Carbon Footprint Appraisal Report

EA Technology Carbon Footprint Report
Assessment Period:
1st April 2020 – 31st March 2021

Executive Summary

Carbon Footprint Ltd has assessed the greenhouse gas (GHG) emissions of EA Technology Ltd. (EA Technology) from 1st April 2020 to 31st March 2021 based on a dataset provided by the company.


Current Performance

→ The total carbon footprint of EA Technology is 291.71 tCO_2e. This is a reduction of 45.5% compared with the previous year, and 60.4% since the baseline year. Mostly due to reduction in flights as a result of COVID-related travel restrictions.

→ The most significant source of greenhouse gas emissions is electricity consumption, accounting for 32.2% of the total emissions.

Recommendations

→ Continue offsetting your total emissions to maintain EA Technology's carbon neutrality.

→ Set reduction targets based on intensity metrics (e.g., emissions per employee or £M turnover).

→ Evaluate the effectiveness of using remote meetings and limited travel during COVID-19 and re-define what your business classifies as "essential" travel going forwards.

→ Switch to a fully renewable energy tariff that has been REGO[1] (Renewable Energy Guarantees of Origin) certified as these assure that energy sourced is 100% renewable.

→ Carry out a detailed energy audit within each unit to identify areas of high energy consumption and where the most effective savings can be made.

→ Explore the option for using more sustainable outsourced freight suppliers and switching to rail or sea freight as an alternative to air freight, as these are less carbon intensive.
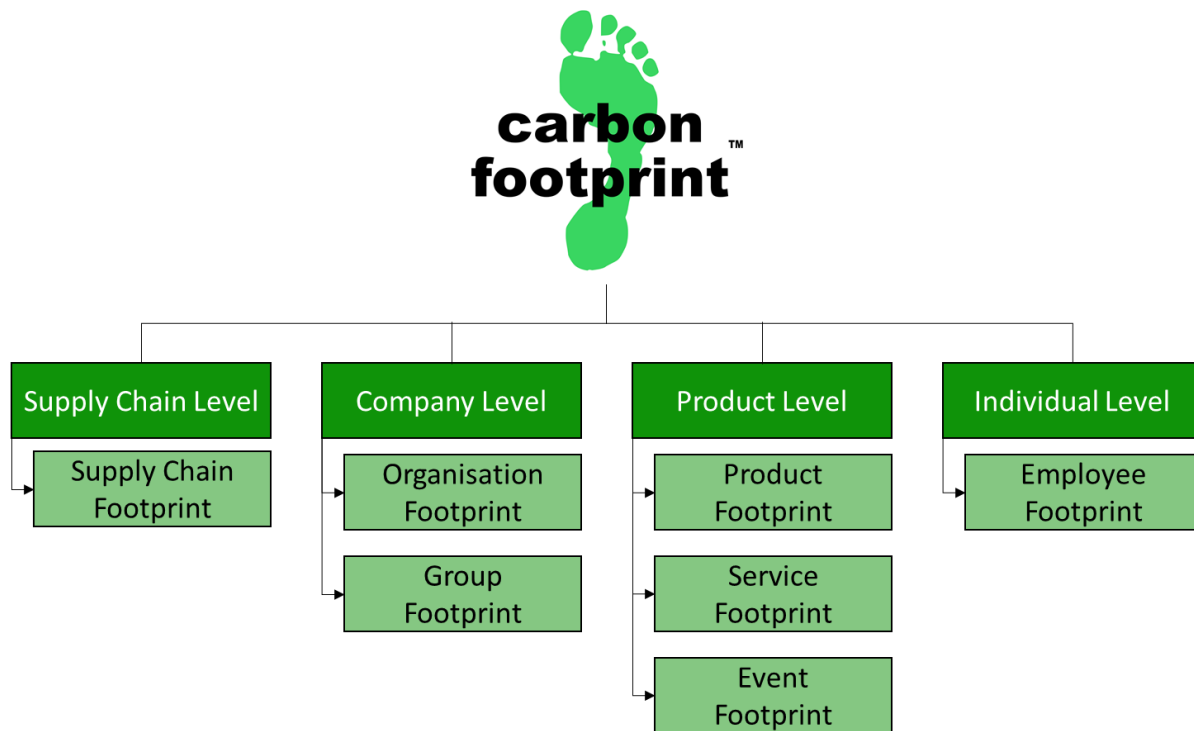

Breakdown of carbon footprint
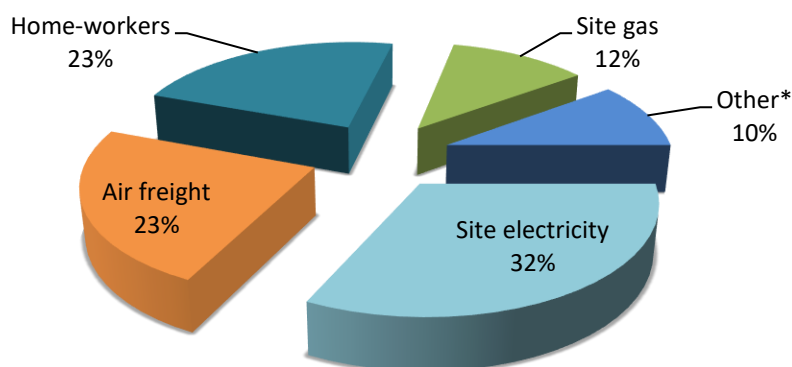
*Other = water, vans, grey fleet, hire cars, flights and rail travel.

Metric	2018/19	2019/20	2020/21	% Change from baseline year	% Change from previous year
Total Tonnes CO₂e	736.05	534.77	291.71	**-60.4%**	**-45.5%**
Tonnes of CO₂e per employee	4.21	2.81	1.54	**-63.5%**	**-45.5%**
Tonnes of CO₂e per £M turnover	24.05	17.83	11.67	**-51.5%**	**-34.5%**

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[1] Ofgem Renewable Energy Guarantees Origin: Renewable Energy Guarantees Origin (REGO) | Ofgem

To become an exemplar in the market, EA Technology should consider increasing the scope of its carbon management programme. Companies are starting to provide tools to enable their staff to measure and offset the emissions they generated at preferential rates. Providing support to staff in such a manner, will raise the profile of your sustainability programme and generate more staff buy-in.

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Quality Control

Report issue number:	1.0
Date:	09 July 2021
Calculations completed by:	Zoe Rudge
Calculations reviewed by:	Grace Parker
Report produced by:	Zoe Rudge
Report reviewed by:	Grace Parker
Director approval:	Dr Wendy Buckley

1. Introduction

1.1.   EA Technology's carbon management journey

EA Technology provide consultancy support to businesses in the private and public energy sector and produce testing and monitoring equipment.

Carbon Footprint provides a simple six step annual journey to enhance your sustainability credentials whilst complying to best practice and differentiating your brand. EA Technology has completed the first step of its annual carbon management journey.

