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WorldGBC EPBD implementation factsheets

Life cycle Global Warming Potential in the Energy Performance in Buildings Directive

This factsheet is a guide to measures outlined in the revised Energy Performance of Buildings Directive (EPBD, EU/2024/1275), to support Member States and the construction sector in calculating, and reducing, life cycle Global Warming Potential (GWP) of European buildings.

In this publication, we will give an overview of these measures, set out how these can be actioned as an easy-to-follow timeline of action points and provide a checklist of conditions that need to be met.

The Energy Performance in Buildings Directive

The EPBD, the EU's primary law governing the sustainability of buildings, has undergone a new revision which was finalised in 2024. This change to the EPBD is intended to help Europe achieve a fully decarbonised building stock by 2050, as part of the EU's wider target of climate neutrality by 2050.

Member States have until May 2026 to transpose the provisions of the updated EPBD.

For the first time, the EPBD includes measures that address the life cycle GWP of buildings across the EU.

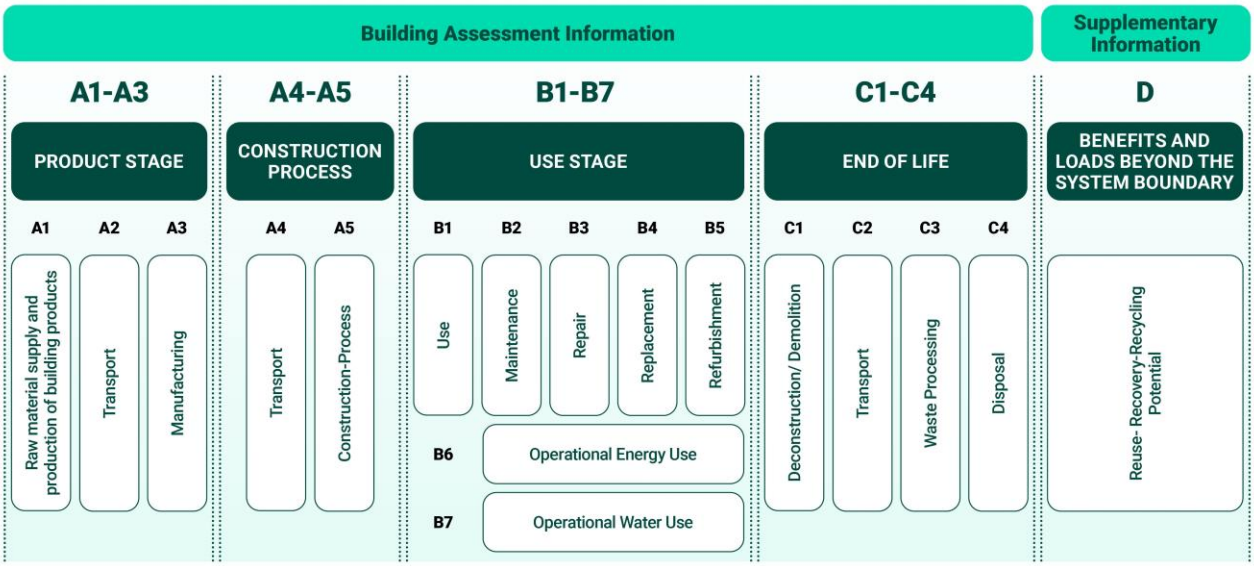
What is life cycle Global Warming Potential (GWP)?

Life cycle GWP, sometimes referred to as Whole Life Carbon (WLC), is an indicator that quantifies the global warming potential contributions of a building caused by carbon emissions along its full life cycle, including both operational and embodied emissions.

These emissions encompass the manufacturing, transportation, construction, operation and end-of-life phases of buildings, and calculating them constitutes a first step towards increased consideration of the whole life cycle performance of buildings within a circular economy.

As buildings become more energy-efficient (decreasing the operational emissions), it becomes especially important to tackle embodied carbon emissions. Within those, the emissions happening at the beginning of a building's lifetime constitute a greater proportion of a building's embodied climate impact (Ramboll, 2023).

Diagram illustrating a building's full life cycle according to standard EN 15978, all stages of which would be used when calculating its life cycle GWP.



BS EN 15978-1 Sustainability of construction works – Methodology for the assessment of performance of buildings, CEN

National life cycle GWP policy

There is a precedent for policy measures that tackle life cycle GWP at the national level, with France and Denmark having already introduced mandatory reporting and limit values for new buildings, and reporting required for some building types in Sweden and the Netherlands.

See the map on page 8 for more information.

Overview of life cycle GWP measures in the EPBD

In Article 7 (2), the updated EPBD text requires Member States to ensure that life cycle GWP is calculated and disclosed via Energy Performance Certificates (EPCs) with the following timelines:

- as of 2028 for all new buildings with a useful floor area larger than 1,000m^2
- as of 2030 for all new buildings

Member States may exempt buildings from disclosing life cycle GWP if building permit applications have been submitted by the dates above.

