



Global Cement and Concrete
Association

CONCRETE
FUTURE

Members Only Webinar

GCCA Book and Claim Simulator

09 July 2026

12:30 – 13:30 (LONDON)



Thomas Guillot

GCCA CEO



Claude LOREA

GCCA Special Advisor

Competition Law Reminder

All participants are committed to fair competition and compliance with competition law and will only discuss matters that are legitimate to deliberate among competitors. Meeting participants will in particular refrain from disclosing, sharing or exchanging competitively sensitive information.

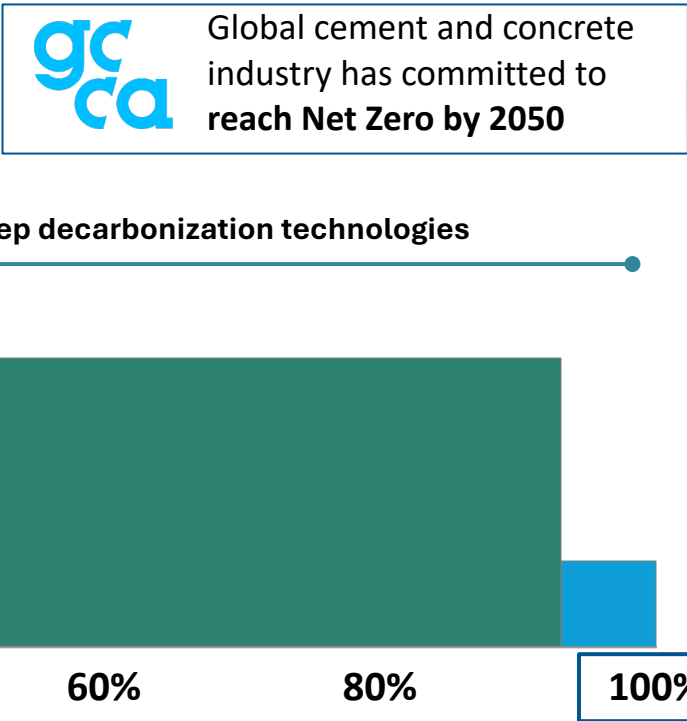
The GCCA and each of its members is responsible for observing the requirements of competition law and members should make themselves familiar with their legal obligations, including as expressed in the GCCA Competition Compliance Policy. If any attendee has any concerns at any time during this meeting that discussions or conduct may be contrary to competition law, they should speak up immediately and ensure that their protest is included in the minutes, before leaving the meeting.

Material relating to the Book and Claim Simulator,
including the Excel calculator and the Rulebook,
must NOT be shared outside of the GCCA.

Overall introduction

Decarbonizing cement and concrete requires scale deployment of breakthrough technologies, which carry high investment and risk

Abatement costs for complete decarbonization of the sector, scope 1 & 2 emissions (\$/t CO₂e)



- > Achieving Net Zero demands the deployment of breakthrough technologies at unprecedented scale
- > These solutions carry high investment and significant technical risk

How to finance and incentivize them in time?

Note 1: Marginal abatement cost depends on the company maturity and starting point in the decarbonization journey; Note 2: Based on the US market as of November 2024 | Sources: Enerdata, IEA, WoodMac, Cembureau, EC JRC, ECRA Technology Papers, MPP, BCG Net Zero Explorer

Chain of Custody mechanisms enable **financing of the green transition beyond local markets** — a crucial step to **support industry players** particularly in the early stages of CCS adoption



Make decarb technologies investable across the value chain

To scale deep decarb technologies, it is key to make them buyable – revenue streams can help to share the financial burden across the value chain



Strengthen & de-risk business cases for net-zero investments

In absence of stronger regulation, business cases must be reinforced through levers such as demand aggregation or certification schemes



Enables supply where local demand falls short

By matching dispersed buyers with available supply, financial actors help build scale for low-carbon cement in otherwise hard-to-reach markets



Unlocks a revenue stream for first wave of deep decarb investments

Up-front certificate purchases could transfer early-stage cash to producers, lowering capital cost and speeding deployment of carbon-capture projects

