



**ICE Database Insights:**

**Appropriate Use of Generic Embodied  
Carbon Data**

16<sup>th</sup> July 2025

Jon Burrow & Edwin Lowe

[circularecology.com](http://circularecology.com)

# Today's Webinar

- ⊖ Introduction
- ⊖ Understanding Generic Embodied Carbon Data
- ⊖ Best Practices For Using Generic Data
- ⊖ Understanding Variability Within Generic Data
- ⊖ Where Generic Data Should Be Applied
- ⊖ ICE V4.1 Update
- ⊖ Q&A

# Your Presenters Today



**Jon Burrow**

Head of Carbon Accounting

- *Over a decade working in carbon reporting and carbon reduction strategies*
- *Oversight of ICE Database*



**Edwin Lowe**

Delivery Manager

- *8 years' experience in the construction sector*
- *Worked for contractors, clients and in consulting*



# Background & Introduction

# Circular Ecology – Introduction



Environmental consultancy, founded in 2013

Offer a range environmental services:

- Whole-Life Embodied Carbon Assessments for Construction Projects
- Organisational Carbon Footprints, Scope 1, 2 & 3
- Product Carbon Footprints
- Life Cycle Assessments (LCA)
- Carbon Footprint Verification & Assurance
- Net Zero Carbon Strategy
- Carbon Footprint Database (library) Development
- Online E-Learning Training Courses
- Carbon Offsetting and Tree Planting



Hosts the Inventory of Carbon & Energy (ICE) Database

# Scaling Carbon Reduction Initiative (SCRI)

## Introduction to our **Scaling Carbon Reductions Initiative (SCRI)**



Key to our purpose **to release impactful work, to enable scalable carbon reductions**



We will be diverting a specified amount from some of our sales into the SCRI



Funds will be used to **develop free carbon footprint data, tools and resources**



Publication of an annual impact report disclosing the amount raised and use of funds

<https://circularecology.com/scaling-carbon-reductions-initiative.html>

# ICE Database Supporters

**HOPE** SOLUTIONS



## ICE v4.0 Funders

**BCIS**



<https://circularecology.com/ice-supporters.html>





# **Introduction to Generic Embodied Carbon Data**

# Definition of "Generic" Data

## generic

*adjective*

UK  /dʒəˈner.ɪk/ US  /dʒəˈner.ɪk/

Add to word list 

formal

**shared by, typical of, or relating to a whole group of similar things, rather than to any particular thing:**

- *The new range of engines all had a generic problem with their fan blades.*



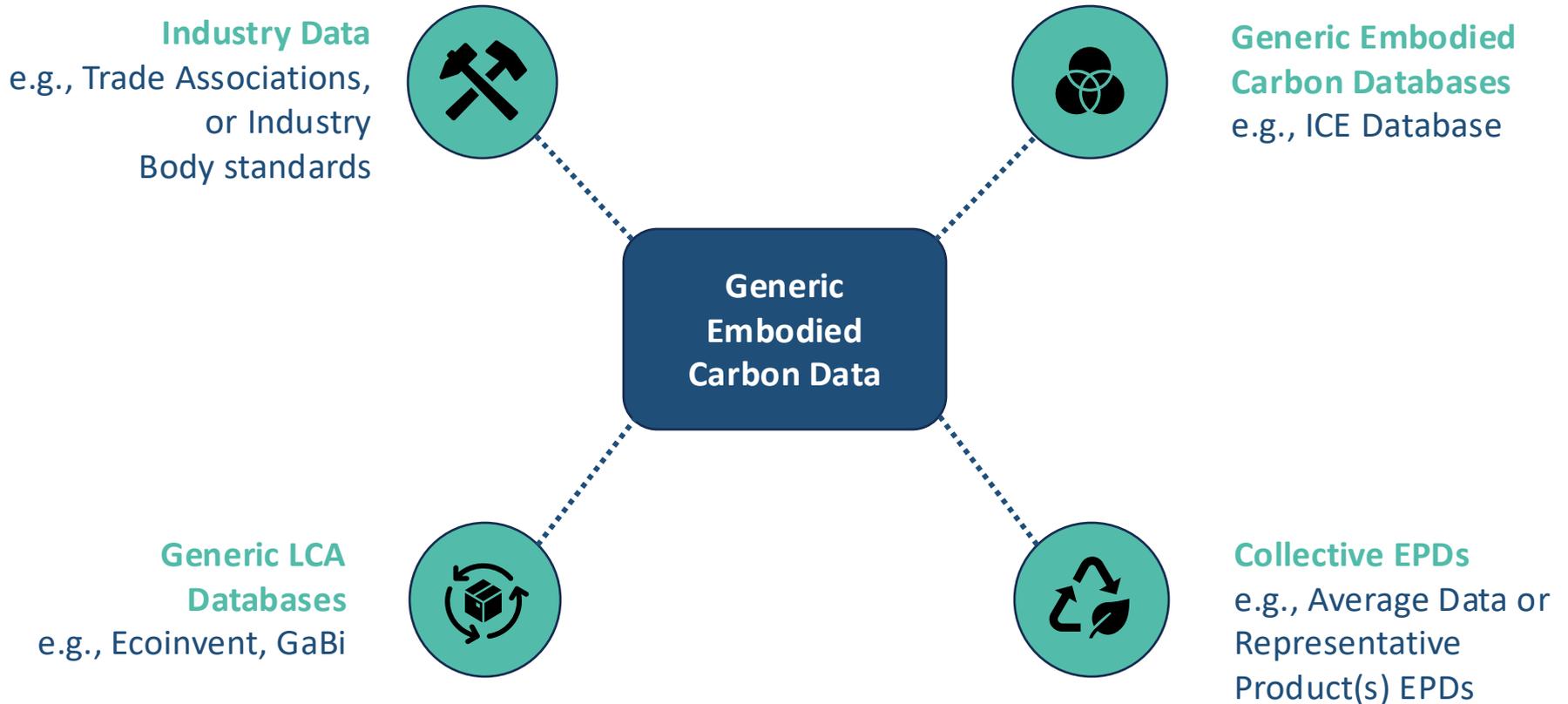
In contrast to "Specific" Data, which is individual to a particular thing.

