DEVELOPING, DESIGNING& INVESTING IN A GREENER FUTURE



Roadmap to Net Zero



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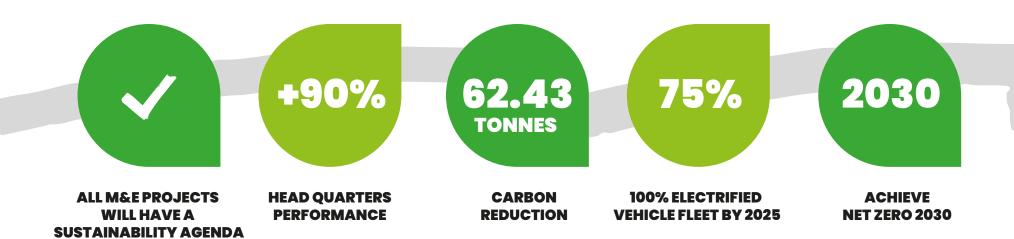
GW Power-Safe (GWPS) is a mechanical and electrical (M&E) contractor, based in Hull. GWPS's office spaces are located on 80 Scott Street, HU2 8AP. The building is currently used as an air-conditioned office space and storage facility for mechanical and electrical equipment.

GWPS occupies this whole building, with a total energy consumption of 15,004 kWh with 3.83 tonnes of carbon emissions. GWPS current fleet has a mixture of petrol, diesel, and electric vehicles with a combined 58.6 tonnes of carbon emissions.

This report will provide a Roadmap to Net Zero for GWPS, highlighting recommendations throughout for renewable energy technologies, building performance, construction method innovations, and staff engagement methods for achieving Net Zero.



SUSTAINABLE DEVELOPMENT GOALS



The low carbon roadmap provides guidance for reducing both our own, supply chain, and our customer's carbon emissions because the successful businesses of tomorrow will align themselves to Net Zero. This roadmap considers current scopes one, two, and three.

The outcome of this report highlights several key performance indicators and actions for internal employees at GWPS. These roles are defined as a 'Sustainability Champion' and 'Social Value Champion', who will deliver the roadmap to Net Zero for GW-Power Safe Ltd.

These goals offer realistic timescales for GWPS to decarbonise ready for 2030, achieving Operational Net Zero.

POLICY TO REDUCE CO2 EMISSION TO NET ZERO

Manufacturing and construction are high carbon-emitting industries, responsible for a considerable proportion of energy use and emissions globally.

Based only on the fuel and electricity used within the Yorkshire and Humber region, the combined emissions are 47 million tonnes of carbon per annum. GW Power-Safe recognise that the time to act is now, putting the planet, people, and social value at the forefront of everything we do.

We have already undertaken game-changing projects that will transform traditional methods of construction, by introducing new renewable energy technologies. Making a dedication to installing new renewable energy technologies in projects where possible.

GW-Power Safe is currently phasing out all fossil-fuel-based vehicles and is decarbonising its fleet with electric vehicles.

This modern method of M&E Contracting contributes to protecting the climate, planet, and our people.

Our next call to action is to focus on our wider scopes of one, two, and three emissions within our operations. These emissions are defined by summarising our current carbon footprint and energy model, our construction activity, vehicle fleet, process, and our defined goals to achieve Net Zero.

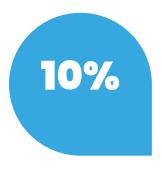
Current Emissions in Our Operations



CARBON FOOTPRINT



SOLAR PV GENERATION



VEHICLE FLEET 10% ELECTRIFIED



ELECTRICAL CONSUMPTION



FOSSIL-FUELS

(Scope 1 & 2)

GWPS will ensure that where required funding to reduce carbon emissions will be provided.

Training for all employees to assist and or appreciate climate change action will be provided, to reduce our overall carbon footprint.

