

CREATING LEAD MARKETS FOR LOW-CARBON CEMENTS**The policies needed from now until 2030**

14 November 2024

In May 2024, CEMBUREAU, the European Cement Association, published its [Net Zero Roadmap update](#), outlining the sector's climate ambition along the cement and concrete value chain. The roadmap revisits the sector's climate ambitions at a 2030, 2040 and 2050 horizon, in light of ongoing decarbonisation investments in the sector.

Crucially, CEMBUREAU's roadmap also highlights the key policy measures which are indispensable to achieve this ambition. These include several key elements to support the supply of decarbonised cement in Europe, such as the implementation of a watertight Carbon Border Adjustment Mechanism (CBAM), the ramping up financial support to support decarbonisation investments, and the need for guaranteed access to affordable decarbonised energy, infrastructure and raw materials.

As regards the demand side, **CEMBUREAU's net zero roadmap calls for the creation of lead markets for low carbon, circular products**. The creation of such markets is indispensable to support the development of new technologies and processes, some of which are already being developed throughout the EU cement industry¹, and foster a long-lasting demand for decarbonised construction products.

Lead markets are all the more essential that building materials account for only 6% of total construction investments, whilst the concrete share of total material costs is below 5% in residential buildings and below 15% in commercial construction². There is, therefore, a high potential to use lead markets to drive the demand for low-carbon construction products.

In this paper, we make recommendations to improve the European framework for lead markets.

1. Current EU policies at building level are the most efficient tool to stimulate the demand for low carbon, circular construction products

When it comes to the construction sector, a key challenge is that a given intermediary product – like cement or concrete – is part of an overall structure, whose sustainability must be maximised. We echo most of the construction industries that environmental sustainability, in the case of construction, should be assessed through a set of environmental impact indicators for the life cycle performance of the final products, i.e. the whole building, water treatment plant, roads, etc., as opposed to individual products. For this reason, CEMBUREAU is a strong supporter of initiatives looking at reducing the whole life carbon in buildings and has also contributed to the European Commission Level(s) framework.

CEMBUREAU believes that some key elements are already in place to support the demand for low-carbon products at building level. In particular, the revised Energy Performance of Buildings Directive (EPBD) will drive the decarbonisation of Member States' building stock with its global warming potential (GWP) requirements (disclosure of lifecycle GWP in Energy Performance Certificates; Member States roadmaps

¹ <https://cembureau.eu/innovation/map-of-innovation-projects/>

² BCG analysis for CEMBUREAU, 2019

introducing limit values on the total cumulative lifecycle GWP of all new buildings and setting targets for new buildings from 2030). The EPBD will operate in conjunction with the revised Construction Products Regulation (CPR), which requires manufacturers to declare environmental essential characteristics, including mandatory GWP, in their declarations of performance and conformity. The revised CPR also foresees the possibility for Member States to incentivise the use of construction products with a certain performance class. The main objective is to ensure that low carbon, circular construction products are used by the construction value chain to meet these new requirements.

CEMBUREAU therefore supports the implementation of the EPBD as well as national initiatives aiming to foster policies at building level. When it comes to the implementation of such policies, CEMBUREAU finds it crucial that the following key principles are respected to maximise their positive environmental impact:

- **Material neutrality should be ensured.** Solutions with the best whole life carbon profile should be supported regardless of their nature, thereby establishing a level playing field among construction materials.
 - **Both embodied and operational carbon should be calculated.** The impacts of using materials on the building's energy consumption should be assessed. For instance, concrete's thermal mass property³ leads to lower energy consumption and a reduced associated GWP over the building's lifecycle.
 - **Durability, service life and maintenance CO2 costs should be accounted.** For example, building with long-lasting materials significantly reduces the climate impact of buildings, and should be rewarded.
 - **Permanent carbon storage in materials should be supported,** and strict conditions should be set to 'temporary' carbon storage.
 - Such policies should **value circularity, material efficiency and local availability.**
- 2. Until the EPBD and CPR are implemented, all actors, public and private, should adopt policies at building and infrastructure level to support the large-scale use of low carbon, circular construction products**

The EPBD/CPR framework will only be fully in place from 2030. In the meantime, CEMBUREAU sees strong value in the development of initiatives by Member States, local authorities and the private sector to effectively create lead markets for low carbon, circular cements⁴ at the building/infrastructure level. These initiatives should prioritise (by order of importance) the following actions:

