates; availability of material; ensuring quality of material is to required specification when arriving on site
- Outline key benefits and savings (cost reduction, reputation benefits, programme efficiencies, workforce welfare etc) –  

re-use of excavated material from a project; carbon reduction in reduced need for quarried aggregate; reduced travel for delivery wagons by arriving full (with secondary aggregate) and leaving the project full (with excavated material)

#### 4.2.5. Carbon Reduction Opportunity – **Specify Cemfree concrete in our designs**

- Brief summary of what the target involves –

replacing normal ready mix concrete supply for mass concrete with Cemfree alternative through use of Scottish Water framework and any other identified opportunities.

- Forecast emissions reductions in % and tCO<sub>2</sub>e –

We shall target a 78% (476tCO<sub>2</sub>e) overall reduction in mass concrete carbon impact in two equal stages:

- o Stage 1: 50% 238tCO<sub>2</sub>e
- o Stage 2: 50% 238tCO<sub>2</sub>e

We shall also target industry developments allowing Cemfree (or equivalent) adoption for structural concrete

- Why the target has been set –

The logistics of supply are not yet proven, so we shall adopt a phased approach but assuming full achievement of adoption within 2 years

- Who is responsible –

project teams to adopt the use of Cemfree concrete for all mass concrete requirements where available.

- When will action be taken –

target end date and interim stage dates.

- o Stage 1: 2023
- o Stage 2: 2024

- What resources are required (staff time, financial, materials & purchases etc) –

Project teams may require additional time to source a supply if not available nationally. Additional resource may be required to investigate supply and/or quality issues, should they arise.

- How will progress be measured and tracked –

Review of purchases through financial records.

- Outline key risks and limitations to this target –

The supply chain is yet unproven with regards to consistent supply and quality, and the technology is somewhat similar.

- Outline key benefits and savings (cost reduction, reputation benefits, programme efficiencies, workforce welfare etc) –

Significant carbon savings to be realised as well as reputation.

#### 4.2.6. Carbon Reduction Opportunity – Solar Panels at Head Office

- Brief summary of what the target involves –  
installing solar panels at Barrhead Head Office, most likely to an existing roof.
- Forecast emissions reductions in % and tCO<sub>2</sub>e –  
previous reporting by Beyond Green highlighted the potential saving at 15.5tCO<sub>2</sub>e (29% reduction).
- Why the target has been set –  
the technology is proven and readily available.
- Who is responsible –  
The Plant Yard team under the direction of the Commercial Director.
- When will action be taken –  
target end date and interim stage dates. - we aim to have this 100% installed in 2023.
- What resources are required (staff time, financial, materials & purchases etc) –  
time to research options, procurement and installation costs.
- How will progress be measured and tracked –  
regular review of electricity utility bills by Finance Team
- Outline key risks and limitations to this target –  
structural capacity of the main office building is under question, suitability of other buildings to give sufficient capacity, availability of ethically sourced materials/product.
- Outline key benefits and savings (cost reduction, reputation benefits, programme efficiencies, workforce welfare etc) –  
cost reduction in ongoing electricity utility bill ,improving reputation (external and internal) for a sustainable business, and using on site generation to recharge electric vehicles.

#### 4.2.7. Carbon Reduction Opportunity – Electric Vehicle Scheme

- Brief summary of what the target involves –  
the replacement of diesel and petrol company cars with electric vehicles, when fossil fuelled vehicles are due to be renewed and when employees decide to move to the EV Scheme
- Forecast emissions reductions in % and tCO<sub>2</sub>e –

emissions to be reduced by 100% (177tCO<sub>2</sub>e)

- Why the target has been set –  
due to current age of fleet and the ongoing issues with the supply of EVs
- Who is responsible –  
Finance Manager, staff using the company vehicle scheme
- When will action be taken –  
target end date and interim stage dates. - 50% reduction by summer of 2024, with full 100% reduction by 2026
- What resources are required (staff time, financial, materials & purchases etc) –  
availability of EVs, ongoing increase in network of charging points
- How will progress be measured and tracked –  
review of current fleet of vehicles in baseline year using petrol or diesel vehicles, to review of fleet at target dates
- Outline key risks and limitations to this target –  
current availability of EVs, increase in energy costs, network of charging points
- Outline key benefits and savings (cost reduction, reputation benefits, programme efficiencies, workforce welfare etc) –  
company reputation by using EVs, staff benefits in using clean energy

