BECD entity-level section

Consultation phase 2

Briefing document



Built Environment Carbon Database

Introduction

The Built Environment Carbon Database is an initiative led by a consortium of UK professional bodies and organisations: BRE, CIBSE, CIC, CIOB, ICE, IStructE, RIBA, RICS, the Carbon Trust and UK GBC. Its objective is to align reporting practices and bring together existing data in a single location which is free to access, easy to use, and can act as the main UK platform to store carbon assessments and generate carbon benchmarks. For more information about BECD and its supporters please visit www.becd.co.uk

This document provides information relevant to the second phase of the industry consultation on the entity-level section of BECD, i.e. the database part that will host whole-life carbon data for entire buildings and infrastructure assets (called "Entities"). This section of BECD is designed to align with current carbon assessment and reporting practices of the British industry, such as the RICS Professional Statement on Whole Life Carbon and the UK Net Zero Carbon Building Standard (UK NZCBS) initiative. Users will eventually also be able to generate a report of carbon emissions in accordance with the international ICMS3 format. BECD will also contain of a separate section for LCA data of construction products (EPDs and other LCA sources), but this is outside the scope of this consultation. Please see our white paper for more details.

During the consultation period, BECD will also be used to submit data to the UK NZCBS initiative. If you are NOT entering data for this purpose, please read carefully the <u>User Guide</u> to avoid submitting data to NZCBS by mistake.

BECD Entity – Beta version

This second phase of consultation presents a beta version of the Entity section of the BECD, containing only the "data input" functionality. This allows the user to test the interface and data structure of BECD. The user should focus on the general experience of the data-entering process, rather than on the current visual aspect of the database, which will be improved at a later stage.

The data structure has been prepared by a group of built environment professionals (Work Group 1) appointed by the Steering Group of BECD, and improved on the basis of the feedback received during the first consultation. **The beta version is currently missing the section on operational carbon**, but WG1 is working with CIBSE and the NZCBS to develop a data format aligned with industry practice.

The database interface and overall digital infrastructure is being developed thanks to the support of <u>BCIS</u>. As this development progresses, WG1 is keen to engage with the industry to ensure the entity-level section is fit-for-purpose and aligned with professional practice. Please see below for a list of features planned for the entity section of BECD.

Data structure overview

Entity-level data is organised through a) Entities and b) Assessments. **An Entity is a building or infrastructure asset for which one or more carbon Assessments are conducted.** Each Entity is associated with metadata to describe its main features, such as typology (residential, office, etc.), location, and project type (new build, retrofit, etc.). The "owner" of an Entity (i.e. the user who creates it) can associate several different Assessments to it. Assessments are classified by the RIBA Plan of Work 2020, which allows tracking how carbon emissions (and other relevant information) change as an Entity becomes more defined, as well as comparing emissions of different Entities at similar levels of project development.



Each Assessment contains further metadata (such as gross internal area, etc.) and the results of embodied and operational carbon assessments. All the data contained in an Assessment is held as a draft by the BECD system until the owner decides to "publish" it. At that point, the Assessment becomes part of the pool of datasets that can be searched by other users, and its data cannot be edited by the owner unless a direct request is made to the database administrators. In the current beta version, users can enter data for their projects, but cannot compare them to similar projects or generate benchmarks. These functionalities will be developed once the data structure is finalised.

Please note that the current data structure has been created to reflect carbon assessment practice of buildings rather than infrastructure assets; we will implement a different data structure for infrastructure assets in the future. Once established, the BECD system will automatically select the relevant data structure on the basis of the user input for Entity typology.

Once you have tested the beta version of BECD, we invite you to **provide us with your comments through this online questionnaire**: <u>https://survey.zohopublic.eu/zs/DAB8Xt</u>

The rest of this brief provides an overview of the functionalities planned for the entity-level section of BECD, so that the beta version can be understood in the context of the uses and outputs that will be implemented later.

Planned database features

The entity-level section of BECD will support three main functionalities:

- Querying the database to generate typical carbon emissions values for a specific group of Entities, based on a series of filters and search options. For example, users will be able to produce median, minimum, and maximum emissions (as kgC0₂eq/m²) of residential Entities arising in lifecycle stage A. Through several filters, users will also be able to narrow down their selection, for example by including only project stages 0 to 3, and/or by including only Entities which use steel columns as vertical structural elements.
- Recording users' own Entities and related Assessments. This will be possible through different input modes, as explained below.
- Benchmarking users' own Entities against typical carbon emissions values. Essentially, this
 will allow users to compare the carbon emissions of their Entities against the results of a
 database query. The BECD system will automatically filter the results on the basis of the
 user's Entity features (for example, by selecting the relevant Entity typology), but the user
 will be able to adjust the filters manually.

These functionalities will enable different types of users to utilise the database according to their needs and interests. For example:

- **Building designers** can compare carbon emissions of their projects against projects which use the same types of technology and materials.
- **Carbon assessors** can keep records of their assessment and share the results with the industry.
- **Developers** can estimate carbon emissions of their development at preliminary design stages, based on typical emissions value for similar developments.
- **Policymakers** can generate benchmarks for specific building and infrastructure typologies to help establish suitable policy targets.

WG1 is planning a series of features for the entity-level section of BECD, with the intention to make it easy to operate and ensure its outputs are reliable and useful:

- Data input modes: different modes will be available to enter project data:
 - Manual online: users will manually complete an online form this is available in the current beta version.
 - Hybrid online/spreadsheet: users will be able to download a spreadsheet to enter embodied carbon figures, and upload it on BECD to automatically populate the online form.
 - External file upload: users will be able to take an existing file (in most cases a spreadsheet) that they have used to report their carbon Assessment to a third party (for example to the Greater London Authority to obtain planning permission) and upload it on BECD. The BECD system will recognise the relevant data, automatically populate the online form, and ask users to input manually only the additional information that is not included in the original file.
 - API with external software: users will be able to feed project data into BECD through API directly from their building carbon/LCA software (e.g. OneClickLCA). The BECD system will recognise the relevant data, and ask users to input manually only the additional information.

- Benchmarking against industry and policy targets: users will be able to see how carbon emissions of their own Entities (or a selected group of entities) compare to relevant industry and policy targets, such as LETI targets or CRREM trajectories.
- Comparing specific Entities: users will be able to select two Entities (and the relative Assessments) and compare their carbon emissions in detail.
- Sharing Entities between BECD users: the owner of an Entity will be able to allow specific users to input data for that Entity.
- Comparison across project stages: users will be able to compare how carbon emissions (and other variables) of an entity have changed from early stages to later stages of design and construction.
- Data export: users will be able to export their project data and the results of database queries in XLS and PDF formats.
- Conversion into ICMS3 format: users will be able convert and export information of their own Entities into a structure aligned with the ICMS3 reporting format.
- Data validation: although BECD is not meant to provide an independent verification of carbon assessments, the system will be designed to scan project data entered by users to flag outliers and unusual values. Database administrators will be able to check project data and notes, and contact the users for further clarification.
- Data confidence score: each Assessment will be attributed a confidence score based on several variables, such as project stage, type of product data used, and presence of material quantities data. This score is meant to give users an indication of the level of accuracy and reliability of the Assessment, and users will be able to filter out data associated with low scores when querying the database.