

Crystallise Greenhouse Gas Emissions report – 2025/26

Version 1

Crystallise Ltd



A CrystalliseCarbon project

Table of Contents

1 Executive summary	3
1.1 Our focuses over the previous year.....	3
1.2 Our focuses over the next year and beyond.....	3
2 Statement of intent.....	3
2.1 Purpose	3
2.2 Our commitments.....	3
2.3 Overview of our current impact.....	4
2.4 Focus	4
2.5 Our future ambitions, key goals, and timelines	5
2.6 Emissions strategy.....	5
2.7 Mitigation strategy	5
2.8 Key document publication schedule.....	5
3 Emissions modelling.....	6
3.1 An overview of the model structure.....	6
3.2 An overview of the data collection strategy.	6
3.3 Key structural changes from the previous model.	6
3.4 Model results, changes from the previous model	7
3.5 Discussion of major sources of emissions	8
3.6 Assumptions and limitations.....	8
4 Mitigation action taken this year.....	9
4.1 What emissions sources did we include or exclude and why?	9
4.2 How did we consider and balance emissions reductions, offsetting, and CCS?	9
4.3 What action did we take.....	9
5 Mitigation actions for next year.....	9
5.1 What changes are we making and why?	9
6 Client communications.....	9
6.1 How are we communicating our policies to our clients?	9
6.2 How do our policies affect costs to our clients?	9
6.3 What are our plans for the coming year?	9
7 References.....	10

1 Executive summary

1.1 Our focuses over previous years

This has been the fourth year of our Crystallise Carbon project. In year one we focussed on producing estimates for our scope 1, 2, and 3 emissions. In year two we updated and extended those models, and considered how to reduce and offset the emissions we have identified. Since then, we have identified AI use as a potential driver of increased scope 3 emissions for Crystallise, and this has driven modelling updates in 2025-2026.

1.2 Our focus over the next year and beyond.

Work so far has identified our largest scope emissions sources (heating, internet use and the embodied emissions of IT equipment) and committed to a carbon offsetting scheme. Going forward, we intend to re-evaluate the options for validated offsetting and carbon capture schemes, as well as updating our internal emissions model where appropriate.

2 Statement of intent

2.1 Purpose

This statement sets out our intent to develop an environmental policy for Crystallise. This statement of intent will:

1. Outline the steps we will take to reduce our environmental impact through emissions reduction in line with the company's values and the wider government objectives for Net Zero by 2050.
2. Outline how we will monitor, plan and mitigate changes brought about by climate change that affect employees e.g., increasing temperatures and other weather extremes.

This statement has been endorsed by the company's directors who will be responsible for implementing any actions.

2.2 Our commitments

Even though Crystallise is a small company with relatively low carbon emissions, we recognise the responsibility that every business has to reduce the impact that our activities have on the environment and climate.

Crystallise will commit:

1. To estimate and report carbon emissions across the three scopes as set out in the Greenhouse Gas Protocol Corporate Standard¹ and using recommendations from the Homeworking Emissions White paper².
2. To aim for Net Zero status by reducing our carbon emissions where possible and by balancing unavoidable emissions with evidence-based carbon offsetting and/or carbon fixation.
3. To be transparent about our policies to employees and clients, and to continually reflect on how to improve them in line with new literature and data.
4. To monitor the impact that climate change has on employees and to suggest and support solutions where possible.

5. This may include developing practical employee guidance for periods of extreme weather, including heatwaves, storms, flooding, poor air quality or travel disruption, with a focus on health, safety, flexibility and continuity of client work.

2.3 Overview of our current impact

We have modelled Crystallise's current impact (as of June 2026) in line with the three scopes described in the GHG Protocol Corporate Standard¹ and these are summarised in Table 1 below. Due to the nature of the business, the scope 1 emissions are zero. The main source of scope 2 emissions are purchased electricity and heat from home working. Scope 3 emissions are split between travel, internet and AI use, and the embodied emissions in equipment.

Table 1 – greenhouse gas emissions scopes currently considered as part of Crystallise modelling.

Scope	Definition	Source of emission	Impact
1	Direct emissions from owned or controlled sources	Fuel Combustion	N/A
		Company vehicles	N/A
		Fugitive emissions	N/A
2	Indirect emissions from the generation of purchased electricity, steam, heating and cooling consumed by the reporting company	Purchased electricity	Homeworking workstation + lighting
		Purchased heat	Homeworking heating
		Purchased steam	N/A
3	All other indirect emissions that occur in a company's value chain	Purchased goods and services	Internet usage
			AI compute
		Business travel	Travel to conferences, annealing meetings and other business travel
		Employee commuting	N/A
		Waste disposal	Not considered
		Use of sold products	Embodied emissions (in equipment such as laptops and desks)
		Transportation and distribution	N/A
		Investments	Not considered
		Leased assets and franchises	N/A

2.4 Focus

Our focus for the 2025/26 financial year was:

- To update our internal emissions model to estimate scope 3 contributions from AI compute.