OUR SUSTAINABLE DEVELOPMENT GOALS

At GW-Power Safe, we recognise the importance of playing our part in sustainability and are advocates for climate change.

As a leading mechanical and electrical contractor, we can play our part by reducing carbon emissions on our projects, reducing our waste content, using zero harmful chemicals, and reducing our travel emissions.

We can also support our customers to reduce carbon emissions over the whole life of their M&E projects, particularly where we have M&E design responsibilities. We recognise the importance to construct sustainably.

We are focused on creating low-carbon energy solutions through the installation of renewable energy technologies across the GWPS workstream portfolio.

GW-Power Safe aligns with the United Nations Sustainability Goals. Each ambition is made up of short and long-term targets, to achieve Net Zero by 2030. We will regularly review our performance for our goals, and drive for improvement when necessary. We will also report our progress regularly as part of our annual Sustainable Development Review.

The UN Sustainable Development Goals have provided a framework for us to align our actions and meet the needs of future generations.

Net Zero Buildings









Social Value









Green Living









Source: United Nations Sustainability Goals

NET ZERO BUILDINGS

At GW Power-Safe we recognise the importance of achieving a Net Zero building, offering a sustainable energy source with zero operational carbon.

In addition to achieving Net Zero, all future growth of the business will align to achieving Net Zero operational carbon. A conscious effort is placed on developing/delivering projects with sustainability in mind.

Our ambition is to have our operational headquarters achieve Net Zero by 2030.

Why is this important? Delivering Net Zero Buildings will elevate GWPS above our competition and lead the way toward climate change within our sector.

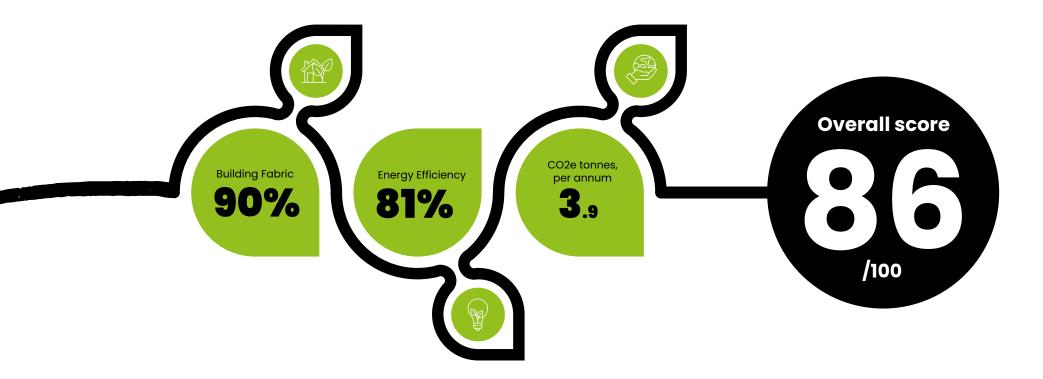
We will work with our customers to make sustainable project choices where possible and offset any remaining carbon as reasonably practicable.

Maximising renewable energy generation in daily operations and manufacturing processes, thus enabling our projects to be net zero carbon in operation.

To begin our journey to Net Zero, we must understand our current building performance, energy efficiency, and carbon footprint.

The following sections define our current, desired, and future state by introducing new renewable energy technologies to achieve Net Zero.

CURRENT PERFORMANCE



The above visuals provide a summary of the current performance of GW-Power Safe's office facility. This data provides an assessment of the building fabric, energy efficiency, carbon footprint, and overall building score. The above visuals provide a summary of GWPS's office space's current performance. As the building is of modern construction, the performance of the building is rated highly on the overall performance score.

CURRENT CONSUMPTION & EMISSIONS

The below data has mapped the consumption for carbon emissions and the percentage split of energy used, typically at GWPS's office facility.