# Generic Embodied Carbon Data

- **Categorised**
  - represented by a grouped material category e.g., softwood timber or aggregates, or products such as concrete blocks or steel reinforcement bars etc...
- **Representative**
  - Aims to represent a fair embodied carbon of that type of material or product
- **Not Specific**
  - Given data for a material or product that is not brand or manufacturer specific



# Types of Embodied Generic Carbon Data



# Other Types of Generic Carbon Data

- UK Government factors (DEFRA, DESNZ) are also considered as generic carbon data.
- Contains generic data for a range of **fuels, activities, transport, materials** and **waste** factors.
- Useful in organisational footprints, but also product footprints and infrastructure carbon assessments.



[Home](#) > [Environment](#) > [Climate change and energy](#) > [Energy and climate change: evidence and analysis](#)

Collection

## **Government conversion factors for company reporting of greenhouse gas emissions**

The government conversion factors for greenhouse gas reporting are for use by UK and international organisations to report on certain greenhouse gas emissions.

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From: [Department for Energy Security and Net Zero](#) and [Department for Business, Energy & Industrial Strategy](#)

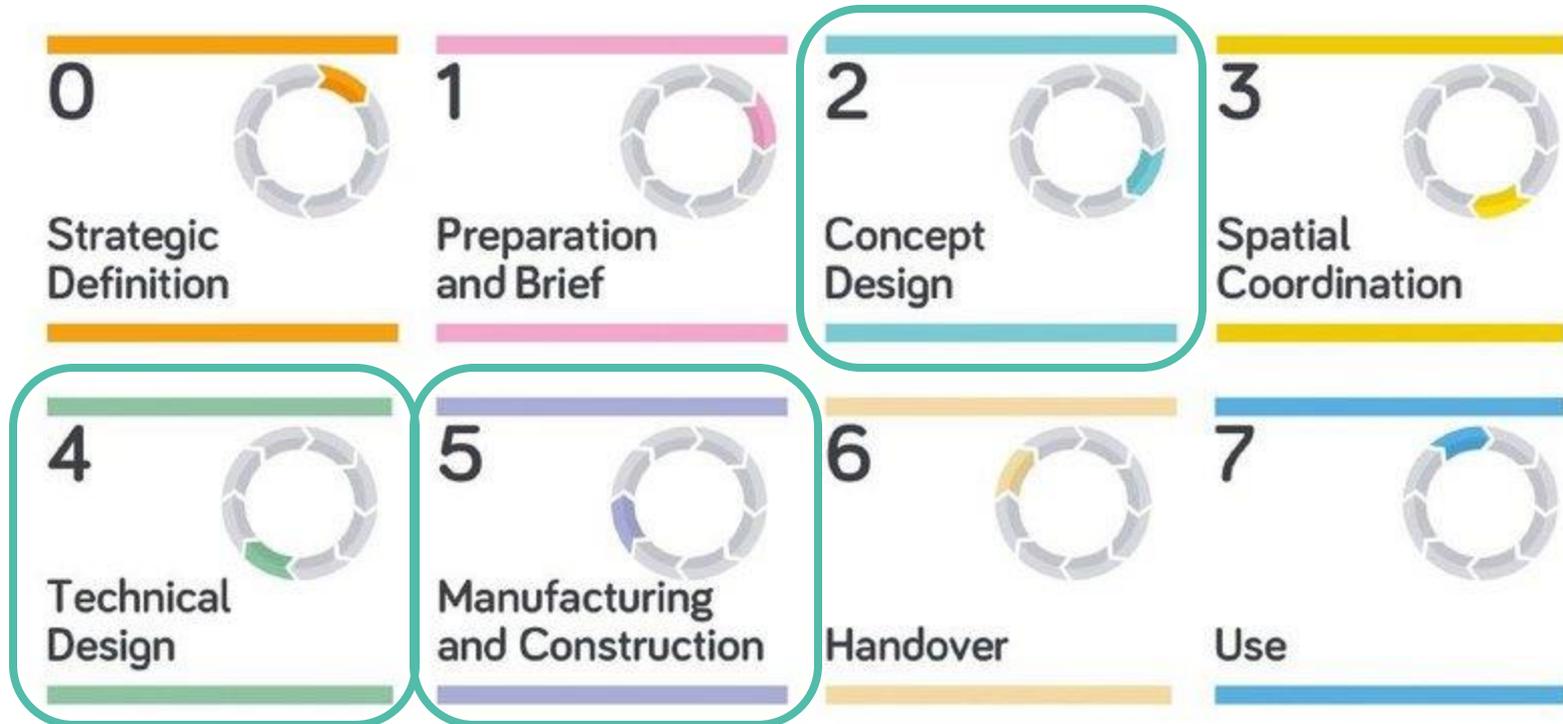
Published 1 May 2013

Last updated 10 June 2025 — [See all updates](#)

