



CLADE

SUSTAINABILITY REPORT //

2021



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INTRODUCTION //



Over the next 5 years, the UK will see a dramatic increase in the drive to Net Zero in the built environment.

Both refrigeration and heating are vital services impacting food and national energy security as well as comfort and hygiene. The heat pump market in particular is expected to expand rapidly as we move to fulfil our national Net Zero pledge.

Clade has been at the forefront of the natural refrigerant transition for many years and remains committed to this.

As a business, Clade is committed to its own Net Zero ambition and this sustainability report sets out our current position and future plans to achieve Net Zero. As a growing business which is transitioning sectors, operating models and growing it is challenging to set meaningful metrics because the base line is not aligned with our future.

Therefore, this report should be read as the start point of a sustainability reporting journey which will expand and improve over time.



— ABOUT CLADE //

Clade is an industrial engineering and technology company which manufactures, installs and connects heating and cooling assets to energy systems across the built environment.

With over 30 years of experience of working for blue chip customers, Clade is leading the energy transformation in heating and cooling using cutting edge natural refrigerants.

Clade has product design, manufacturing, installation and aftercare services which can deliver turnkey projects at any commercial or industrial scale.





ABOUT CLADE //

Purpose and Values

Clade is committed to a sustainable future both in our products and in the way we operate our business.

Our stated purpose is to lead the transformation in heating and cooling. We will do this by manufacturing the most efficient natural refrigerant heat pumps and refrigeration plant and by transforming the way we work.

Our values derive from our purpose and are:

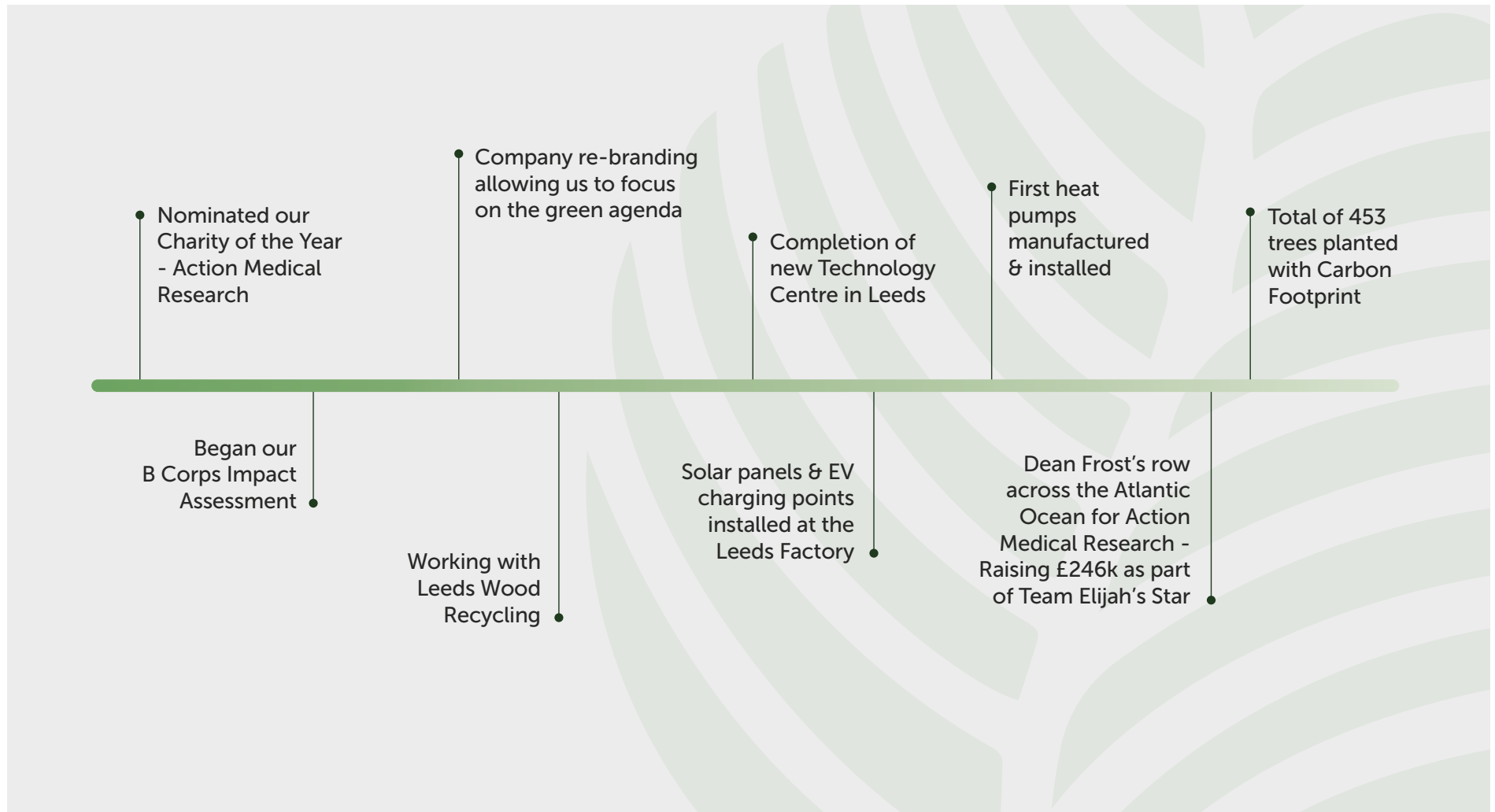
- Committed to the use of natural refrigerant in our products
- Conduct business with the highest standards of integrity
- Always present the most sustainable solution to our customers
- Treat everyone fairly and with respect
- Reduce our climate impact





