



Carbon Emissions Report 2022

Revision 1.1

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List of Abbreviations

BEIS	Department for Business, Energy and Industrial Strategy
DEFRA	Department for Environment Food and Rural Affairs
DESNZ	Department for Energy Security and Net Zero
EV	Electric Vehicle
GHG	Greenhouse gas

1.Introduction

The calendar year of 2022 is Green Frog Connect's first carbon emissions reporting year. We successfully measured Scope 1 and 2 emissions, however Scope 3 presented challenges. Throughout the calculating and reporting process, we have developed our understanding and awareness of measuring and reducing our CO₂ emissions. This has enabled us to identify the data that is required to measure Scope 3 emissions and to track the progress of Scope 1 and 2. Consequently, reporting systems and software will be developed to enhance the accuracy of our figures for future reports.

Green Frog Connect is a climate focused business that is passionate about contributing to the clean and reliable energy supply of the future. The company's cleaner and more flexible solutions are making a significant contribution to the UK meeting future renewable energy and carbon reduction targets. Although there are opportunities for advancement, our climate values are positively reflected in this report.

1.1. Impacts of Climate Change

Human influence on warming the atmosphere, ocean and land is unequivocal¹. The Earth's surface temperature has risen on average about 1.1°C since the pre-industrial period². Climate change has caused, and can have further, severe and widespread impacts on the environment and society³. These impacts include risks to water supplies, extreme weather conditions, loss of biodiversity, damage to marine ecosystems, food insecurity and numerous other detrimental effects⁴. The developments of these impacts depend largely on the degree to which we reduce greenhouse gas (GHG) emissions.

Green Frog Connect recognises the importance of limiting the global average temperature increase to below 1.5°C above pre-industrial levels, as surpassing this threshold will have devastating effects on the environment and communities, some possibly irreversible⁵. Therefore, we support immediate action for reducing global carbon emissions and supporting climate solutions.

¹ IPCC, 2021, Climate Change 2021: The Physical Science Basis, Summary for Policymakers, Paragraph A.1

² IPCC, 2023, Synthesis Report of the Sixth Assessment Report, Section 2.1

³ IPCC, 2022, Climate Change 2022: Impacts, Adaptation and Vulnerability, Summary for Policymakers, Section B.2

⁴ 8 IPCC, 2022, Climate Change 2022: Impacts, Adaptation and Vulnerability, Summary for Policymakers, Section B.3 and B.4

⁵ IPCC, 2018, Special Report: Global warming of 1.5°C, Summary for Policymakers, section B

2. Our Commitment

Green Frog Connect have committed to reaching Net Zero CO₂ emissions by 2030. In line with our values, we seek to reduce our direct impact on the environment and support climate solutions.

To achieve Net Zero by 2030 we have set a number of targets:

1. Halve our greenhouse gas emissions by 2025

2. Achieve Net Zero by 2030

3. Publish annual carbon emission reports

4. Support Sustainable Development Goals

2.1. Our strategy

To achieve halving our carbon emissions by 2025 and Net Zero by 2030 we will work on reducing our emissions, firstly in Scope 1 followed by Scope 2 and 3. By 2030 it might not be possible to reduce all our CO₂ emissions to zero, due to the nature of our industry, therefore it is likely that we will support carbon offsetting projects. We recognise that carbon offsetting is not an ideal climate solution, however we will cautiously select sustainable projects that support climate justice alongside continuously exploring further opportunities for reducing our own emissions. Annually we will calculate our carbon emissions and publish a report, similar to this, to be shared on the website and with stakeholders. As this is our first report and initial calculations, we anticipate developments in our reporting, particularly as guidance is updated.

Supporting Sustainable Development Goals is important to Green Frog Connect. Although Goal 7: Affordable and Clean Energy⁶ is fundamental to our core values, we appreciate supporting other goals and targets are valuable, including promoting biodiversity.

As a company, with climate support at all hierarchal levels, we are committed to challenging climate change and having a positive impact on the environment. We are proud to support the United Nation's Race to Zero campaign with other businesses and governments to achieve Net Zero globally by 2050.

