UK Net Zero Carbon Buildings Standard

An introduction and how to get involved

May 2022

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1. Introduction

A process of market analysis, conducted in 2021 by a collaboration of key industry organisations, concluded that a more robust means of verifying buildings as net zero carbon was desired by the UK real estate sector. The approach should be industry-led, independent, and have clear governance.

This initiative responds to these conclusions, seeking to develop a **UK Net Zero Carbon Buildings Standard** ('the Standard'). The Standard will set requirements for achieving and verifying a built asset as net zero carbon in the UK.

1.1 What will it cover?

The Standard will set out metrics by which net zero carbon performance is evaluated, as well as performance targets, or limits, that need to be met. These are likely to include energy use, upfront embodied carbon, and lifecycle embodied carbon, with other metrics – such as space heating/cooling demand and peak load – also to be considered. It will also cover the approach to carbon accounting, procuring renewable energy, and the treatment of residual emissions, including carbon 'offsetting'. However, the scope and output of the Standard may evolve throughout the development process.

It is expected that claims will be required to be validated based on in-use measured data and interim verification of an asset at design stage or once the asset is built but not yet operating may also be considered.

1.2 Who is it for?

The output will be for developers, contractors, asset owners and managers, occupiers, investors, financiers and funders, consultants, building industry professionals, building managers and product/material manufacturers, suppliers, and distributors. It is for anyone who wants to either fund, procure, design, or specify a Net Zero Carbon Building and anyone wanting to demonstrate that their building is 'Net Zero'-aligned with an industry-agreed Standard.

1.3 Will it be science-based?

Performance targets will align with science-based trajectories needed to achieve net zero by 2050 and a 78% reduction by 2035 in the UK, i.e. what is known to be required to stand a reasonable chance of mitigating global warming to 1.5°C. It will also align with the energy demand reductions projected to be required to enable a net zero carbon energy supply sector.

1.4   What building types will it apply to?

The approach will be applicable to both existing and new buildings (e.g. Homes, Offices, Education, Industry, Retail, Hotels, Healthcare etc.). To start, the focus will be on the most common building typologies, especially those for which industry stakeholders have already robust performance data available to inform the setting of performance targets. The Standard will not apply to infrastructure.

1.5   How will it be delivered and governed?

An overview of the proposed delivery structure is shown below.
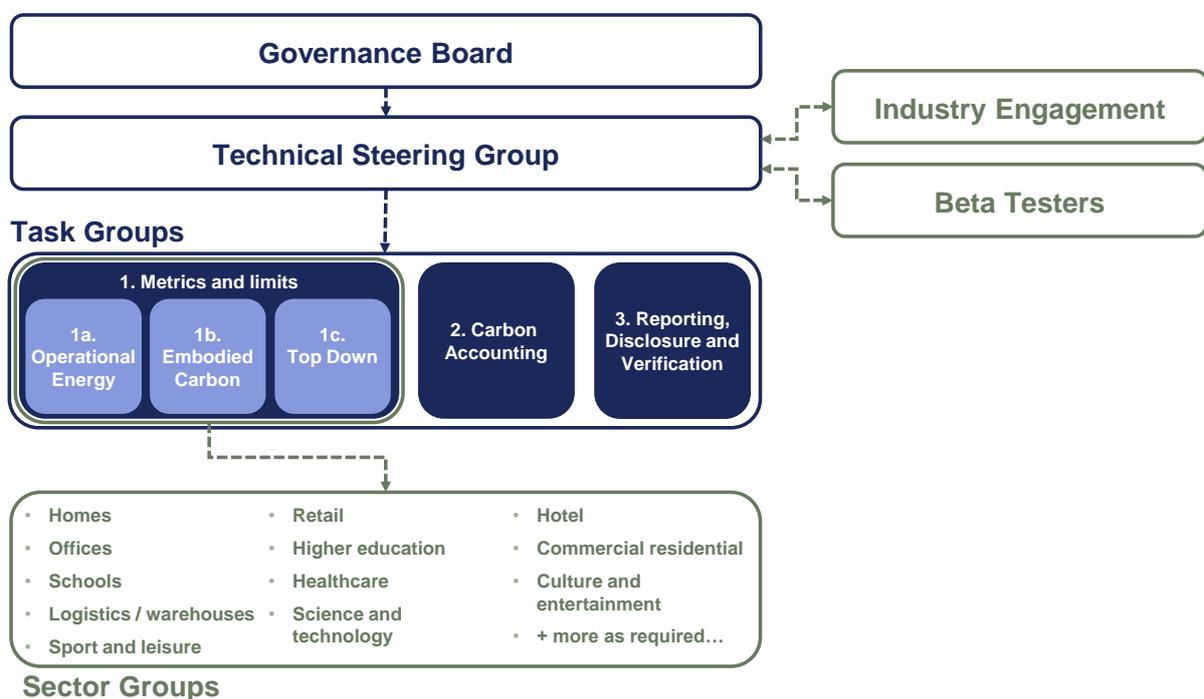