A challenging industry context

- Incremental measures will soon hit their limits and breakthrough deep decarbonization tech becomes essential but present an economic challenge
- This highlights the urgency to develop mechanisms that help the economics to improve its feasibility

GCCA set out clear objectives for its Book & Claim system, building it around 5 foundational principles



Deep decarbonization catalyzation

Strengthen the **business case for breakthrough tech** and **maximize industry participation**, accelerating early deployment of deep decarbonization levers



Technology agnostic

Remain open and flexible to integrate **any technology that supports the system's deep decarbonization goal**



Transparency & traceability

Secure credibility through transparency, traceability, and **strict verification and measurement** processes



Standard-setter acceptance

Unlock scale by aligning with recognized standards and securing **endorsement from key standard-setters**



Demand alignment

Build market participation and trust with a system **designed around real buyer needs**

GCCA CoC system design choices

	Design Element	Design choices	Rationale / Implications for outstanding choices
CoC Architecture	CoC Model	Uncoupled (Book & Claim)	- Global framework with tight MRV controls helps create level playing field: - Uncoupled model with regional pilots at the beginning : [EEA + UK + CH] / [North America] / [Rest of World] - Clinker-equiv. as FU to address main emissions source, integrating primary binders and innovative SCMs and ensuring comparability across cement and concrete via technical equiv. tables - Non proportional MB for Near Zero technologies accounting for the fact that most early CCS project are unlikely to be full scale and proportional MB for levels A and B technologies to align with standards setters expectations - Near-Zero and low-carbon levels A & B balance ambition for deep decarbonization and opening early EAC eligibility to more pathways
	Geographic Boundaries	Global framework with regional pilots [EEA + UK + CH] / [North America] / [Rest of World]	
	Mass Balance Approach	Non-proportional MB for Near-Zero technologies + Proportional MB for low-carbon technologies	
	Mass Balance Perimeter	Single-site mass balancing	
Scope & Eligibility criteria	Functional Unit (FU)	Clinker-equivalent	
	Transaction Unit	EAC: PCF per ton of clinker equivalent	
	Emissions Threshold (Product)	NZ + EF levels A & B (until '40-'35)	
Operational framework	CoC Accounting Method	Dual model (Baseline-based + Residual/Attributional)y	
	Transaction Framework	Bilateral agreements recorded in registry	
Integrity Guardrails	Additionality	Financial additionality Required	
	Plant-Level Decarbonized Production Threshold	40% of production output – only applicable when Non-Proportional Mass Balance is applied	
	MRV & Compliance	3rd-party verified, ISO-aligned LCA + registry audit trail; tight MRV controls, stringent measurement & verification standards	

A reminder of the bands

The bands have been defined based on GCCA definitions for Low Carbon cement Using a clinker to cement ratio of 1.0 to define clinker categories



The Rulebook



1. Introduction and value of CoC for cement industry
2. How the scheme works
3. CoC considerations
4. Market Rules
5. System acceptance and compatibility with compliance/ voluntary schemes
6. Conclusions

Appendixes

1. Calculation of carbon footprint of cement products
2. Digital registry and accounting operationalization
3. in development – MRV Framework

The Calculator

3

Cement & Concrete industry

Chain of Custody Rulebook

Stakeholder consultation – Q&A Responses

Version 1.0

Version 1.0 · Stakeholder consultation

Cement & Concrete
Chain of Custody
Rulebook

GCCA Rulebook & EAC Generation Simulator

Illustrative assessment tool for low-carbon clinker, cement and concrete

X

GCCA_Book_Claim_Calculator.xlsx

Home

Insert

Formulas

View

A1

fx

GCCA Book & Claim Calculator

Illustrative assessment tool for low-carbon clinker, cement and concrete

Purpose of this tool

This calculator is an **illustrative assessment tool** developed within the GCCA Book & Claim workstream. Its objective is to **support structured thinking and scenario testing** around how Environmental Attribute Certificates (EACs) for clinker may be generated, allocated and used across the cement and concrete value chain.

Important notice

This tool **does not provide exact, verified or auditable results**. It is **not a compliance tool**, not a product declaration, and not a substitute for EPDs, LCAs or third-party verification. All outputs should be understood as **order-of-magnitude estimates** intended to inform discussions, not to support claims.

