



Welcome to **The Role of Carbon in Waste**

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What we will cover

- Intro to SmartCarbon
- Waste emissions across the value chain
- Waste Services Reporting
- Waste Producers Reporting
- Summary of challenges



SmartCarbon:

Why do we do what we do?

As industry steps up to the increasing need to decarbonise activity, SmartCarbon aims to provide an easy-to-understand system and support to allow businesses to properly engage in the most important matter of our time.

SmartCarbon:

Bringing organisations on “TRACC” for Net Zero by 2050



Proven expertise in
carbon accounting



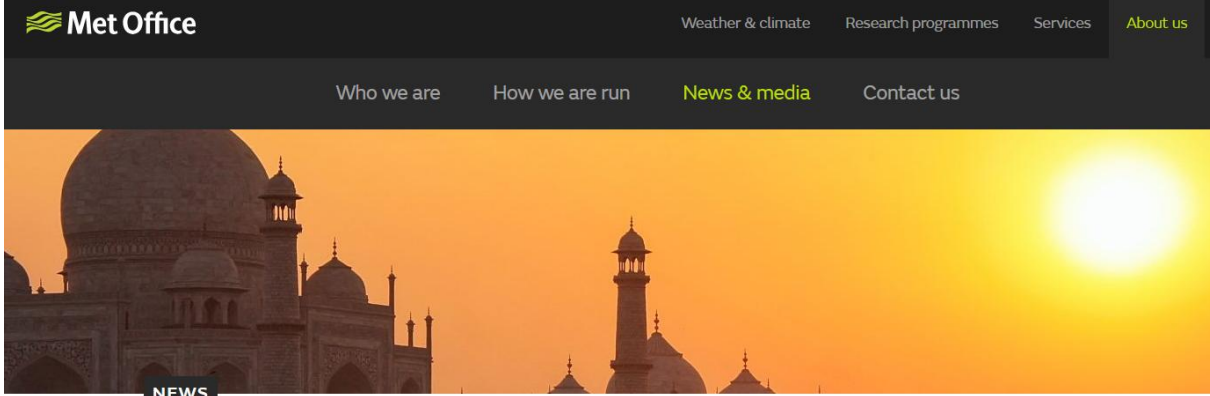
Client focused support
for guiding Net Zero
measurement and
decarbonisation strategy