ABOUT CLADE //

Highlights





ABOUT CLADE //

Governance

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, chaired by Tim Reynolds. The sustainability committee is open to all staff and is responsible for this report, the targets and metrics and internal communications.





MARKET VIEW //

The market for heat pumps is expanding, rapidly driven by a number of factors including; ESG, cost of heat, grid flexibility. Energy security concerns will further drive the transition from fossil fuels for heating to electrification of heat.

The market for refrigeration is growing incrementally, chilling and cooling applications are expected to increase as the climate warms and the effects of urban heat islands increase. There are still a large number of refrigeration systems with high GWP refrigerants which will need to be replaced with natural refrigerants, this is likely to happen as systems are naturally renewed.

The market for digital services that support cost reduction and grid flexibility is expanding rapidly as the data driven approach takes hold. The digitisation of the power grid will demand more digitisation at connected asset level, this is both for efficiency, grid stability and security.

Natural refrigerants have a low GWP*, do not require complex manufacturing processes and do not leave toxic waste for disposal at the end of their working life.

The vast global expansion of both heat pumps and cooling without natural refrigerants is a major catastrophe waiting to happen. The legacy of millions of tons of high GWP toxic chemicals will be expensive to deal with and is a major risk to our climate. Natural refrigerants also have a performance advantage over synthetics.

As energy becomes more expensive and prices are increasingly volatile the efficient operation of heat pumps and refrigeration is a vital component of success. Not only for customers but also nationally and globally. Clade is committed to high performance and will deliver this through several routes; using the best refrigerant for the job, continuous improvement of control algorithms, access to grid flexibility services and condition-based service.

*Global Warming Potential – an equivalent multiple to the effect of CO₂.
e.g. CO₂=1 (kg CO₂), r23=18,400 (kg CO₂)





SUSTAINABILITY //

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.

Actions taken today are:

- Rooftop solar PV supplying power to the Technology Centre
- Heat pumps for heating in the Technology Centre
- Increasing use of electric vehicles across the fleet
- Funding the planting of trees for each product sold
- Recycling all wood packaging via Leeds Wood Recycling

We have made significant progress over the past few years but recognise that there is much more to do. Therefore we commit to the following activities and will measure and report progress in subsequent reports.