- Make the use of EPDs mandatory in procurement;
- Use green public procurement criteria in public procurement in all Member States / use green procurement criteria in private procurement;
- Update building codes, standards to the latest technological developments;
- Develop national guidance for GWP reporting at building level;
- Establish national building database suitable for GWP data;
- Use pilot projects to develop roadmap for introduction of limit values, per building type/segment;
- Require for building permits to have a lifecycle global warming potential calculation for buildings/infrastructure;

³ https://www.concrete-europe.eu/images/Concrete_Europe_-_PositionPaper_-_3E_-_2016-10-25-light.pdf

⁴ See Annex II page 5

- Set life-cycle global warming potential limits for buildings in procurement;
- Award contracts with the best price-sustainability-technical performance quality ratio (see point 3 below);
- Define low carbon cement thresholds at national level⁵ first to increase transparency and facilitate the communication within the construction value chain but also for use in public and private procurement or for financial incentives.

When setting lead market initiatives, the public sector and private operators should consider key prerequisites:

- Be technology neutral and use the embedded CO₂ per functional unit as key criterion;
- Full compliance with building codes and standards;
- Award contracts with the best price-sustainability-technical performance quality ratio (see point three below).

3. EU public procurement rules have a key role to play to help stimulate demand for low carbon, circular construction products especially for infrastructures

As highlighted in point two, CEMBUREAU believes that public procurement can play a key role in delivering lead markets. We recommend all Member States and local authorities use green public procurement criteria in the procurement of their buildings and infrastructures. That is why we welcome the announcement of President von der Leyen to make better use of public procurement and of the revision of the Public Procurement Directives in her political guidelines for the next European Commission 2024–2029⁶ and mission letters for designate Commission Members⁷.

Since 55% of the procurement procedures use lowest price as the only award criterion for public contracts⁸, we would recommend in the revision of the Public Procurement Directives to make sure that any contracts should be awarded to only the **best price-sustainability-technical performance ratio** to pay more attention to quality, sustainability and innovation. Member states will also be able to use the possibility offered by the revised CPR to incentivise the use of construction products with a certain performance class.

Finally, we recommend the Commission help Member States develop the skilling of their public administration via training and material to ensure that the call for tenders for buildings and infrastructure are written according to the best technical standards.

⁵ See Annex I page 4

⁶ https://commission.europa.eu/document/download/e6cd4328-673c-4e7a-8683-f63ffb2cf648_en?filename=Political%20Guidelines%202024-2029_EN.pdf

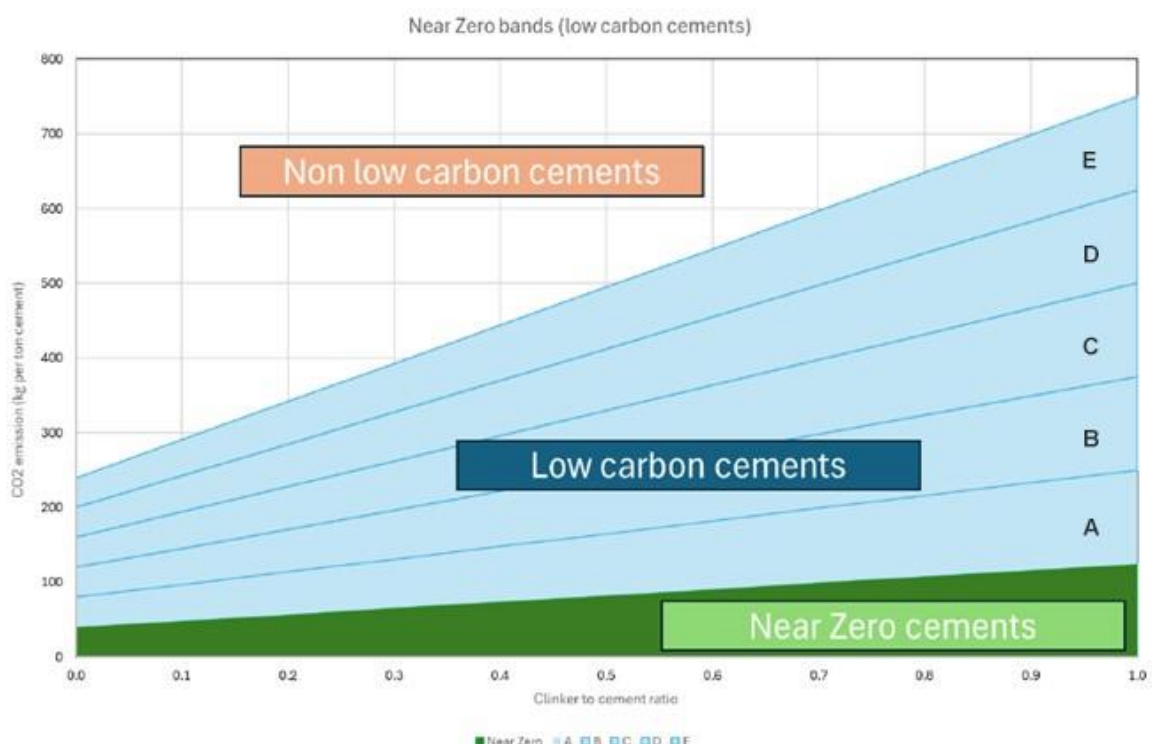
⁷ https://commission.europa.eu/about-european-commission/towards-new-commission-2024-2029/commissioners-designate-2024-2029_en