Comprehensive
reporting platform for
the entire value chain

SmartCarbon: Our clients and partners





2025 outlook: in top three warmest years on record

Author: Grahame Madge
00:01 (UTC) on Thu 12 Dec 2024

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globally

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WEATHER

January 2025 'unexpectedly' warmest on record



Features



LIVE UK facing hottest day of year as high UV levels increase sunburn risk

News

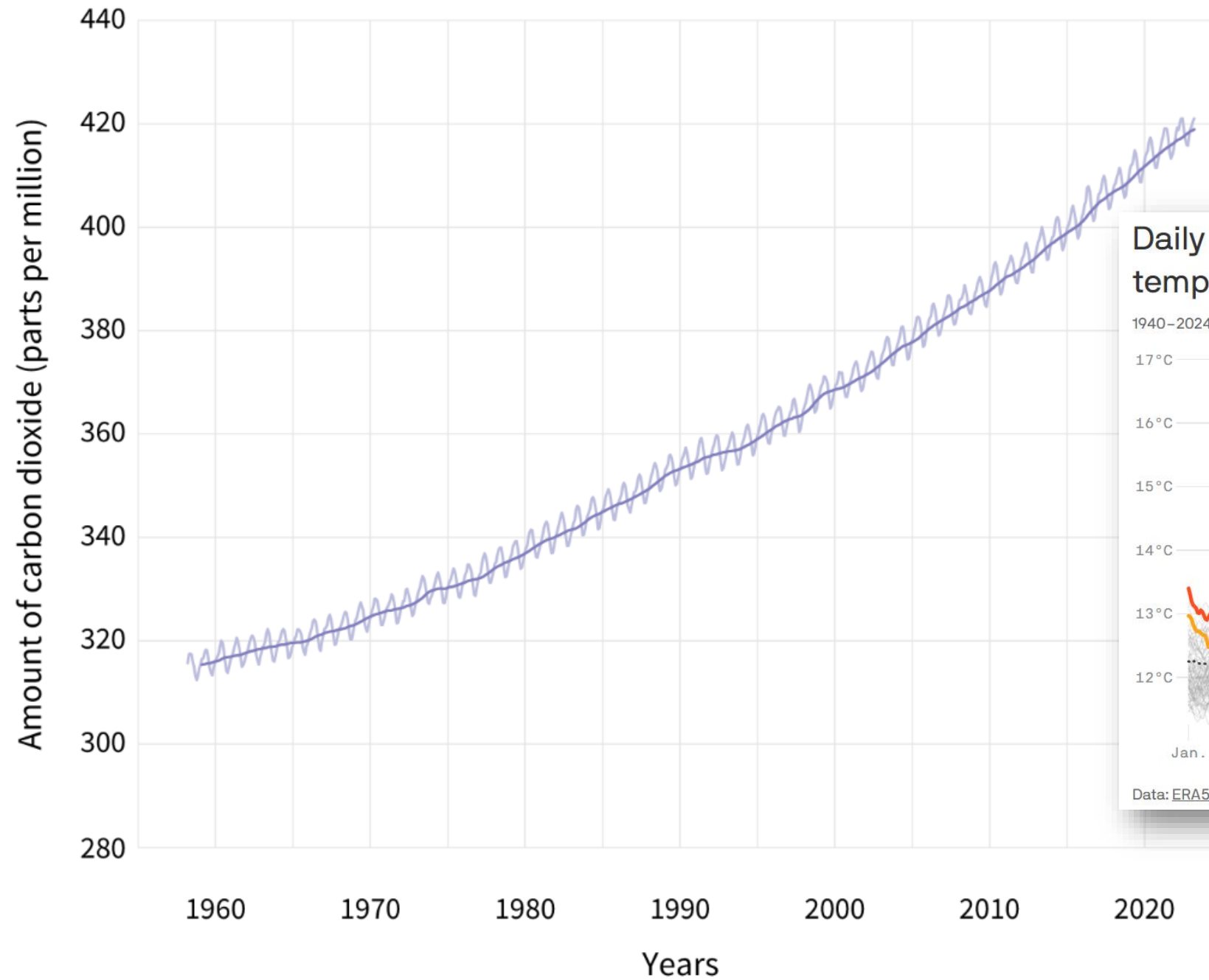
BBC News on 1 May 2025

- Parts of the UK are facing very warm temperatures today, which are expected to peak at 29C - likely making it the hottest day of the year and potentially record breaking



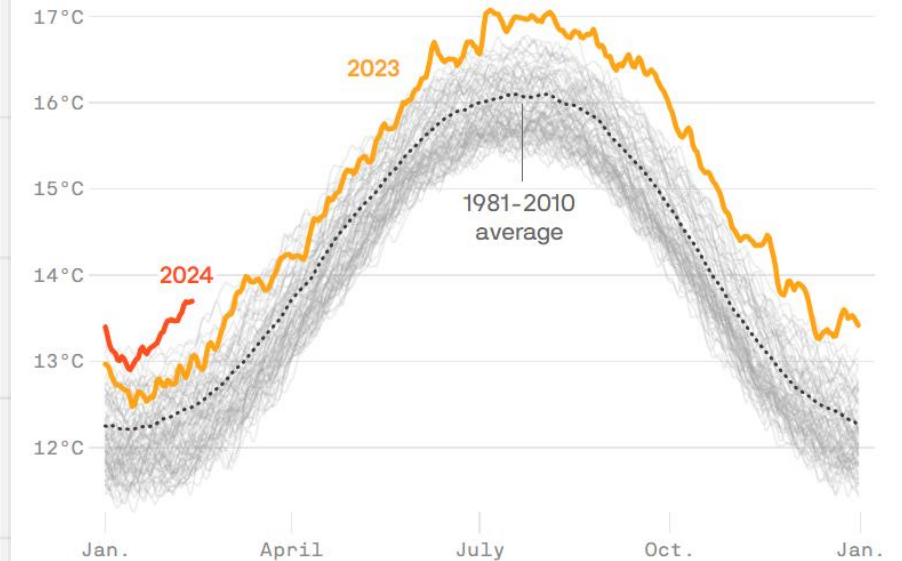
Watch: Latest forecast as temperature set to climb up to 30C