This calculation of life cycle GWP will need to be calculated following Annex III of the EPBD (see box below).

These provisions will follow the European Commission's adoption of a Delegated Act by the end of 2025 (Article 7 (3)), for an EU-wide framework for national calculation of life cycle GWP to achieve climate neutrality.

At the national level, **Member States will need to publish life cycle GWP roadmaps by the start of 2027, including targets and limit values for new buildings from 2030** (Article 7 (5)). Roadmaps should incorporate how the limit values can be tightened over time, and how they might differ between climatic zones and building typologies.

Life cycle GWP reporting guidance in the EPBD

Annex III of the EPBD sets out requirements for life cycle GWP calculation, including:

1. It should be communicated as a numeric indicator for each life cycle stage expressed as kgCO2e/m2.y (of useful floor area), averaged for one year of a reference study period of 50 years.
2. Data selection, scenario definition and calculations should be carried out in accordance with EN 15978.
3. The scope of building elements and technical equipment should be as defined in the Level(s) Framework indicator 1.2.
4. Existing national calculation methods or tools for disclosure of building permits may be used. Other calculation tools or methods may be used if they fulfil the minimum criteria established by the Level(s) common EU framework.
5. Life cycle data regarding specific construction products calculated in accordance with the revised Construction Products Regulation shall be used when available.

The Commission will issue a Delegated Act to build on these requirements.

Steps to support implementation

1

Develop and issue detailed guidance for national industry on life cycle GWP reporting, including a methodology aligned with Annex III of the EPBD and the European Commission's anticipated EU-wide framework for life cycle GWP reporting, expected by the end of 2025.

2 (by May 2026)

Ensure that the EPBD dates for mandatory life cycle GWP reporting are transposed into national legislation, these being life cycle **GWP reporting required for all new large buildings as of 2028, and for all new buildings as of 2030**.

3

Establish a national building database (if it doesn't already exist) suitable for life cycle GWP data.

4 (by 1 Jan 2027)

By the start of 2027 use existing data on pilot projects and national building stock to develop a roadmap setting out:

- the introduction of limit values on the total cumulative life cycle GWP of all new buildings.
- life cycle GWP targets for all new buildings from 2030 (set as aspirational targets for industry front-runners, higher than limit values).

Limit values and targets should follow a progressive downward trend, and be differentiated according to different building typologies and climatic zones.

5

Adjust national EPC framework to accommodate disclosure of life cycle GWP.

Leading by example

Additional measures by national governments which would support the implementation of life cycle GWP measures include:

- Setting a date by which life cycle GWP disclosure will be mandatory for all new public buildings (ahead of the timeline set out in the EPBD).
- Launching pilot projects in collaboration with industry front-runners to help build capacity and to begin building datasets across all building types to inform life cycle GWP limit values and targets.

Future dates for life cycle GWP implementation

End of **2025**

Commission to release Delegated Act with EU-wide framework for life cycle GWP reporting.

2027

Member States to submit roadmaps with national life cycle targets and limit values for new buildings from 2030.

2028

Life cycle GWP must be disclosed for all new buildings with a useful floor area larger than 1000 square meters.

2030

Life cycle GWP must be disclosed for all new buildings.

National life cycle targets and limit values.

2050

Member States must achieve a highly energy-efficient and decarbonised national building stock.

Highly energy-efficient and decarbonised national building stock

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Enabling conditions required

Below is a checklist of enabling conditions at the national level to implement the EPBD's provisions on life cycle GWP.

- Capacity building for industry and public sector on life cycle GWP and building decarbonisation.

- Available data on average life cycle GWP of different building types and different climatic zones.

- Develop methodology for life cycle GWP reporting, aligned with the EPBD and Commission guidance.

- Life cycle GWP database in place.

- Sufficient trained and verified professionals to carry out life cycle GWP assessments.

Government measures required for implem

Regulations

- By 29 May 2026, transpose dates in the EPBD for mandatory life cycle GWP reporting into national legislation — 2028 for new buildings with a useful floor area larger than 1000m^2, and 2030 for all new buildings.
- Establish life cycle GWP limit values and targets for all new buildings from 2030, differentiated according to building types and climatic zones — include future dates when these will be tightened in line with the national roadmap and EU climate targets.
- Modify national EPC framework to accommodate the reporting of life cycle GWP.