#### 4.2.8. Carbon Reduction Opportunity – **Reduce waste generation**

- Brief summary of what the target involves –  
the re-use of inert materials on site to prevent going to landfill
- Forecast emissions reductions in % and tCO<sub>2</sub>e –  
emissions generated in excavated soil and clay materials is approximately 13 tCO<sub>2</sub>e, with target of 100% reduction by 2029
- Why the target has been set –  
due to the availability of wash plant facilities which can take the excavated material and produce secondary aggregates
- Who is responsible –  
site teams, senior management to encourage the re-use of excavated materials

- When will action be taken –  
target end date and interim stage dates. - 25% reduction by 2023, with further reductions of 25% by 2025, 2027 and 2029.
- What resources are required (staff time, financial, materials & purchases etc) –  
site staff being aware of where the nearest wash plant facility is located.
- How will progress be measured and tracked –  
review of waste generated at landfill against baseline figures at target dates
- Outline key risks and limitations to this target –  
not all material is suitable for re-use, sites in remote locations where wash plant facilities are not available, cost of transporting material to wash plant facility
- Outline key benefits and savings (cost reduction, reputation benefits, programme efficiencies, workforce welfare etc) –  
cost savings on re-use of secondary aggregates from excavated materials, reputation of reducing waste, reduce emissions in transportation

#### 4.2.9. Carbon Reduction Opportunity – **Purchase Green Electricity**

- Brief summary of what the target involves –  
replacing traditional means of energy at Head Office to low carbon energy
- Forecast emissions reductions in % and tCO<sub>2</sub>e –  
current emissions are 54.25 tCO<sub>2</sub>e electricity. With implementation of greener energy, this can be reduced by 100%
- Why the target has been set –  
due to greener energy solutions being available currently, with the target of moving to greener energy by end of 2023
- Who is responsible –  
Directors and Finance Manager
- When will action be taken –  
target end date and interim stage dates. - transfer to green electricity by end of 2023 and gas replacement by end 2024
- What resources are required (staff time, financial, materials & purchases etc) –

time required to review all available options, implement the change and continue to review output to measure carbon reduction

- How will progress be measured and tracked –

this will be measured and tracked against the reduction in baseline energy usage against the greener energy use, and the overall carbon reduction

- Outline key risks and limitations to this target –

initial cost of installation, infrastructure available in and around the Head Office

- Outline key benefits and savings (cost reduction, reputation benefits, programme efficiencies, workforce welfare etc) –

potential to reduce energy costs as well as carbon emissions, reputational benefit within the community to be seen as a company implementing green technologies

#### 4.2.10. Carbon Reduction Opportunity – Replacement of steel rebar

- Brief summary of what the target involves –

reduction in the use of steel reinforcement, using alternative materials to replace the reinforcement

- Forecast emissions reductions in % and tCO<sub>2</sub>e –

18,100 tCO<sub>2</sub>e were produced in 2019 in the procurement of steel reinforcement. By summer of 2025, aim is to reduce this figure by 30%

- Why the target has been set –

due to new advances in materials for use in concrete mixes, along with further knowledge and expertise in this field; ongoing re-use of existing procured steel reinforcement in temporary works

- Who is responsible –

Senior management, design co-ordinators and designers, site teams

- When will action be taken –

target end date and interim stage dates. - first stage 30% is due summer 2025, with a further 30% by 2027

- What resources are required (staff time, financial, materials & purchases etc) –

staff time to increase knowledge in use of alternative products, additional material costs

- How will progress be measured and tracked –  
review of amount of steel reinforcement purchased against the baseline figures
- Outline key risks and limitations to this target –  
acceptance of design by Clients, designers etc
- Outline key benefits and savings (cost reduction, reputation benefits, programme efficiencies, workforce welfare etc) –  
cost reduction in re-use of materials, emissions reduction in alternative materials being used, workforce benefits with manual handling

#### **4.2.11. Carbon Reduction Opportunity – Reduction of Non Specific Materials & Sub Contractor**

- Brief summary of what the target involves –  
Increasing understanding data collection on the non specific materials elements of the carbon baseline along with the carbon associated with materials included in sub contractor values, to identify and reduce the carbon within these elements
- Forecast emissions reductions in % and tCO<sub>2</sub>e –  
7.5% reduction each year from 2023 to 2030 which is a reduction of 2419 tCO<sub>2</sub>e per year
- Why the target has been set –  
The target aligns with the percentage reduction required to stay on track with the Scottish Government reduction targets.
- Who is responsible –  
Senior Management, Carbon Reduction Working Group, Site Delivery Teams, Pre Construction Teams.
- When will action be taken –  
7.5% reduction every year from 2023.
- What resources are required (staff time, financial, materials & purchases etc) –  
staff time to engage with supply chain and additional data recording and reporting.
- How will progress be measured and tracked –  
Review of data at regular intervals by the Carbon Reduction Working Group
- Outline key risks and limitations to this target –

Delivery team engagement to record accurate data, supply chain willingness to engage

- Outline key benefits and savings (cost reduction, reputation benefits, programme efficiencies, workforce welfare etc) –

Reduction in material costs and disposal from site costs.