What this calculator does

The calculator allows users to:

- Explore how clinker emissions translate into GCCA low-carbon bands
- Test different decarbonisation levers (fuel mix, DRM, CCUS, SCMs)
- Understand how many clinker EACs could theoretically be generated
- Assess how those EACs could be used downstream, up to the consumer level
- Visualise the interaction between clinker, cement and concrete PCFs under a Book & Claim logic

All calculations follow the GCCA draft rulebook V2.0 and are aligned with March 3 Board decision.

How the calculator is structured

The workbook is organised in **logical building blocks**, moving from definitions → production → allocation → use.

1. GCCA Bands and definitions

The starting point of the calculator is the GCCA clinker band system, based on:
A clinker-to-cement ratio of 1.0

Net clinker emissions intensity (kg CO₂e/t clinker)

Bands range from **Near-Zero** (≤125 kg CO₂e/t clinker) through **A** to **G**, and are used consistently throughout the tool as eligibility thresholds for EAC issuance.

2. Clinker emissions calculator

This section establishes a **baseline clinker emissions profile**, combining:

Read Me

Bands

DRM

CCUS

Innovative SCMs

+

X

GCCA_Book_Claim_Calculator.xlsx

Home

Insert

Formulas

View

A1

fx

CCUS calculator

Reminder of the bands

Band B	375	kg CO ₂ / t clinker
Band A	250	kg CO ₂ / t clinker
Near Zero	125	kg CO ₂ / t clinker

Legend:

Only edit yellow cells

Blue cells are calculated

Green cells explain how things are calculated

EAC issuance method

▼ Select proportional/ non proportional in drop down in cell below

Proportional

* Select the allocation method from the drop-down. Proportional can issue Band B, B overall capture rate is at least 40%.

Accounting method

Inputs

Process emissions		535
DRM%	% DRM	0
CO ₂ reduction per % DRM in kg	kg	5
Process emissions in kg CO ₂ incl organ	kg CO ₂	535
Fuel emissions		
Energy consumption	MJ/t clk	3500
Fuel Mix	kg CO ₂ / GJ	% in fuel Mix
Petcoke	92.8	14%
Natural Gas	56.1	0%
Nat Gas + bio	0	0%
AF biomass	100	26%
AF fossil	75	60%
H ₂	0	0%
		kg CO ₂ /GJ gross 58.0
		kg CO ₂ /GJ net 13.0
Indirect emissions: cradle-to-gate	kg/t clk	45

Read Me

Bands

DRM

CCUS

Innovative SCMs

Decarbonated Raw Materials — EAC Generation

Plant Snapshot

1,000,000 t clinker/yr Total Production	35 % decarbonated RM DRM Share	-7.5 kg CO ₂ /t per % DRM Emission Reduction	3,500 MJ per t clinker Specific Energy Use	45 kg CO ₂ /t clinker Indirect Emissions (cradle-to-gate)
--	---	--	---	--

Fuel Mix



EAC Output — Band B Certificate

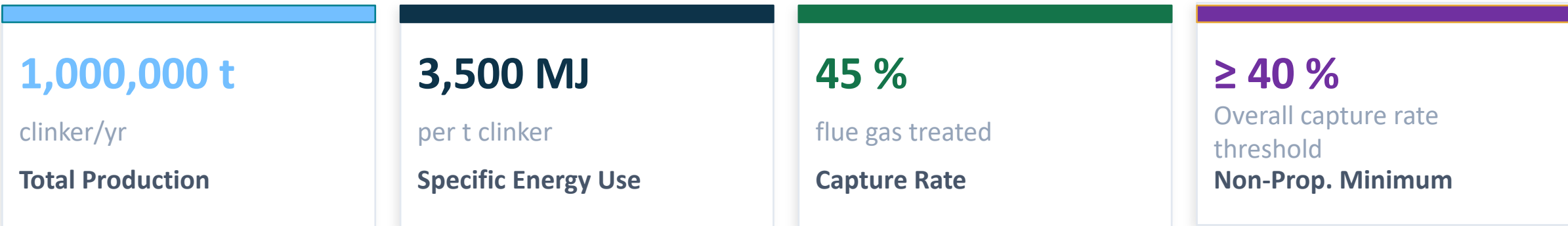
1,000,000

Band B EACs generated
1 EAC per tonne of clinker produced · via Decarbonated Raw Materials pathway

