

# Cement and Concrete Carbon Reporting

# GCCA Membership

## Our Members

Asia Cement Corporation  
Breedon Group  
BUA Cement  
Buzzi  
Cementir Holding  
Cementos Argos  
Cementos Moctezuma  
Cementos Pacasmayo  
Cementos Progreso  
CEMEX  
Cimenterie Nationale  
Çimsa Cement  
CNBM  
CRH  
Dalmia Cement  
Dangote  
Emirates Steel Arkan  
Fletcher Building  
GCC  
Heidelberg Materials  
Holcim  
Hima Cement  
Huaxin Cement  
JK Cement

JSW Cement  
Medcem  
Misr Cement Group  
Molins  
Nesher Israel Cement Enterprises  
Norm Cement  
Northern Region Cement Company (Saudi Arabia)  
Orient Cement  
PT Solusi Bangun Indonesia  
SCHWENK Zement  
Secil  
Siam Cement Group  
Siam City Cement  
Taiheiyo Cement  
Taiwan Cement Corporation  
TITAN Cement Group  
TPIPOLENE  
UltraTech Cement  
UNACEM  
Vassiliko Cement  
Vicat  
Votorantim Cimentos  
YTL Cement  
Yura Cement

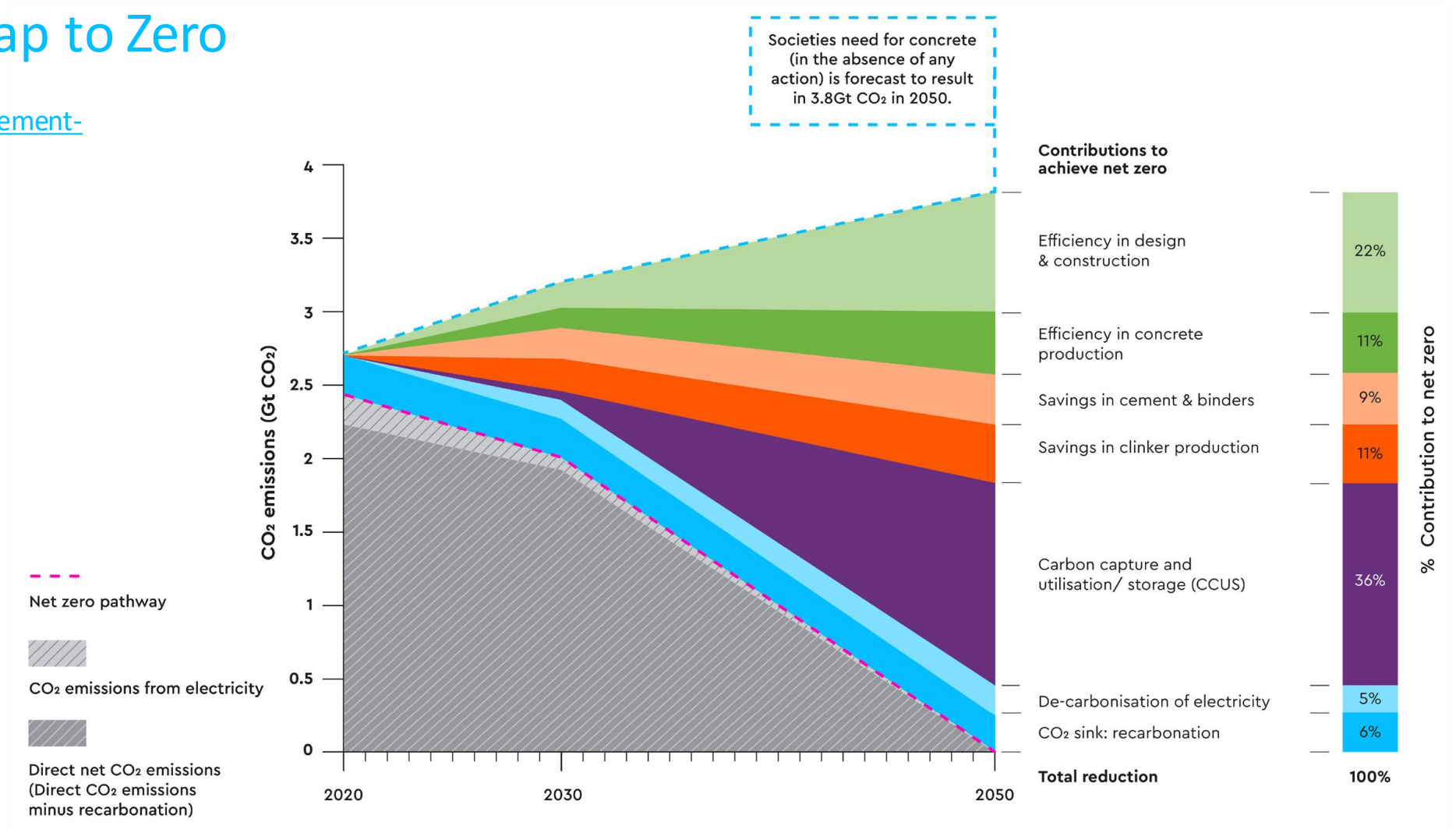
## National & Regional Association Partners