### 4.3. Future Opportunities

The following are identified as further carbon reduction opportunities to be investigated and/or quantified at a future date:

- a. The adoption of technology, e.g. use of Virtual Meetings to reduce site visits through the use of Hololense, Realware, Smart Phones, etc.
- b. Survey equipment, e.g. use of new technology survey equipment to reduce carbon emissions such as 3D laser scanning, drones, etc.
- c. Gas boiler replacement / alternative heating system.
- d. Reduced wastage from packaging from purchased products and materials.

## 5. Taking Action and Monitoring Progress

### 5.1. Taking Action

Outline the main programme of implementing actions required to meet the targets. Prepare a timeline showing all targets, actions required and milestones.

Carbon Reduction will be a continual process requiring action to be taken throughout the period 2022 – 2040 with regular re visit of the actions and target set.

The above carbon reduction opportunities are summarised in the following table:

Year	Milestone / Target Reduction	Action
2022	Produce a Carbon Management Plan Establish Carbon Baseline	Form Carbon Management Group to produce the CMP and gather data for the baseline. Produce CMP and publish it.
2023	HVO – Stage 1 30% reduction.  Hybrid Power – 100% reduction	Establish a supply network and implement this across the GL business

	<p>Electric Tools - 100% reduction</p> <p>Recycled Aggregates – 50% reduction in carbon associated with quarried aggregates.</p> <p>Cemfree Concrete – 50% reduction in carbon associated with the use of ready mixed concrete.</p> <p>Solar Panels – 100% reduction</p> <p>Green Electricity – reduction is market dependant.</p> <p>Reduced Waste Generation – 25% reduction</p>	<p>Adoption of Hybrid power on all construction projects.</p> <p>Continue trials and adoption of battery operated hand tools</p> <p>Establish a supply network in the West and East of Scotland to provide recycled aggregates to our projects</p> <p>Establish a supply network of Cemfree concrete.</p> <p>Adoption of Cemfree concrete within our designs.</p> <p>Investigate the potential for Solar Panels to be used at our Barrhead premises. Where feasible installation should commence and panels brought on line.</p> <p>Review electricity supply and change over to green tarrifs.</p> <p>Reduce waste production at source. No build and leaner construction techniques</p> <p>Increase re use of materials on site</p>
2024	<p>Cemfree Concrete – 50% reduction in carbon associated with the use of ready mixed concrete.</p> <p>Electric Vehicle Scheme – 50% reduction</p> <p>Green Gas – reduction is market dependant.</p>	<p>Adoption of Cemfree and other reduced carbon ready mix concretes within our designs.</p> <p>Adoption of the electric vehicle scheme.</p> <p>On site charging points at Head Office and project location to be made available.</p> <p>Review Gas supply and change over to green tarrifs. / Gas replacement.</p>
2025	<p>HVO – Stage 2 60% reduction</p>	<p>Further roll out and implementation across GL business.</p>

	<p>Use of recycled aggregates – 20% reduction</p> <p>Reduced Waste Generation – 25% reduction</p> <p>Replacement of steel rebar – 30% reduction</p>	<p>Expansion of the supply networks and adoption by projects.</p> <p>Reduction of waste at source, lean construction.</p> <p>Adoption of alternative rebar eg Basalt into our designs and expansion of the supply chain.</p>
2026	<p>Electric Vehicle Scheme – 100% reduction</p>	<p>Adoption of the electric vehicle scheme.</p> <p>On site charging points at Head Office and project location to be made available</p>
2027	<p>HVO – Stage 2 90% reduction</p> <p>Replacement of steel rebar – 30% reduction</p>	<p>Further roll out and implementation across GL business.</p> <p>Continued Adoption of alternative rebar eg Basalt into our designs and expansion of the supply chain.</p>
2028	<p>Use of recycled aggregates – 20% reduction</p>	<p>Expansion of the supply networks and adoption by projects.</p>
2029	<p>Reduced Waste Generation – 25% reduction</p>	<p>Reduction of waste at source, lean construction.</p>

## 5.2. Monitoring Progress

To building on the carbon baseline work, it will be necessary to develop a monitoring programme within GL to regularly gather information and data to calculate emissions at certain time periods in order to progress towards targets. Sources of data that will be needed to monitor progress will be identified and analytics established to record data and conduct carbon conversions.