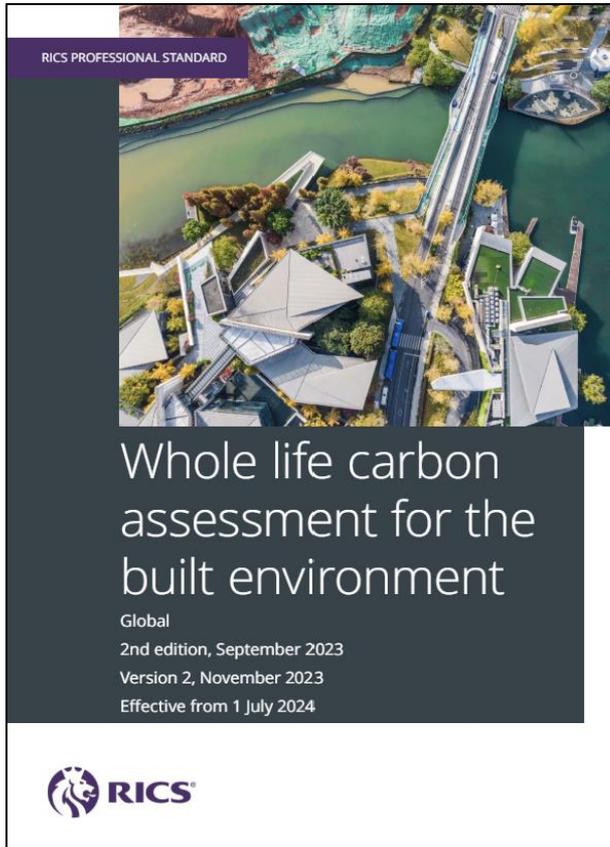


# Best Practice for Using Generic Embodied Carbon Data

# When to use Generic Embodied Carbon Data



# Generic Embodied Carbon Data in Standards – RICS WLCA



| Project phase                            | Carbon data for A1-A3   |
|--|---|
| Early design phase                       | <ul style="list-style-type: none"> <li>• Generic carbon factors.</li> <li>• Appropriate national carbon factors from accepted industry databases.</li> </ul>  |
| Technical design and construction phases | <ul style="list-style-type: none"> <li>• Specific carbon factors from EPDs where products/systems are specified or purchased during construction phase.</li> <li>• If EPDs are not available, use generic carbon factors (appropriate national carbon factors from accepted industry databases).</li> </ul> |
| Post-completion phase                    | <ul style="list-style-type: none"> <li>• Specific carbon factors from EPDs for the actual products/systems used.</li> <li>• If EPDs are not available, use generic carbon factors (appropriate national carbon factors from accepted industry databases).</li> </ul>  |

Table 8: Types of carbon data to be used for the product stage during different project phases

# Generic Embodied Carbon Data in Standards – BS EN 15978

BS EN 15978:2011



BSI Standards Publication

Sustainability of construction works.  
Assessment of environmental performance  
of buildings. Calculation method