Measure	Aim	Reduce	Offset	Communicate	Comply

The purpose of this report is to:

- Summarise the results of the carbon footprint assessment.
- Provide practical recommendations to enhance your sustainability programme and reduce your emissions.
- Provide advice on how carbon offsetting may enhance your programme.
- Communicate your carbon management/carbon neutrality internally and externally.

1.2.   What is a carbon footprint?

A carbon footprint is a measure of the impact our activities have on the environment in terms of the amount of greenhouse gases produced, measured in units of carbon dioxide equivalents (CO_2e). A carbon footprint is made up of two parts, direct and indirect emissions.

1. **Direct emissions:**
   Direct emissions are produced by sources which are owned or controlled by the reporting organisation and include electricity use, burning oil or gas for heating, and fuel consumption as a result of business travel or distribution. Direct emissions correspond to elements within scopes 1, 2 and 3 of the World Resources Institute GHG Protocol, as indicated in Table 1.

Table 1: Direct emissions sources

Footprint	Activity	Scope
Direct	Electricity, heat or steam generated on-site	1
	Natural gas, gas oil, LPG or coal use attributable to company-owned facilities	1
	Company owned vehicle travel	1
	Production of any of the six GHGs (CO_2, CH_4, N_2O, HFCs, PFCs and SF_6)	1
	Consumption of purchased electricity, heat steam and cooling	2
	Employee business travel (using transport not owned by the company)	3

2. **Indirect emissions:**

   Indirect emissions result from a company's upstream and downstream activities. These are typically from outsourced/contract manufacturing, and products and the services offered by the organisation. Indirect emissions correspond to scope 3 of the World Resources Institute GHG Protocol excluding employee business travel as indicated in Table 2.

Table 2: Indirect emissions sources

Footprint	Activity	Scope
Indirect	Employee commuting	3
	Transportation of an organisation's products, materials or waste by another organisation	3
	Outsourced activities, contract manufacturing and franchises	3
	GHG emissions from waste generated by the organisation but managed by another organisation	3
	GHG emissions from the use and end-of-life phases of the organisation's products and services	3
	GHG emissions arising from the production and distribution of energy products, other than electricity, steam and heat, consumed by the organisation	3
	GHG emissions from the production of purchased raw or primary materials	3
	GHG emissions arising from the transmission and distribution of purchased electricity	3

For businesses, the assessment focuses on direct emissions, as these lie under the control of the organisation. However, we ask companies to recognise that there is an indirect emissions footprint and select suppliers based on their environmental credentials alongside price and performance.

1.3. Why is it important?

Climate change is a global threat which will impact the lives of everyone on the planet.

Over the past two decades the effects of climate change have accelerated. Considerable evidence exists proving climate change has been exacerbated by human activity. Changes in our post-industrial lifestyles have altered the chemical composition of the atmosphere, generating a build-up of greenhouse gases – primarily carbon dioxide, methane, and nitrous oxide levels – raising the average global temperature.

The consequences are already evident and will continue to worsen unless significant action is taken and quickly. **Sea level will continue to rise and local climate conditions to be altered, causing an increase in extreme weather events, affecting forests, crop yields, and water supplies. This can lead to homelessness, famine and conflict as resources become scarcer.**

Environmental pollution and climate change affect human health, accelerate species extinction, and disrupt vital ecosystems. **Ambient (outdoor) air pollution is responsible for at least 4 million human deaths each year**[2]. In addition to this, poor air quality and issues of clean water availability leave us

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[2] World Health Organisation. https://www.who.int/health-topics/air-pollution

more susceptible to diseases such as COVID-19. Combined with rises in temperature and deforestation (from direct human action and climate change related events), resulting in the displacement of animals from their native habitats, the frequency of disease occurrence will increase, as disease will transfer from animals to other geographical areas and larger human populations.

It is vital that all individuals, businesses, organisations and governments work towards the common goal of reducing greenhouse gas emissions. This carbon footprint assessment will enable EA Technology to continue doing its bit by monitoring, reducing and offsetting its emissions.

1.4.   Assessment Methodology

This GHG report has been prepared in accordance with Part 1 of ISO 14064: 2018. The GHG inventory, report, or statement has not been verified.

This standard requires the estimation of likely error margin based on a simple error analysis, to identify uncertainty in the calculations. Our simple error analysis provides a level of uncertainty based on the accuracy of the data provided. This shows the error for each emissions source, as well as the sum of these divided by the total emissions, to produce a total percentage error.

1.5.   Calculation methodology

The carbon footprint appraisal is derived from a combination of client data collection and data computation by Carbon Footprint's analysts.

Carbon Footprint's analysts have calculated EA Technology's footprint using the 2020 conversion factors developed by the UK Department for Environment, Food and Rural Affairs (Defra) and the Department for Business, Energy & Industrial Strategy (BEIS). These factors are multiplied with the company's GHG activity data. Carbon Footprint has selected this preferred method of calculation as a government recognised approach and uses data which is realistically available from the client, particularly when direct monitoring is either unavailable or prohibitively expensive.

Additional methodology information is presented in Annex A.

1.6.   Data supplied for the carbon footprint appraisal

A summary of the data supplied by EA Technology for the appraisal is presented in Annex B.

1.7.   Abbreviations

BEIS	Department for Business Energy & Industrial Strategy
BIK	Benefit In Kind
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
Defra	Department for Environment, Food and Rural Affairs
EV	Electric Vehicle
GHG	Greenhouse Gas
IPCC	Intergovernmental Panel on Climate Change
ISO	International Standards Organisation
km	Kilometres
kWh	Kilowatt Hours
NIC	National Insurance Contribution
PAYE	Pay As You Earn
PR	Public Relations
UN	United Nations

2. Calculation Scope and Accuracy

2.1. Scope of this work

Carbon Footprint has assessed the GHG emissions from 1st April 2020 to 31st March 2021 resulting from the energy consumption at EA Technology's facilities and its business transport activities.

2.2. Organisational & reporting boundaries

The organisation has accounted for all quantified GHG emissions and/or removals from facilities over which it has financial control. **This assessment covers UK operations only.** The assessment covers the following reporting boundaries:

Figure 1: Assessment boundary

Scope 1 Direct Emissions	Scope 2 Energy Indirect	Scope 3 Other Indirect
Fuel combustion **Natural gas**		Purchased materials **Water**
Owned Transport **Company cars, pool cars, Van travel & distribution**	Consumption of purchased electricity, heat steam and cooling **Electricity**	Transmission and distribution of energy **Electricity**
Process emissions **None**		Leased assets, outsourcing and franchising **Homeworking** **Air freight**
Fugitive emissions **Refrigerants**		Transport related activities **Hire cars, grey fleet, flights and rail travel**
		Use of sold goods & services **None**
		Waste Disposal **Residual & Recyclable**

Key:

Within the assessment boundary	Not included within assessment boundary

2.3.   Calculation accuracy & materiality

The result of a carbon footprint calculation varies in accuracy depending on the data set provided. The more accurate the data supplied, the more accurate the result which will subsequently allow for better targeting of areas where improvements can be made. Materiality is determined by the percentage contribution of each element to the overall footprint.