- To measure and improve our carbon footprint and to improve the accuracy of reporting over time. The first carbon footprint measurement is contained in this report and will become a baseline for improvement.
- To reach Net Zero by 2050
- To prevent pollution, minimise waste & recycle, repurpose materials
- To stringently follow our environmental management system ISO 14001: 2015 and to report on progress
- Only use natural refrigerants in our products and promote their use as the most sustainable option
- Transition to electric vehicles

Customer Requirements

As of 4th November 2021, 60 of the UK's FTSE100 companies committed to Net Zero by 2050. Whilst this is not a requirement for SMEs at present. However, we are aware that some of our customers are already making similar commitments and as part of their supply chain it is important for us to engage with the sustainability ambitions of our customers. This report is the first for Clade in which we will not only set out our own Net Zero plan but also how we can support our customers with theirs.





SUSTAINABILITY //

Commitments & Targets (SDGs)

Consistency and common reporting are vital to any sustainability reporting. The Clade sustainability leadership team have reviewed the available reporting formats, standards and options currently available. For our scale of business and the markets we operate in, the UN SDG's are the most appropriate for Clade to consider.

We have selected the following SDGs for this report:

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

This report contains further information about our commitments and progress against these SDGs including the results of our staff survey.

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





ENVIRONMENTAL IMPACT (SDG 7, 9, 12) //

Carbon impacts of our products and services

Working closely with supply chain partners and customers alike, Clade Engineering's R&D team has developed a range of low-cost natural refrigeration solutions using both CO₂ and Hydrocarbon. The range being suitable for retail, commercial and industrial applications. The business recognises that its R&D solutions must be cost effective and return on investment periods must be attractive to customers in order to encourage the take up of green, carbon saving technology.

Heat pumps require the use of high grade metals and components to operate safely at high pressures and temperatures. Current engineering standards, which we're required to adhere to under PED, set out the grades of materials such as copper pipe that must be used. This limits our short term ability to include more recycled content. However, improvements in data and analytics that are being implemented now will enable an assessment of both material grades and quantities.

We design for a long service life and the majority of our product, being high quality metal is recyclable.

Our Leeds factory also works closely with Leeds Wood Recycling, and Clade has also planted over 450 trees in 2021.

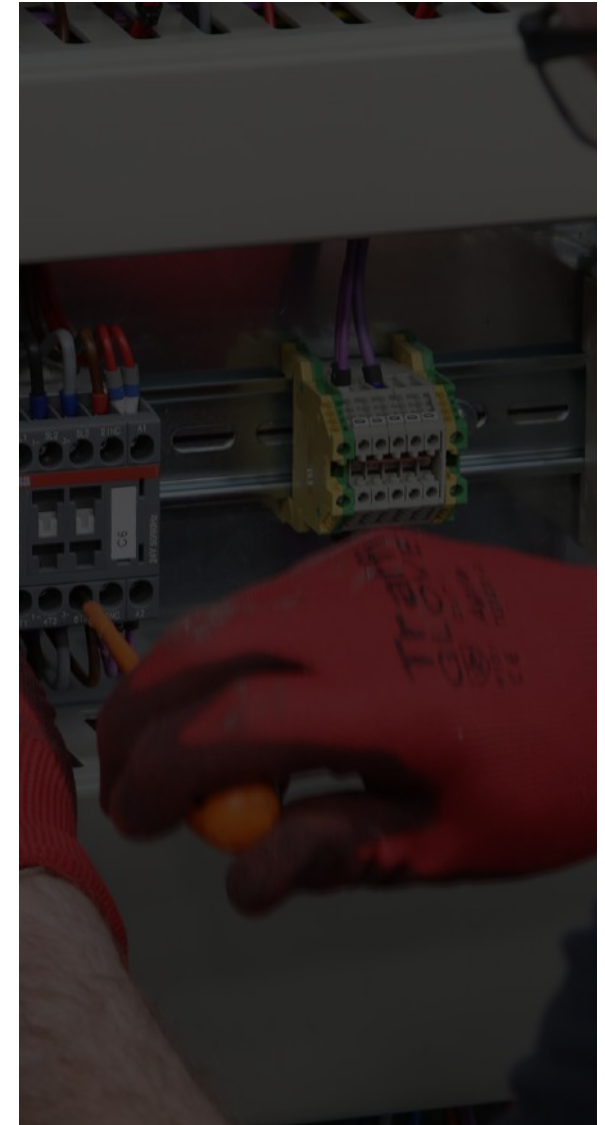
Installation and site services

One of the largest impacts of delivering site services (apart from the materials used) is the travel and associated activities.