ATMOSPHERIC CARBON DIOXIDE



Daily global average surface air temperature

1940–2024 (As of Feb. 12)



Data: ERA5; Chart: Will Chase/Axios

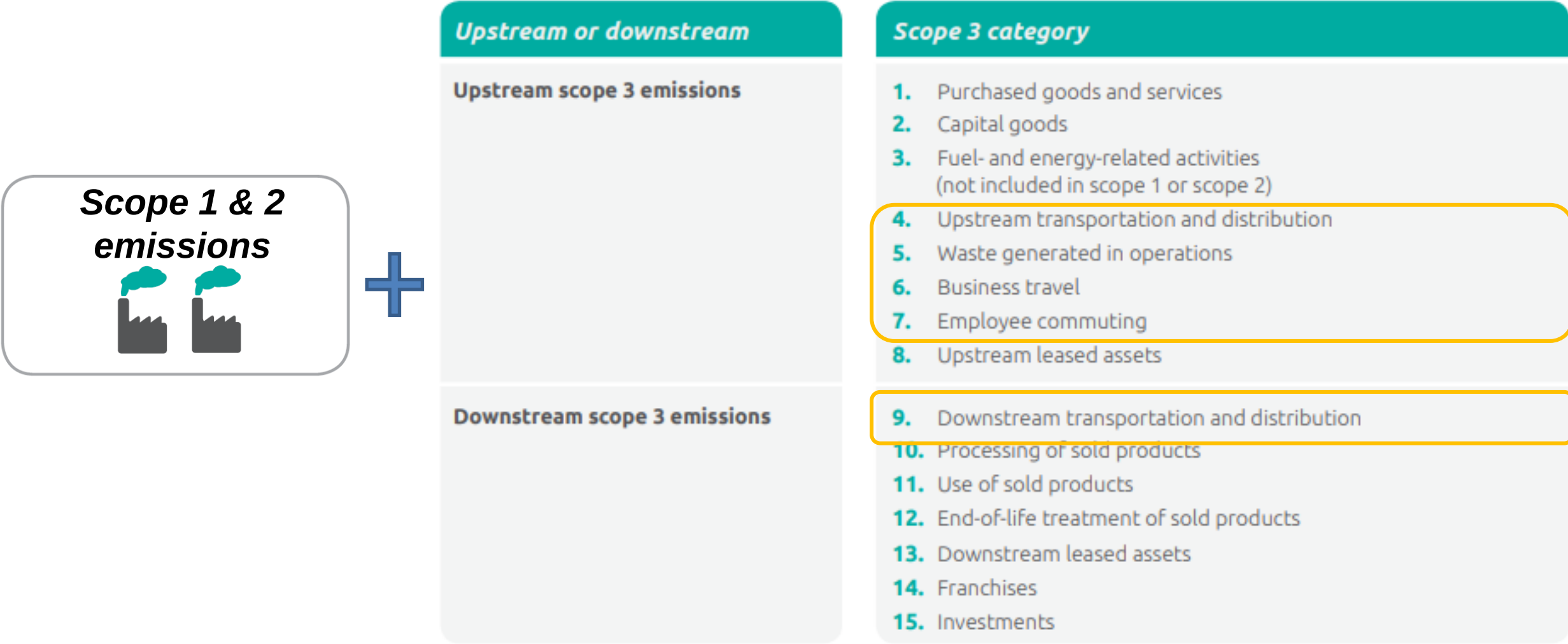
Net Zero



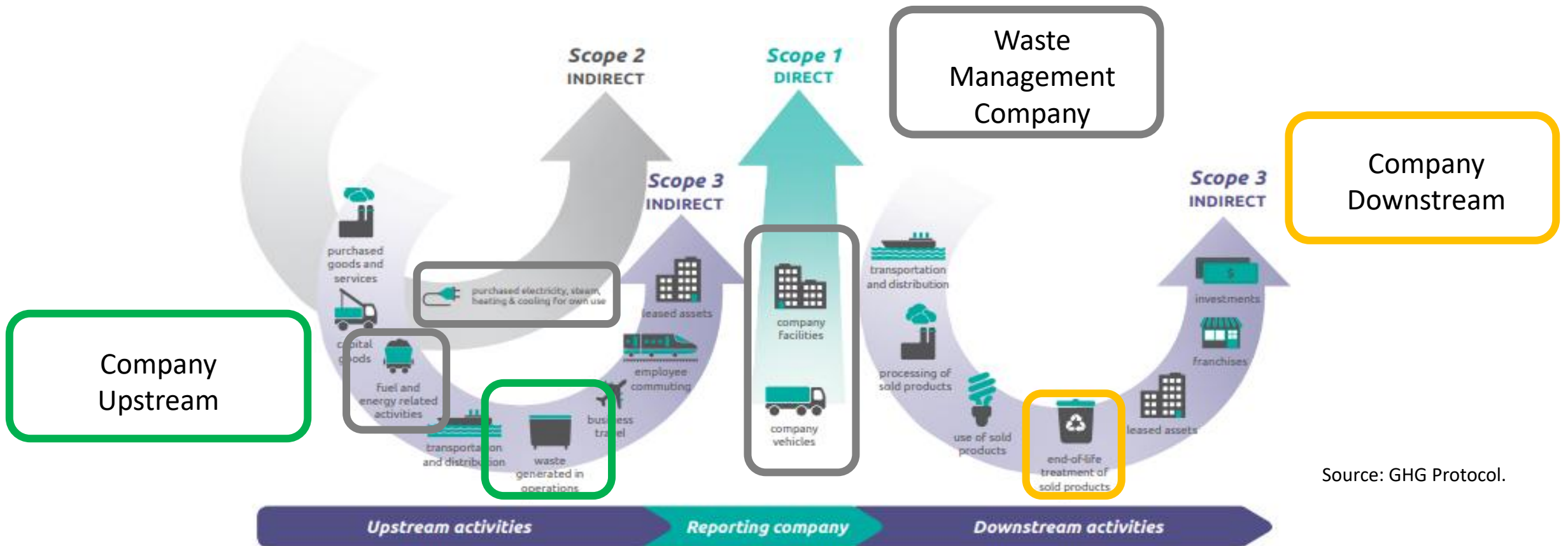
- Anthropogenic GHG emissions are balanced by anthropogenic removals over a specified period.
- The term linked to the Paris Agreement (2015) with aims to limit global warming to below 1.5 C.
- Reducing emission in line with the scientific consensus.
- **Max 10% Offsetting through carbon removal projects only and limited .**
- **Scope 1, 2 & 3 emissions.**
- A SBTi Corporate Net-Zero Standard has been published recently.



UK Govt Procurement Policy Note 06/21



Reporting Waste – across the value chain



Source: Figure 1.1 of Scope 3 Standard.

Source: GHG Protocol.

Scope 1&2 Reporting – Waste Services Company

- Emissions from transportation in company owned/leased vehicles
- Emissions from operation of facilities
- For Incineration & Energy to Waste - Emissions from combustion of Waste materials through flue stack (net of biogenic CO₂)
- Emissions from decomposition of materials in owned/leased landfill operations

Scope 3 Reporting – Waste Producers



Emissions from Waste

Different types of waste generate different types and quantities of greenhouse gases. Depending on the type of waste, the following greenhouse gases may be generated:

- CO₂ (from degradation of both fossil and biogenic carbon contained in waste).
- CH₄ (principally from decomposition of biogenic materials in landfill or waste-to-energy technologies).
- HFCs (from the disposal of refrigeration and air conditioning units).

Category 5 – 3 recognised methods



Supplier-specific method

which involves collecting waste-specific scope 1 and scope 2 emissions data directly from waste treatment companies (such as for incineration, recovery for recycling).

Waste-type-specific method

which involves using emission factors for specific waste types and -waste treatment methods.

Average-data method

which involves estimating emissions based on total waste going to each disposal method (like landfill) and average emission factors for each disposal method.