Asociación de Fabricantes de Cemento  
Portland – Argentina  
Asociación de Productores de Cemento – Peru  
Associação Brasileira de Cimento Portland – Brazil  
Association of German Cement Manufacturers  
(VDZ) – Germany  
Association Professionnelle des  
Cimentiers – Morocco  
Betonhuis – Netherlands  
BIBM – Europe  
CANACEM – Mexico  
Canadian Precast Prestressed Concrete Institute  
Cement Association of Canada  
Cement Concrete & Aggregates Australia  
Cement Industry Federation – Australia  
Cement Manufacturers Association – India  
Cement Manufacturers Ireland

China Cement Association  
Concrete NZ – New Zealand  
European Cement Association (CEMBUREAU)  
European Federation Concrete Admixtures  
European Ready Mixed Concrete Organisation  
Federación Iberoamericana del Hormigón Premezclado –  
LatAm  
Federación Interamericana del Cemento  
(FICEM) – LatAm  
Japan Cement Association  
Korea Cement Association  
Mineral Products Association – United Kingdom  
National Ready Mixed Concrete Association – USA  
Portland Cement Association – USA  
South India Cement Manufacturers Association  
Thai Cement Manufacturers Association  
The Spanish Cement Association (Oficemen)  
Turkish Cement Manufacturers Association (TürkÇimento)

# Global Roadmap to Zero

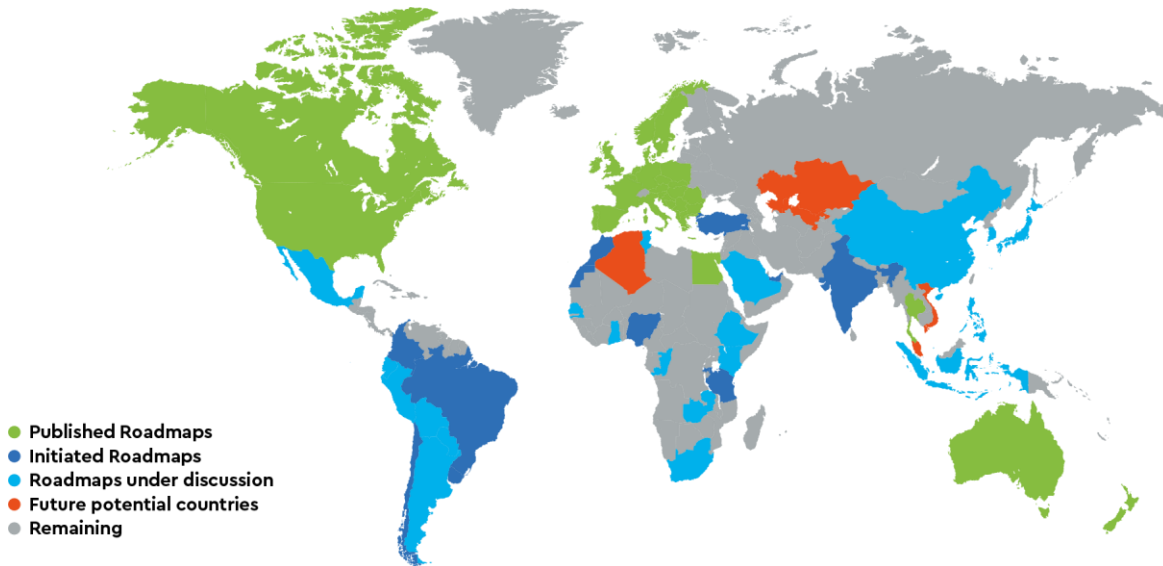
<https://gccassociation.org/cement-industry-net-zero-progress/>



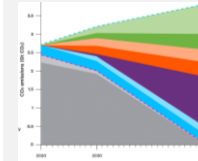
# Country Roadmaps: Accelerator Initiative by GCCA

- GCCA initiative launched March 2022: catalyst for country roadmaps
- Initiative is showing good progress
- Perceived as a key step in regulatory transition and financing discussion

Progress of Roadmaps around the globe



## KEY DELIVERABLES



**Roadmap Levers and CO<sub>2</sub> impact**  
Per lever, quantification of potential CO<sub>2</sub> reduction 2030 & 2050



**Policy**  
Per lever, identification of enabling policies



**Lighthouse Projects**  
Per lever, identification of lighthouse projects

## GCCA Cement CO<sub>2</sub> and Energy Protocol - Calculation basis

- [The Cement CO<sub>2</sub> and Energy protocol V3](#) is **based on calculation methods that are compatible with IPCC 2006 Guidelines** for National Greenhouse Gas Inventories\* issued by the Intergovernmental Panel on Climate Change (IPCC), and with the revised WRI / WBCSD Greenhouse Gas Protocol (2004).