⁸ https://single-market-economy.ec.europa.eu/single-market/public-procurement_en

Annex I – IEA low emission production intensity thresholds proposal from the report “Achieving Net Zero Heavy Industry Sectors in G7 Members”⁹ adapted by CEMBUREAU to make the framework relevant for the European Union (to be possibly adapted at Member State level with national values)

CEMBUREAU adapted the IEA low emission production intensity thresholds to the European situation because we believe that low-carbon cements are essential to produce low-carbon concretes and low-carbon concretes can make a very positive contribution to achieving low-carbon buildings or infrastructures. The classification is to be adapted at national level due to the particularities of each Member State such as the availability of alternative raw materials, supplementary cementitious materials, biomass waste.

- Cement types are plotted according to their Global Warming Potential (GWP) values against their clinker-to-cement ratios from national Environmental Product Declarations (EPDs) in accordance with EN 15804 and EN 16908 (Product Category Rules for cement).
- Bands from A – E represent low carbon cements;
 - Band A is associated to the lowest carbon footprint;
 - Band E, the highest carbon footprint within the low carbon category.
- The near zero band defined by the IEA¹⁰ has the lowest carbon footprint, based on full carbon capture projects.
- Cements above Band E are not low carbon¹¹.
- Member States can decide to apply a static clinker-to-cement ratio, based on national average values.



⁹ Page 134 of [Achieving Net Zero Heavy Industry Sectors in G7 Members, IEA May 2022](#)

¹⁰ From 40 kg CO₂/ton cement for cements with clinker-to-cement at 0% to 125 kg CO₂/ton cement for cements with clinker-to-cement at 100%. Page 14 of [Achieving Net Zero Heavy Industry Sectors in G7 Members, IEA May 2022](#)

¹¹ The IEA defined maximum level of low carbon cement band for clinker-to-cement ratio of 100%: 750 kg CO₂/ton cement: Table 1.a, in [Achieving Net Zero Heavy Industry Sectors in G7 Members, IEA May 2022](#)

Annex II – List of current lead market initiatives at Member States and local authorities and by the private sector (table will be updated regularly)

PUBLIC PROCUREMENT			
MS	Measure	Positives	Negatives
CZ	All new buildings built after 2022 or buildings for sale must have an energy performance certificate that includes a statement on the ratio of renewable to non-renewable energy. The data in the certificate is supplemented by a GWP index.	Building level Material neutral	
DK	From the 1 st of January 2023 all new buildings must document their environmental impact over a lifespan of 50 years through LCA calculation, and that new buildings above 1000 square meters must comply with the limit value of 12 kg CO ₂ equivalent per square meters per year ¹² . From July 2025, the average CO ₂ e limit is set at 7.1 kg CO ₂ e/m ² /year, decreasing in time, but four different limit values will apply depending on the type of building and its size	Material neutral Building level	Only 50 years lifetime calculation
FR	France R2020 regulation ¹³ since 2022 sets a maximum threshold for GHG emissions from energy consumption for building types and decreasing limits in time for and construction-related emissions.	Building level Progressive & predictable Holistic approach	Not material neutral Only 50 years lifetime calculation
DE	Germany introduced maximum thresholds for the GWP of buildings in subsidy programs for new buildings ¹⁴	Building level Material neutral	
GR	Since 2023 40% of office buildings must follow Green Public Procurement Rules	Building level Material neutral	
IRL	“Reducing embodied carbon in construction” ¹⁵ guidance for public authorities for projects commencing from September 2024, making use of existing tools and technical specification	Incentivise the development and use of EPDs Technical requirements and technical feasibility taken into account	Certain technical aspects overly prescriptive