The data provided is derived from energy bills, expense claims and data collected by EA Technology (Table 3). Based on the accuracy of the data provided, a simple error analysis has been used to estimate the error margin for the appraisal results.

Table 3: Assessment accuracy, materiality and simple error analysis

Dataset	Source of data and comments	Accuracy	Materiality	Uncertainty	Estimated Error Margin (tCO₂e)
Site electricity	Some utility bills provided as evidence. The landlord pays for utilities for the entire site and then separately invoices EA Technology for its usage.	Excellent	High	1%	0.9
Air freight	Departure airport and destination countries provided from freight. No specific destination airport data was available.	Good	High	10%	6.8
Home-workers	Hours worked from home and home-worker type provided.	Average	High	50%	33.1
Site gas	Some utility bills provided as evidence. The landlord pays for utilities for the entire site and then separately invoices EA Technology for its usage.	Excellent	Medium	1%	0.3
Pool cars	Actual mileage provided from vehicle odometers and mileage claims.	Excellent	Low	1%	<0.1
Employee-owned car travel (grey fleet)	Total annual distance provided from expense and mileage claims.	Good	Low	10%	0.5
Water	Water supply for each unit provided in cubic metres (m³).	Excellent	Low	1%	0.1
Van travel and distribution	Vehicle details and actual annual mileage provided from vehicle odometers.	Excellent	Low	1%	0.1
Rail travel	Distance and train type provided from Traveleads Annual Report.	Good	Very Low	10%	<0.1
Hire cars	Annual mileage and fuel type provided from Enterprise Annual Report.	Excellent	Very Low	1%	<0.1
Flights	Departure and destination airport and cabin class provided from Traveleads Annual Report.	Excellent	Very Low	1%	<0.1

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Issue 1.0
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Dataset	Source of data and comments	Accuracy	Materiality	Uncertainty	Estimated Error Margin (tCO$_2$e)
Outsourced Lorry freight	Emissions estimated based on the average weight per journey equating to 279kg. 96% of the journeys (323 trips) travel around 6 miles to a distribution warehouse in Deeside. 4% of the journeys (13 trips) travel around 33 miles to Manchester Airport. These also have some onwards travel in Singapore and China (estimated to be 10 miles, as per previous assessments).	Good	Very Low	10%	<0.1
Total				**+/- 14%**	**+/- 42.0**

To improve accuracy for future assessments, please see recommendations provided in Section 5.
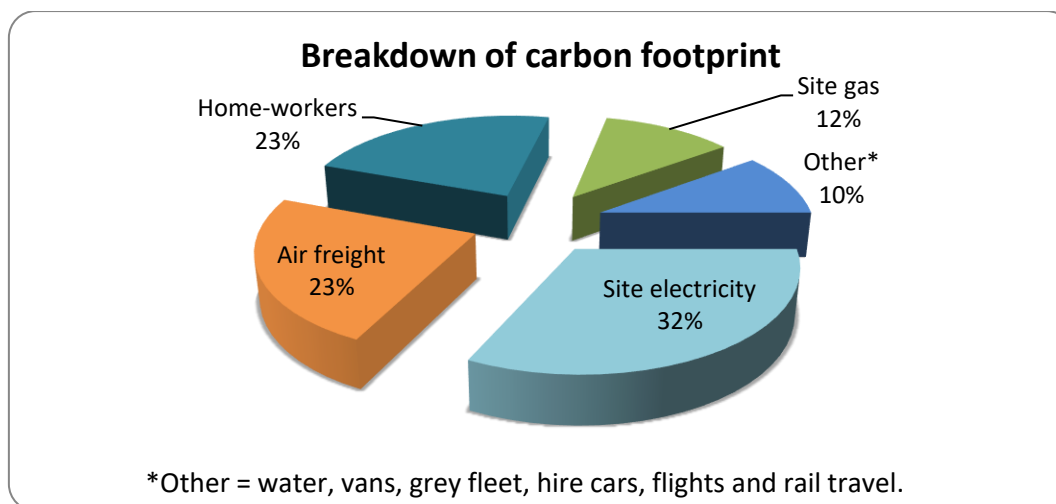
3. Carbon Footprint Results

3.1. Summary of results

The total carbon footprint for EA Technology for the period ending 31 March 2021 was 291.71 tonnes CO_2e. The following table and graphs provide a summary of results for EA Technology's carbon footprint calculation by scope and source activity.

Table 4: Results of EA Technology's carbon footprint assessment by scope and source activity

Scope	Activity	Location Based GHG Emissions (tCO_2e)
Scope 1	Site gas	33.73
	Van travel and distribution	11.99
	Pool cars	3.82
Scope 1 Sub Total		**49.55**
Scope 2	Electricity generation	86.42
Scope 2 Sub Total		**86.42**
Scope 3	Air freight	68.31
	Home-workers	66.25
	Electricity transmission & distribution	7.43
	Water (and wastewater)	6.36
	Employee-owned car travel (grey fleet)	5.26
	Hire cars	1.46
	Rail travel	0.28
	Lorry freight (outsourced)	0.24
	Flights	0.16
Scope 3 Sub Total		**155.75**
Total tonnes of CO_2e		**291.71**
Tonnes of CO_2e per employee		**1.54**
Tonnes of CO_2e per £M turnover		**11.67**

The most significant source of emissions is electricity consumption as shown in Figure 2. Other significant sources include air freight and home-workers. These three elements account for 78% of the total emissions. I therefore recommend that EA Technology focuses its emissions reduction efforts in these key areas, as this is where there is the greatest potential for savings.

Breakdown of carbon footprint

*Other = water, vans, grey fleet, hire cars, flights and rail travel.

Figure 2: Percentage contribution of each element of EA Technology's carbon footprint

3.2.   Emissions from energy usage at site facilities

EA Technology operates from one site in Capenhurst, UK. They occupy 4 units and have use of 2 test houses at this site, with most employees (76%) being based within Unit 4.

As a result of COVID-19 restrictions on work and travel, many employees were required to work from home for much of 2020. As such, EA Technology has also chosen to assess its home-worker footprint.

Unit 4 produces the highest amount of emissions as a result of energy consumption (Table 5 and **Error! Reference source not found.**). However, this is proportionate to the number of employees at this unit, and emissions per employee are lower than the other units. Unit 7 has the highest ratio of emissions per employee. There appears to be much higher electricity consumption at this site relative to the number of employees when compared to Unit 6 and 13. An energy audit to explore site energy consumption is recommended to identify areas of high consumption.