*Note : None of the above-mentioned reference documents have been revised since their respective year of publication*

- The GCCA has initiated a revision of its CO<sub>2</sub> and Energy protocol to align with new guidance from SBTi, ISO guidelines (see next slide), and technological advancements like CCUS and calcined clays. **The new CO<sub>2</sub> and Energy Protocol will be available early 2025.**



# The CO2 and Energy Protocol is aligned with relevant ISO Standards

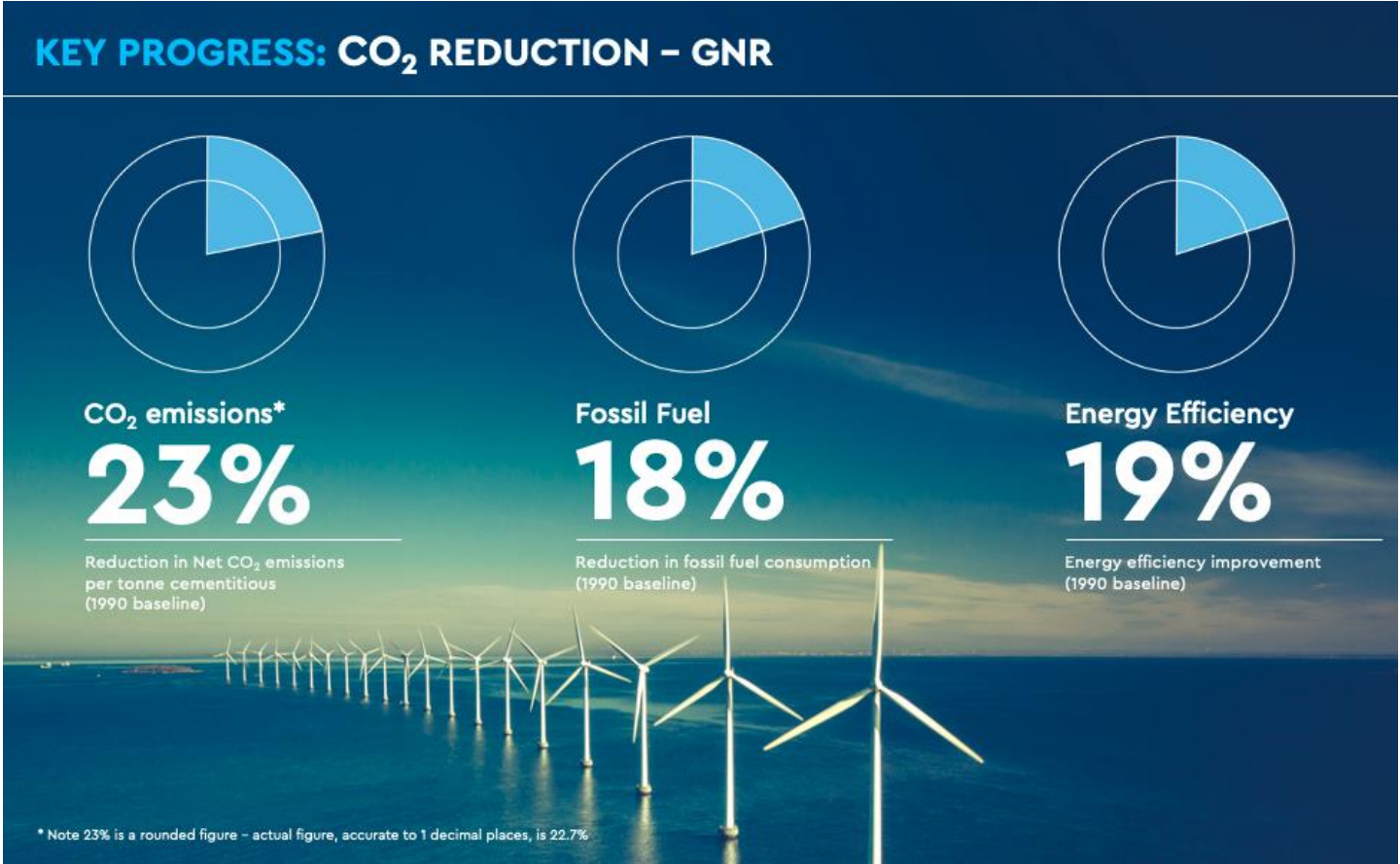
In V3:

ISO Standards	Full Name
ISO 14064-1: 2006	Greenhouse gases. Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals. International Organization for Standardization, Switzerland

In the upcoming V4.X:

ISO Standards	Full Name
ISO 19694-1:2021	Stationary source emissions — Determination of greenhouse gas emissions in energy-intensive industries — Part 1: General aspects
ISO 19694-3:2023	Stationary source emissions — Determination of greenhouse gas emissions in energy-intensive industries — Part 3: Cement industry
ISO 14064-1:2018	Greenhouse gases — Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals
ISO 14064-2 : 2019	Greenhouse gases — Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements
ISO 14067:2018	Greenhouse gases — Carbon footprint of products — Requirements and guidelines for quantification

Annual reporting: Plant level data collected by PWC using Cement CO<sub>2</sub> and Energy Protocol. Aggregated Progress.



## GCCA Scope 03 - Guidance Document being tested



GCCA has drafted a Scope 03 guidance document. Based on Greenhouse Gas Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard (V1.0),



This document provides detailed explanation for calculating all the 15 categories of emissions.



The first draft will be released to GCCA members for testing in June 2024. Feedback will be gathered and incorporated.



# GCCA Monitoring and Reporting for ready-mix concrete of CO<sub>2</sub> from cementitious constituents

Commence data collection for 2024 data

PRODUCTION REPORTING
<b>Parameters to be Collected ONLY relate to cement and SCMs</b>
Total cement consumed
Total binder consumed
Gross CO <sub>2</sub> from cement and binder consumed
Net CO <sub>2</sub> from cement and binder consumed
Total ready-mix concrete produced
Average ready-mix concrete strength

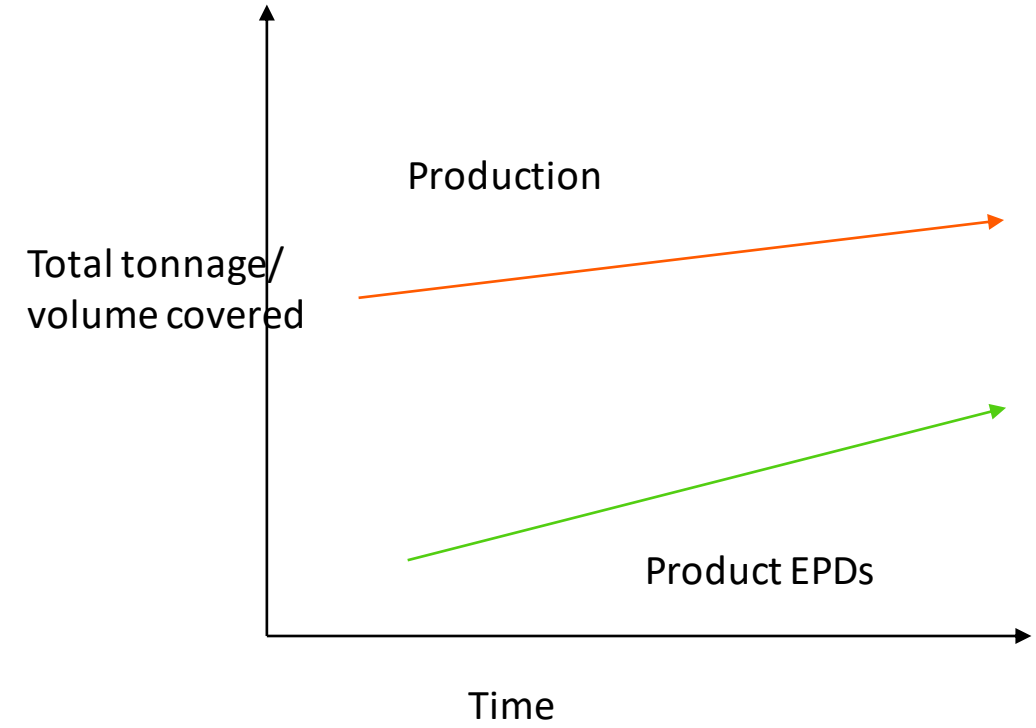
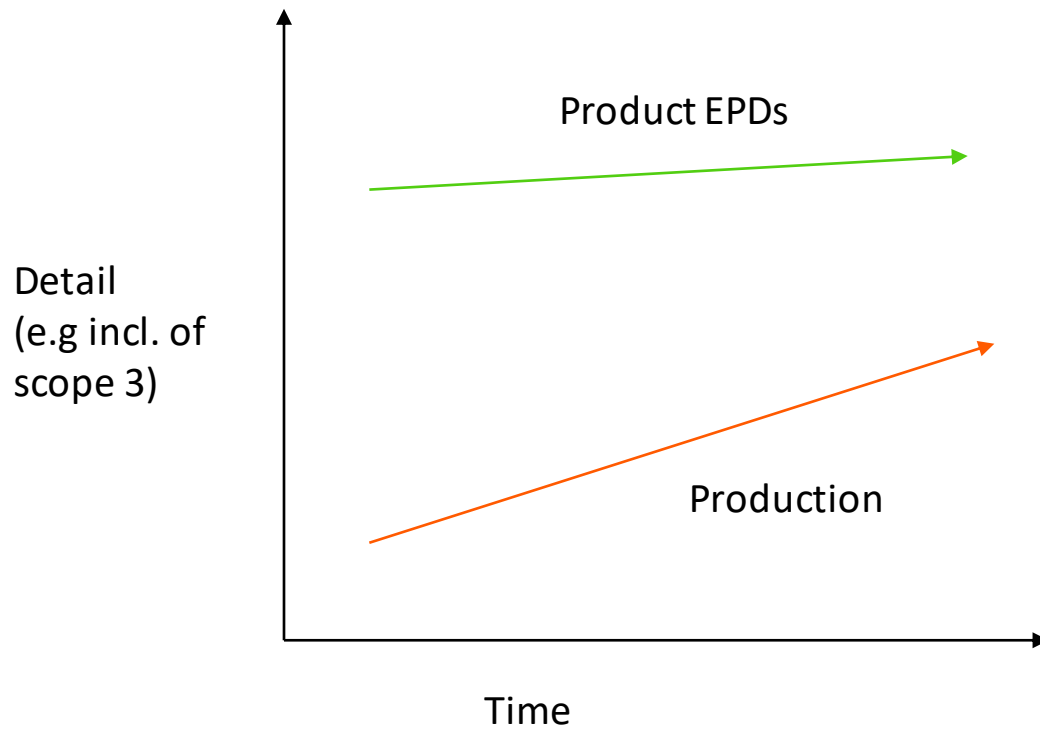
PRODUCT REPORTING: EPDs
<b>Environmental Product Declarations</b>
All input constituents
All processes
All outputs
Strength and other key performance data