**bsi.**

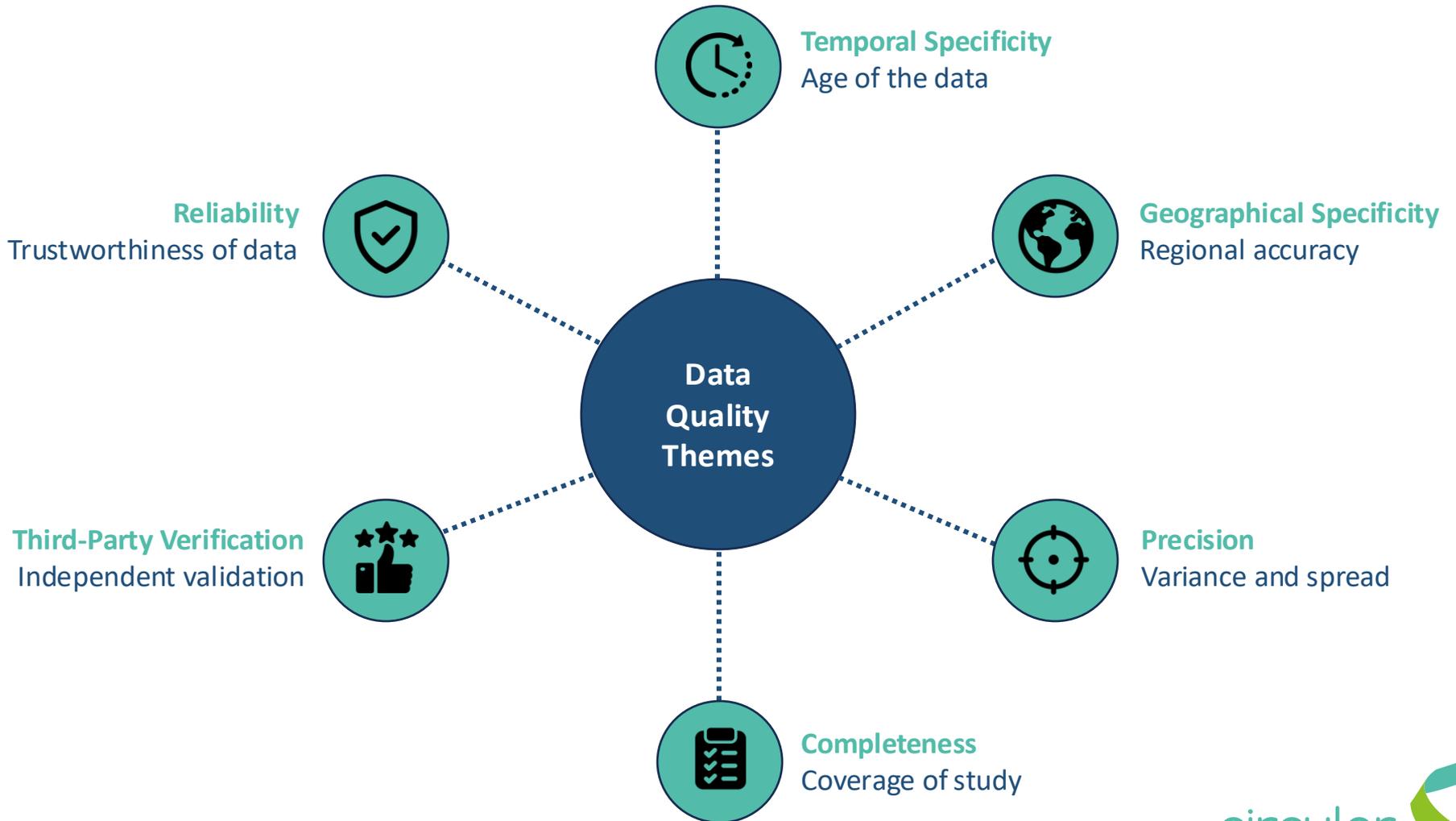
...making excellence a habit.™

**Table 1 — Type of data (informative)**

| Preferred data                | Point of the time of the assessment |                    |              |           |                                |
|-------------------------------|-------------------------------------|--------------------|--------------|-----------|--------------------------------|
|                               | Inception/<br>Concept<br>design     | Detailed<br>design | Construction | Use stage | End of life of<br>the building |
| Generic data                  | X                                   | X                  | X            | X         | X                              |
| Aggregated data               | X                                   | X                  |              |           |                                |
| Average data                  | X                                   | X                  | X            | X         | X                              |
| Product collective data       | O                                   | x                  | x            | X         | x                              |
| Product average data          | O                                   | X                  | X            | X         | X                              |
| Product specific data         | O                                   | X                  | X            | X         | X                              |
| Model scenarios for use stage | X                                   | X                  | X            | X         |                                |
| Measured data                 |                                     |                    | X            | X         | X                              |
| Other data                    | O                                   | O                  | O            | O         | O                              |

NOTE Cross represents the preferred use of data - Circle represents alternative sources if available.

# Generic Data – Data Quality



# Upcoming Removal of ICE v2.0 Data

We have made the decision to **soon remove all ICE v2.0 data, which is from 2011. ICE v4.1 may be the last version these materials appear in the ICE database, until we can obtain funding to update them.**

Our goal is to ensure that users are working with the **most robust and up-to-date information** available.

**Below is a list of ICE v2.0 materials that are at risk of removal:**

- Brass
  - Bronze
  - Carpet
  - Clay
  - Copper
  - Insulation (11 types)
  - Iron
  - Lead
  - Lime
  - Paper
  - Paint, solventborne
  - Sealants and Adhesives
  - Soil
  - Stone
  - Tin
  - Titanium
  - Zinc
- And many plastics (we will be updating some of the plastics, but it's a large dataset with complexities to update)

# Best Practices Summary

Accepted for use by  
common standards

Given priority at early  
project stages

Should be treated with  
similar data quality  
controls to any other  
kind of embodied carbon  
data

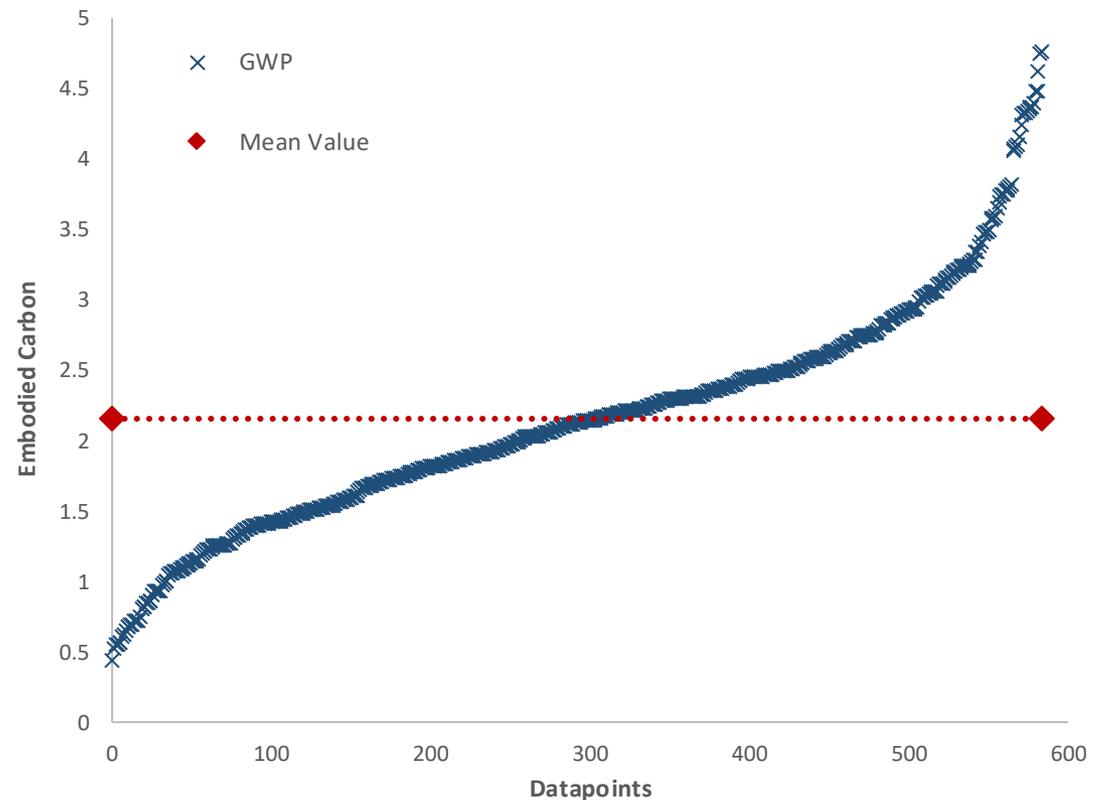
Keep clear records of  
version control – generic  
embodied carbon data  
can be subject to  
frequent updates



