



CLADE

2025 Sustainability report

Certified



This company meets high standards of social and environmental impact.

Corporation

Welcome to our fifth annual sustainability report.



In previous years, we have navigated the highs and lows of operating within the UK's green economy, but this year has proven to be even more of a roller coaster. Having firmly established ourselves as a leader in the low-carbon heating industry and achieved B Corp certification last year, our focus has recently shifted toward embedding and stabilising Clade's position within the UK supply chain.

The global landscape is changing rapidly; geopolitical effects on energy prices and investor confidence have been more acute and volatile this year than at any time since the pandemic. We are witnessing a significant shift where energy security has joined carbon reduction as a primary market driver—a trend set to accelerate as the electrification of services on a resilient power grid provides the most secure path forward. While global events unfold, the urgency of the climate crisis has not been forgotten by individuals or businesses.

Despite a more challenging market characterized by lower PSDS spending and intensifying competition, we have continued to deliver landmark projects with exceptional partners, including two clubs for David Lloyd and a complex scheme in Woolwich. In the wider industry, R290 propane is rapidly becoming the refrigerant of choice, and it is encouraging to see the pace of change outrunning the regulatory push because people simply want to do the right thing. We are leading this transition from the front, having recently responded to the DEFRA consultation on F-gases to advocate for natural refrigerants and highlight the overlooked risks of PFAS pollution caused by HFOs.

Our product innovation this year directly addresses the practical barriers to this transition. We have launched the Birch ULN, which redefines acoustic performance to ensure that noise is no longer a cost-prohibitive barrier to project viability, and the Rowan 2, which provides essential climate adaptation by offering high-efficiency cooling alongside heating to tackle the increasing threat of building overheating.

→ Clade remains committed to innovating and leading the UK's heat pump sector with the technology and services required for a low-carbon, energy-secure future.

Clade is a B Corps certified UK-based company specialising in designing, manufacturing, installing, and maintaining natural refrigerant heating and refrigeration products.

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As an innovator and leading in our sector Clade is part of the booming UK green economy which is creating jobs and growth across the country.

Clade is a brand of Groupe Atlantic who are deeply invested in the UK and are showing their support through investment.

Sustainability is at the heart of Clade and is reflected in our governance structure.

Dean Frost, the MD, is responsible for the delivery of the sustainability strategy. He is supported by the board who ensure their respective areas of responsibility are fully aligned.

Reporting to the board is a sustainability committee. The sustainability committee is open to all staff and is responsible for this report, the targets and metrics and internal communications.

→ As part of becoming a B Corps, we updated our legal Articles of Association to reflect our commitment to having a material, positive impact on society and the environment, as well as the success of the company and its members. Further demonstrating our commitment to putting Planet over Profit and considering all of our stakeholders when making decisions.





The Shift Toward Energy Security

The global landscape is undergoing a rapid transformation. Geopolitical instability has triggered energy price volatility and supply chain disruptions more acute than any seen since the pandemic.

We are witnessing a pivotal shift: **energy security** has joined carbon reduction as a primary market driver. This trend is expected to accelerate over the coming years. Electrification, supported by a diverse and resilient power grid, represents the most secure path forward. Specifically, the electrification of heat is a “quick win”; the technology exists today, and the industry is rapidly scaling the necessary skills base to deliver it.

Market Drivers and Climate Commitment

While energy security is a priority, sustainability remains a core requirement for our customers. Public sector 2050 net-zero targets remain a firm anchor, and shifting individual behaviours continue to shape the demands of our commercial clients.

Despite global volatility, the urgency of the climate crisis has not receded. This year saw significant public engagement through campaigns such as “**The National Emergency Briefing**” and “**89% Project**” reinforcing that climate breakdown remains at the forefront of the public consciousness.

Regulatory Updates and Policy Gaps

This year marked a critical point in UK environmental policy:

F-Gas Consultation: In our response to DEFRA’s consultation on the future of F-gases, we asserted that there are no technical barriers to a rapid transition toward natural refrigerants. We were disappointed to see the consultation prioritize short-term transition costs over the long-term environmental opportunities and the significant risks of **PFAS pollution** associated with HFOs.

