# Carbon Reporting Guide

How to calculate and report your organisation's carbon footprint





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Carbon reporting isn't simple, but it's important.

Many businesses are obligated to do SECR (Streamlined Energy Carbon Reporting). Others simply want to quantify their carbon outputs so they can show when they're successfully reducing their emissions.

Whichever camp your organisation falls in, this guide will help you know where to start and how to measure your business carbon footprint.

Each part of the journey is laid out in detailed, easy to understand steps. The guide will help your business take action, comply with SECR guidelines, and give you a jumping off point for further sustainability progress.

At Drax, we're aiming to be carbon negative by 2030. But every journey must start somewhere. Read on to learn how to put your organisation on the path to carbon reporting success.

### Why measure your footprint?

This guide is your essential introduction to carbon reporting. But before we tell you how, let's start with 'why'.

Carbon reporting, also known as carbon footprinting, is all about measuring your organisation's greenhouse gas emissions, and therefore its contribution to climate change.

Calculating emissions is an essential step on the pathway to net zero. For some organisations it's a mandatory requirement, and increasingly it's becoming an expectation within supply chains. For example, larger organisations that have made commitments may ask their suppliers to take steps towards net zero.

There are several benefits to measuring your business's carbon footprint:

The cost of carbon (including utilities) is climbing. Having a good

handle on the overall use of commodities, products, services, and resources that are high carbon has a financial impact: reducing emissions can also reduce operational costs.

Companies with mandatory obligations must report their carbon footprint, and this provides a basis for compliance. For example, your business may need to do SECR or the Taskforce on Climate-Related Financial Disclosures (TCFD) (explained later in this guide).

There are clear ESG (Environmental, Social and Governance) benefits from acting responsibly and understanding your organisation's relationship with the planet.



When compiled alongside action to reduce your emissions, there's a potential brand benefit for organisations, as more buyers make conscientious consumer decisions.

Carbon footprinting allows organisations to participate in voluntary sustainability and carbon reporting initiatives. For example, the Carbon Disclosure Project (CDP).

It's increasingly important if you're seeking investment, as potential investors expect you to be able to provide information on your carbon footprint and sustainability credentials.

Carbon footprinting allows you to act on a global problem, helping your business stand with others in the international effort to slow down climate change.

#### Global greenhouse gas concentrations



 $CH_4$  (ppb)  $CO_2$  (ppm)

Parts per billion (ppb) and parts per million) are used to measure the concentrations of greenhouse gases in the atmosphere. One part per million is equivalent to one milligram per kilogram.

### Warming stripes (1850 to 2020)

The below graphic shows data from several meteorological sources.

Known as "warming stripes", it shows the average annual temperature from 1850 on the left to 2020 on the right. The impact of climate change - the gradual rise in average global temperature - is evident.



Attribution: Graphics and lead scientist: Ed Hawkins, National Centre for Atmospheric Science, University of Reading. Data sources: Berkeley Earth, NOAA, UK Met Office, MeteoSwiss, DWD, SMHI, UoR, Meteo France, & ZAMG.

### What's a carbon footprint?

In very simple terms, it's a measure of your contribution to the quantity of greenhouse gases in the environment. As we know, it's these gases that cause climate change.

There are two main types of carbon footprint: those for an organisation, and those for a product or service journey. Organisations generally compile carbon footprints over a 12-month period, while products or services are generally considered over their lifecycle. This is sometimes referred to as Lifecycle Assessment (or LCA).

This guide is about how to compile an organisational footprint.



Product/service footprint (lifecycle assessment)

### The make-up of a carbon footprint

Carbon footprints are produced in line with the Greenhouse Gas (GHG) Protocol, which is a suite of global accounting standards for greenhouse gases.

However, greenhouse gases aren't all the same. We use the term carbon dioxide equivalent ( $CO_2e$ ) to create a common unit, but there are six groups of gases we're actually accounting for. They are carbon dioxide ( $CO_2$ ), methane ( $CH_4$ ), nitrous oxide ( $N_2O$ ), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluorides (SF<sub>6</sub>).

 $CO_2e$  is a standard unit for measuring carbon footprints. This unit denotes the impact of each different greenhouse gas in terms of the amount of  $CO_2$ that would create the same amount of warming. That way, a carbon footprint consisting of many different greenhouse gases can be expressed as a single number, which is much simpler to understand.

Carbon dioxide is the one we're most familiar with, but the table below summarises the others. These others have a much higher global warming potential per unit.



#### Heat trapping rating of greenhouse gases

Global warming potential (GWP) is a unit that measures how much a given gas warms the earth compared to  $CO_2$  over a given time period.