No data was previously provided for the Test Houses and Unit 13 but have now been included for the 2020/21 assessment. The Test Houses are not occupied but there is some minimal energy consumption associated with these. Unit 13 is not often occupied and is currently used as a storage facility. Very occasionally it is used for lab work.

Table 5: CO_2e emissions as a result of site energy consumption and per employee

Site	Number of employees	Electricity	Gas	Total (tCO_2e)	tCO_2e per employee
Capenhurst Unit 4	145	51.58	27.45	79.03	0.55
Capenhurst Unit 6	15	8.80	6.29	15.08	1.01
Capenhurst Unit 7	28	32.30	-	32.30	1.15
Capenhurst Unit 13	2	1.17	-	1.17	0.58
Capenhurst Test Houses	0	0.004	-	0.004	n/a
Total	**190**	**93.85**	**33.73**	**127.58**	**0.67**

Site GHG Emissions
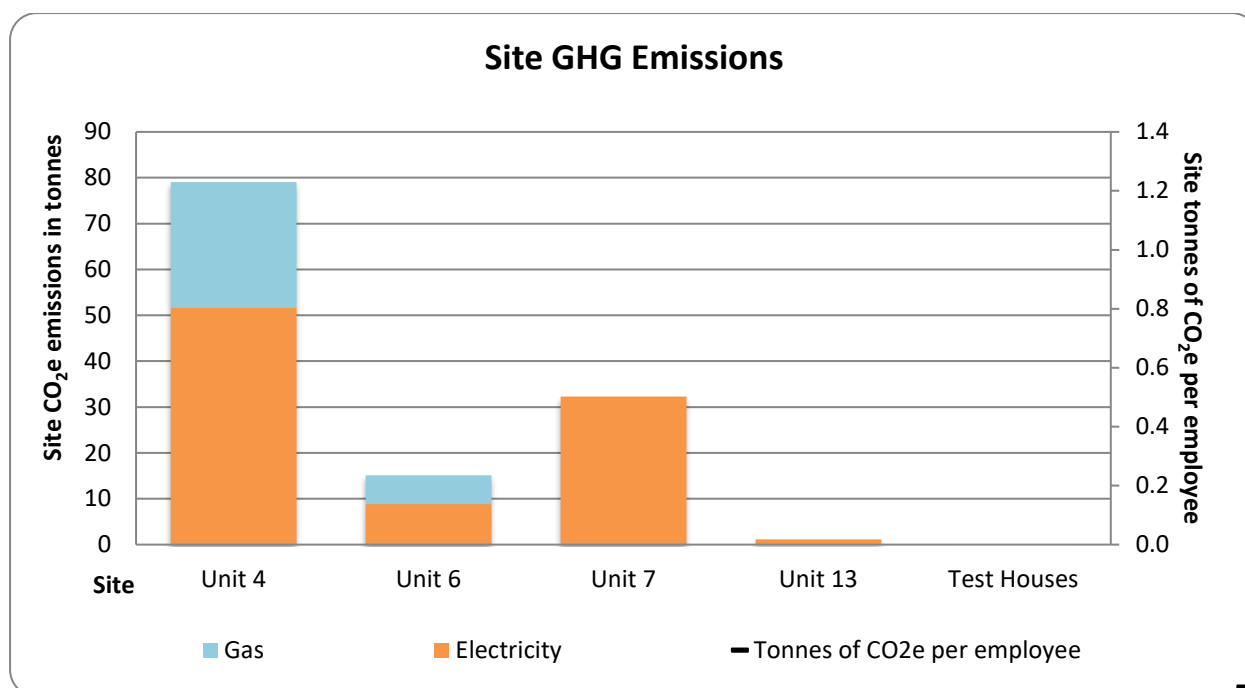
Figure 3: CO₂e emissions on a per site and fuel basis

### 3.3.   Emissions from home-workers

Homeworkers accounted for 23% of EA Technology's total emissions. Table 6 summarises the total hours worked at home over the 12-month assessment period based on home-worker type. The home workers who were home alone have a greater contribution to total emissions. This assumes that they are using energy that would not otherwise be consumed e.g., heating, compared with those at home with others who are sharing energy consumption.

Table 6: CO₂e emissions from home- workers

Home-worker type	No. of home-workers	Hours worked per year	Country	Total Emissions (tCO₂e)
Single occupancy	152	1417.5	United Kingdom	66.25

3.4.   Emissions from travel and logistics

The most significant source of travel emissions is from van travel and distribution (52.2%) as shown in Figure and Table . The use of employee-owned cars and company-owned pool cars were the other significant contributors to travel emissions. EA Technology also own company cars, but due to COVID-19 restrictions on travel these were not used during the 2020/21 assessment period.

*Other = hire cars, flights and rail travel.
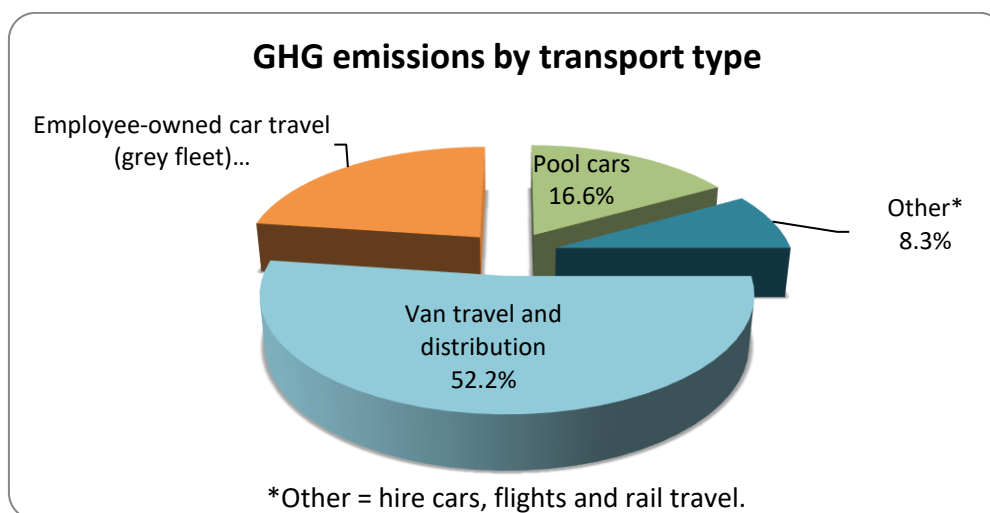
Figure 4: Percentage contribution of each element to transportation emissions

Table 7: CO$_2$e emissions due to transportation

Type of Travel / Transport	Tonnes of CO$_2$e
Van travel and distribution	11.99
Employee-owned car travel (grey fleet)	5.26
Pool cars	3.82
Hire cars	1.46
Rail travel	0.28
Flights	0.16
Total	**22.97**

The detailed results are given in Annex B.