Figure 1: Delivery approach summary.

Governance Board

One of the strongest conclusions from the market analysis was the need for the initiative to be industry-led, independent, and have transparent and robust governance, providing a clear framework for decision-making.

Responding to this, a Governance Board is being formed. It is anticipated that the Governance Board will comprise C-suite level representatives (CEO, Chair, Director) from a broad range of organisations who will oversee and manage the strategic governance of the initiative. The Governance Board's roles, responsibilities, and criteria for membership will be the prerogative of the Board itself to define.

Technical Steering Group

The Technical Steering Group has been formed and will deliver the technical development of the Standard. The Technical Steering Group will form a number of task groups to deliver specific elements of the Standard. These are articulated in more detail in Section 2. The current members of the Technical Steering Group are as follows:

The current Technical Steering Group members are exploring which further organisations or individuals would bring value as part of the Technical Steering Group. The Technical Steering Group will remain flexible and open to change.

1.6   How does this initiative relate to other work that is ongoing in the industry?

This development of the Standard will build on existing work on net zero carbon undertaken to date.

The Technical Steering Group will continue to liaise and collaborate with current built environment initiatives running in parallel, such as PAS 2080, the Built Environment Carbon Database (BECD) and the BSI's proposed 'Net Zero Standard for Real Assets for Investors', as much as possible to ensure alignment, minimise duplication of effort, and maximise cobenefits.

1.7   What is the programme?

The programme for the initiative is still being developed. It is anticipated that Task Groups will be formed in July, at which point development will commence in earnest.

1.8   How do I get involved?

There are several ways to get involved in the development of the Standard. Please see Section 3 for more details.

2. The Task Groups and Sector Groups

To support the development of the UK Net Zero Carbon Buildings Standard and ensure cross-industry input, the Technical Steering Group is establishing a number of Task Groups. These groups will be responsible for developing the initiative's approach on a range of technical considerations which underpin the content of the Standard, and for providing recommendations to the Technical Steering Group.