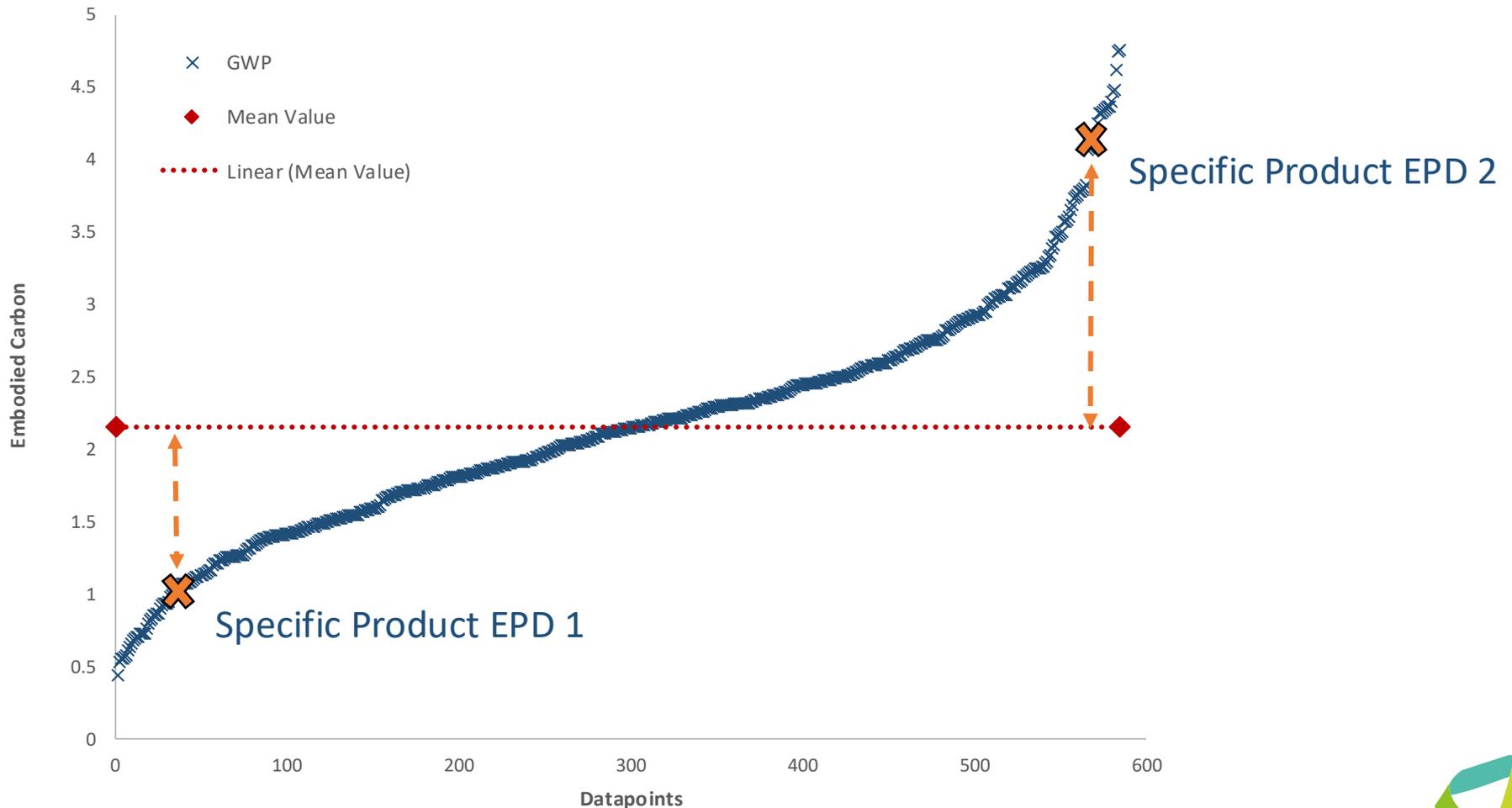
# Understanding Variability in Generic Embodied Carbon Data

# Variability in Generic Data

- Generic Data can be made up of a profile of multiple specific datapoints
- The generic data value is **usually the mean or median** of this dataset
- Aggregation of these datapoints also introduces variability, **known as uncertainty**
- Uncertainty is important to understand when applying generic data within assessments