⁶ UN, 2023, [The Sustainable Development Goals Report: Special edition](#)

3.Methodology

The company's CO₂ emissions have been divided into three "scopes" (scope 1, scope 2 and scope 3) for GHG accounting and reporting purposes⁷, as presented in Figure 1. Scope 1 are direct carbon emissions that are emitted from sources owned or controlled by the business, which for Green Frog Connect includes heating, construction site generators and fleet fuel for business mileage. Scope 2 are indirect emissions emitted through the purchasing of electricity, including electricity for the office and business owned electric vehicles. Scope 3 emissions are those released through business activities, however they occur from external sources, including waste and purchased good and services.

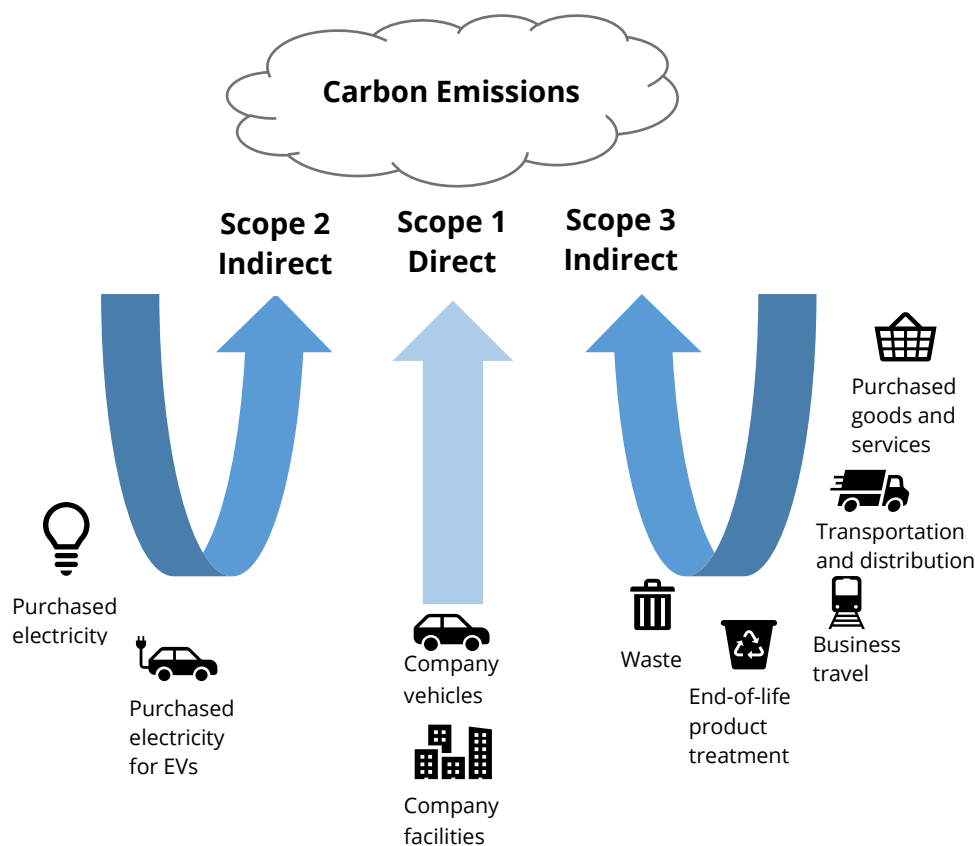


Figure 1: Scopes 1,2 and 3

⁷ WRI/ WNCSD, 2004, The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, Revised Edition

To calculate our CO₂ emissions within each scope we followed government guidance provided by DESNZ, BEIS and DEFRA⁸. The guidance includes annual Emission Conversion Factors enabling organisations to calculate their carbon emission manually using accessible data.

$$\text{Activity Data} \times \text{Emissions Factor} = \text{GHG emissions}$$

Activity data is information of business actions, for example the amount of electricity consumed in an office space (kWh) or business mileage (km/miles). This formula can be used for scope 1,2 and 3 emissions as the appropriate Emissions Factors are provided for each business activity. At Green Frog Connect these calculations were performed in an excel document.

3.1. Limitations

Gathering activity data for this 2022 report was time consuming and challenging, with data not often easily accessible. Consequently, we will be exploring ways of integrating GHG reporting into our existing reporting tools and processes as advised by DEFRA guidance⁹.

The majority of our scope 3 emissions were not calculated due to vast amount of work required to complete the calculations. As this was our initial report, we decided to focus on scope 1 and 2. As our reporting systems are enhanced, we will continue investigating scope 3 emissions. This report has enabled us to identify the business activity data required scope 3 emissions, therefore we hope for our next reporting year we will have additional calculated figures.