0.0%	0.0
.0 100.0%	3.84
9.0 100.0%	3.84
	.0 100.0%

Units B & C combined water load, per annum. (Estimated at 99 m3, per month)

Energy Type	Consumption	Consumption	CO2e Emissions
	(m3)	%	(tonnes)
Water	158.40	100%	0.06

Currently, 95% of the water is diverted to the main drainage. This is as expected for handwashing, toilet flushing regime, and natural rainwater.

DECARBONISATION TECHNOLOGIES

As energy technology advances, the opportunity to introduce low-carbon heating systems becomes more viable. Whilst this traditional plant room consists of a common low-loss header array there are retrofits available to further decarbonize heat systems.

GWPS recognize the importance of installing low carbon heating systems in varying technologies such as Heat Pumps, Solar PV, LV Battery Storage, and Thermal Battery Storage.

Whilst all opportunities to use these technologies may not be present, as part of our net zero journey GWPS will monitor and look for opportunities to introduce these decarbonization technologies in the future. GWPS technology topic areas will explore the following, but are not limited to technologies to aid in their journey to Net Zero.

Air Sourced Heat Pumps

A heat pump uses ambient temperature sources, pushed through a heat rejection circuit to create heat energy. Heat pumps come in varying styles such as air, ground, or water, working by transferring energy into a refrigeration circuit.

Air-sourced heat pumps use ambient air conditions, pushing across refrigerant circuits to create heat energy for consumer use. Co2 heat pumps work the same way, by transferring thermal energy but using natural resources to do so. By using these technologies creates an environmentally friendly method of heating spaces, with a Global Warming Potential of Zero.

Building Fabric Improvements

Adopting a fabric-first approach will aid decarbonising the building by improving thermal performance. These improvements can be but are not limited to, various applications of insulation, in the roof, walls, and floor.

In addition, upgrading windows, increasing air tightness, and offering additional solar gains to condition spaces also prove viable options.

DECARBONISATION TECHNOLOGIES

Pipework Insulation

More rudimental technology but often overlooked is the use of good insulation for distribution pipework. Insulating all pipework across your building can increase your building's energy performance vastly, with further reduction in overall energy costs as a result.

Furthermore, by upgrading pipework insulation will aid in the completion of achieving net zero, by reducing the overall thermal demand of the building.

Rainwater Harvesting

Rainwater harvesting (RHW) is the collection and storage of rain, local to a building. This recovered rainwater is collected from roof spaces and redirected to storage tanks, pits, wells, and reservoirs.

For a manufacturing facility, this water can often be re-introduced into the manufacturing process and or utilised within toilet flushing regimes, etc. Whilst this technology is available, the CAPEX associated with RHW can often outweigh the costs of recovery.

Whilst this technology currently does not align with GWPS's journey to net zero, it will be reviewed throughout.

Solar Photovoltaic (PV) Panels

Solar PV has been around for years and has more recently made advancements in the efficiency of capturing the sun's energy to then convert it to electrical energy. Solar PV panels are a viable opportunity to invest in, take ownership of your energy, and have grid independence. More recent times have emphasised the use of carports, introducing shelters with solar PV on to further generate electricity for business manufacturing activities.

GWPS recognise the importance to generate as much energy as possible, to offset the running costs of printers and general office spaces. As part of our Net Zero journey, we are committed to taking all provisions possible to generate as much renewable energy onsite as reasonably practicable.

Lithium Batteries

Lithium Batteries offer the opportunity to store any additional electrical energy generated through solar PV, that cannot be used straight away during daily operations.

Battery storage gives further independence from the grid and offers the consumer cheap electricity to complete daily activities, further keeping run costs to a minimum.

DECARBONISATION TECHNOLOGIES

Thermal Batteries

Thermal batteries offer the storage of heat, and charge in low-peak demands and or overnight using low-cost electricity. The battery uses a phase change material which melts as it absorbs thermal energy during the night, and then when the heat is required, the material freezes and releases the heat into the system.