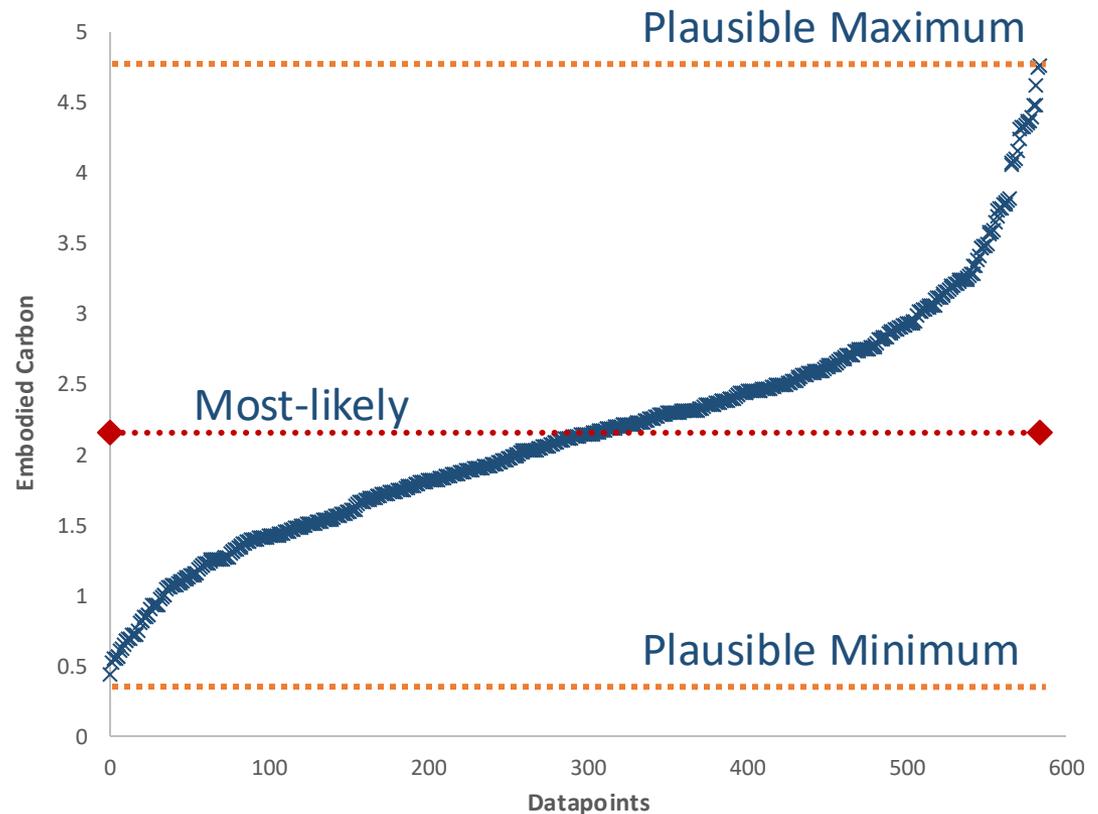


# Example of Variability in Generic Data



# Uncertainty Ranges in Generic Data

- Often ends up being a single value, but more transparency across the whole profile would be preferable
- Can improve by preserving the distribution in generic data (e.g., 'plausible minimum', 'most-likely', 'plausible maximum')
- Three-point uncertainty is something we would like to include within future versions of the ICE Database





## **When Should Generic Embodied Carbon Data be Applied?**

# Real World Applications

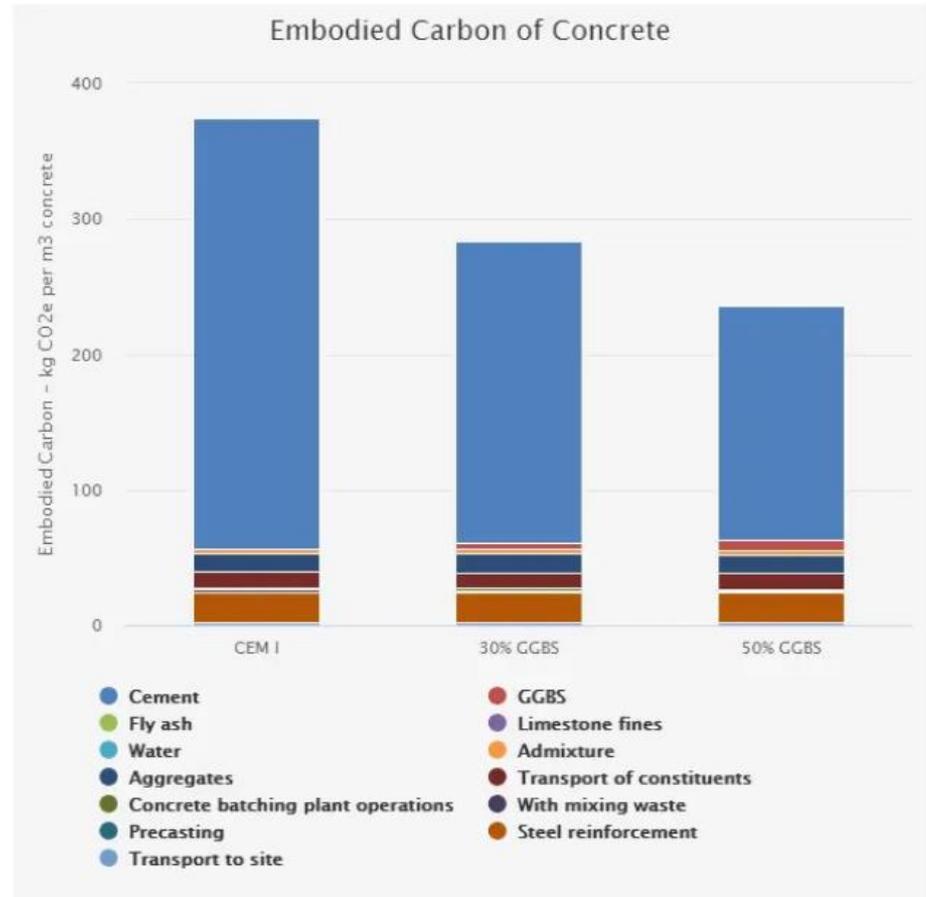
- Utilised more in **early stages...** then replaced as more about the specifications of products and materials to be used are known
- Generic data can be used to **fill gaps**, where EPD data is not available or suitable
- Can be used to **compare** a specific EPD against the overall range in that category
- Applications:
  - **BREEAM Mat01** Options Appraisal (Concept Design and Technical Design)
  - Assessments to **RICS WLCA** at any stage from Concept through to As-Built
  - **UK Net Zero Carbon Buildings Standard** Assessments