A summary of these Task Groups is available below. In addition, Sector Groups will be established to develop sector-specific benchmarks as part of the 'Metrics and Targets' Task Groups. Full details of these groups' purpose and scope can be found later in this section.
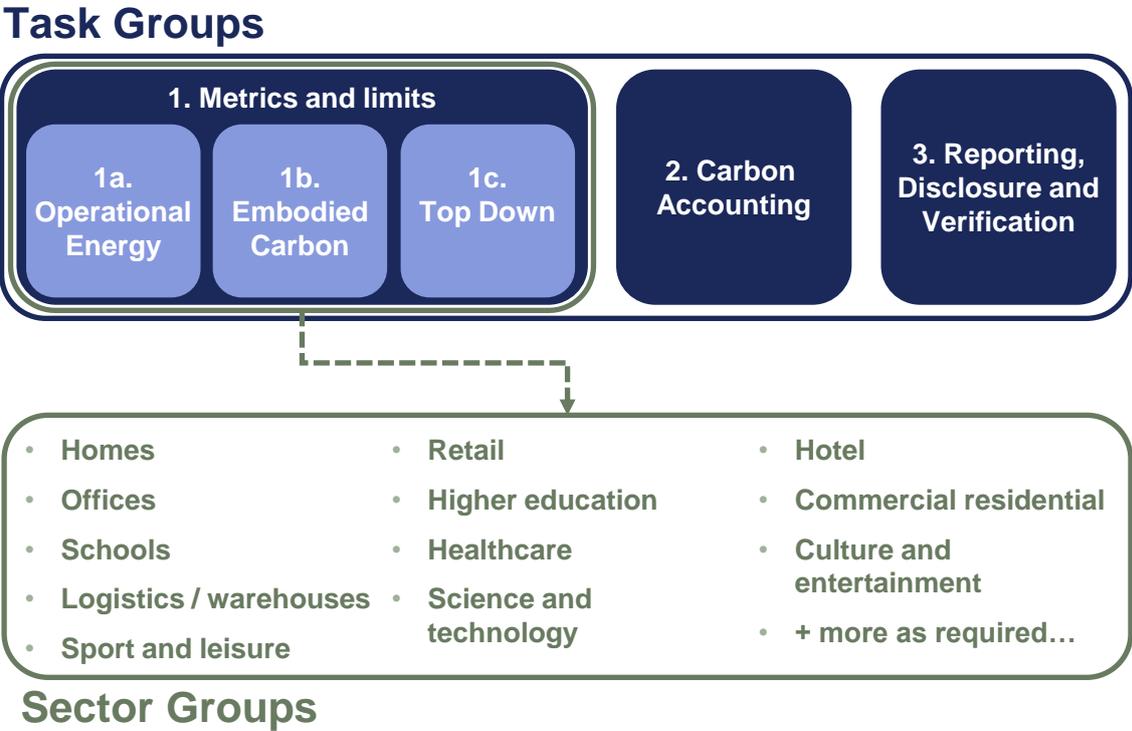
Task Groups

Figure 2: Task Groups and Sectors Groups structure overview.

2.1 Task Groups 1a-1c: Metrics and Targets Task Groups

Buildings cannot be considered in isolation and must be considered as part of both a global climate and energy system. Critically, this means that the performance of buildings – both in construction and operation – must be compatible with a 1.5°C decarbonisation pathway.

Asset-level science-based performance targets must therefore form a critical part of the UK Net Zero Carbon Buildings Standard and are the focus of the Metrics and Targets Task Groups.

These targets will be derived using a combination of 'bottom-up' benchmarking – to determine what is possible at the asset level in different sectors, balancing between sectors to reflect the propensity for improvement in each – and 'top-down' downscaling of our national and sectoral carbon budgets, to ensure the targets are aligned with what science says the built environment needs to achieve to stand a chance of mitigating global warming to 1.5°C. These carbon budgets may be subject to change.

The Metrics and Targets Task Groups will be responsible for defining the methodologies behind setting the targets, with sector-specific Sector Groups established to support the development of the 'bottom-up' benchmarks that will help inform what is currently possible in each sector and what is likely to be possible in the future.

The Metrics and Targets Task Groups will liaise with one another to ensure alignment of approach and robustness of the outputs, and with the Reporting, Disclosure, and Verification Task Group to develop guidance on how operational energy and embodied carbon is reported when the Standard is being applied to active projects/assets.

The Metrics and Targets Task Groups are as follows:

a. Operational Energy (OE) Task Group

b. Embodied Carbon (EC) Task Group

c. Top-Down (TD) Task Group

Task Group 1a: Operational Energy Task Group

The Operational Energy (OE) Task Group will be responsible for coordinating the sector groups in providing 'bottom-up' benchmarks for energy use intensity (EUI) for respective sectors (and subsectors, as appropriate) established from in-use data and predictive energy modelling.

Benchmarks provided will establish sector average performance, as well as current and future best practice. The OE Task Group will provide a consistent methodology and ensure ambition across sectors is comparable.