GHG	GWP
CO <sup>2</sup>	1
CH <sub>4</sub>	28
N <sub>2</sub> 0	265
HFCs	1-12,400
PFCs	6630-11,100
SF <sub>6</sub>	23,500

https://www.ghgprotocol.org/sites/default/files/ghgp/Global-Warming-Potential-Values%20%28Feb%2016%202016%29\_1.pdf

### How is a carbon footprint calculated?

Quantifying your emissions is done in a consistent way, across a defined set of what are known as emission scopes. These scopes are defined by the GHG Protocol. All emissions are calculated by multiplying an activity source by a carbon factor. The carbon factor shows the average quantity of greenhouse gas emissions released into the atmosphere associated with that specific activity source.

The full scope of activities is summarised by the below graphic.

#### Greenhouse gases

Upstream activities			Own operations			Downstream activities		
purchased goods and services	business travel		Company facilities			transportation and distribution	use of sold products	
capital goods	leased assets			- 0		processing of sold	franchises	
fuel or energy related activities	employee commuting		company vehicles			leased assets	investments	
transportation and distribution	waste generated on operations					end-of-life treatment of sold products	recycling	
	CO2	$CH_4$	N <sub>2</sub> O	HFCs	$SF_4$	PFCs		

- Scope 1 Direct emissions resulting from activities within your organisation's control. Typically, these include:
  - Onsite fuel combustion (such as gas boilers)
  - Combustion from mobile assets (such as cars)
  - Manufacturing and process emissions
  - Refrigerants that are lost to the atmosphere from refrigeration (for example, air conditioning and refrigeration equipment)
- Scope 2 Indirect emissions from purchased energy (mostly electricity, heat, steam or cooling).
- Scope 3 Indirect emissions from/of your operations. This covers all activities which are upstream of you. These could be:
  - Goods or services you purchase
  - The delivery of fuel or energy to you
  - Emissions from deliveries you receive

Indirect emissions can also be downstream of you, for example:

- Your deliveries to customers
- The customers' emissions using your product
- The end of life treatment of the products you sell

An example of how emissions are calculated is shown below:

Electricity



Kg or tonnes are more useful measurements so 1000 kWh of electricity consumed creates

255.6 kg CO<sub>2</sub>e **OR** 0.2556 tonnes CO<sub>2</sub>e

The Government provides a free set of carbon factors, which make carbon reporting more accessible. You can access them here.

The carbon factors provided by the Government cover the following types of emissions:

1. Fuels	6. Water
2. Bioenergy	7. Waste
3. Refrigerants	8. Business travel
4. Vehicle usage	9. Some construction and
5. Electricity	Industrial material use
,	10. Some logistics



For non-freely available carbon factors, you may need to use a paid source of carbon factors. A paid carbon calculator (see step four of our following step-by-step guide), will be needed for the following types of emissions (please note, this list isn't exhaustive):

- 1. International emissions (complete coverage)
- 2. Chemical use
- 3. Embodied emissions for materials
- 4. Electronics

- 5. Fashion and fabrics
- 6. Food and drink
- 7. Detailed purchasing and material use
- 8. Timber

There's specific guidance for calculating Scope 2 emissions here (indirect emissions from purchased energy, as listed above). This allows the emissions to be reported on two bases: location (the country or location of the emission) and market (the procurement involved).

### Considerations

As such, best practice for Scope 2 is to calculate your emissions based on both location and market. If, for example, you had renewable electricity, then your market-based emissions would be 0 tCO<sub>2</sub>e because the carbon factor associated with this renewable electricity is 0. However, your location-based emissions would be your kWh multiplied by the carbon factor for average UK electricity for the reporting period.

If you choose to manually calculate these sums in a spreadsheet, consider adding a couple of extra columns to account for this. If you opt for a softwarebased tool, it will likely account for this automatically. You may need to ask your energy supplier for their market-based emissions factor if you buy energy which isn't 100% renewable.

### Principles you should follow while compiling your footprint

The GHG protocol has a set of principles which are crucial to follow. They ensure that the result can be trusted by other parties and is open to external validation. These principles are summarised below:

Relevance	Ensure the GHG inventory appropriately reflects the GHG emissions of the company and serves the decision-making needs of users – both internal and external to the company.					
Completeness	Account for and report on all GHG emissions sources and activities within the chosen inventory boundary. Disclose and justify any specific exclusions.					
Consistency	Use consistent methodologies to allow for meaningful comparisons of emissions over time. Transparently document any changes to the data, inventory boundary, methods, or any other relevant factors in the time series.					
Transparency	Address all relevant issues in a factual and coherent manner, based on a clear audit trail. Disclose any relevant assumptions and make appropriate references to the accounting and calculation methodologies and data sources used.					
Accuracy	Ensure that uncertainties are reduced as far as practicable. Achieve sufficient accuracy to enable users to make decisions with reasonable assurance as to the integrity of the report information.					