GL have a Carbon Reduction Group where representatives from across the GL business meet monthly to review carbon reduction practices and new initiatives from both within and outwith construction industry. Support and guidance at the monthly meeting is also provided from our expert external consultant. Going forward this group will meet quarterly to carry out

a deep dive on Carbon Data and the CMP. Out puts from this meeting will be reported back to the GL Board with recommendations for improvements and business changes to be ratified. The agenda for this quarterly meeting will be as follows:

- Run through each target and report on actions taken
- Quantify carbon reductions achieved against targets
- Identify any barriers / limitations / restrictions that may impact implementation of actions towards targets
- Allocate responsibilities for next required steps
- Identify any new opportunities that will contribute towards targets
- Revise targets and the CMP to reflect any changes in operations, technology, methods of reducing emissions.

Indicators can also be used to track progress even if the company changes – e.g. if there is significant growth or reduction in operations, comparing emissions between years may not present a true picture of changes. Therefore, using indicators such as tCO<sub>2</sub>e / £ of turnover, or tCO<sub>2</sub>e per employee etc. can present a more realistic measure to track changes in emissions. The Carbon Reduction Group will monitor and review this on a quarterly basis.

### 5.3. Engagement, Raising Awareness and Communication

Within GL there is already an established framework to facilitate both vertical and horizontal communication. Regular monthly meetings are held to provide information flow between and across the various levels of management within the business. The CMP once signed off will be communicated and distributed at these monthly meetings.

CMP document will be issued as a company wide communication with copies of the document made available at project locations for all employees to refer to.

Carbon bulletins will be produced as a monthly output from the Carbon Reduction Working Group to advise company wide on our carbon reduction progress.

Opportunities for lunch and learns, training etc will be developed and offered out company wide, recent examples being visits set up to recycled aggregate wash plant facilities.

### 5.4. The Role of Carbon Offsetting

It is widely acknowledged that carbon offsetting will play a role in a Net Zero strategy to deal with **residual emissions** – ‘emission sources that remain unabated in a specific year of a Net Zero roadmap. However, as noted above (section 2.1.4), SBT need to be achieved before any carbon offsetting.

**Carbon offsetting** - is a mechanism whereby any unavoidable carbon impact at an organisation level is compensated for by investing in a carbon reduction project outside the organisation’s carbon boundary. For example, 1 tonne of residual carbon emissions in Scotland is matched to 1 tonne of carbon avoided (a carbon credit) by an environmental project

#### Carbon Offsetting Schemes

There are two broad categories of Carbon Offset Schemes which reflect the scheme's governance and rules to issue carbon credits. The first category is made up of the scheme managed by the UN under the UN Framework Convention on Climate Change (UNFCCC), while the second category covers the various voluntary offset schemes. These are non-government run schemes with international and domestic programmes.

Whichever offsetting scheme is pursued it is important that it is, to some degree, credible, legitimate, reliable, and independent and transparent. In reality, there is a trade-off between these attributes with each scheme demonstrating more to less adherence to these attributes. Appendix 7.2.2 provides further details of considerations for carbon offsetting.

GL will conduct suitable due diligence before deciding on a scheme from the list as outlined in Appendix 7.2.2

## 6. Transparent Reporting to Stakeholders

### Introduction

Developing a carbon reduction plan to achieve net zero is the process of continual improvement in data gathering, carbon accounting, and identifying actions to reduce emissions. Therefore, it is important that the information in the annual carbon report is clear, concise, and in everyday language. This allows a range of stakeholders to understand the business context, how the carbon impact is calculated, including key assumptions, what's excluded and other limitations.

When reporting performance against targets, it is necessary to be transparent and impartial and explain reasons for any shortfalls, and changes in targets. Reporting should adhere to recognised Environmental Reporting Principles, as outlined in Section 6.2

## 6.1. Meeting Stakeholder Expectations

GL will meet expectations of stakeholders identified in sections 2.1.7 and 2.1.8 by reporting progress against its Net Zero Strategy and Carbon Management Plan on an annual basis. Reporting will follow established environmental reporting principles and a recognised carbon accounting standard, using reliable data sources and accounting methodologies with clear explanation of limitations and assumptions, and be subject to the same levels of governance and independent review as other corporate reports.