Public Sector Decarbonisation (PSDS): The PSDS remains a cornerstone of the commercial heat pump market. While we have a few years of funding remaining, significant work is needed to fully decarbonize the public estate. We await further government clarity on the long-term approach.

The Warmer Homes Plan: While domestic-focused, this plan confirms that the future of heat is centred on heat pump technology. However, we urgently require the publication of the **Future Homes and Future Buildings Standards**. These standards must be robust to ensure the UK achieves a low-carbon, energy-secure future.

“Working together for a greener and brighter future”

Foodbank Collection

In December, for the third year running, we collected for our local foodbank Leeds South and East who needed donations to be able to help families in need.



Clothing Bank

In October, we collected clothing to be donated to The Clothing Bank which is a charity built upon community spirit. The Clothing Bank collects unwanted clothing and donates it to those most in need. We collected 27 bags which the charity were very grateful for.



Laptop Collection

We use a third-party company to wipe and dispose of end-of-life IT equipment employing ethical recycling practices diverting 100% of goods collected from landfill.



Partnership with Leeds College of Building

We ended the year by committing to a partnership with Leeds College of Building to work with their Employment Officer to work together to source Apprentices from their college intake. **Watch this space for more details...**



Our aim is to achieve a reduction in our own carbon emissions and climate impact whilst supporting our customers in their own ambitions to achieve Net Zero. We aim to be Net Zero in scope 1 and 2 emissions by 2050. We have also taken steps to identify a baseline for the carbon emissions involved in manufacturing a heat pump. Actions taken to date are:

- Rooftop solar PV supplying power to the Technology Centre.
- A large heat pump has been installed to heat the factory portion of the technology centre, set to replace the gas heating system.
- Increased the use of electric vehicles across the fleet – currently 58%.
- Funding the planting of trees for each product sold.
- Recycling all wood packaging via Leeds Wood Recycling.
- Our general waste is sent to a provider that operates zero waste to landfill.

- We only use natural refrigerants in products we design.
- We work with customers to reduce the carbon footprint of their buildings, beyond heating and cooling.
- Reduction of steel by removing frames from refrigeration packs & heat pumps.

In March 2023, the UK government released its 2030 Strategic Framework for International Climate and Nature Action. This included:

- Commitment to accelerating global sectoral decarbonisation. The Kigali HFC phasedown target is an 85% reduction by 2036, having already phased down 55%. **Clade heat pumps & refrigeration systems use no HFC refrigerant, contributing to this goal.**
- Utilising UK expertise to foster international collaboration, knowledge sharing and research. **Clade heat pumps allow the use of less carbon intensive energy sources to produce heat.**

→ The UK Government's Heat Pump Investment Roadmap states that the country intends to be one of the largest markets for heat pumps in Europe. The roadmap also states that heating is responsible for over a third of carbon emissions in the country.



Commitments and targets (SDGs)

We have continued with the same Sustainable Development Goals (SDGs) that we identified as being relevant to us in previous years. These are as follows:

- 3 Good health & wellbeing
- 5 Gender equality
- 7 Affordable & clean energy
- 9 Industry, innovation and infrastructure
- 11 Sustainable cities & communities
- 12 Responsible consumption & production
- 13 Climate action

The following sections of the report entitled 'Our Impact' are categorised against these SDGs.