Whilst this technology is costly, it sometimes becomes a viable option with large consumption of electricity and or heat energy.

Thermal Store

A thermal store is recommended with the use of heat pumps to provide a constant load output for the heat pump, and to prevent any fluctuations in demand, reducing the efficiency of the heat pump. Heat pumps work best when they are running for a prolonged period, unlike gas which can regulate itself quickly to the heat demand.

The thermal store acts as a buffer between the system heat demand and the heat pump. Overnight the heat pump would heat the thermal store, so they act as the heat store. This allows the heat pump to run most efficiently as it is not constantly trying to increase or decrease its output.

Innovative Control Strategies

As part of these Low Carbon Heating Solutions, it proves beneficial to introduce a new control strategy.

Upgrading a control strategy leads to significant cost savings, and optimization of air-sourced heat pumps, integrated with the identified technologies.



FUTURE PERFORMANCE



The below visuals provide a summary of the future performance of GW-Power Safe's office spaces.

FUTURE PERFORMANCE

This data provides an assessment of the building fabric, energy efficiency, carbon footprint, and overall building score. The data used is based on the use of the following technologies:



• INNOVATIVE CONTROL STRATEGIES

"This future performance is focused on the short-term goals of GW-Power Safe, to improve performance and carbon savings."

Installing Solar PV on the GW-Power site will contribute to carbon savings, by generating its own energy onsite. The solar PV generated onsite will be balanced against the peak energy loads for the office space.

The above visuals provide a summary of the GWPS's desired state for their office spaces, creating a Net Zero Energy Performance.

As the building is of modern construction, the performance of the building is rated highly, resulting in low risk surrounding heat losses.



FUTURE EMISSIONS & SAVINGS

The below data has mapped the future consumption costs, monetary savings, and carbon savings.

Future Energy & Cost Savings		Carbon Savings Per Annum	
Gas Savings	-		
Heating Load Costs (Electricity)	-	4.90	
Onsite Electrical Generation Savings	£5,950.46		
Total Savings Per Annum,	£5,950.46		

^{*}Project Tariff rate £56.2 p/kWh (Electricity) // 34.22 p/kWh (Gas)*

GWPS's office space combined water load will stay the same, as it does not prove viable to introduce any rainwater harvesting solutions, currently. (Estimated at 13.2 m3, per month)

Energy Type	Consumption	Consumption	CO2e Emissions
	(m3)	%	(tonnes)
Water	158.40	100%	0.06

The rainwater and wastewater will continue to divert to the mains drainage to discharge all contaminated, dirty water. However, we will continue to monitor the opportunity to install rainwater harvesting for future use alongside all other defined low-carbon systems.

OUR NET ZERO BUILDING TARGETS



We will use Zero Fossil Fuels past 2025



We will achieve Net Zero by 2025



We will save 4.9 Carbon Tonnes, Per Annum.



We will generate all electricity energy onsite



We will install electrical vehicle car ports on all sites

GREEN LIVING

At GW-Power Safe, we are dedicated to playing our part in building a better planet for future generations. With the world population set to rise by 1.2 billion in the next ten years, the time to act is now to adopt green living and use sustainable products where possible.

We are rethinking our approach to our daily operations, reviewing how we maximise our resource efficiency and enhance the sustainability of our products. As a leader in our marketplace, we believe we can play our part in creating a better planet for future generations.

Why is this important? Becoming a zero-carbon company without any offsetting will not only protect our climate but our future generations. We are dedicated to achieving Net Zero by leading our market and supply chain to become sustainable.

Becoming a zero-carbon company is crucial because unless we radically reduce our direct contribution to climate change, we will all experience dramatic changes in our lives. We have been successful in tackling our office carbon emissions, operating with zero fossil fuels. However, the next challenge is for us to address our energy usage, vehicle fleet, and diversion of waste to landfill.