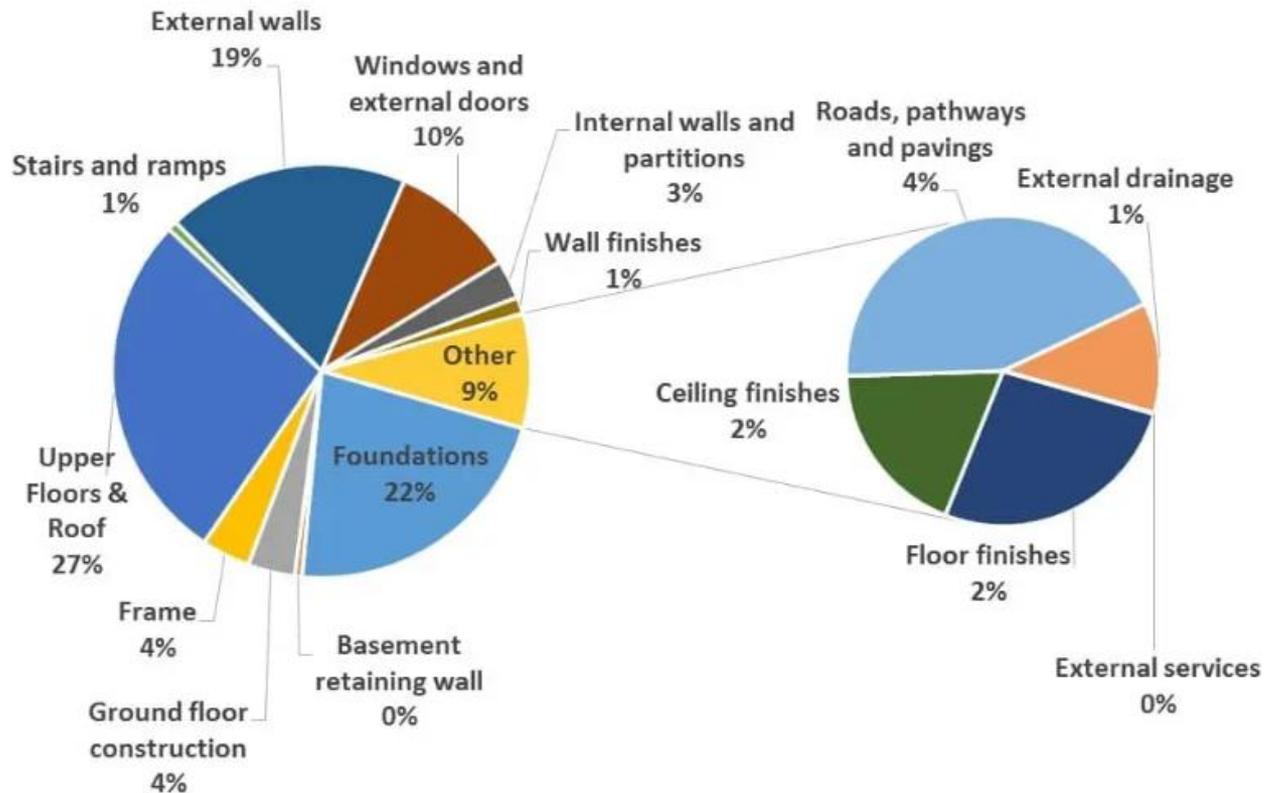
**UK Net Zero Carbon  
Buildings Standard**

# Specifics Around Concrete

- Ready-Mix Concrete rarely has an EPD for each specific mix, given how **project/site/situation specific** concrete mix proportions and constituent parts are
- We often use generic embodied carbon data for Ready-Mix Concrete, **at all project stages**
- ICE Database Concrete Calculator can be used to identify an embodied carbon factor, **based on the specific constituent part details** from a concrete design certificate – which it builds up from generic embodied carbon factors



# Other Considerations - Hotspots

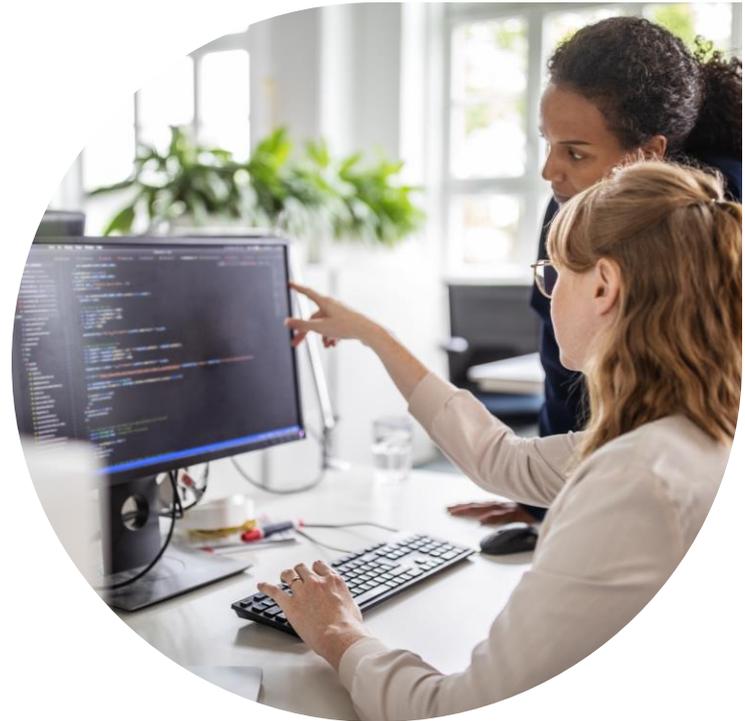


It is helpful to understand the **significance** of the **carbon hotspots** within a building or infrastructure project

Specific embodied carbon data can take **longer to source** and **verify**, and therefore disproportionate time could be spent sourcing data for minor or negligible impact areas