Social housing heated by Clade heat pumps

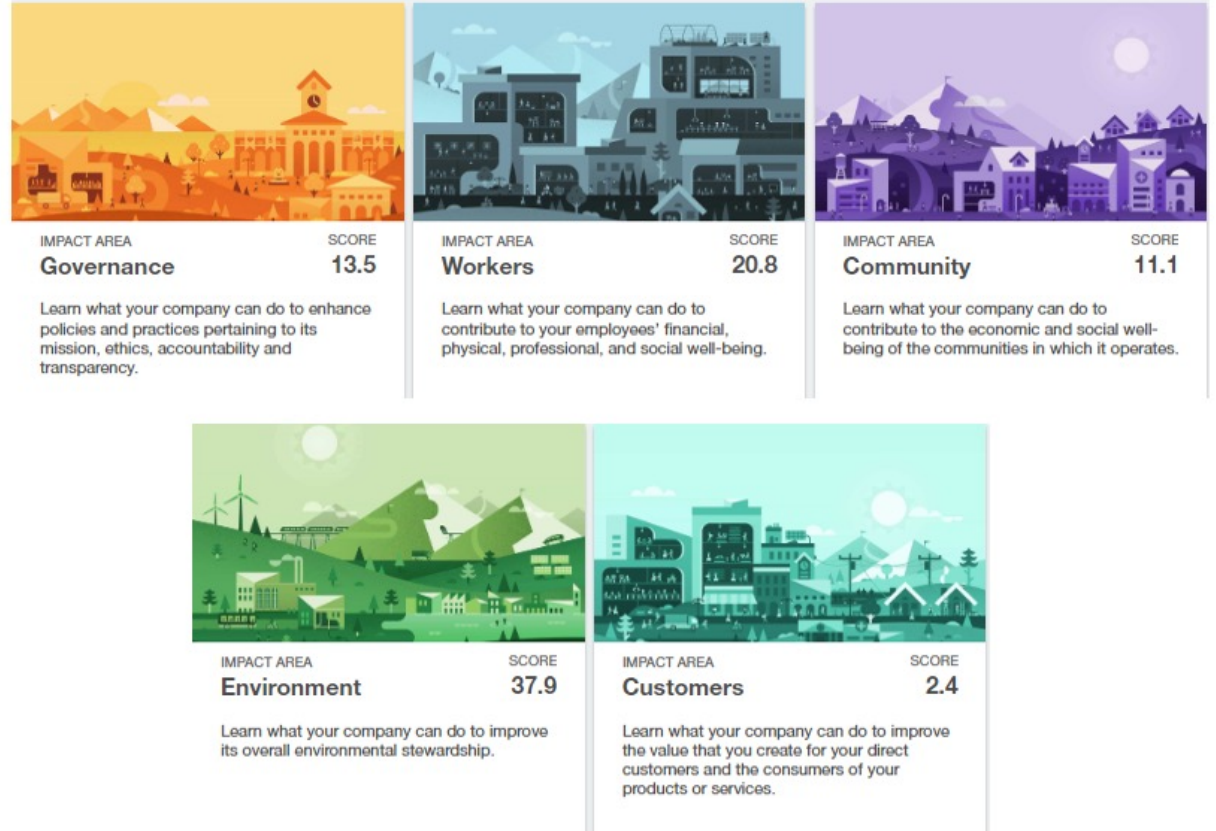
This report contains further information about our commitments and progress against these SDGs.

Future reports will build on this and may add or change reporting criteria as global sustainability reporting matures.

B-Corps

→ Following a comprehensive and detailed B Impact Assessment, we scored 86 points, surpassing the required threshold of 80. In addition, we updated our Articles of Association to formally integrate the values of the B Corps movement, embedding a stakeholder-centric approach into our business practices. This alignment ensures our commitment to social and environmental responsibility, setting us apart from traditional businesses.

The results of our B Impact Assessment are below which demonstrates where we scored highest and lowest. The latter being something that we are committed to improving in the coming months and years:



Customer Carbon Savings (SDG 7, 12, 13)

In 2025 we delivered products that are proposed to save over 2,000 tonnes of CO2 emissions per year. Below shows those savings based on the refrigerant used in our products:

2025	
Refrigerant	Carbon Saving Tonnes/Year
	Tonnes/Year
CO2	908.52
RS90	1,193.00
Total	2,101.52

Below is the same carbon savings but across each heat pump product sold in 2025:

2025	
Refrigerant	Carbon Saving Tonnes/Year
	Tonnes/Year
Aspen	210.82
Acer	621.30
Oak	62.50
Birch	368.40
Rowan	420.20
Elm	74.90
Maple	224.80
Larch	118.60
Total	2,101.52

The calculation has been done based on degree day analysis across the UK. Each unit is assumed to replace gas boilers. SCOP at design conditions. Equivalent figures based on EPA greenhouse gas equivalences calculator.