## 6.2. Environmental Reporting Principles and Carbon Accounting Standard

To supplement the carbon accounting standards, GL also adopts the key requirements for environmental reporting for its ESOS compliance requirements as outlined in the [UK Government's Environmental Reporting Guidelines](#)

## 6.3. Preparing Annual Net Zero Carbon Report

### 6.3.1. Carbon Data Inventory and Reliability

In preparing the annual report, GL will prepare a detailed carbon inventory with a clear audit trail to underlying source data, explanation of assumptions used in any calculations and data preparation. In addition, the carbon inventory will include data sets for carbon conversion factors used, such as UK Government GHG Conversion Factors for Company Reporting, and the methodology for any bespoke and specific carbon factors used in the emissions calculations. Any limitations about the methods applied will be recorded in carbon inventory.

### 6.3.2. Governance and Independent Review

A sub group from the Carbon Reduction Group will be formed within GL to conduct an independent review and produce a detailed report on progress. As part of the ESOS scheme GL will be establishing an internal network of trained environmental auditors who will take the lead on the independent review.

Our Managing Director David Ross who has overall responsibility for Carbon Reduction within GL will provide an independent review of the report for sign off. Part of this will require consideration if the Carbon Accounting and information used is part of the company's ISO 14001 Environmental Management System and if the underlying data sources eg waste are subject to internal audit as part of the GL EMS.

### 6.3.3. Independent Verification /Certification

GL will consider external and independent verification of its carbon baseline and reduction roadmap in the near future once the data gathering, carbon accounting methodologies and monitoring process has become embedded.

## 7. Appendix

### 7.1. Updates since previous versions

Enter summary of what has been changed since the last version of this document. Store previous versions for reference in an archive (may need to refer back to prior year's emissions, conversion factors and baselines to show progress).



## 7.2. Carbon Emissions Summary

### 7.3. Section 4.2.1 Action Table Summary

## 7.4. Further Guidance and Reference

Insert any references, links, further relevant info.

### 7.2.1 Scope 3 Emissions

#### Upstream emissions

Purchased goods and services (*i.e construction materials*)

Capital goods (*i.e fleet and plant & equipment*)

Fuel and energy related activities

Upstream transportation and distribution (*Well to Tank*)

Waste generated in operations

Business travel

Employee commuting/ Homeworking

Upstream leased assets (leasee)

#### Downstream stream emissions

Downstream transportation and distribution (Moving materials from GL warehouse to site)

Processing of sold products ( if an intermediary is used, unlikely for GL)

Use of sold products (*i.e Energy use from Waste pumping station equipment by Scottish Water*)

End-of-life treatment of sold products

(*i.e disposal of Waste pumping station equipment by Scottish Water, refurbished, recycled or landfill*)

Downstream leased assets (lessor)

Franchises/Investments

### 7.2.2 Carbon Offsetting Schemes

There are two broad categories of Carbon Offset Schemes which reflect the scheme's governance and rules to issue carbon credits. The first category is made up of the scheme managed by the UN under the UN Framework Convention on Climate Change (UNFCC), while the second category covers the various voluntary offset schemes. These are non-government run schemes with international and domestic programmes. Generally, they are less rigorous than the UNFCC scheme, but the leading schemes draw on its core principles, such as Plan Vivo, Gold Standard, and Woodland Carbon.

Ultimately a credible scheme will issue certified carbon credits from projects that represent real, permanent and additional reductions beyond business-as-usual to ensure environmental integrity.

Credible and legitimate schemes will have all the following attributes to some degree.

- Robust methodology with clear rules to ensure the environmental integrity of carbon credits
- Independent management of the scheme to avoid any conflicts of interest
- Inclusive so that the voice of all relevant stakeholders impacted by the project is heard
- Reliable tracking system that registers all carbon credits created and assigned to avoid double counting.
- All information, methodologies, tracking system, and carbon impacts are transparent and publicly available

In reality, there is a trade-off between these attributes with each scheme demonstrating more to less adherence to these attributes. Therefore, a degree of research is required, or a

consultation with a specialist before deciding on a scheme. See Appendix 2 for further information and resources.

#### Categories of Off Set Schemes

- United Nations Clean Development Mechanism under the UN Framework Convention on Climate Change (UNFCCC)
  - o This is the only scheme with fully independent intergovernmental oversight and is the blueprint for national carbon markets. The scheme has strict protocols and only invests in projects in developing countries
- Voluntary Offset Schemes
  - o Gold Standard: <https://registry.goldstandard.org/>
  - o Plan Vivo: <http://www.planvivo.org/>
  - o Verra's Verified Carbon: <https://verra.org/project/vcs-program/>
  - o Woodland Carbon Code

Further information can be found from the following website:

- Net Regs
  - o <https://www.netregs.org.uk/environmental-topics/carbon-reduction-and-efficiency/cutting-your-carbon-emissions/purchasing-carbon-offsets/>