Task Group 1b: Embodied Carbon Task Group

The Embodied Carbon (EC) Task Group will be responsible for coordinating the sector groups in providing embodied carbon data such that benchmarks for assets in the respective sectors (and subsectors, as appropriate) can be developed.

In addition to insight from within the Sectors Groups themselves, they will also engage relevant experts to advise on future material decarbonisation and construction

approaches/techniques, which the Sector Groups will use to update the benchmarks provided to reflect prospective future reductions in embodied carbon. They will also develop the scope of and approach to developing the benchmarks.

Task Group 1c: Top-Down Task Group

The Top-Down (TD) Task Group will be responsible for developing a methodology for aligning the benchmarks provided for OE and EC with our national carbon budget to produce a complete suite of budget-aligned and science-based net zero carbon (NZC) performance targets.

The Task Group must first determine the budget 'allocation' for each of the elements of the built environment responsible for GHG emissions. Existing sources of information, such as the UKGBC Whole Life Carbon Roadmap and SBTi Sectoral Decarbonisation Approach, will form the foundation for this work.

The Task Group will then utilise the bottom-up benchmark scenarios provided, along with floor area information for the sectors as a whole, to create targets for the key metrics identified. The targets should balance the decarbonisation required across the whole built environment with the propensity for improvement in each sector. In other words, sectors which are likely to be able to 'go further' should have a greater responsibility to decarbonise (i.e. more stringent targets) than those sectors for which drastic improvements are more challenging.

For operational energy, these targets must result in both cumulative GHG emissions which don't exceed the operational carbon portion of the budget, as well as a sector whose demand for energy does not exceed the available zero carbon supply projected in 2050.

For embodied carbon, the targets must result in cumulative GHG emissions which don't exceed the embodied carbon portion of the budget only.

Sector Groups

In summary, the Sector Groups (SGs) will be responsible for the following key elements:

- Providing asset-level bottom-up benchmarks for the sector
- Advising on any necessary subsector distinction (e.g. multiple benchmarks within a sector for different typologies/use classes)
- In addition to the primary metrics, advising on any secondary metrics appropriate/relevant for the respective sector (e.g. per patient, per bedroom, per occupancy hour)

Information provided by the sector groups will be critical to the successful development of the performance targets, but ultimate decision-making on approach, methodology, scope, and magnitude will be the prerogative of task groups 1a-1c.

2.2 Task Group 2: Carbon Accounting

This Task Group will be responsible for agreeing:

1. Acceptable approaches to mitigating residual carbon emissions, such as:

    - Onsite renewables, including how exported energy is accounted for

    - Procurement of energy, including allowable types of procurement and guidance on the quality of green tariffs

    - Carbon 'offsets', including the types and location of carbon offset projects that are allowed, and when compensation and neutralisation offsets are appropriate

2. The approach to carbon accounting for the Standard, including (but not limited to):

    - The sources of emission factors acceptable within the Standard

    - The use of market- or location-based emission factors for Scope 2 emissions

    - The approach to accounting for Scope 3 emissions (for example the inclusion / exclusion of emissions associated with the transmission and distribution losses associated with electricity, or district heating)

    - Defining the minimum data coverage requirements

This will consider existing best practice guidance for achieving net zero carbon status.

A more detailed set of scoping questions will be developed by the Task Group when convened. It is expected that it will be necessary for this Task Group to liaise with others on topics that are overlapping in nature – for example with the Embodied Carbon Task Group in agreeing the approach to accounting of embodied emissions, and with the Reporting, Disclosure and Verification Task Group in agreeing requirements around measurement and reporting.

2.3 Task Group 3: Reporting, Disclosure, and Verification

This Task Group will be responsible for defining the terminology, scope, and boundary of any net zero claims. It will also agree the approach to and requirements for verifying net zero carbon claims in line with these definitions. It will also develop guidance on the reporting and disclosure in support of the verification of such net zero claims.