Equivalents	
481	Petrol powered cars driven for one year
34,112	Tree seedlings grown for 10 years



High GWP Refrigerant Removal (SDG 7, 12, 13)

What is GWP?

Global Warming Potential (GWP) is a measure of the relative global warming effects of different gases. It assigns a value to the amount of heat trapped by a certain mass of a gas relative to the amount of heat trapped by a similar mass of carbon dioxide over a specific period of time. Carbon dioxide was chosen by the Intergovernmental Panel on Climate Change (IPCC) as the reference gas and its GWP is taken as 1.

The leakage of refrigerant during the life of the product is inevitable through decommissioning or service and maintenance. Therefore, the use of high GWP refrigerants can be extremely harmful to the environment, **accounting for around 10% of global CO2 emissions** (according to the BBC). On average, **annual leakage rates are 10%** in a typical supermarket.

Projects

Based on the annual average leakage rate of 10% and the GWP of the refrigerants removed/added through refits, new stores, store closures, gas changes etc, our Projects department removed an estimated 735,881 kgs of Co2e in 2025.

The aim for any refrigerant removed is to reclaim, clean and use for redistribution. The aim is to utilise as much reclaim as possible to enhance circular economy and guarantee availability of product for the UK market given the continual quota cuts which have been in place since 2015. These cuts will continue to 2030 at which point high GWP gases will be a thing of the past.

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Customer Case Study (SDG 7, 12, 13)

David Lloyd Clubs – Harrogate

David Lloyd Clubs, Europe's leading premium health and wellness group, has replaced its gas boiler heating system at its Harrogate club with Clade's Rowan R290 commercial air source heat pumps for the ultimate low carbon heating system. The entire system has been designed, installed, commissioned and maintained by Clade and fully financed through our funding partner, which provides Heat-as-a-Service, eliminating the upfront capital investment and servicing costs.

The replacement of the gas boilers at David Lloyd Clubs Harrogate site with Clade natural refrigerant heat pumps has not only delivered a low carbon heating system that will meet their target of reducing 254 tonnes of carbon per year, as well as providing efficient reliable heating across the site, but it has all been achieved with minimal disruption on site. Clade engineers worked quietly around club operations, maintained a tidy environment at all times, and staged the process so that the gas boilers remained operational until the new system was fully commissioned.

David Lloyd
— CLUBS —



- **Heat Pumps:** 2 x Clade Rowan R290 air source heat pumps
- **Output:** 240kW each at 60°C flow temperature
- **Refrigerant:** R290 (Propane)
- **Controls:** PLC, cloud-connected, BACnet to BMS
- **Finance:** Heat-as-a-Service
- **Service Model:** Fully integrated design-to-aftercare delivery
- **Annual Carbon Saving:** 254 tonnes CO₂

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Customer Case Study (SDG 7, 12, 13)



Chilton Woods was the UK's first low-rise, low-density heat network in a suburban family home setting started delivering heat in 2025, and will supply up to 950 new homes, a primary school, a community centre and several shops across this rural low-density development in Suffolk. The Gas Transition Company (GTC) and Metropolitan are now constructing a further seven Community Heat Hubs that will supply over 9,500 homes once fully constructed. This model provides centralised heat generation using large heat pumps, electric boilers and thermal storage.

Chilton Woods – District Heating

The Government finally published the Warmer Homes Plan. District heating is very much seen as one of the biggest contributors to the decarbonisation of domestic heat and Chilton Woods is featured in the document as a leading example.

Clade provided a 600kWh Oak heat pump and at the beginning of 2026, the whole district heat network ran only using our heat pumps delivering 100% decarbonised heat to all the homes.