Category 12 - Calculating emissions from end-of-life treatment of sold products

Calculation approach:

- Should follow the calculation methods in category 5 (waste in operations) generated
- Data restricted to the total mass of sold products and packaging from the point of sale
- Difference in calculating downstream emissions is likely to be the availability and quality of data.
- Reporting company may not know the disposal method of consumers and retailers across geographic regions.

Activity Data required:

- Total mass of sold products and packaging from the point of sale by the reporting company to the end-of-life disposal by consumers and any packaging disposed of prior to end of life.
- Proportion of this waste being treated by different methods (e.g. % landfill, incineration, recycled)

Company A sells paper that is laminated in a way that does not allow recycling. In the reporting period, Company A sold

Company A sells paper that is laminated in a way that does not allow recycling.

Mass of waste after consumer use (kg)	Waste treatment	Proportion of waste produced (percent)	Emission factor of waste treatment method (kg CO ₂ e/kg)
10,000	Landfill	90	0.3
	Incinerated	10	1.0
	Recycled	0	0

Note: The activity data and emissions factors are illustrative only, and do not reflect

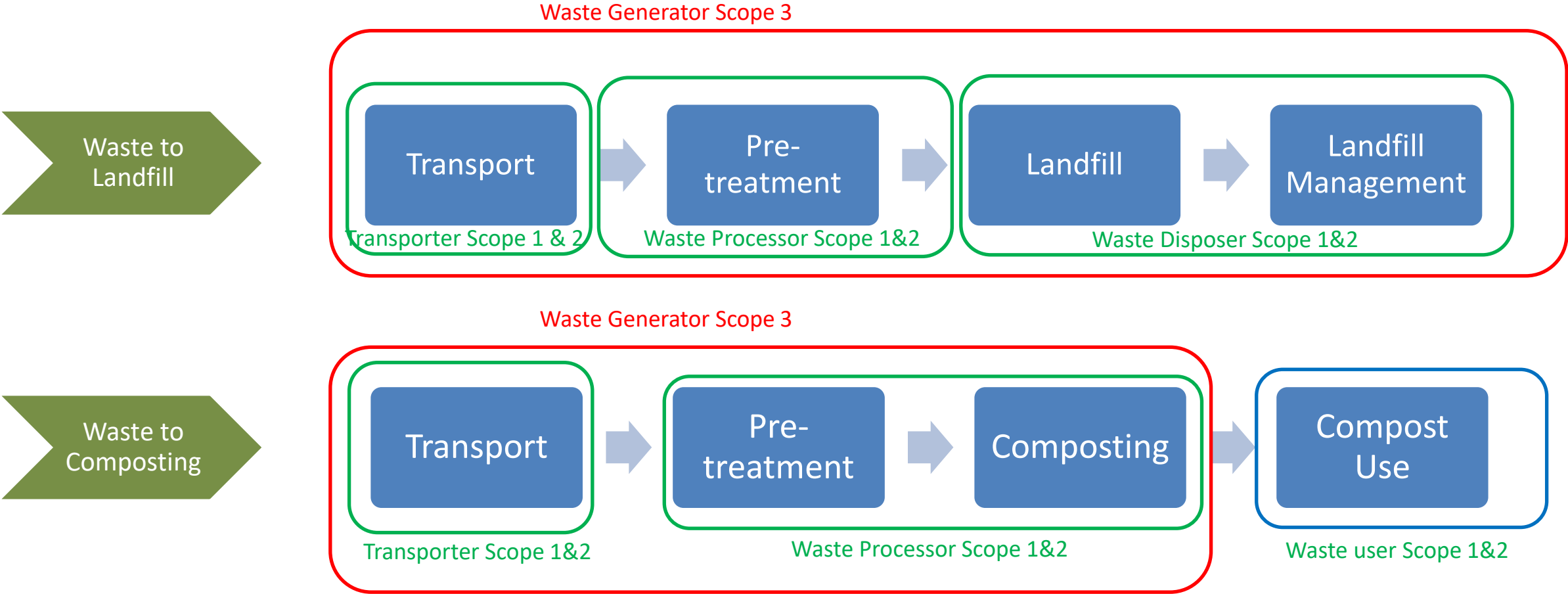
Customer research to understand disposal methods

$$\begin{aligned} & \Sigma (\text{total mass of sold products at end of life a} \\ & \quad \times \% \text{ of total waste being treated by waste treatment method} \\ & \quad \times \text{emission factor of waste treatment method (kg CO}_2\text{e/kg)}) \\ & = (10,000 \times 90\% \times 0.3) + (10,000 \times 10\% \times 1) + (10,000 \times 0\% \times 0) = 3,700 \text{ kg CO}_2\text{e} \end{aligned}$$