### Accessing the guidance





#### **Global Standard**

#### The GHG Protocol

ghgprotocol.org

Check out the standards and guidance areas.



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### Step by step guide to completing a carbon footprint assessment



Map your operations and emission sources, and understand categories and scope

Consider what activities you have that would fall into each category and map them into a diagram like the one opposite.

	Upstream of my organisation	Within my organisation	Downstream of my organisation
Scope 1		Fleet	
		refrigerants	
Scope 2		Electricity usage	
Scope 3	Purchased materials		Use of sold product
·	Waste		

2 Draw your boundaries

Decide on what you can and can't report at this stage. You should aim to ultimately report everything, however your organisation's data might not be available to do this yet. If this is the case, start with Scopes 1 and 2 first. Then pick up the upstream element of Scope 3, and then finally everything. This is demonstrated by the diagram below (reporting boundary in blue).





### Identify your data sources

The below guidance sets out the data needed for key emission types, listed in order of preference (although in absence of the top choice data set, something is always better than nothing).



#### For all data sets, remember to note:

- 1. The start date of the period of usage
- 2. The end date of the period of usage
- 3. The country in which it was used
- 4. The supplier of the fuel/energy/resource

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### Fuel used in vehicles

- 1. Litres used by fuel type
- 2. Miles travelled by vehicle type (large car, medium car, small car, van or HGV)



### Fuel used in combustion (e.g. gas for a boiler)

- 1. Litres of fuel used (or m3 or kWh for gas)
- 2. Size of the building heated, the location and operating hours



#### Fuel used in generators

- 1. Litres of fuel used
- 2. Operating hours and size of generator



### Fugitive emissions (i.e. refrigerants from air conditioning systems)

- 1. F-gas records
- 2. Kg of refrigerant charged/leaked
- 3. Asset register of air conditioning system

Fluorinated gases, ('F-gases') are man-made gases used in industrial processes. F-gases have high global warming potential, and are subject to UK legislation and EU regulation. Organisations are required to measure and report F-gases equivalent to or greater than five tonnes of carbon dioxide.



### Process emissions (i.e. chemicals with a global warming potential used in an industrial process)

1. Litres/kg of process emission



#### Any purchased electricity, heat, steam or cooling

- 1. kWh used from utility bill (or from landlord)
- 2. Cost of energy used from accounts (or from landlord)
- 3. Size of the area in m2 in which electricity, heat, steam or cooling are used



### Expenses claim mileage and mileage in rental cars

- 1. Miles claimed
- 2. Total expenses value



### Travel records (by category – train, bus, coach, taxi, plane, boat)

- 1. Distance travelled
- 2. Value of expenditure on journeys



### Expenditure by category for procurement

- 1. Environmental product information from your suppliers
- 2. Quantity (weight) of materials purchased
- 3. Total expenditure (ex. VAT) for each category requested

## (H<sub>2</sub>0)

- Water usage
- 1. Volume of water used from bill
- 2. Total bill value (£ or equivalent)
- 3. Total number of employees (or for publicly visited locations, total visitors)



### Waste volumes (by category – landfill, recycled)

- 1. Total waste in kg/tonnes
- 2. Total waste volume in m3
- 3. Total number of bins, and number of lifts per week on average



### **Employee commuting**

- 1. Completion of a survey to identify:
  - a. Average commuting distance (miles)
  - b. Normal commuting transport method (car, bike, train)
  - c. Regularity of commuting (days per week)
- 2. Use an approximate benchmark

### Bear in mind your report should:

- Cover a 12-month period
- Be repeated annually to track progress against the baseline year
- Increasingly mirror the financial year of the organisation (in part due to legislation e.g. quoted company reporting since 2013 and the recent introduction of SECR)
- Cover your stated emissions boundary
- Estimate for any gaps

### Example greenhouse gas calculation spreadsheet

<b>Reporting period:</b> 01/01/2020 - 31/12/2020		Emissions: Scop	e 1 12.50tCO <sub>2</sub> e	Scope 2 11.49tCO <sub>2</sub>	e Scope 3 0.33	stco <sub>2</sub> e	
Activity	Units	Unit of measurement	Start date	End date	Carbon factor	Emission scope	Carbon emissions (tCO2e)
Electricity	12342	kWh	01/01/2020	31/03/2020	0.00023314	2	2.88
Electricity	12123	kWh	02/04/2020	30/06/2020	0.00023314	2	2.83
Electricity	12465	kWh	01/07/2020	30/09/2021	0.00023314	2	2.91
Electricity	12345	kWh	01/10/2020	31/12/2021	0.00023314	2	2.88
Gas	23450	kWh	01/01/2020	31/03/2021	0.00018387	1	4.31
Gas	16504	kWh	01/04/2020	30/06/2021	0.00018387	1	3.03
Gas	8450	kWh	01/07/2020	30/09/2021	0.00018387	1	1.55
Gas	19560	kWh	01/10/2020	31/12/2021	0.00018387	1	3.6
Water (Supply)	322	m3	01/01/2020	31/12/2021	0.000344	3	0.11
Water (Wastewater)	306	m3	01/01/2020	31/12/2020	0.000708	3	0.22