2.5 Our future ambitions, key goals, and timelines

In the near-term, Crystallise will seek to continue to encourage amongst its employees a sense of responsibility for reducing our impact on the environment and generally promote greater awareness of environmental issues.

Crystallise will produce an annual report on the company's estimated carbon emissions, reductions and offsets.

In the long-term, Crystallise will aim to replace carbon offsetting through nature-based solutions with carbon capture and storage (CCS). Crystallise acknowledges that the cost of using CCS schemes for mitigation is currently prohibitively high and also is aware of the uncertainty around which methods are effective. However, we also acknowledge that the cost of CCS schemes will fall as markets expand and technologies develop. We will aim to keep up to date with CCS schemes and re-assess our mitigation options as the evidence evolves.

Crystallise also aims to be aware of new evidence on decarbonisation activities. Most of the literature and guidelines for companies focus on physical decarbonisation e.g., reducing carbon emissions from production processes and replacing physical activities with digital ones (remote meetings). However, there is growing evidence on the negative environmental impact of our digital carbon footprint.

2.6 Emissions strategy

In our emissions modelling we have considered scopes 1, 2, and 3, as per the GHG protocol. Although only scope 1 represents direct emissions from Crystallise, considering scopes 2 and 3 allows us to identify the downstream emissions that result from our business decisions and develop strategies to reduce, offset, or capture them.

2.7 Mitigation strategy

The most efficient way to reduce GHG emissions is to avoid creating them in the first place. Therefore, our strategy prioritises reduction over carbon capture.

2.8 Key action schedule

Month/year	Action
June/July 2023	Start emissions reduction strategies Purchase offsetting scheme Continue to gather data on carbon emissions
March/April 2024	Review current offsetting scheme Finalise carbon emission measurements and compare to previous year Review emissions reduction strategy Deliver company report on progress with model development, carbon emission reduction, offsetting and client strategy
April/May 2024	Continue employing existing emission reduction strategies and incorporate new ones Continue using existing offsetting scheme or change to a new one Continue to collect carbon emissions data
June 2025 – March 2026	Update the internal emissions model.

3 Emissions modelling

The goal of the emissions modelling is to estimate the company emissions from scope 1, 2, and 3 sources. This necessarily involves a lot of assumptions and uncertainty. The purpose of this modelling is not to achieve a completely accurate value for our emissions. Instead, the aim is to identify the main contributing activities so we can target reductions interventions, and to get a ball-park estimate for our total emissions to inform carbon capture aims.

3.1 An overview of the model structure.

The model is broken into sub-models for each identified source. These are:

- Travel, which is further divided into
 - Conferences
 - Bi-annual company meetings
 - Other
- Homeworking heating
- Homeworking electricity
- Embodied emissions
- Internet use
- AI compute

Note that all of these sources are scopes 2 or 3, i.e. none are direct emissions from owned or controlled sources. This is a result of Crystallise being in the information industry and all employees working remotely.

For travel, estimates are produced using employee travel data and estimates of emissions per mile from the Department for Energy Security and Net Zero.³ Homeworking emissions are estimated using a basic model produced by EcoAct,² with some re-parameterisation to reflect the specifics of Crystallise employees.

Note that some estimates are made on a per employee basis and some at a company level. As the number of employees changed during the year, for simplicity the employee number at the year-end was used for aggregate calculations in the former case.

3.2 An overview of the data collection strategy

Data collection was in the form of staff surveys. Response was not mandatory, and when data was missing this was imputed as best as possible, often using the median value of the known data.

Data was collected on work travel, workstation setup, and homeworking heating.

3.3 Key structural changes from the previous model.

The 2025-26 model included AI compute for the first time – an estimate of the carbon emissions associated with using AI compute providers, including:

- OpenAI models via their API and ChatGPT
- Microsoft Copilot, which uses OpenAI models, hosted within the Microsoft ecosystem.
- Anthropic models via Claude Chat or Claude Code
- Elicit (which uses models from OpenAI and Anthropic)

3.4 Model results, changes from the previous model

The results of the current model are shown in **Error! Reference source not found.**

Table 2 - 2025-26 estimates of Crystallise's greenhouse gas emissions from scopes 1,2, and 3