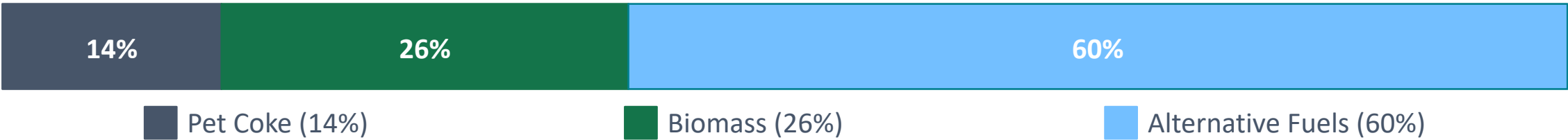
Emission factor: 325 kg CO₂eq / t clinker

CCUS Plant Snapshot

Key inputs driving the EAC calculation



Fuel Mix



⚠️ check whether removals are sold as credits or not

✓ Overall capture rate 43 % exceeds the 40 % non-proportional threshold

The plant qualifies for Near-Zero EACs generation under the non-proportional allocation method.

Choosing Your Allocation Method

2 options — the choice determines your certificate type and EAC volume

OPTION 1

Proportional Allocation

Certificate type

Band B EAC

EACs generated

1,000,000 EACs

Baseline clinker PCF

625 kg CO₂eq/t

EAC value / PCF

348 kg CO₂eq/t

per t clinker equiv.

OPTION 2

Non-Proportional Allocation

Near-Zero EAC

478,481 EACs

near-zero ratio: [0.48]

Residual clinker PCF

625 kg CO₂eq/t

107 kg CO₂eq/t

PCF for Near-Zero EAC

Options B require capture rate ≥
40 %

If removals are sold as credit

125 kg CO₂eq/t

PCF for Near-Zero EAC

Innovative SCMs — Primary Binder EAC Eligibility

Eligibility Framework

X Non-eligible SCMs

● GGBS

● Fly ashes

● Limestone filler

● Natural pozzolanes

● Silica fume

▶ Pre-requisite: demonstrate financial additionality

▶ Eligibility assessed for the full blend, including a clinker eligibility criterion

▶ EAC intensity determined for the overall blend — not for the innovative SCM alone

▶ Activity index applied to EAC volume (default 0.7, unless EN 18314 value is calculated & 3rd-party verified)

▶ Residual emissions calculated as if the innovative SCM carried the clinker emission factor

Worked Example — Calcined Clay Blend

Blend Composition — 2,000,000 t/yr

35%

30%

30%

Clinker (35%)

Calcined Clay (30%)

Slag (30%)

Limestone (5%)

Clinker eligibility limit

maximum clinker emission factor

849 kg CO₂/t

Activity Index

As per EN 18314 or default value

0.7

Residual emissions

per tonne of clinker equivalent

483 kg CO₂/t

EAC Output

420,000

Band B EACs

after 0.7 safety factor

Emission factor: 312 kg CO₂eq / t equivalent clinker

GCCA Confidential

gca Global Cement and Concrete Association 18

Cement & Concrete industry

Chain of Custody Rulebook

Stakeholder consultation – Q&A Responses

Version 1.0

Version 1.0 · Stakeholder consultation

Cement & Concrete
Chain of Custody
Rulebook

EAC Generation Simulator Demo

Illustrative assessment tool for low-carbon clinker, cement and concrete

X

GCCA_Book_Claim_Calculator.xlsx

Home

Insert

Formulas

View

A1

fx

GCCA Book & Claim Calculator

Illustrative assessment tool for low-carbon clinker, cement and concrete

Purpose of this tool

This calculator is an **illustrative assessment tool** developed within the GCCA Book & Claim workstream. Its objective is to **support structured thinking and scenario testing** around how Environmental Attribute Certificates (EACs) for clinker may be generated, allocated and used across the cement and concrete value chain.

Important notice

This tool **does not provide exact, verified or auditable results**. It is **not a compliance tool**, not a product declaration, and not a substitute for EPDs, LCAs or third-party verification. All outputs should be understood as **order-of-magnitude estimates** intended to inform discussions, not to support claims.