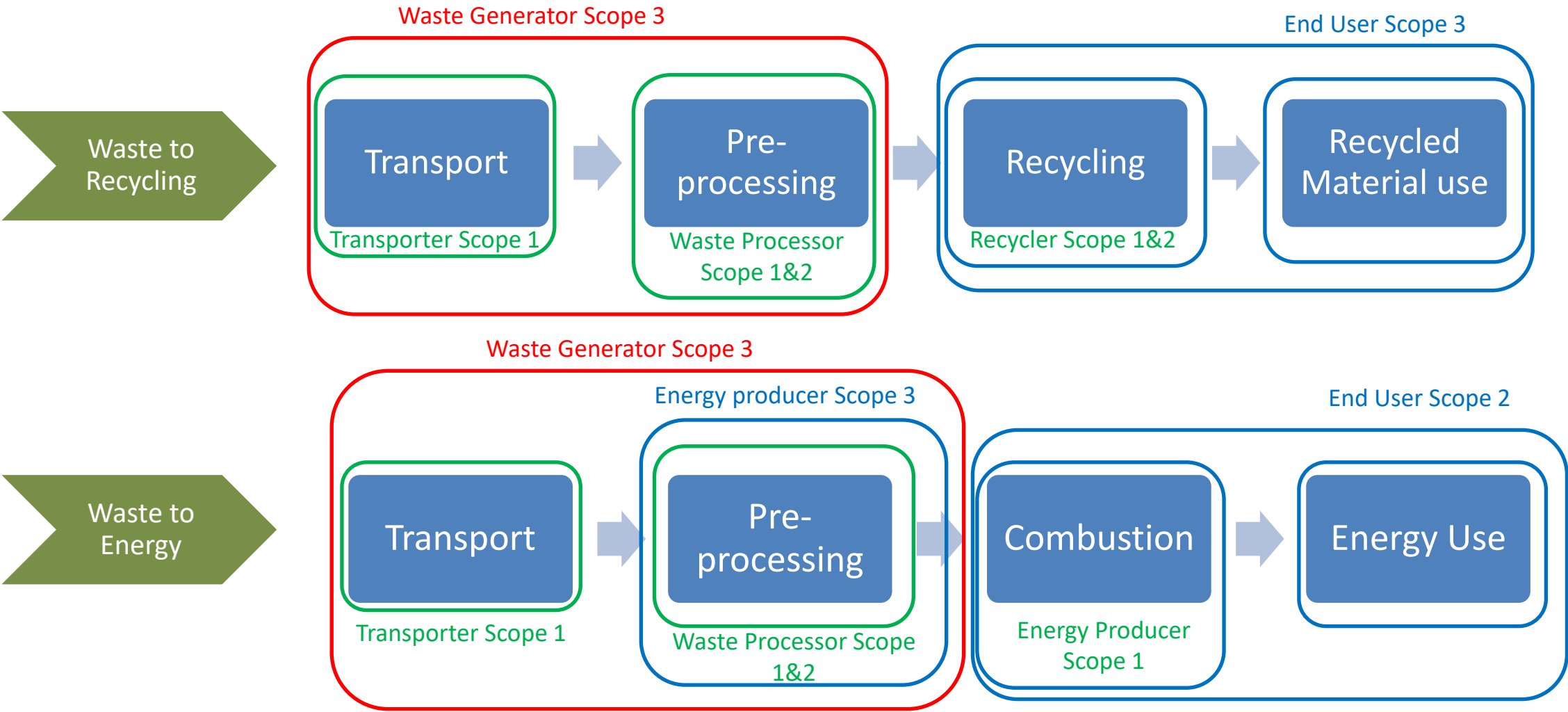
Emissions boundaries

“ The emissions from energy recovery, recycling, composting and anaerobic digestion are attributed to the user of the recycled materials or the organisation that performs the composting, anaerobic digestion or energy recovery, not the producer of the waste”