Scope	Definition	Area	Sub-model	Emmissions (kgCO2e per employee-year)	Emissions (kgCO2e per company-year)
1	Direct emissions from owned or controlled sources	Fuel combustion	N/A		
		Company vehicles	N/A		
		Fugitive emissions	N/A		
2	Indirect emissions from the generation of purchased electricity, steam, heating and cooling consumed by the reporting company	Purchased electricity	Homeworking workstation & lighting	46	870
		Purchased heat	Homeworking heating	335	6367
		Purchased steam	N/A		
3	All other indirect emissions that occur in a company’s value chain	Purchased goods and services	Internet usage	216	4101
			AI compute	174	3299
		Business travel	Conference travel	97	1841
			Annealing meeting	122	2316
			Other business travel	2	30
		Employee commuting	N/A		
		Waste disposal	Not considered		
		Use of sold products	EmbodiedEmissions	244	4644
		Transportation and distribution (up- and downstream)	N/A		
		Investments	Not considered		
		Leased assets and franchises	N/A		
				total	23,469

More details of previous updates to the model can be found in previous annual reports.

3.5 Discussion of updates to the modelling

The modelling is highly uncertain, but nevertheless suggests that use of AI compute is a rising contributor to our scope 3 emissions. Most of this currently comes from using OpenAI models to automate screening and indexing tasks. However, the use of reasoning models such as Claude Code is also increasing within the company, which consume somewhere between tens and hundreds of times more energy than simple queries.

A key parameter is the carbon intensity of the energy used. This is the carbon emissions associated with each unit of energy, and is dependent on the geographical location where the compute happens and how the energy used by the data centre energy is generated. For the estimate in Table 2, an assumption of 125 grams per kilowatt hour is assumed. This is based on estimates from a paper published by Google. This value is similar to estimates of UK electricity carbon intensity, but much lower than estimates for the US or the global average, which may be three or four times higher.

3.6 Discussion of major sources of emissions

The estimates suggested that homeworking heating is the biggest single contributor. However, estimates for business travel are not far behind, and are likely to rise in the next update. Estimates for internet use and AI compute are highly uncertain, but combined may exceed those of homeworking heating. This highlights the importance of considering 'invisible' downstream impacts alongside the more tangible ones.

These may also be easier to modify through company policy, for example by choosing more energy-efficient compute suppliers and monitoring the cost-effectiveness of use.

3.7 Assumptions and limitations

There are many assumptions in the modelling process, and it is intended to identify major contributors rather than allow for direct comparison. A major limitation is the reliance on estimates from self report, both internally, and by suppliers responsible for indirect emissions.

Homeworking electricity usage estimates are based on employee self-report combined with a limited experimental approach to identify the wattage of common appliances.

Homeworking heating estimates rely on a very simple model of UK households published by Ecoact and modified based on staff surveys. They also rely on assumptions about counterfactual cases, where employees would not be working at home. In some cases, e.g. a parent caring for a child, there is no plausible scenario where the child would be home alone.

Travel estimates are based on employee self-report, which are likely to be fairly accurate as well as becoming out of date. Estimates of emissions per mile for transport options are taken from government estimates, and the methodology is not entirely transparent.

Embodied emissions are based on very uncertain estimates by others, along with best-guess predictions of item lifespans.

AI compute estimates are based on wide ranges of published values, and include only marginal emissions per token or query rather than averages over model life-cycles including training.

Internet usage estimates are the most uncertain of all, and are based on a ballparking methodology – simply taking the average of published estimates of others. This does not account for the fact that employee internet use is a subset of their total use, or that employee internet use is likely higher than the global average. It also does not take into account novel computing tasks such as the use of large language models, an activity that has increased massively within Crystallise in recent years. Thus, this value could easily be an order of magnitude out in either direction.

4 Mitigation action taken this year

4.1 What emissions sources did we include or exclude and why?

Crystallise has no direct emissions sources (scope 1), and our indirect sources (scopes 2 and 3) fall under the scope 1 emissions of other companies. However, our ambition is to make ourselves Net Zero without relying on others in our value chain to do the same. We have therefore included all three scopes when considering our mitigation action.

4.2 How did we consider and balance emissions reductions, offsetting, and CCS?

Details of internal discussions and decisions can be found in previous reports. This year saw no update to our approach to mitigation and offsetting, which will therefore be a priority for the coming year.

4.3 What action did we take?

No additional action was taken from previous years.

5 Mitigation actions for next year

5.1 What changes are we making and why?

In 2026-27 Crystallise will again investigate CCS options, with an ambition to migrate to this technology from carbon offsetting as soon as the technology is affordable and verified. This was an ambition for 2026-27, but focus was instead on estimating AI compute scope 3 emissions.

6 Client communications

6.1 How are we communicating our policies to our clients?

This document represents our public-facing communication of our emissions commitments, modelling, and actions. Our ambition is to update this report no less than once annually and make all versions available through our company website.

6.2 How do our policies affect costs to our clients?

The cost of offsets purchased in 2023-24 has not been factored into costs to our clients.