⁸ DESNZ and BEIS, 2023, [Government conversion factors for company reporting of greenhouse gas emissions](#)

⁹ DEFRA, 2009, [Guidance on how to measure and report your greenhouse gas emissions](#), Part 5

4.2022 Carbon Emissions

Carbon emissions released by Green Frog Connect for the calendar year 2022 are presented below in Table 1. As several scope 3 emission factors were not measured for this reporting year, the total emission figure is inaccurate. As we develop our reporting systems and calculations, we will update these figures and revise this report.

Table 1: 2022 CO₂ Emissions

Scope Emissions	Metric Tons CO ₂ Emissions
Scope 1	
Own Facilities	67.89
Own Vehicles	15.72
Scope 2	
Purchased Electricity	4.07
Scope 3	
Employee Commuting	14.92
Total Metric Tons CO ₂ Emissions	102.6

CO₂ emissions released by the company's 'own facilities' were its largest contributing factor. 'Own facilities' included office gas consumption for heating and fuel used for site generators. The activity data used to calculate emissions from our own facilities was sourced from 2022 invoices.

The figure for vehicle emissions was calculated from business mileage driven in business-owned cars. This data was derived from expensed business mileage.

Purchased electricity included that used in offices and for business owned electric vehicles, of which 72% was from renewable energy. Purchased electricity data was gathered from previous invoices and for a number of business owned electric vehicles, a software (MINA¹⁰) is used that automatically provides business mileage data when cars are charged.

Employee commuting figures were calculated from information provided an employee survey. The survey requested information including the mode of transport employees use to commute, the distance they travelled and the number of days they travel to their place of work a week. See Appendix A for a selection of example pages from the employee commuting survey.

¹⁰ [Electric Vehicle Solutions | Allstar Cards](#)

5.Actions and Plans to Reduce Emissions

Considering our results, we have determined several near-term action goals to focus on, as outlined in Table 2. These actions align with our targets (outlined on page 4) and our Key Performance Indicator goals (see Appendix B). There are other actions we are considering, however as this is our initial report we are identifying key areas to focus on to remain realistic. Subsequent reports should build upon these actions.

Table 2: Reducing Emissions

Scope Emissions	Action
Scope 1	
Own Facilities	Investigate the opportunity for using more hybrid generators on construction sites which would reduce our fuel usage
Own Vehicles	Replace business owned fuel cars with electric or hybrid vehicles
	Increase the number of company vehicles to enable employees to use an electric or hybrid vehicle which otherwise they might not have purchased themselves
	Explore a green salary sacrifice scheme where employees can sacrifice a proportion of their salary prior to tax to fund an electric car
Scope 2	
Purchased Electricity	Ensure 100% of the electricity we purchase is from renewable energy sources
Scope 3	
Employee Commuting	Look into implementing the Cycle to Work scheme
Purchased goods and services	Research materials that have a lower carbon footprint and explore how we can employ these in our designs and present the benefits of selecting these options to clients
Waste	Discuss waste data collection and waste procedures with our waste management company to ensure we are accurately identifying our waste types and the amount recycled and discuss opportunities for increasing our recycling

6.Support of Climate Solutions

Green Frog Connect highly value and support climate solutions. We recognise the fundamental role the business sector has in mobilising the 1.5°C ambition¹¹. As a business we must firstly reduce our own emissions, secondly reduce value chain emissions, thirdly provide climate solutions and fourthly accelerate climate action¹².

At Green Frog Connect 74% of 2022's total revenue was from sales of climate solutions. This included providing connections for solar farms, wind turbines and battery storages. Batteries are critical for the transition to renewable energy as they preserve electricity for when renewables cannot operate. By providing connections to renewables and battery storages, we are significantly increasing 'avoided emissions', as we are replacing business as usual solutions¹³. This enables others to avoid or reduce their emissions to align with UK¹⁴ and international targets¹⁵.

Although the majority of 2022's total revenue was from climate solution projects, the remainder is from connections provided for non-renewable energy sources, including gas peaking plants. The company recognises gas peaking plants are not climate solutions. Nonetheless these plants balance the electricity on the National Grid during unstable periods, eliminating disturbances from the intermittency of renewable energy¹⁶. The gas peaking plants only run when there is insufficient electricity on the grid and when not in use they operate on standby mode, producing less GHG than powering up a traditional power station. Consequently, the flexibility of the plants supports renewables entering the National Grid, strengthening the shift towards cleaner energy¹⁷.