Emissions boundaries

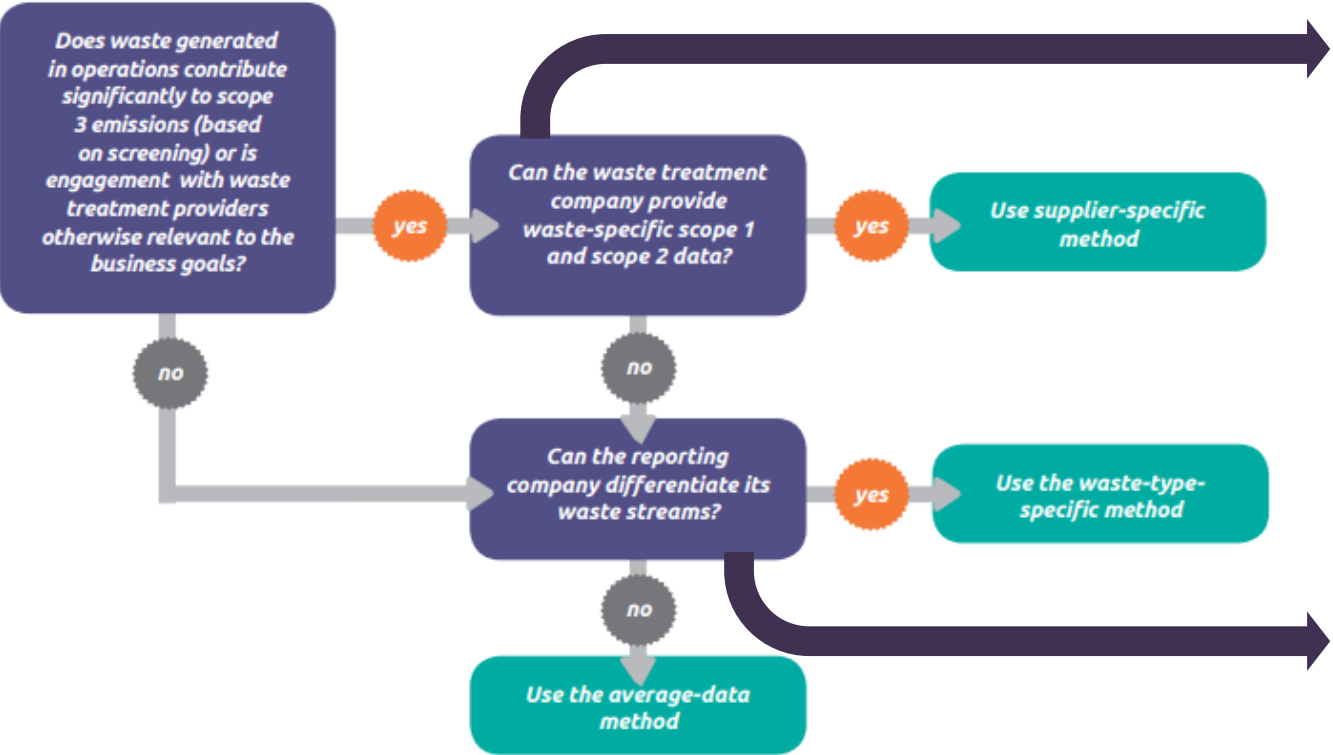


Emissions boundaries



Summary of Challenges

Figure [5.2] Decision tree for selecting a calculation method for emissions from waste generated in operations



Service Providers

Sampling waste inputs to determine biogenic materials content EfW operators

ETS for EfW operators

Development of client specific reporting to collection, reflect waste type and waste stream

Waste Producers

DESNZ factors only include transportation estimates, need Scope 1&2 facilities

Need waste treatment metrics

Contact / Questions

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**SmartCarbon - *Helping organisations to calculate,
report and reduce carbon***