3.5.   Emissions from outsourced freight

EA Technology uses outsourced air freight to transport products around the world from Manchester (Table 8). Most of the lorry transport is associated with transporting products around 6 miles to a distribution warehouse in Deeside, Manchester. Some products are transported around 33 miles to Manchester airport and a further 10 miles (estimated) of onwards travel once in Singapore and China. Emissions are estimated based on the average weight per journey equating to 279kg.

Transporting products by air is very carbon-intensive and produces high emissions compared to other freight transport methods. **I strongly recommend EA Technology explores alternative options for transporting freight transport such as rail and sea, as this will significantly reduce emissions associated with freight.**

Table 8: CO₂e emissions from outsourced air freight.

No. Of Shipments	Type	Total shipment Weight (kg)	Departure Location	Destination Location	Total annual distance (km)	Emissions (tCO₂e)
297	International	520	Manchester	Various	156,465.09	68.31

Table 9: CO₂e emissions from outsourced lorry freight.

No. of Trips	Type of Lorry	Annual travel distance (miles)	Cargo Weight (kg)	Emissions (tCO₂e)
323	All rigids (UK average)	6	279.0	0.19
13	All rigids (UK average)	43	279.0	0.05
336		**49**	**558.00**	**0.24**

3.6.   Emissions from water consumption

Table 10 shows the emissions associated with water consumption and wastewater treatment. Unit 4 has the greatest water consumption, which is expected as this is the site with the highest number of employees. However, Unit 13 has very high water consumption given that is it currently used as a storage facility with occasional lab work. I recommend that EA Technology carries out an inspection of each unit to identify if there are leaks or excessive water consumption, to aim to reduce the emissions associated with this.

Table 10: CO₂e emissions from water consumption

Site	Water supply (m³)	Water Supply (tCO₂e)	Wastewater treatment (tCO₂e)	Total emissions from water consumption (tCO₂e)
Unit 4	3,566	1.23	2.52	3.75
Unit 6	671	0.23	0.48	0.71
Unit 7	794	0.27	0.56	0.84
Unit 13	1,013	0.35	0.72	1.07
Grand Total	**6,044**	**2.08**	**4.28**	**6.36**

4. Comparison and Benchmarking

4.1. Comparison to base year emissions

The baseline year is 2018/19. Please note that this was re-calculated as there were some air freight journeys missing. The updated baseline year results are provided in the table below. The table and graph below show historical emissions per activity, as well as EA Technology's total carbon footprint and carbon intensity metrics (tonnes of CO_2e per employee and tonnes of CO_2e per £M turnover).

Table 10: EA Technology's carbon footprint comparison and percentage change

Element	Tonnes of CO_2e for footprint ending in March of calculation period:				
	2018/19	2019/20	2020/21	% Change on baseline year (2018/19)	% Change on previous year
Site electricity	128.01	122.66	93.85	-26.7%	-23.5%
Site gas	81.78	87.68	33.73	-58.8%	-61.5%
Refrigerants	-	1.77	-	n/a	-100.0%
Company car travel	3.01	0.87	0.00	-100.0%	-100.0%
Employee-owned car travel (grey fleet)	9.90	0.96	5.26	-46.9%	+446.4%
Pool Car travel	7.94	4.14	3.82	-51.9%	-7.7%
Rail travel	9.79	8.26	0.28	-97.2%	-96.6%
Flights	410.62	187.44	0.16	-100.0%	-99.9%
Van travel and distribution	10.56	14.09	11.99	+13.5%	-93.6%
Lorry freight (outsourced)	0.16	0.06	0.24	-49.1%	-279.9%
Air freight	54.39	88.94	68.31	+25.6%	-23.2%
Water (and wastewater)	5.23	7.18	6.36	+21.6%	-11.5%
Hire cars	14.66	10.70	1.46	-90.0%	-86.3%
Home-workers	-	-	66.25	n/a	n/a
Total Tonnes of CO_2e	**736.05**	**534.77**	**291.71**	**-60.4%**	**-45.5%**
Tonnes of CO_2e per employee	**4.21**	**2.81**	**1.54**	**-63.5%**	**-45.5%**
Tonnes of CO_2e per £M turnover	**24.05**	**17.83**	**11.67**	**-51.5%**	**-34.5%**

EA Technology has decreased its total carbon footprint by 60.4% between this period and the baseline year. Emissions have been reducing each year since the baseline year, with the most recent reductions largely due to the COVID-19 restrictions on travel and office-based work. For example, emissions from air travel reduced by 99.9% and company cars 100.0% since the previous year – only one flight taken compared to 168 in 2019/20. I recommend EA Technology uses this unfortunate period as an

opportunity to evaluate how effective its business operations continued without frequent air travel and re-define what it classifies as essential travel going forwards.

Homeworking has been included as an additional element in the 2020/21 assessment to account for changes in working conditions due to COVID-19. Whilst this new emission source shows a large addition, the emissions from other elements have dropped more significantly resulting in an overall reduction. For example, emissions from gas and electricity have reduced by 61.5% and 23.5% respectively since the previous year as less employees were working on site. Further emission reductions can also be expected from the lack of employee commuting, however this was not assessed.

Benchmarked against employee numbers and company turnover (adjusted for inflation) the carbon emissions statistics show a reduction for both since the baseline and previous year's assessment. The emissions per employee have reduced by 45.5% since the previous year. The company reported the same number of employees, meaning this reduction was directly related to a decrease in total emissions. Emissions per £M turnover have decreased by 34.5% since the previous year, despite the company reporting a reduction in total turnover.