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Emissions Calculations (SDG 7, 12, 13)

Scopes & Descriptions	2025 – Metric tonnes CO2e	2024 – Metric tonnes CO2e	2025 vs 2024	2023 – Metric tonnes CO2e	2022 – Metric tonnes CO2e	2021 – Metric tonnes CO2e
Scope 1: Direct emissions from owned/controlled operations	0.31	0.37	-0.05	0.72	0.85	14.98
*Scope 2: Indirect emissions from the use of purchased electricity, steam, heating and cooling	80.73	96.90	-16.17	37.50	56.66	129.38
**Scope 3 emissions						
***Employee commute (fixed place of work) & business travel	127.87	112.17	15.70	52.92	42.17	29.05
Business travel (Engineers)	275.93	279.69	-3.76	280.34	277.50	483.49
Plant outbound deliveries	11.18	26.73	-15.55	22.91	11.30	14.46
Inbound deliveries	78.85	83.36	-4.51	55.38	56.12	0.00
Total Emissions	574.88	599.23	-24.34	449.77	671.36	671.36
****Trees Planted	120.17	118.00	2.17	58.67	75.50	75.50
Net Emissions	454.72	481.23	-26.51	391.10	595.86	595.86

*Includes an estimate for energy used by employees that work from home.

**These categories have been selected based on a level of materiality.

***This includes an estimate for subcontractors. It also includes an element of electricity mix supplied to the grid and any associated grid losses (relating to EVs).

****This is an estimate based on 724 trees planted in 2025.

Our waste partner does not send any waste to landfill, and we have continued partnering with Leeds Wood Recycling who transform our waste wood into interesting furniture etc.

We have calculated the impact of miles travelled from the deliveries of our biggest supplier. The data for this was not available in 2021. We will continue working with them and the rest of our supply chain to make these deliveries as efficient as possible.

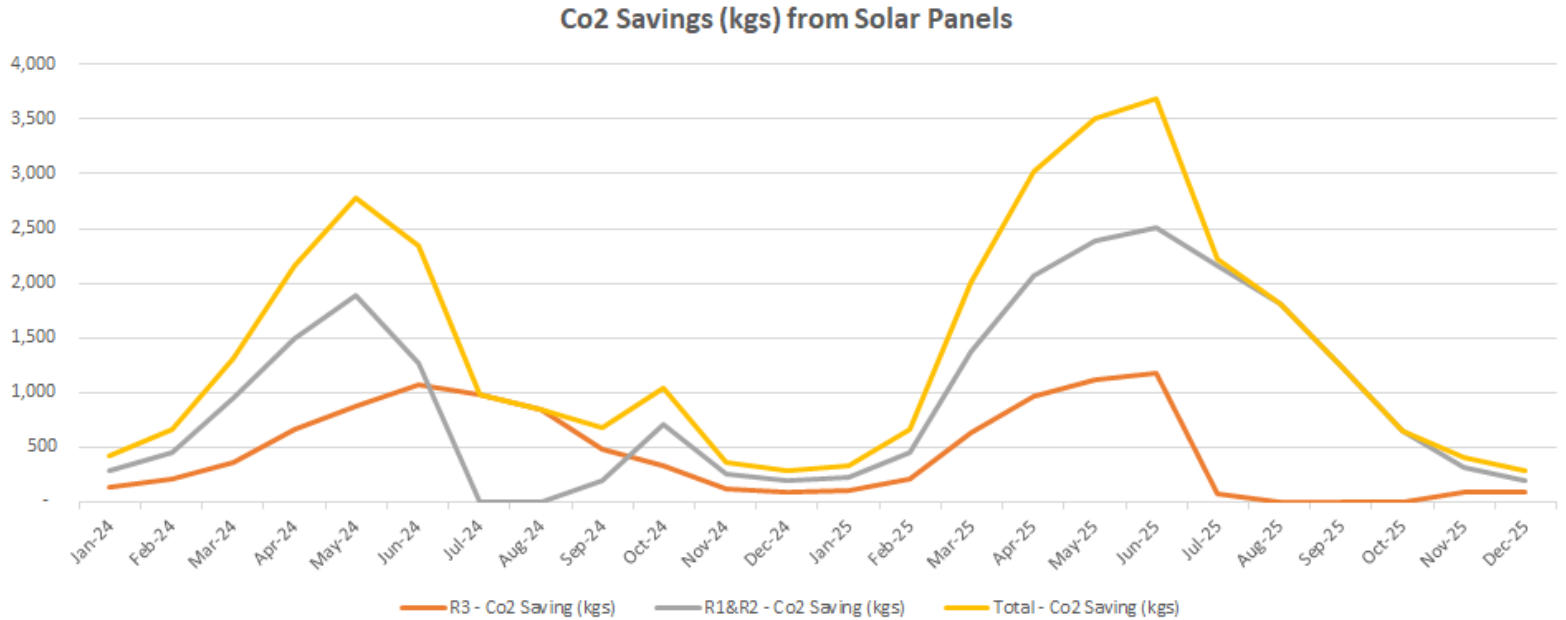
There was a 20% increase in the miles travelled in 2025 vs 2024. However, because of our increasing mix of EVs, the CO2e impact of this has been mitigated.