Initiatives in this areas include; minimising mileage, transition to EVs, first time fix and remote operations wherever possible. In the future we expect to work with hotels and suppliers to reduce impact.

Carbon impacts of our supply chain

It is our ambition to conduct a carbon study of our products. The results of which will enable us to work with our designers and supply chain to reduce the carbon impact of our products.





SOCIAL IMPACT (SDG 3, 5, 11) //

Over the next 5 years, the UK will see a dramatic increase in the heat pump market as we move to fulfil our national Net Zero pledge. Clade is planning to expand all our operations in line with the market.

To meet this demand, we expect to create 30 jobs next year and over 300 new jobs in the following 4 years. Many more will be created in our supply chain for materials and components. These jobs include skilled trades, digital and professional roles with many opportunities for apprentices and career progression.



Clade are committed to a diverse and inclusive workforce as well as our own carbon reduction commitments.

- We shall encourage dialogue with local communities for mutual benefit.
- We shall work with local schools, colleges and universities to assist young people in choosing their future careers, being an advocate for our industry.
- We shall support and encourage our employees to help local community organisations and activities in our region, particularly employee chosen charities.
- We shall support the development of our business through training courses and using our facilities for all our business associates to hold seminars and industry meetings.
- We operate an equal opportunities policy for all present and potential future employees and will offer our employees clear and fair terms of employment and provide resources to enable their continual development.
- We shall maintain a clear and fair employee remuneration policy and shall maintain forums for employee consultation and business involvement
- We provide safeguards to ensure that all employees of whatever nationality, colour, race or religious belief are treated with respect and without sexual, physical or mental harassment.
- We provide, and strive to maintain, a clean, healthy and safe working environment in line with our Health and Safety policy and safe systems of work.



SOCIAL IMPACT (SDG 3, 5, 11) //

One of our most significant social impacts on our staff and their families is the requirement to travel both for commuting and for project work. To address this, Clade has recently introduced a cycle to work scheme, internal meetings where employees are based at different locations are conducted online where possible and there is an increase in the flexibility to work from home wherever possible.

Clade recognises that in order to ensure lasting change, it is necessary for us to engage our employees and local communities. We have recently reached out to staff via a survey to ask for their opinions on sustainability and suggestions on how Clade can improve and help with their own sustainability aims. The results of this survey are in appendix 1.





OUR IMPACT – EMISSIONS CALCULATIONS (SDG 7, 12, 13) //

We are currently making significant changes to our buildings and facilities. Once this is complete, we will baseline our carbon performance and set targets for improvement.

We are committed to making a measurable reduction in our carbon footprint. We are taking a multi-faceted approach to this, which includes working with our property landlord, through to planting trees in and around the Leeds area.

At Clade, we think that it is critical for us to understand our current/base position in terms of our Greenhouse Gas (GhG) emissions. For us to achieve Net Zero by 2050, (ideally sooner!) we need to make effective changes in our operations to reduce our scope 1, 2 and 3 emissions .

We recognise that there is more work to be done in terms of identification/ measurement/reduction of our scope 3 emissions, particularly around our supply chain partnerships. We will continue to work towards this over the coming months and years.

Our metric tonnes of CO₂e (the amount of CO₂ which would have the equivalent global warming impact) for 2021 are below:

Our Impact: Carbon emissions

Scopes & descriptions	2021 - metric tonnes CO ₂ e
*Scope 1: Direct emissions from owned/controlled operations	14.98
**Scope 2: Indirect emissions from the use of purchased electricity, steam, heating and cooling	129.38
***Scope 3 emissions	
Employee commute (fixed place of work)	29.05
Business travel (Engineers, Project Managers etc)	463.54
Business travel (Executive team)	19.94
Plant outboard logistics	14.96
Total Emissions	671.36
453 Trees Planted	-75.50
Net Emissions	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 is an estimate based on 453 trees planted in 2021



POTENTIAL CERTIFICATIONS AND POSITIVE PARTNERSHIPS (SDG 3, 5, 11) //

B Corps Accreditation

To further demonstrate our commitment to sustainability, we decided to complete the B Corps initial assessment. This was to identify areas of improvement within the business and work towards a **purpose over profit** gold standard.