What this calculator does

The calculator allows users to:

- Explore how clinker emissions translate into GCCA low-carbon bands
- Test different decarbonisation levers (fuel mix, DRM, CCUS, SCMs)
- Understand how many clinker EACs could theoretically be generated
- Assess how those EACs could be used downstream, up to the consumer level
- Visualise the interaction between clinker, cement and concrete PCFs under a Book & Claim logic

All calculations follow the GCCA draft rulebook V2.0 and are aligned with March 3 Board decision.

How the calculator is structured

The workbook is organised in **logical building blocks**, moving from definitions → production → allocation → use.

1. GCCA Bands and definitions

The starting point of the calculator is the GCCA clinker band system, based on:
A clinker-to-cement ratio of 1.0

Net clinker emissions intensity (kg CO₂e/t clinker)

Bands range from **Near-Zero** (≤125 kg CO₂e/t clinker) through **A** to **G**, and are used consistently throughout the tool as **eligibility thresholds** for EAC issuance.

2. Clinker emissions calculator

This section establishes a **baseline clinker emissions profile**, combining:

Read Me

Bands

DRM

CCUS

Innovative SCMs

+

X

GCCA_Book_Claim_Calculator.xlsx

Home

Insert

Formulas

View

A1

fx

CCUS calculator

Reminder of the bands

Band B	375	kg CO ₂ / t clinker
Band A	250	kg CO ₂ / t clinker
Near Zero	125	kg CO ₂ / t clinker

Legend:

Only edit yellow cells

Blue cells are calculated

Green cells explain how things are calculated

EAC issuance method

▼ Select proportional / non proportional in drop down in cell below

Proportional

* Select the allocation method from the drop-down. Proportional can issue Band B, B overall capture rate is at least 40%.

Accounting method

Inputs

Process emissions		535
DRM%	% DRM	0
CO ₂ reduction per % DRM in kg	kg	5
Process emissions in kg CO ₂ incl organ	kg CO ₂	535
Fuel emissions		
Energy consumption	MJ/t clk	3500
Fuel Mix	kg CO ₂ / GJ	% in fuel Mix
Petcoke	92.8	14%
Natural Gas	56.1	0%
Nat Gas + bio	0	0%
AF biomass	100	26%
AF fossil	75	60%
H ₂	0	0%
		kg CO ₂ /GJ gross 58.0
		kg CO ₂ /GJ net 13.0
Indirect emissions: cradle-to-gate	kg/t clk	45

Read Me

Bands

DRM

CCUS

Innovative SCMs

19

GCCA Confidential

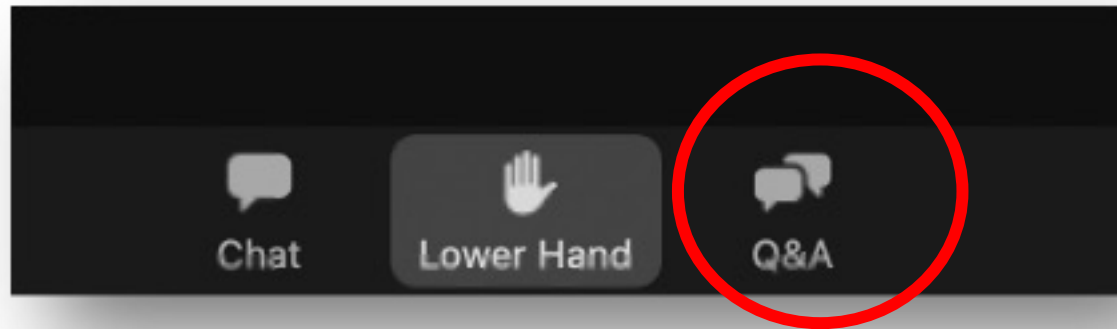
Illustrative only — order-of-magnitude estimates, not auditable results · Rulebook v2.0

Q&A

4

Using the Q&A function

To ask a question, please click on the Q&A button located at the bottom of the window.



Next steps

5

Next steps

Members are invited to simulate EAC generation potential under the GCCA Book & Claim framework.