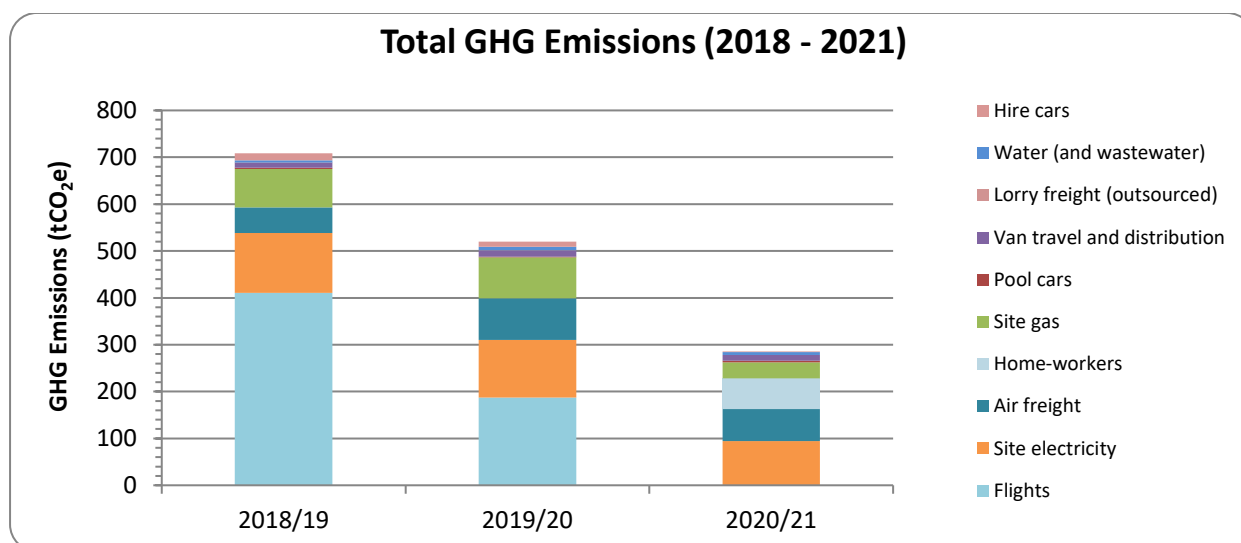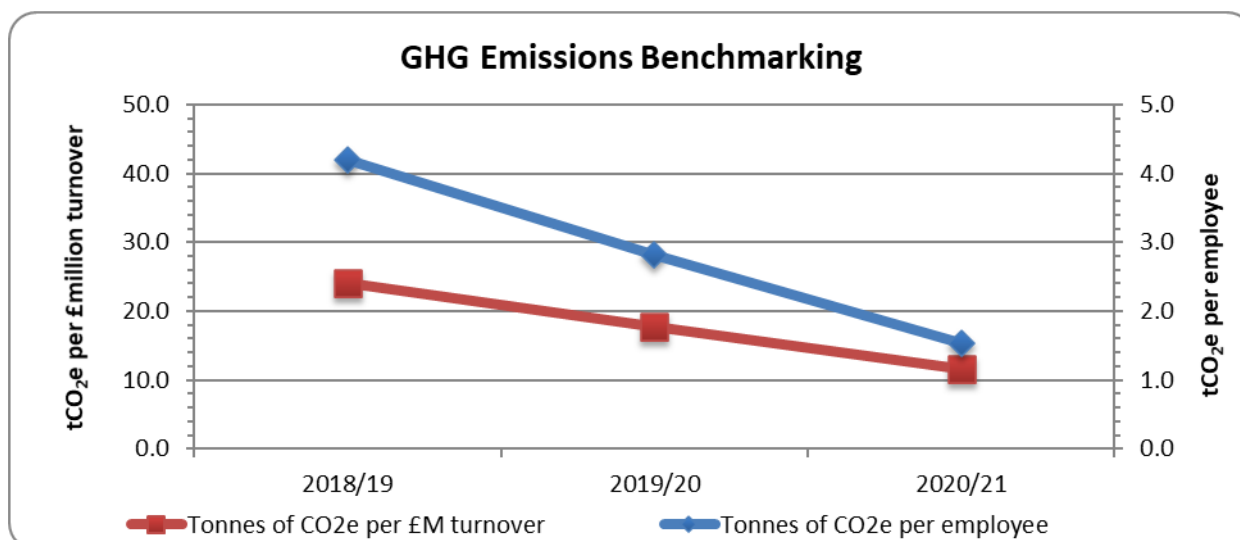The full breakdown can be seen in the following table and graphical representation.

Figure 5: Detailed emissions comparison for the various aspects of EA Technology's emissions

Figure 6: Carbon footprint of EA Technology for internal benchmarks

Carbon Footprint recommends that organisations use the base-year GHG inventory as a benchmark to measure against. When using the base-year GHG inventory as a benchmark, organisations can set realistic reduction targets and measure their progress year on year. This can also provide excellent marketing opportunities, where real figures can demonstrate your commitment towards helping fight climate change.

4.2. External benchmarking

Companies often choose to benchmark themselves against similar organisations in their sector. Carbon Footprint Ltd has an online tool you can use to find publicly available information on other organisations that have reported their emissions.

The Carbon Benchmarking Tool is free to use and can be found online at:
https://www.carbonfootprint.com/carbon_benchmark.html

Many companies only report their Scope 1 & 2 emissions for benchmarking as Scope 3 elements can vary considerably from business to business. The table below shows a summary of your emissions across these scopes, along with metrics showing emissions per unit turnover and per employee.

Table 11: EA Technology's benchmarked GHG emissions

Year/Element	Location based
Turnover in £million	25.00
Total number of employees	190
Tonnes of CO_2e	291.71
Tonnes of CO_2e per £ million	11.67
Tonnes of CO_2e per employee	1.54
Scope 1 & 2 Emissions	
Scope 1 & 2 tonnes CO_2e	135.97
Scope 1 & 2 tonnes CO_2e per £ million	5.44
Scope 1 & 2 tonnes CO_2e per employee	0.72

5. Key Recommendations

The following recommendations are designed to help you build upon the results of the appraisal and your carbon management over the coming year.

| Measure | Aim | Reduce | Offset | Communicate | Comply |
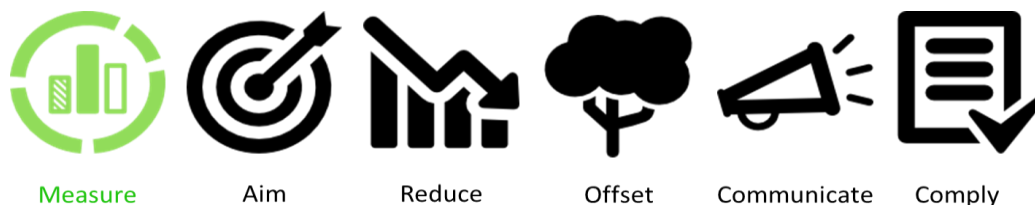
5.1.   Carbon & sustainability targets

5.1.1.   Target setting

I recommend setting reduction targets based on intensity metrics (e.g., emissions per employee or per £M turnover), against the baseline year. Reduction targets can be set based on emissions (CO_2e), as well as activity data such as kWh, car miles travelled, or average number of flights per head.

All targets set should be reviewed regularly and amended accordingly (i.e., target increased if it is met ahead of schedule). An action plan should be developed to set out how the targets will be met, with specific people allocated the responsibility of carrying out the identified actions.

5.1.2.   Improving the accuracy of future carbon footprint assessments

The estimated overall error margin is +/- 14%. This could account for +/-42 tCO_2e.

To improve the accuracy of future assessments, we recommend the following:
- Provide utility bills for the entire assessment period and keep records (e.g., meter readings if possible) on a monthly or quarterly basis for energy consumption on site.
- If accounting for home workers in the future, develop a system where individuals can log additional details to those provided in this assessment e.g. what energy tariffs they are on (renewable/not renewable) and include if they use gas, electric or both. This could be part of an employee commuting survey.
- Provide specific destination airports for air freight in future assessments.