Our future ambition is to have zero direct emission from our daily operations, by eliminating all fossil fuels, moving to a 100% electric fleet, and continuing to adopt innovative manufacturing methods with emphasis placed on waste reduction.

Reducing and or eliminating our waste will make us more efficient in manufacturing, whilst also increasing the consumption of natural resources. Zero avoidable waste means preventing any waste generated through a project's lifecycle. An emphasis is placed on engaging all stakeholders to reduce waste and reuse or recycle products, components, and structures.

In addition to the above, a focus is required on our staff engagement and indirect carbon emissions. Whilst our Green Living ethos is fundamental to our success, it will prove beneficial to engage all staff and team members.

Because of this, we encourage where possible, car sharing for commuting, biking to work, and or using public transport. Whilst we are not forceful, we emphasise the importance to our team to become sustainable and champion the culture of Green Living.

OUR GREEN LIVING TARGETS



All manufacturing sites will be fossil-free fuel



We will have a 100% electric fleet



We will demonstrate our leadership for our sector, offering transparency in all our carbon emissions reporting



We will not use harmful environmental chemicals in all construction activity



All our offices will be zero-carbon in operation



We will eliminate all avoidable waste in our offices and construction sites



Where possible all construction waste products will be seperated, recycled and or re-used.



We will generate renewable electricity for our own use



We will reduce and or re-use any waste during the installation of our M&E contracts, with any non-hazardous unavoidable waste will be diverted from the landfill



We will host internal training to promote & educate methods of Green Living

ECONOMIC GROWTH

At GW Power-Safe we emphasise the important issues for economic growth, social prosperity, and sustainable development. Ensuring the future of GWPS will require championing a sustainable growth model, contributing to the economic performance of our local Yorkshire Region.

In addition to the above, we will actively contribute to environmental and social performance by adopting our Road Map to Net Zero strategy, consistently reviewing, and aligning GWPS's growth model to our economic sustainability ambitions detailed throughout.

Why is this on our agenda? At GWPS we recognise that we operate within a competitive market however, we champion the culture to enhance and grow our economy with a sustainable agenda.

We provide quality educated partnering with local education providers Hull and Leeds college. Using local education providers enables GWPS to enhance its performance through the offering of decent work for young professionals.

Our ambition is to deliver high-quality education, upskilling local workforces to actively contribute to sustainable economic growth models. By employing apprentices and delivering them in partnership with local education providers.

The synergy between issues of economic growth, social prosperity, and sustainable development enabled GWPS to achieve and perform in areas of sustainable competitiveness.

To deliver this we are currently delivering seven apprenticeships in partnership with local education providers, specialising in Mechanical, Electrical, and Air Conditioning installation, operation, and maintenance services.

In addition to the above, our future partnership goals are to deliver a Renewable Energy Installation arm, offering a further avenue of quality education.

GWPS's unique offering contributes toward smart innovations, education, training, and lifelong learning.

OUR ECONOMIC GROWTH



GW-Power champion economic growth, social prosperity, and sustainable developments



We will deliver +7 apprentices in specialist trades



We will create +10 new roles, delivering a sustainable agenda



Our unique offering contributes toward smart innovations, education, training, and lifelong learning



Where possible we will support local initiatives for economic and sustainable growth



We will host internal training to promote lifelong learning and development



We are partnered with local educational providers



We champion the culture to enhance and grow our economy with a sustainable agenda



Our partnerships deliver decent work and economic growth

SOCIAL VALU

One of our many outcomes of becoming Net Zero is to maximise our ability to do good, not only in climate change but in social value. We are active champions of social equality, breaking down barriers and giving access to good careers.

Why is this important? Supporting people who face significant barriers to being in, or on the path to having a good career will be essential for the UK's economic growth.

As every individual is unique and every community is different, we work closely with our clients to add social value where possible. By breaking down barriers and partnering with local organisations that share our passion for equality will deliver the best outcomes.