## GCCA EPD tool: Standards

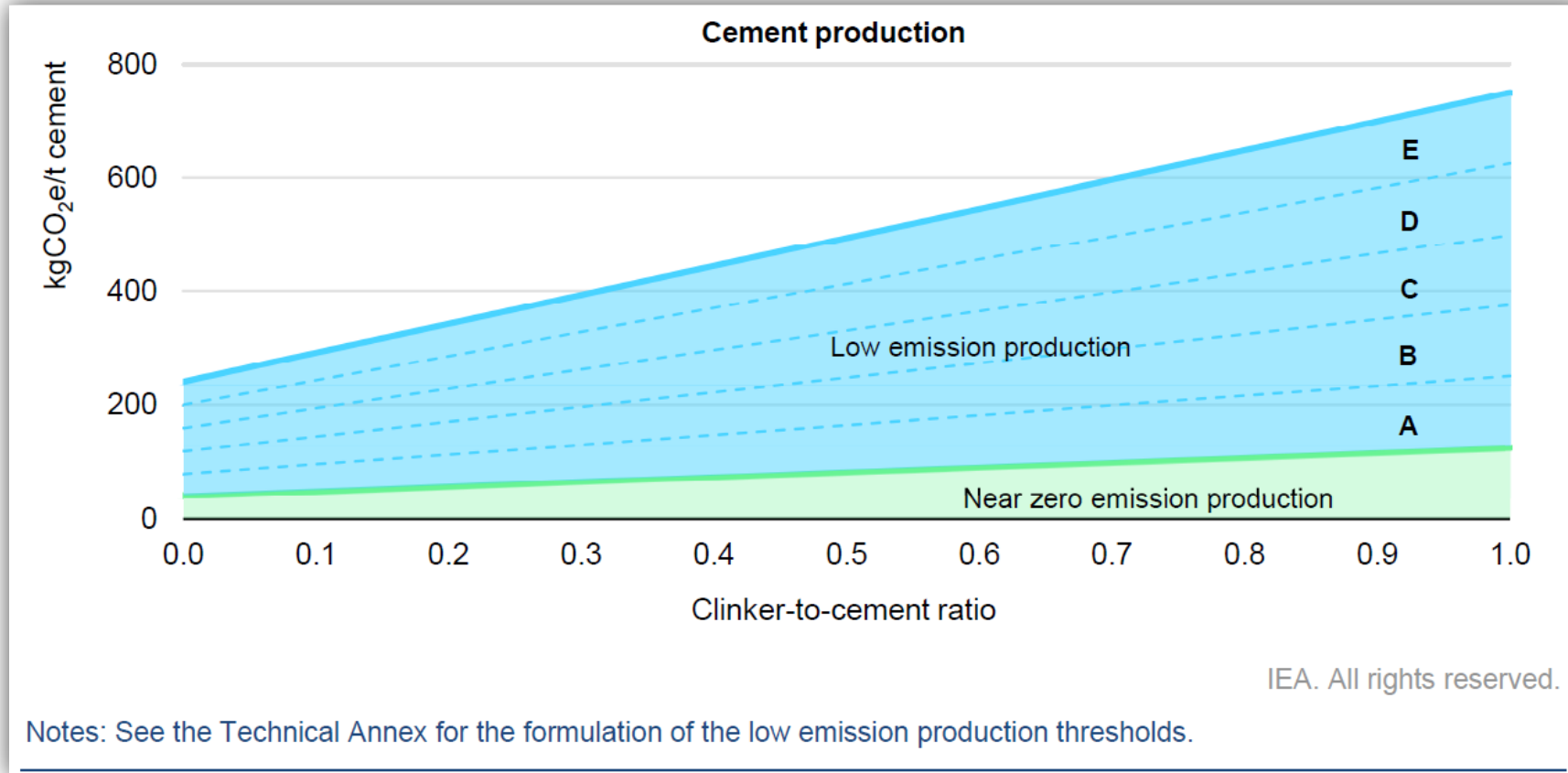
Version	EPD standard	PCRs	LCA standard	Independent verification standard
International	ISO 21930	<ul style="list-style-type: none"> <li>• PCR 2019:14 - Construction Products (EN 15804+A2)</li> <li>• cPCR-001 - Cement and building lime (EN 16908)</li> <li>• cPCR-003 - Concrete and concrete elements (EN 16757)</li> </ul>	ISO 14040 ISO 14044	ISO 14025
North American		<ul style="list-style-type: none"> <li>• PCR for Portland, Blended, Masonry, Mortar, and Plastic (Stucco) Cements (NSF International)</li> <li>• PCR for Concrete (NSF International)</li> <li>• PCR for Precast Concrete (NSF International)</li> </ul>		