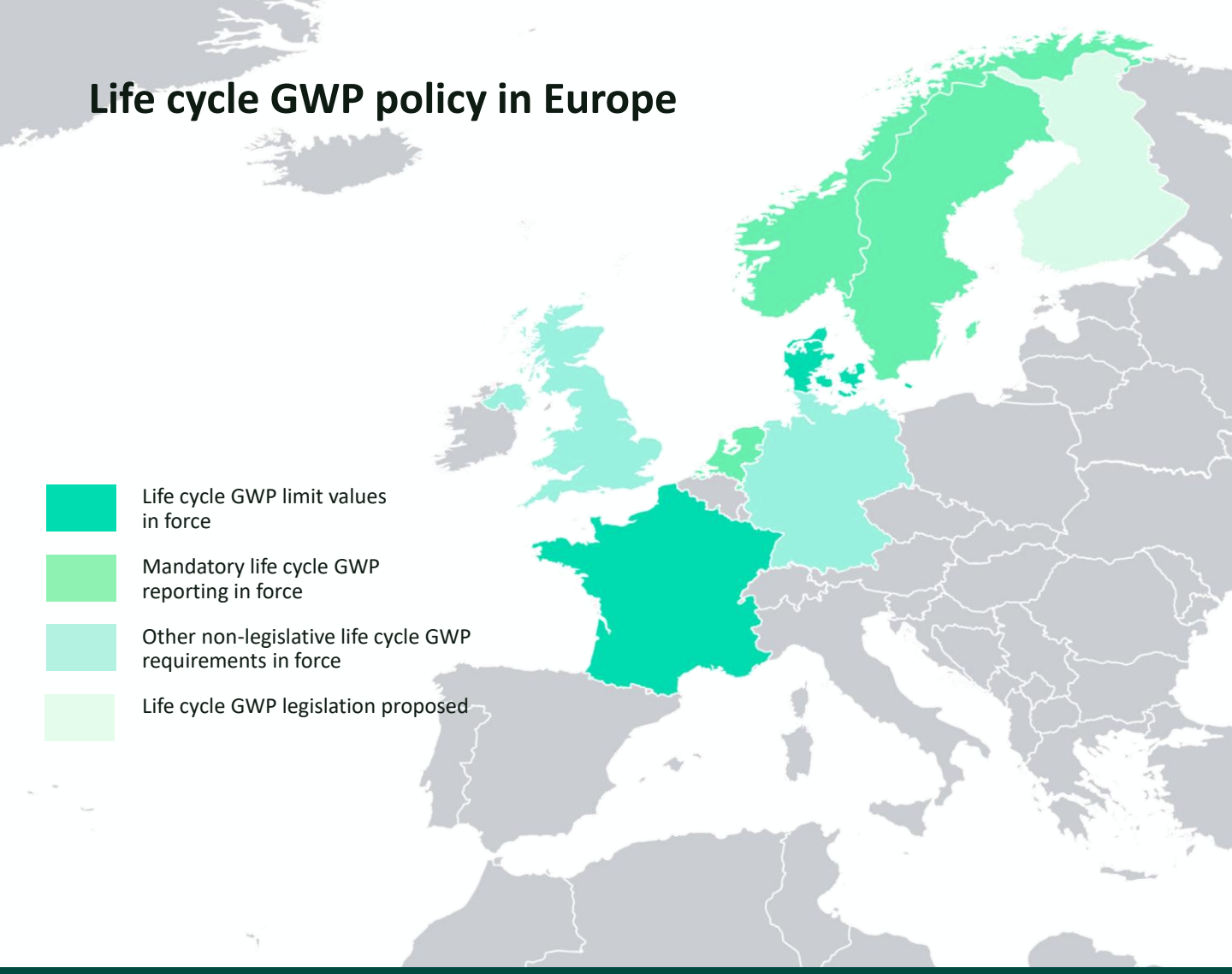
Information

- Develop guidance and a methodology for life cycle GWP reporting, aligned with Annex III of the EPBD and the Commission's EU-wide framework released in 2025 as part of the delegated act.
- Develop the life cycle GWP roadmap as specified in the EPBD, with detailed guidance for national industry ahead of the introduction of life cycle GWP targets on how they should prepare.

Incentives

- Sufficient public (EU and national) funds are channelled towards building industry capacity for the introduction of life cycle GWP reporting and targets such as:
    - Training professionals to carry out life GWP calculations.
    - Pilot projects for decarbonisation across the building value chain.

Life cycle GWP policy in Europe



WorldGBC and the Europe Regional Network

The World Green Building Council (WorldGBC) is the largest and most influential local-regional-global action network, leading the transformation to sustainable and decarbonised built environments for everyone, everywhere.

Our Europe Regional Network represents over 20 national Green Building Councils (GBCs) working with seven regional partners to put sustainable buildings at the heart of a prosperous and equitable future for Europe.

European GBCs are committed to supporting Member States with the implementation of the Energy Performance of Buildings Directive to:

- Set the EU on track to achieve its climate goals
- Boost energy security and tackle energy poverty
- Create large numbers of long-lasting green jobs
- Deliver high-quality, affordable and healthy buildings

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