Solar (SDG 7, 9, 13)

The solar panel array of 137 kWp on the roof of our Technology Centre in Leeds has continued to be an excellent CO2 saving for us throughout the year and we hope to install more.

→ Since the installation in September 2021, we have saved a total 86,195 kgs of CO2.

The carbon saving of this installation for the last two years is demonstrated in the following graph:



New Innovations (SDG 7, 9, 12)



Product innovation is something that we take very seriously at Clade. 2025 has been no different.

We have increased product efficiency in the following areas:

- Birch 80kW + Elm 70kW now share the same housing which has increased the quantity of common parts,
- Birch 50kW + Elm 60kW now share the same housing which has increased the quantity of common parts,
- Rowan 80kW + Yew 70kW now share the same housing and frame which has increased the quantity of common parts.

Electrical componentry like isolators, control panels and inverters have been made standard across the product range instead of using individual components for different products.

This has resulted in the simplification of our supply chain and increased efficiency in Stores and on the Shopfloor.

We have also made material reductions in the following areas:

- Frames and housings across the range have been redesigned to use less metalwork,
- Housings have been redesigned to use cleaner steel such as galvanised and Magnelis steel,
- Some housings have been developed using GreenCoat instead of powder coating which is more eco-friendly because (typically used) petroleum-based oils are replaced with rapeseed oil,
- The introduction of our pipe bender on standard products means that we are using less fittings as well as less brazing material. The bent pipework also means that we are wasting less pipe because it is cut to the model rather than relying on manual measurements.

New Innovations (SDG 7, 9, 12)

This year, we further solidified our position at the forefront of the sector with the launch of two landmark products. Our R&D remains focused on solving the industry's most critical barriers: acoustic performance, serviceability, and the safe application of sustainable refrigerants.

Birch ULN: Redefining Acoustic Performance

Acoustic impact is often the “make or break” factor for heat pump installations. High noise levels can lead to planning hurdles, resident complaints, and expensive secondary mitigation measures that threaten project viability.

The **Birch ULN (Ultra-Low Noise)** sets a new industry benchmark. By minimising the sound profile at the source, it reduces the environmental impact on residents while significantly lowering overall project costs. We have made “quiet” accessible, ensuring that noise is no longer a barrier to decarbonization.

Rowan 2: Built for Climate Adaptation

As we experience increasingly frequent and intense heatwaves, our infrastructure must do more than just provide heat—it must provide resilience.

The **Rowan 2** is our answer to climate adaptation. By offering high-efficiency cooling alongside traditional heating, it directly addresses the growing challenge of building overheating. This dual-purpose capability ensures that our customers remain comfortable and protected, regardless of the season or the severity of the weather.

Both these projects offer market leading approach to the r290 flammability issues with no ATEX zone required. This offers easier and more flexible positioning of the heat pumps which makes more projects viable and reduces the costs of compliance.

Our new products have been designed with serviceability in mind, low fan decks, and accessible components feature along with a host of minor but important adaptations to make service much easier and cheaper, contributing to reducing the cost of decarbonisation.



A Personal One (SDG 13)

Taking sustainability personally

At Clade, sustainability and community engagement is not just a professional commitment, but a core value that permeates our personal lives as well. In light of this, we wanted to recognise Lewis Davy (our Aftercare Manager) for his commitment to coaching the Leigh Miners Rangers Rugby League junior team.