# Carbon Accounting: Congruent not identical

## Production and Product: Complimentary

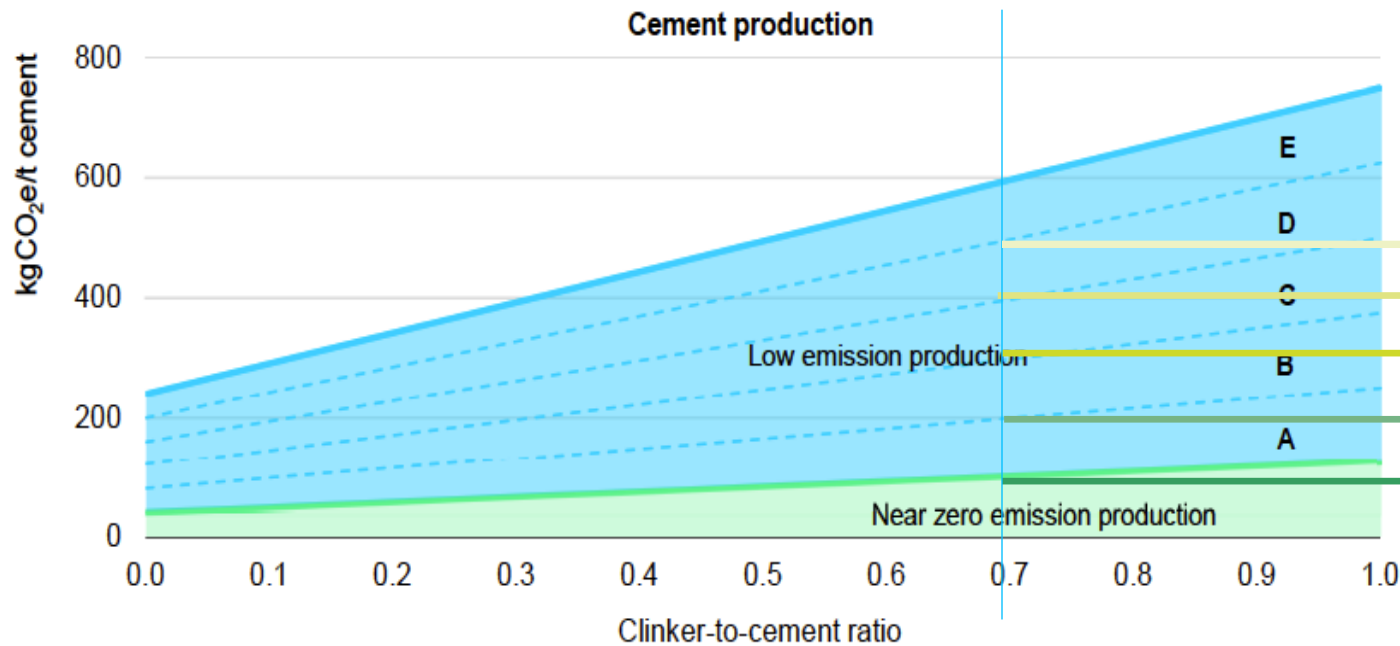


## IEA definitions for low and near zero emission production: cement



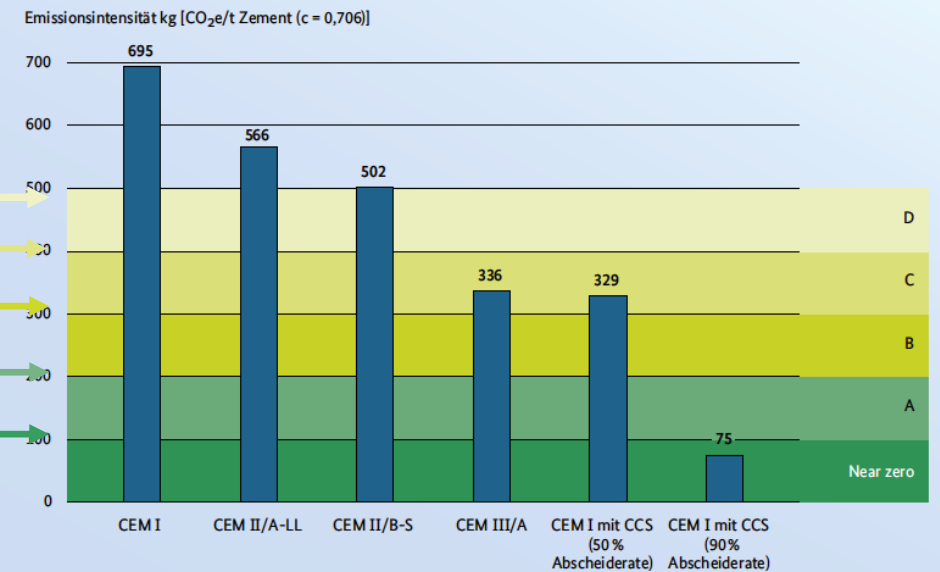
IEA Report: “Achieving Net Zero Heavy Industry Sectors G7 Members“, May 19<sup>th</sup> 2022

# IEA Cement Definition and German Application as member of IDDI



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Abbildung 4: Vorgeschlagene Emissionsschwellenwerte (in CO<sub>2</sub>-äq/t; farbliche Schattierung) im Vergleich zu aktuellen und zukünftigen Zementsorten sowie Technologien