As industry leaders within our sector, we champion the cultural shift of social equality and support other businesses and communities to prosper.

We will also make social value a consideration in every decision we make, ranging from how we support our own people, our material considerations, make climate-friendly choices where possible, and deliver business operations through a 'social value' mindset.

In addition, we will champion the culture of challenging the norm and flagging any ethical considerations. As part of this value stream, we will champion known schemes such as biking to work, car-sharing and the use of public transport.

Our people are our passion, and we recognise the importance of our people playing their part. We will train and upskill our people to maintain energy savings and climate friendly mindset in all business operations.

By adopting our culture to add social value in varying ways will prove fundamental to GWPS's success on its journey to Net Zero.

OURSOCIAL VALUETARGETS



We will collaborate with like-minded businesses to deliver social value impact



We will appoint a social value champion, to support our ambitions



100% of social value delivery will be focused on local communities



We will support people who face significant cultural barriers



We and all our supply chain partners will pay the Real Living Wage



We will audit all our internal policies and procedures, ensuring added social value



All opportunities to travel sustainably will be delivered.



We will ensure that all our manufacturing sites are free from modern slavery

ROAD MAP TO NET ZERO

GW-Power Safes Road Map to Net Zero will be an evolving and fluid process where that adapts to GWPS's growth plans and overall success. To summarise this report, we have provided a breakdown of each category summarising the report.

This road map to net zero should be reviewed and revised yearly, tracking alignment and commission outcome goals. The success of GWPS's Net Zero strategy will be fundamental to appointing internal actions that COMMISSION are followed through and commissioned. **FUNDING PROCURE & AFTERCARE CONSTRUCTION** DATA COLLECTION **SUSTAINABLE DESIGN** STARTHERE **DECARBONISATION STRATEGY**

TOGETHER WE WILL...



Work closely with our supply chain, to introduce climate-friendly procedures



Break down barriers of social inequality



Deliver our Net Zero Strategy by 2030



Develop new products and services which tackle our customers challenges directly



Use zero harmful environmental chemicals during our manufacturing processes



Help our partners to become low-carbon consumers



Where possible divert waste from going to landfill



Maintain our leadership position in our sector, reporting on all social/ethical matters



Offer complete transparency in all carbon emission reporting



Embrace cultural change and encourage our people to add value through their insights



Delivery social value to our local community

Adopting an "All in this together" approach will enable the success of our Net Zero Strategy.

NET ZERO ACTION PLAN

This section will highlight all actions and the sequence of works to achieve Net Zero.

Net Zero Buildings

For GWPS to achieve Net Zero at the headquarters, the following actions are required:

- 1. Install solar PV on the roof space, to meet the electrical demand
- 2. Install LV car charging ports on site

To summarise the future building performance is displayed in the below visual, highlighting the progress/timeline of implementation.

CURRENT



0-5 YEARS



5-10 YEARS



GREEN LIVING

To implement the 'Green Living' strategy, the following actions are required:

- 1. Internally appoint a Sustainability Champion at GWPS
- 2. Commission a 100% electric fleet, subject to future EV capacities
- 3. Appoint an internal action with ideas to reduce plastic consumption, ref sustainability champion goals
- 4. Divert as much waste as reasonably practicable from landfill
- 5. Report all carbon reporting in social media posts with a 6-monthly update

SOCIAL VALUE

Whilst phasing in Social Value at GWPS poses the following challenges, requiring a focus on the following areas:

- 1. Internally appoint a Social Value Champion at GWPS
- 2. Audit all internal policies to align with this narrative
- Update all wider supply chain records, ensuring they adhere to the modern slavery act and pay the minimum wage requirements.
- 4. All opportunities to travel sustainably will be delivered

ECONOMIC GROWTH

GWPS will champion economic growth, social prosperity, and sustainable development. To do this the following actions are required:

- 1. Complete +7 specialist trade apprenticeships
- 2. Create +10 new roles, delivering a sustainable agenda
- 3. Contribute to local initiatives for economic and sustainable growth
- 4. Host a 6-monthly internal training session, promoting life-long learning and development

To deliver the Net Zero Action Plan, the following roles are to be internally appointed at GWPS to lead the action plan.