Our B Corps journey to date has been reassuring and insightful so we will continue working towards this.



Carbon Footprint Ltd

We have worked with Wendy Buckley and the team at Carbon Footprint Ltd since 2019 to offset our Plant generated carbon emissions. To date we have planted over 1,000 trees in and around the Leeds area to further demonstrate our commitment to the local community and we aim to plant a further 5,000 by 2030.

Trees are the largest plants on earth and the longest living species, providing a link between the past, present and future. Some oak trees can live for over 1,000 years, so a woodland planted today could easily outlive all of us and provide a long-term carbon store.



Leeds Wood Recycling

We are proud to support Leeds Wood Recycling, an ethical, cost effective and convenient social enterprise in West Yorkshire that diverts wood from going to landfill.

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





FUTURE AMBITIONS AND SUMMARY //

Here at Clade, it's important to us that our actions match our words, and we want to ensure that we commit to our aims for a more sustainable business.

We have started to electrify our fleet - most company vehicles which were diesel/ petrol have already been replaced with electric vehicles (UK ambition for fully zero emission at the tailpipe by 2035 - Clade is on track to meet this).

Ideally, as much of the power we use in our Leeds factory will be from renewable sources - heat pump to heat factory, solar panels to produce electricity.

By helping our customers to achieve their decarbonisation goals we aim to be a part of the journey which will lead to a reduction in the effects of climate change, which will invariably lead to a measurable, positive societal impact.

We also wish to engage and encourage Clade employees to consider their own actions towards sustainability and will do so by encouraging conversation on the topic.





APPENDIX 1 – STAFF SURVEY //

Earlier this year, we decided to engage with our employees to find out what matters to them and their families. This enabled us to decide which UN Sustainable Development Goals (SDGs) to report against. This ensured that it was representative of our business and our employees.

It is very encouraging to see that so many of our employees are engaged in the subject and are interested to learn more and, most importantly, want to contribute to further action by making lifestyle changes.



Good Health and Wellbeing

3**What our employees said:**

92% of people said that they have already considered or would consider switching to an electric vehicle and using it for work purposes because of the negative impact that burning fossil fuels has.

Clade's commitment:

To support the use of electric vehicles in the company fleet by making EVs the default option and providing charging points at Clade locations.



Gender Equality

5**What our employees said:**

Most people feel that women are underrepresented in our industry.

Clade's commitment:

To support gender parity in technology and engineering by working closely with schools and colleges.



Affordable and Clean Energy

7**What our employees said:**

96% of people said that they would swap their existing gas boiler to a heat pump.

Clade's commitment:

To partner with an MCS accredited installer to provide a lower risk HP install to staff.



Industry, Innovation and Infrastructure

9**What our employees said:**

76% of people said that they feel that they get the opportunity to contribute to innovation.

Clade's commitment:

To provide an open forum for innovation discussions and progression and to support innovation where it aligns with our market strategy.



APPENDIX 1 – STAFF SURVEY //



Sustainable Cities and Communities

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What our employees said:

72% of people said that they would get the bus/car share/walk/cycle to work if possible.

Clade's commitment:

To engage with the local authority to improve the cycle access to the Clade Technology Centre. To provide a secure cycle storage area.



Responsible Consumption and Production

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What our employees said:

58% of people said that they were highly engaged in reducing their own environmental footprint already. A further 51% want to learn more about the subject.

Clade's commitment:

To set up a SharePoint website to give guidance, and to hold a workshop at the Clade summer party.



Climate Change

What our employees said:

83% of people said that they want to see Clade make further commitments to curb the impact of climate change.

Clade's commitment:

To publish the Clade sustainability report which will set out our approach to Net Zero, the market and our product roadmap.



Some key words from our final free text question on the survey are as follows which further highlights the positive engagement shown by our employees:

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staff and other businesses forward thinking
 Clade is on track business way that is possible humblest way
 heat pumps work
 change impact **CLADE** climate concerns
 change to the workforce
 Future ways climate change
 decision carbon
 way to the market impact on the enviroment



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