Quelle: Güdehouse, Fraunhofer ISI, Wuppertal Institut (2023) im Auftrag des BMWK

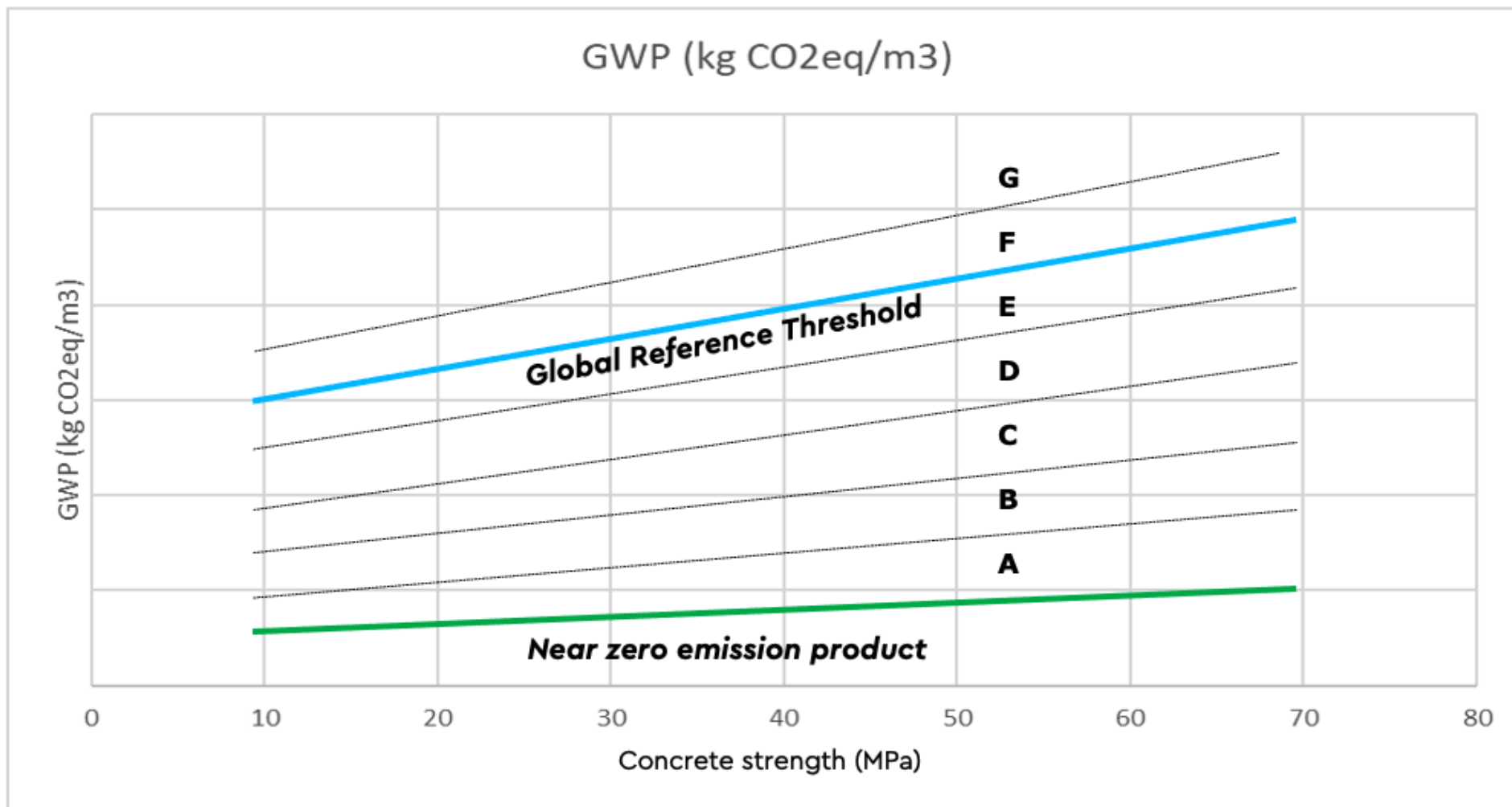
Notes: See the Technical Annex for the formulation of the low emission production thresholds.

- Exercised option to fix clinker cement ratio. Chose 0.706
- Guidance to use EPD values of product to determine what band product is in

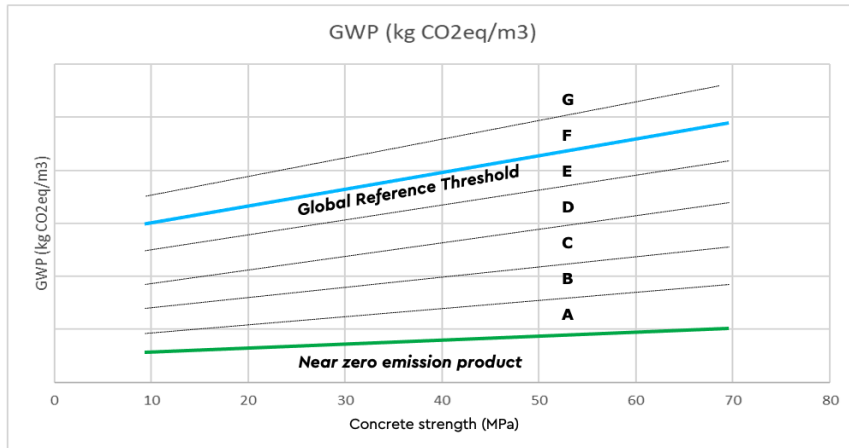
# Low carbon and near zero definitions for Concrete

A proposal being developed by GCCA  
for IDDI

## GCCA Methodology for Concrete (IDDI yet to have concrete definitions)



# GCCA Methodology for Concrete



## Be congruent with IEA definitions for Cement, in terms of:

- Separation of definitions and targets
- Same static bands for all countries
  - Five low carbon emission bands “A to E” , with equal spacing/range
  - “Near zero” band defined by destination at 2050
  - Upper bound of band “E” defined, recognising current good practice

## In addition:

- “F” and “G” bands introduced to allow wider engagement
- Based on EPDs of readymixed concrete
- Categorised on strength
  - Special readymixed concrete which is defined by other performance characteristics excluded