The role description and goals have been defined on the next page.

SUSTAINABILITY CHAMPION



GW Power-Safe's, Sustainability Champion will be responsible for the goal implementation of the Road Map to Net Zero.



They will co-ordinate and champion the culture defined within this road map, ensuring compliance throughout daily operations.

SUSTAINABILITY CHAMPION GOALS

2026-2030 2022-2024 2024-2026 Oversee the installation of Solar PV Achieve Net 7ero Maintain Net Zero Status on GWPS's roof space & LV Car charging ports Commission all reports on carbon Commission all reports on carbon footprint and waste reporting footprint and waste reporting Complete any funding applications available for decarbonisation 45% Flectrified Vehicle Fleet 100% Flectrified Vehicle Fleet Identify 5 construction process Reduce waste content by 20%, as Reduce waste content by 40%, as improvements, to reduce energy much as reasonably practicable much as reasonably practicable All supply chain members will be Divert all waste from going to landfill, Identify 5 waste reduction methods aligned to climate-friendly where reasonably practicable for daily operations procedures Eliminate all avoidable waste in our Support the Social Value Champion offices Work in partnership with local in delivering their targets contractors to deliver sustainable Commission all reports on carbon projects footprint and waste reporting Support the Social Value Champion Support the Social Value Champion in delivering their targets in delivering their targets

SOCIAL VALUE CHAMPION



GW Power-Safes, Social Value Champion will be responsible for delivering and engagement staff into our Net Zero Roadmap.



They will support the Sustainability Champion, aid in co-ordinating any projects, activities and support the wider team as required.

SUSTAINABILITY CHAMPION GOALS

2022-2024

Support all project activities of solar PV and car charging port installations

Ensure a high-quality apprenticeship has been delivered at GWPS

Deliver a 6-monthly internal training session, promoting life-long learning and development

Carry out +5 internal talks on sustainability/social value at GWPS

Ensure compliance to all policy procedures, such as modern slavery etc

Monitoring all social diversity barriers present and plan for future prevention

2024-2026

Achieve Net Zero

Ensure all opportunities to travel sustainably will be delivered

Deliver a 6-monthly internal training session, promoting life-long learning and development

Support our career opportunities present, with no bias or prejudice

Ensure all supply chain partners are paying the real living wage

Support the Sustainability Champion in delivering their targets

2026-2030

Maintain Net Zero Status

Continue to contribute to local initiatives for economic and sustainable growth

Deliver a 6-monthly internal training session, promoting life-long learning and development

Where possible, support any employees who wish to travel sustainably

Where possible, record economic growth from internal employees

Support the Sustainability
Champion in delivering their targets

FUNDING OPTIONS

The below funding options can be explored to aid in achieving Net Zero.

Solar PV – Power Purchase Agreement (PPA): Solar PV can be funded through a Power Purchase agreement, with a third party funding the installation and maintenance of the solar PV system for a defined period of time. The funder will recover their investment by selling the power generated from the PV system back to the site at an agreed rate. GW Power–Safe would be required to enter into a PPA contract that includes a lease over the roof space, an agreement to purchase electricity from the PV system, and an annual inflation mechanism. There are multiple providers of PPA funding solutions for Solar PV, that offer different rates and terms.

Solar PV / Air Source Heat Pumps – Lease / Asset finance – both recommended systems can be funding via asset finance or lease agreements. This would allow GW Power-Safe to benefit from the installation of the new systems and pay for the systems over an extended period, utilising some of the savings from the Solar PV system to pay for the measures. There are a number of options for lease agreements for energy assets including PV and heat pumps, with various rates of interest.