5.2.   Reducing emissions

To reduce GHG emissions, we recommend the following:
- Continue to offset the total emissions to maintain the businesses carbon neutrality.
- Switch to a fully renewable energy tariff that has been REGO[3] certified as these assure that energy sourced is 100% renewable.

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[3] Ofgem Renewable Energy Guarantees Origin: Renewable Energy Guarantees Origin (REGO) | Ofgem

- Carry out a detailed energy audit within each unit to identify areas of high energy consumption and where the most effective savings can be made.
- Explore the option of using rail or sea freight as an alternative to air freight as these modes are less carbon intensive.
- Explore the options for using more sustainable outsourced freight suppliers. Research the supplier's sustainability values and credentials and select those with transparent carbon management policy in place.
- Evaluate the effectiveness of using remote meetings and limited travel during COVID-19 and re-define what your business classifies as "essential" travel going forwards.
- When leasing/purchasing new vehicles, consider transitioning to electric vehicles (EV) and installing charging points on-site.
- Develop an environmental management system (EMS) to track carbon management and sustainability and set up a sustainability team or workgroup that can oversee sustainability efforts at EA Technology.
- Promote sustainability achievements to internal and external stakeholders to encourage engagement.

5.2.1. Setting carbon reduction budgets based on emissions

Having an agreed and defined system for investing in future carbon reduction activities helps drive carbon reduction and cost savings in a business. Many leading organisations are doing this through setting an "Internal Carbon Tax" or an "Internal Carbon Price" within their organisation (see http://www.carbonfootprint.com/internal_carbon_pricing.html for more information).

We suggest starting by setting a price of £20-25 per tonne of CO_2e, as this typically relates to 1-6% of the cost of causing emissions (as shown in the table below). You may wish to collect the "taxation" by each functional group (depending on their emissions), or simply account for this at the top-level company budgeting.

Table 12: Carbon price compared to energy and travel costs

Emissions Source	Electricity	Natural Gas	Car Miles	Flights
1 tonne CO_2e is equivalent to	2400 kWh	5500 kWh	3300 miles	5200 km
Cost to produce 1 tonne CO_2e	£335	£220	£1485*	£400
£20 carbon price represents	6%	9%	1%	5%

assumes a rate of 45p per mile

We recommend allocating this defined budget to help both internal and external carbon reduction activities. For example, it could be split:
- 75% on internal carbon reduction measures
- 25% on external carbon offsetting activities

Investments in internal carbon reduction activities should be made based on the level of carbon savings and the associated cost savings. Good carbon reduction investments usually pay for themselves and give a return on investment to the business within 3 years. Carbon offsetting return on investment is primarily measured through access to tenders, brand enhancement and PR (use marketing return on investment techniques).

5.2.2. Funding opportunities

The following section provides details of current funding opportunities in the UK that may be applicable to EA Technology in order to increase the percentage of electric/hybrid vehicles within the fleet.

Plug-in car & van grants & incentives:

This funding is provided in the form of grants issued by the UK Government, which go towards the purchase of a plug-in electric vehicle. The levels of funding are as follows:
- 35% of the cost of a van, up to a maximum of £6,000 (for large vans)
- 35% of the cost of a car, up to a maximum of £2,500 (for cars with a list price below £35,000)

This will help to reduce the company's vehicle travel emissions. Further details on which vehicles are eligible are available through this website: https://www.gov.uk/plug-in-car-van-grants

The following schemes incentivise all types of vehicle acquisitions, including for employee-owned vehicles:
- Leasing - There are significant tax incentives if you lease an electric vehicle under a company 'salary sacrifice' programme. This type of programme is increasingly used instead of old-style company car programmes. Lease costs are taken off an employee's gross salary. This means that the employee's tax burden (PAYE and NIC) is then reduced (by the lease costs). For fossil-fuelled cars, employees would still be hit with high Benefit in Kind (BIK) taxes that (in 2021) can be as high as 37% of the P11D value of the vehicle compared with 1% for full EVs. This makes the EV an exceptionally good candidate as a salary sacrifice option. More so for higher tax bracket earners.
- Company car - If you get a company car, you will also benefit again from the very low BIK (tax year 2021, full EVs BIK at 1%, compared with >150g/km CO_2 car BIK at 37%) – reducing your tax burden. Full EVs also qualify for Enhanced Capital Allowances (EHA) – at time of writing permitting the business to 'write down' the full value of the vehicle within one year against profits and thus reduce corporate taxes.

Buying an EV outright – Although, car leasing is increasingly popular, many people still wish to buy a car outright. For this, the UK incentivises purchase of EVs for cars with electric range of greater than 70 miles as April 2021 to up to £2,500 for cars with a list price under £35,000.

Workplace Charging Scheme:

This funding is provided in the form of vouchers issued by the UK Government, which go towards the purchase of electric vehicle charging points.

The grant cap is set at a maximum of £350 (including VAT) per socket. Each company can apply for up to 40 sockets (across all sites).

For more information, refer to: https://www.gov.uk/government/publications/workplace-charging-scheme-guidance-for-applicants-installers-and-manufacturers

5.3.   Carbon offsetting

Carbon offsetting is a great way to compensate for the emissions that you cannot reduce, by funding an equivalent carbon dioxide saving elsewhere.

Carbon offsetting allows EA Technology to be involved in funding solutions to the problems associated with climate change by accounting for the emissions the business has produced over this assessment period. Most importantly, supporting offsetting projects which reduce atmospheric carbon will buy us the time needed before we reach the critical 1.5°C global temperature increase threshold, allowing us to address reducing emissions at source.

We can provide both UK-based and international projects for you to support. The majority of projects focus on the development of renewable energy in developing countries, however there are others which have a greater focus on social benefits as well as environmental benefits. Further detail on the type and specific projects that we currently have in our portfolio can be provided on request or be found at: http://www.carbonfootprint.com/carbonoffsetprojects.html.

Example of Carbon Offsetting Projects:

Tree Planting in UK Schools

Avoided Deforestation in the Brazilian Amazon

Clean Water in Rwanda

5.4. Carbon Footprint Standard

5.4.1. Brand endorsement

EA Technology, in conjunction with Carbon Footprint Ltd, has assessed its carbon footprint and shown a reduction of 60.4% based on its absolute emissions since the baseline year. By achieving this EA Technology has qualified to use the Carbon Footprint Standard branding. This can be used on all marketing materials, including website and customer tender documents, to demonstrate your carbon management achievements.

The Carbon Footprint Standard is recognition of your organisation's commitment to carbon management. The text to the right-hand side of the logo demonstrates what level you have achieved in line with international best practice.