Our ambition is to solely support renewable energy projects; however, the restricted capacity of the grid could pose problems later in the decade. There are connection delays for low-carbon projects as the National Grid is unprepared. We hope the challenges of the National Grid will be overcome (Green Frog Connect is well placed to assist with the upgrade of National Grid Infrastructure as a business opportunity) to enable us to scale up our climate solution support to 100% of our sales revenue (see Appendix B).

7.Appendices

¹¹ IPCC, 2018, Special Report: Global warming of 1.5°C, Summary for Policymakers

¹² Exponential Roadmap, 2023, [The 1.5°C Business Playbook](#), version 3

¹³ Exponential Roadmap, 2023, [The 1.5°C Business Playbook](#), version 3

¹⁴ UK Government, September 2023, Press release, [PM recommits UK to Net Zero by 2050](#)

¹⁵ UN, 2023, [Time of Crisis, Times of Change](#), Chapter 1

¹⁶ Fieldfisher, 2019, [Energy Spotlight: Gas](#)

¹⁷ Bloomberg, 2018, [Gas 'Peakers' Seeing New Life as Temps Increase and Renewables Fluctuate](#)

7.1. Appendix A: Employee Commuting Survey

Green Frog Connect Employee Commuting Survey

Hi all,

I'm Rose Bevan-Smith, the new Environmental Analyst at Green Frog Connect. I'm currently compiling a carbon emission report that requires employee commuting information. Reporting Green Frog's carbon emissions is important for supporting our climate targets, which includes being net zero by 2030. Please could you all do me a favour and complete this survey which should take around 5-15 minutes.

Although you will be identifiable in this survey, unless discussed otherwise, your personal information (name) will only be shared internally. The data included in the public report will outline an overview of all employees. Please answer this survey as honestly and accurately as you are able to.

If you have any questions or issues with this survey, please don't hesitate to contact me (R.Bevan-Smith@greenfrogconnect.co.uk), I would be happy to assist.

It would be great if you can submit all your responses by Tuesday 19th September.

Thank you!

Rose Bevan-Smith

* Required

Introduction

1. Full name *

2. Your role at Green Frog Connect *

3. When did you join Green Frog Connect? *

4. What are your weekly working hours? (e.g. Full-time = 37.5) *

Please do not include overtime.

Commuting habits

Please note, your commute is your travel from your home to your place of work. At Green Frog this might be a specific office you're based from or a particular site. This does not include the travel you make visiting different offices or different sites.

5. Do you regularly commute to an assigned place of work or are you a remote worker?

If you're unsure, consider if your travel to an office or site is classified as business mileage. If it is business mileage, then this is not considered a commute.

☐ Yes, I commute to an assigned office or site

☐ No, I work remotely

6. On average, how many days a week do you commute to your place of work? *

7. How many miles is your commute from your home to your place of work? (one-way distance please) *

Commuting Transportation

8. What form of transport do you use to commute to your place of work? *

Please select one form of transport to begin with. If you use more than one, there will be an opportunity later to return to this question.

- ☐ Car
- ☐ Taxi
- ☐ Train
- ☐ Bus
- ☐ Motorbike
- ☐ Walk
- ☐ Bicycle
- ☐ Other

Car

9. Do you drive alone? *

- ☐ Yes
- ☐ No
- ☐ Sometimes

10. On average, how many times a week do you share your car commute with others? *

11. How many others do you share your car commute with? *

12. What type of car do you commute in? *

- ☐ Fuel car
- ☐ Hybrid car
- ☐ Electric car

13. What fuel does the car use? *

- ☐ Diesel
- ☐ Petrol/ unleaded

14. What is the car registration number of the car you commute in? *

If you don't feel comfortable providing this information, please provide the model and make of the car.

7.2. Appendix B: Key Performance Indicators

Key Performance indicators	Pillar	Measured by	2022 position	Goals
Total greenhouse gas emissions	1 & 2	% reduction total CO ₂	0%	50% by 2025
Purchased renewable energy	1	% renewable energy by kWh	72%	100% by 2025
Phase out fuel business owned cars	1	% of business owned cars that are electric	50% (+ 20% hybrid)	100% 2030
Climate solutions revenue	3	Climate solutions % of revenue	74%	100% by 2030
Funding of projects to protect and restore nature, and store carbon beyond value chains	4	% unabated emissions matched with project funding	0%	100% by 2030



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