Calculate your emissions

If you simply want a number or your organisation's footprint, you can develop a basic spreadsheet using the **activity x carbon factor** principle.

If you need a more complex answer, there are a variety of commercial calculators available at a low cost that your organisation can use for this exercise.

Using the guidance on data above, you should be able to compile your total carbon footprint for 12 months.



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### Report your carbon footprint and put it into context

Once you've calculated your emissions, you can identify any hotspots that will help you prioritise where to act. You should also think about reporting your carbon emissions intensity.

This could look like reporting how many tonnes of  $CO_2$  your business is responsible for as a factor of the size of your business or how much money it's making. Doing this puts your total emissions into perspective and gives a benchmark that will scale up and down as your business does.

For example, if your organisation acquires another site, increasing its turnover and operations. The volume of your emissions will likely increase, alongside turnover. Without scale or comparison, this looks like a negative result.

However, if you've calculated an emissions intensity figure, you'll be able to do the same calculation post-growth to show that your business isn't contributing more emissions proportionate to its size or outputs. In fact, if you've been implementing efficiency measures with your new site, your intensity could be lower. Your net volume of emissions may increase, but you can still show stakeholders and employees that you're making progress towards lower carbon intensity.







### Next steps



#### A. Set targets for reduction

Once you're familiar with your footprint, the next step is to reduce it.

The best practice approach here is to establish a science-based target. Targets are considered science-based if they align with the latest climate science and can demonstrate that you're taking your proportional share of resolving our climate change challenges.

You can sign up to a science-based target with the Science Based Target Initiative (SBTi) here.

SBTi operates a scheme for corporates and a scheme for SMEs, so you can enter the right one for your organisation's size.



#### B. Share and communicate your progress

It's important to communicate your benchmarks and targets both externally and internally. This can achieve buy-in from investors, consumers, businesses in your supply and value chain, and your employees.



#### C. Consider carbon offsetting and becoming carbon neutral

The first step is always to reduce your carbon emissions. But if all possible and reasonable steps have been taken to do so, consider offsetting any remaining emissions in your footprint. When it comes to balancing your organisation's impact on the planet, taking positive action is always better than doing nothing.

### 7 key things to remember



You can better map your emissions if you properly understand your operations



The key principles matter throughout (see page 8)

Once complete, you can make future carbon footprinting easier if you maintain your 'emissions inventory'



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The most useful report is one that your audience - whoever they may be - can understand

Analyse the data that goes into your footprint so you can develop real insight in your report

Use your report to drive your next steps on the pathway to net zero

### Reporting requirements by scheme

SCHEME	Scope 1 - Gas	Scope 1 - Transport	Scope 1 - Other	Scope 2 - Electricity	Scope 2 - Other	Scope 3 - Grey Fleet	Scope 3 - Upstream	Scope 3 - Downstream	Considerations
SECR	~	$\checkmark$	•	$\checkmark$	•	$\checkmark$			Quoted companies are required to report their global Scope 1 and 2 emissions
ESOS	~	~	•	~		~			All energy must be reported, so fuels must be included but refrigerants and similar are not required
TCFD	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	
SBTi	~	~	$\checkmark$	$\checkmark$	$\checkmark$	<b>*</b>	✓*	✓*	
CDP	~	~	$\checkmark$	$\checkmark$	$\checkmark$	✓*	✓*	✓*	
Carbon Neutrality	~	~	~	$\checkmark$	$\checkmark$	<b>*</b>	<b>*</b>	✓*	

• = required if part of your portfolio (ESOS) or based on your company type (SECR). Quoted companies in SECR need to report all Scope 1 and 2 emissions"

\* = where the emission category represents more than 1% of your overall emissions. Immaterial emission sources can be excluded

# Drax - sustainability as standard



Drax Power Station provides 11% of the UK's renewable power, and is the largest decarbonisation project in Europe



We have partnerships with over 2,300 renewable generators across the UK



Our ambition is to be carbon negative by 2030

### Get in touch

To find out how you decarbonise with Drax, contact us today to discuss our Electric Assets, Electric Vehicles, or Power Purchase Agreements.



energy.drax.com



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