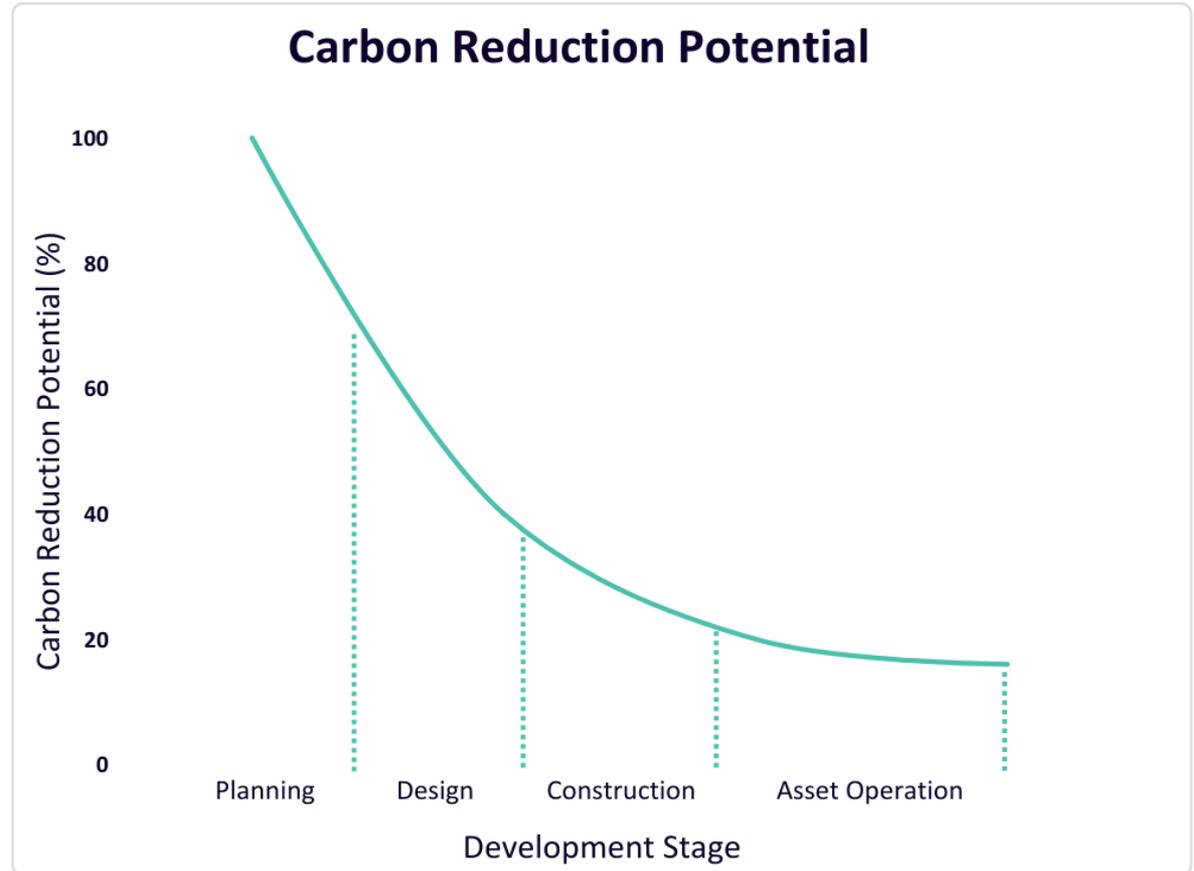
# Other Considerations - Software

- Most carbon assessments for **buildings and infrastructure** are undertaken using specialist software
- Most carbon assessment software contains a **mixture** of both generic and specific embodied carbon data
- It is important to know **which type of data** you are using, each has its advantages in different situations



# Why Is Good Quality Generic Data Important?

- Put simply, generic embodied carbon data is used at stages where **greatest potential for reduction of emissions** exists
- The **best** generic embodied carbon data is **representative, current** and produced to **robust standards**



# Today's Webinar - Recap

- ✓ Understanding Generic Embodied Carbon Data
- ✓ Best Practices For Using Generic Data
- ✓ Understanding Variability Within Generic Data
- ✓ Where Generic Data Should Be Applied
- ✓ Additional Considerations When Using Generic Data



# Looking Forward: ICE v4.1

# ICE Database v4.1 Announcement



In the first **90 days of launching ICE v4.0 (Dec 2024)**, over **1,000 organisations** registered for commercial use of ICE



We are now excited to announce an **ICE v4.1 update**, expected to launch in the **coming weeks**



This update will focus on two important materials, **Bitumen and GGBS** (Ground Granulated Blast Furnace Slag), both have **large changes in their GWPs** (changes in allocation methods)



This has consequential impacts on **asphalt**—owing to the inclusion of bitumen—and on **cement and concrete mixes** that incorporate GGBS as a supplementary cementitious material

# How You Can Support ICE



Share with your networks **how you use the ICE Database** in projects, tools and research



Contribute to our **Scaling Carbon Reductions Initiative (SCRI)** by choosing some of the Circular Ecology products which diverts revenue from sales towards ICE and other free data and tools



**Donate directly to the ICE Database** and be recognised as an ICE Supporter or Contributor



**Invite us to collaborate on research grant funding applications** (Innovate UK, Horizon...etc), part funded research can be an important part of updating the ICE Database

<https://circularecology.com/how-to-support-ice.html>

# Next Webinars

Recap of the **ICE Database Insights** series -

1. **Introduction to Data Quality Scoring**
2. **ICE Analytical Review Processes**
3. **Are All EPDs Created Equal?**
4. **Methodological Challenges Behind the Scenes**
5. **Appropriate Use of Generic Data**

Watch these again at [circularecology.com/news/new-webinar-series-the-ice-database](https://circularecology.com/news/new-webinar-series-the-ice-database)

More webinars planned in 2025 on **Organisational Footprinting, Carbon Libraries** and **Product Carbon Footprinting...**

**Keep an eye on our networks** for more information

- Website - [circularecology.com](https://circularecology.com)
- LinkedIn - [linkedin.com/company/circular-ecology](https://linkedin.com/company/circular-ecology)



## Q&A

**Please use the Q&A interface to ask  
your questions**



# Thank you for watching

Sign up for more information on ICE and for future updates

<https://circularecology.com/newsletter.html>