This will include:

- **Operational energy and carbon** – Develop guidance on how in-use data, energy or otherwise, is collected and reported annually, including but not limited to relevant metric used, data granularity, data periods, format of submission.

- **Embodied carbon** – Develop guidance on the boundary, data granularity and format of embodied carbon emissions, and how this should be collected and reported in various scenarios such as new construction, deep retrofit, refurbishment and extension.

- **Mitigation of residual emissions** – Develop guidance for the evidence and reporting requirements for acceptable methods of mitigating residual emissions, including on site renewables, energy procured, and any carbon 'offsets'.

- **Net zero in progress (design stage)** – Outline the required information to be provided for a development in design stage, and the verification process to be followed to verify as net zero

- **Net zero in progress (post-completion/not yet operating)** – Outline the required information to be provided for a completed development, which is yet not in operation, and the verification process to be followed to verify as net zero

The Task Group will work in conjunction with, and complementary to, the other Task Groups, to ensure its approach is informed and informs the relevant workstreams.

3. How to get involved

There are various ways of getting involved in this Standard, either as an individual or as an organisation:

- Apply to be part of Task Groups and Sector Groups (see 3.1)

- Be part of the industry engagement (see 3.2)

- Apply to be a 'beta tester' of the Standard (see 3.3)

- Apply to support with other roles, such as coordination and project management

You can apply to get involved either as an individual or an organization using **this form by the 6th of June 2022.** To see what information is required – **click here for a PDF version of the form.**

To stay up to date with the initiative **sign up** to the mailing list.

3.1 Join the Task Groups and Sector Groups

The **Task Groups** will be responsible for developing the initiative's approach on a range of technical considerations underpinning the Standard.

The **Sector Groups** will be providing sector-/typology-specific expertise and data to support on asset-level embodied carbon and operational energy benchmarks.

3.2 Provide feedback via industry engagement

Engagement with industry, including both **public consultation** and **working directly with future users of the Standard and those who will be impacted by it**, will be an important part of its development.

As a minimum, it will be essential to engage with the following stakeholders in the value chain:

- **Clients who will adopt/deploy the Standard**: Stakeholders who will have decision-making authority over the application of the Standard to their built assets (e.g. developers, investors, and asset-owners).

- **Parties who will use the Standard on behalf of their clients**: Consultants who drive application of the Standard with the Design Team at design stage and monitor

performance against the standard during the construction and commissioning stages on behalf of the Client. Asset managers, managing agents and facilities managers who monitor and report on asset and investment performance.

- **Key members of the value chain/design team which will embed the Standard:** E.g. architects, building services engineers, structural engineers, quantity surveyors, cost consultants etc.

- **Occupiers who will use the standard to inform their procurement and leasing of buildings:** E.g. occupiers who own their buildings or who are looking to take out or renew leases on buildings they rent.

- **Policymakers who would adopt the Standard at local, regional, or national leve**l: Central, regional, or local government, planners and policymakers.

- **Investors and financiers in the built environment who will be impacted by the Standard:** Investment, private equity, pension and other funds involved in the built environment. Banks involved in green financing of built assets. Parties with insight into how the Standard may affect the national and global markets.

The programme for engagement will be shared in the near future.

3.3   Become a beta tester

To be successful, the Standard will need to work in practice for all parties of the built environment, from investors through to occupiers. The development of the Standard will therefore be informed by engagement with industry, including through dedicated "beta testers".

The beta testers will not be expected to produce parts of the Standard, but rather to provide feedback to the Technical Steering Group. This may include commenting on technical points, such as some of the assumptions informing the energy use or embodied carbon targets, as well as wider points including how to best deal with various commercial arrangements (e.g. tenanted vs landlord areas), the type of contractual evidence which would be acceptable to demonstrate compliance with the Standard at various points etc.

Ideally, beta testers will be early adopters of the Standard, as this will help provide the most useful feedback on its application and adoption. However, being an early adopter is not a requirement to becoming a beta tester.

There will be opportunities to promote your involvement. However, this is not a requirement, and involvement could be on an anonymous basis if preferred.