6.3 What are our plans for the coming year?

In 2026-27 we will consider including in all project proposals an estimate of the offsetting cost associated with the project.

7 References

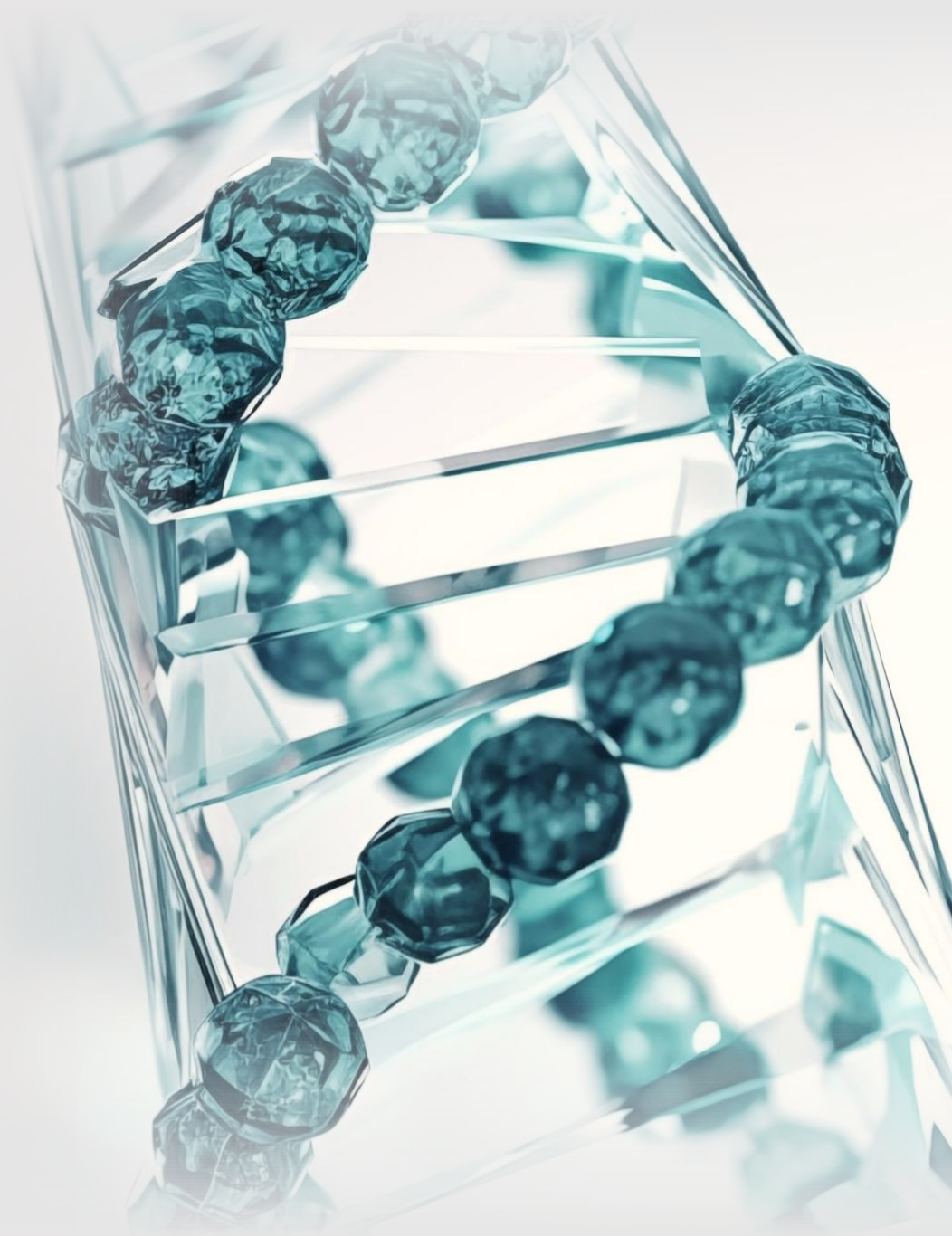
1. "The Greenhouse Gas Protocol – A Corporate Accounting and Reporting Standard" (2015)
<https://ghgprotocol.org/> accessed 26th July 2023
2. Luke Skillett and Lindsay Ventress "Homeworking emissions "A Whitepaper produced by EcoAct (Oct 2020) [EcoAct Climate Consultancy | Climate Action. Commercial Sense. \(eco-act.com\)](https://eco-act.com/) accessed 26th July 2023
3. <https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2023>

To see what other services we offer visit,

www.crystallise.com

For any enquiries email,

contact@crystallise.com



Registered address:

17 High Street,
Stanford-le-Hope, Essex, SS17 0HD

Company No: 7980921

Page 11 of 11

Data Protection Act Registration Number: Z3363643