¹² <https://www.nordicsustainableconstruction.com/news/2023/january/denmark-introduces-co2-limit-for-new-constructions>

¹³ <https://www.ecologie.gouv.fr/politiques-publiques/reglementation-environnementale-re2020>

¹⁴ <https://www.bmwsb.bund.de/SharedDocs/topthemen/Webs/BMWSB/DE/foerderprogramme-bmwsb/foerderprogramme-bmwsb-artikel.html>

¹⁵ <https://www.gov.ie/en/press-release/41f29-government-approves-public-procurement-guidance-to-promote-the-reduction-of-embodied-carbon-in-construction/>

NL	Since 2021, the Netherlands require ¹⁶ that new buildings larger than 100m2 have whole-life carbon calculations and carbon mitigation cost estimates using a national assessment method, database and approved tools.	Building level Material neutral Harmonised assessment method and data	
SE	Since 2022, the calculation and reporting of the embodied carbon emissions has been required for new buildings to receive building permit approvals ¹⁷ .	Building level Material neutral	
Local authority	Measure	Positives	Negatives
Zurich	In 2013, Zurich introduced the additional requirement that all concrete used in building construction works procured by the city meet the CEM III/B cement standard ¹⁸ .	Incentivise use of low carbon cement	Too restrictive. Better approach: requirements based e.g. on CO2 emissions per ton of cement thus not excluding individual types of cement with low CO2 emissions
Germany local authorities	Public authorities are allowed to make use of a CO ₂ -shadow price in their procurement ¹⁹		
Valencia	Since 2024 the regional administration is calculating the carbon footprint of infrastructures by means of applying the sectoral EPD of every material to the total amount of each material included in the project. Then, bonification in the tendering process is given to the contractor whose offer reduces the carbon footprint by making use of low carbon materials	Incentivise the development and use of EPDs	
Public & private procurement			

¹⁶ <https://www.rvo.nl/onderwerpen/wetten-en-regels-gebouwen/beng#beng-per-gebouwtype>

¹⁷ <https://www.boverket.se/en/start/building-in-sweden/contractor/tendering-process/climate-declaration/>

¹⁸ <https://procuraplus.org/about-procura/public-authorities/zuerich>

¹⁹ https://www.verwaltungsvorschriften-im-internet.de/bsvwvbund_19102021_IB3.htm

BE, NL Expanding to France and Ireland	CO2 Performance Ladder is an instrument that helps organisations reduce their carbon emissions in the organisation, in projects and in the business sector. With a certificate on the Ladder, organisations can receive an award advantage for their registration on tenders.	Incentivise carbon reduction at company level	
Global	UNIDO Industrial Deep Decarbonisation Initiative (IDDI) ²⁰ is a coalition of governments, companies, and organisations focused on reducing industrial emissions, starting with steel, cement, and concrete. IDDI aims to drive early demand for low- and near-zero emission products through green public procurement by harmonising emission accounting methodologies, developing global standards, creating a framework for accessible emission data, and establishing targets for public procurement of these materials. IDDI has adopted IEA definitions as a “robust starting point” and allows countries to adopt a static clinker cement. The Global Cement and Concrete Association (GCCA) has developed concrete definitions to meet IDDI needs ²¹ . These use IEA cement definitions as a robust starting point, mirror the IEA philosophy and can be adapted by countries according to EPD practice.	Harmonised approach but with local flexibilities	
PRIVATE PROCUREMENT			
MS	Measure	Positives	Negatives
Global	Concrete Zero brings together mainly contractors which commit to using 100% net zero concrete by 2050, with two ambitious interim targets of using 30% low emission concrete by 2025 and 50% by 2030.		
Global	The First Movers Coalition (FMC) ²² aims to signal early demand for climate-friendly materials globally. The goal is to aggregate private demand and demonstrate a willingness to pay for climate-friendly products, thereby helping to create and sustain these markets.		

²⁰ <https://www.industrialenergyaccelerator.org/areas-of-work/the-industrial-deep-decarbonisation-initiative/>

²¹ https://gccassociation.org/wp-content/uploads/2024/10/GCCA_Concrete_Definitions_for_Low_Carbon_and_Near_Zero_Policy.pdf

²² <https://initiatives.weforum.org/first-movers-coalition/home>