5.4.2. Scope

Over time, you can progress your carbon footprinting to increase the scope and encompass your products, supply chain and your employees. By doing so you will be able to receive the Carbon Footprint Standard for these categories, thus standing out amongst your competitors and truly driving the sustainability or your brand.
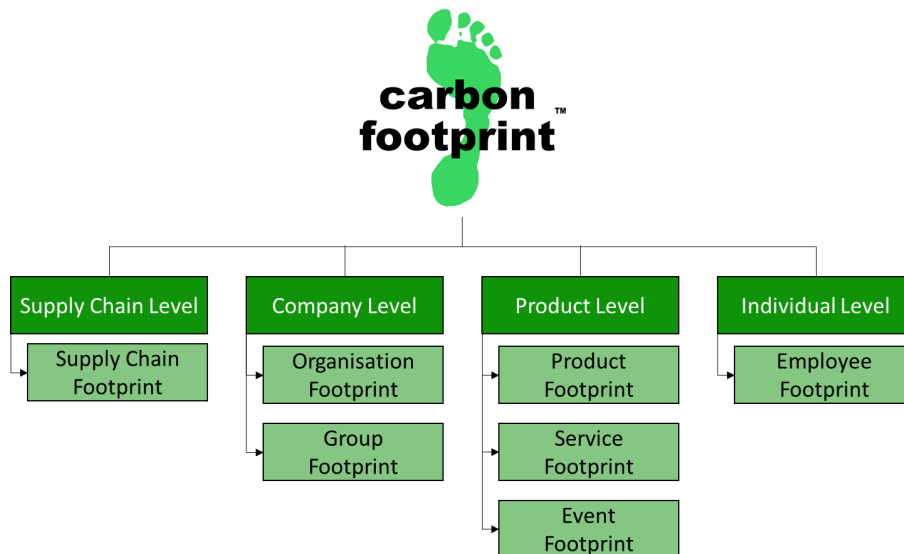
Once the scope has been identified, the Carbon Footprint Standard will allow EA Technology to develop from a novice to an exemplar in the market. You can progress from a Carbon Assessed Organisation to a Carbon Neutral or a Carbon Neutral Plus Organisation by supporting a range of environmental projects that come with wider CSR and PR opportunities.

Alongside the sustainability rationale, this will allow you to leverage the Carbon Footprint Standard to truly stand out in your market. Progressing will resonate with like-minded customers and will help your business grow.
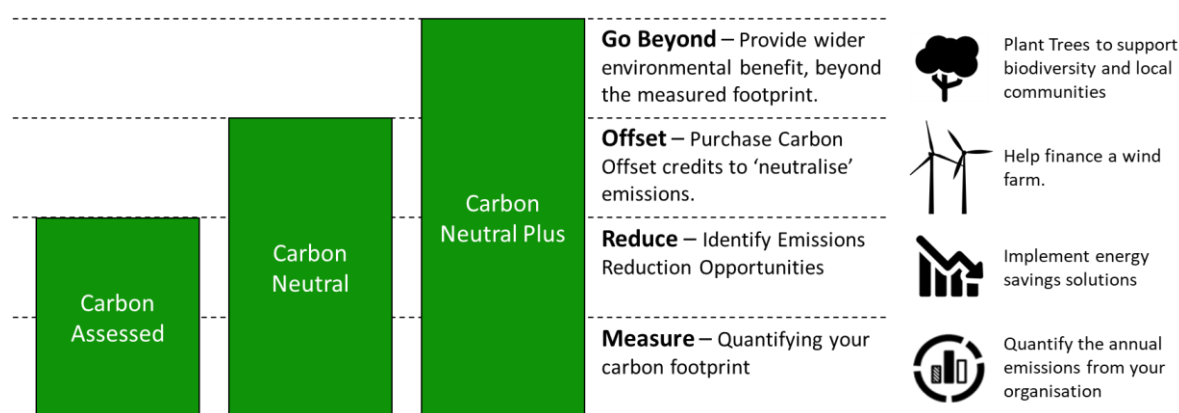
5.4.3. Communicate

Make sure you communicate your actions and achievements effectively, both within your organisation, to help develop your culture, and externally to help improve your brand image.

When promoting your actions, be sure to utilise all marketing channels available to you, such as website, newsletters, brochures, press releases, conferences/events and social media etc.

You should:
- Explain why climate change matters to you (for more information visit: www.carbonfootprint.com/warming.html)
- Tell the story of where you have come from, the progress you have made and what your commitment is for the future (e.g. targets).
- Be clear and accurate about what you have achieved – take care not to exaggerate.
- Use the Carbon Footprint Standard branding, certificates, images of offset projects you are supporting and graphs of your carbon performance to help communicate your point in a clear and enticing manner.

6. References

1. BEIS GHG Conversion Factors for Company Reporting (2020)
2. Guidelines to Defra's Greenhouse Gas (GHG) Conversion Factors for Company Reporting – annexes (June 2013)
3. The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, Revised Edition (March 2004)
4. HM Revenue & Customs (2019) https://www.gov.uk/government/publications/enhanced-capital-allowances.

A. Annex A – Calculation Methodology (Additional Notes)

A.1 How is the carbon footprint calculated?

Carbon Footprint confirms that the methodology used to quantify the carbon footprint meets the following principles:
   a) The subject and its boundaries have been clearly identified and documented.
   b) The carbon footprint has been based on primary activity data unless the entity could not demonstrate that it was not practicable to do so, in which case an authoritative source of secondary data relevant to the subject was used.
   c) The methodology employed minimised uncertainty and yielded accurate, consistent and reproducible results.
   d) Emission factors used are germane to the activity concerned and current at the time of quantification.
   e) Conversion of non-CO_2 greenhouse gases to CO_2e has been based upon the 100-year Global Warming Potential figures published by the IPCC or national (Government) publication.
   f) Carbon footprint calculations have been made exclusive of any purchases of carbon offsets.
   g) All carbon footprints have been expressed as an absolute amount in tCO_2e.

A.2 Biomass

There are no CO_2 emissions from the combustion of biomass to be considered within this report.

A.3 Greenhouse gas removals

Within the calculation of EA Technology's carbon footprint, there are no business processes resulting in the reduction of greenhouse gases from the atmosphere to be deducted from the calculation.

B. Annex B – Supplied Data and Emissions Breakdown

This Annex has been provided as a separate Excel file alongside the report.

This annex shows the data that EA Technology has supplied Carbon Footprint Ltd for the calculation of its emissions. At the end of each table one or several columns have been added that display the emissions and calculations associated for each item of data provided by EA Technology. It should be noted that the latter has been calculated by Carbon Footprint Ltd, and not provided by EA Technology.

B.4 Scope 1 emissions breakdowns

The table below demonstrates the company's Scope 1 CO_2e emissions in their respective greenhouse gases.

Table 13: CO_2e Emissions breakdown for Scope 1 emissions into their greenhouse gases.

Activity	kg CO_2e	kg CO_2 in CO_2e	kg CH_4 in CO_2e	kg N_2O in CO_2e
Site gas	33,732	33,670	44	18
Pool cars	3,825	3,802	12	11
Van travel and distribution	11,989	11,829	1	158
Total	**49,545**	**49,300**	**58**	**187**