The Leigh Miners Rangers are the biggest rugby league club in the UK, which was recently confirmed by the RFL. They have seen incredible growth in recent years and were awarded the prestigious King's Award for Voluntary Service in 2024, recognising the immense contribution of their volunteers in supporting the community and local rugby league. This honour highlights the club's role in nurturing young talent and strengthening the sport in the Leigh area. Leigh Miners Academy are extremely proud to receive this honour, especially as being the first ever junior rugby league club to achieve this.

The club is undertaking a major expansion of its facilities, including new buildings and a transition to low-carbon energy systems. Planned upgrades include heat pumps, solar PV, and battery storage, positioning Leigh Miners Rangers as a flagship community sports facility for energy efficiency and carbon reduction. The project has the backing

of Wigan Council, and local MP Jo Platt, and is attracting support from regional businesses and stakeholders.

→ Clade plan to support the club's growth and future ambitions but the specifics are yet to be determined. Watch out for more detail on this in the 2026 Sustainability Report.



Positive Partnerships (SDG 3, 5, 11)

Groupe Atlantic (GA)

As our journey continues with Groupe Atlantic now being our majority shareholder, we continue to see opportunities for growth and innovation.

Paloma Rheem Holdings Co. Ltd. is set to acquire a majority stake in Groupe Atlantic, parent company of brands Ideal Heating, Gledhill and Hamworthy.

This partnership will strengthen GA's technological, financial, and manufacturing capabilities. For Paloma Rheem, GA supports its European strategy by strengthening European presence and helps the low-carbon transition.

Paloma Rheem are a Japanese-American global leader in HVAC markets, with strong expertise in heat pumps, electrification, water heaters and low-carbon solutions. The group operates in over 90 countries, with 41 industrial sites and 20 R&D centres, and benefits from stable, long-term family ownership.



Carbon Footprint Ltd

Tree planting to reduce our carbon emissions with Wendy Buckley and the team at Carbon Footprint continued in 2025. We planted a total of 724 trees (708 in 2024).



A tree can absorb as much as 21kgs of carbon dioxide per year and can sequester 907kgs of carbon dioxide by the time it reaches 40 years old. We plant trees in the Greater Leeds area so that we can give back to the local community.

Leeds Wood Recycling

We have continued working with Leeds Wood Recycling. They are an ethical, cost effective and convenient social enterprise in West Yorkshire that diverts wood from going to landfill.



We were their first customer six years ago, and since then we've also supported them with Health and Safety consultation services. We have also worked collaboratively to help additional local charities by creating outdoor furniture from the waste wood that we have collected from our operations.



Future Ambitions and Summary

We have made significant progress over the last 12 months but recognise that there is much more to do. Therefore, we commit to the following activities and will continue to measure and report progress in subsequent reports:

- To reach Net Zero by 2050,
- Evolve and develop our understanding/reporting of our scope 3 carbon emissions. We plan to do this by working with our supply chain to better understand the footprint of the products that we manufacture,
- To prevent pollution, minimise waste and recycle, repurpose materials,
- To work to ISO 14001:2015,
- Transition to an all-electric fleet,
- Become paperless within the business and when issuing documents to customers,
- Minimising waste in our manufacturing processes by improving and developing the accuracy of all bill of materials',
- Continue to improve our B Corps score.

MEETING THE CHALLENGE HEAD ON

#NETZEROBY2050

Future Ambitions

→ Setting a 1.5°C SBTi net zero target will be the focus for our future carbon reduction.

- Further carbon reductions from areas such as our vehicle fleet are possible.
- Implement continuous improvements in our products efficiency on site to improve their carbon reductions for our customers.
- Engage more with our local supply chain to build resilience and depth at a time of global turmoil.
- Focus on staff engagement to bring our teams on the journey with us.

Clade is committed to a low carbon future in both our operations and our products, as this report highlights, this has never been so important. As we look to the future, our aim is to set our own ambitious carbon reduction targets and to follow a strong framework. Having achieved a 141 tonne reduction (or 24%) over the past 5 years we are on a pathway that aligns with a 1.5C SBTi net zero target. Over the next period we will work towards adopting this target.

Whilst the future is uncertain, we can be sure that climate and social action are vital to a long-term secure future for Clade, our staff and our customers.



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