Global Cement and Concrete Association

Cement & Concrete industry

Chain of Custody Rulebook

Stakeholder consultation – Q&A Responses

Version 1.0

1. Launch webinar

1.1. Scheme purpose and Book & Claim logic

What is the goal of setting up a Book & Claim scheme for cement and concrete?

The B&C scheme enables the sale of certificates that are decoupled from the physical product they were originally attached to. This means a low-carbon cement producer can sell certificates to any customer in the cement and concrete value chain, regardless of whether the customer directly uses the producer's cement or another supplier's.

The primary objective of a B&C scheme is to better connect supply with demand, adding flexibility to the green product supply chain. By allowing customers to purchase certificates independently, this scheme supports the funding of decarbonization projects globally and enhances the availability of green options across markets.

Can a customer purchase certificates from one producer while sourcing cement from another?

The Book & Claim (B&C) model decouples the physical product from its low-carbon attribute, allowing customers across regions or value chains to claim verified low-carbon attributes even if they do not source from the same producer. This flexibility enables broader market participation, supports global demand alignment, and ensures that Scope 3 emission reductions can be transparently reported within verified guardrails and traceable registry rules.

Can customers claim reduction in their Product Carbon Footprint with the certificate?

Yes. The certificate allows customers to attribute the verified low-carbon attributes of cement or concrete to their own products. This means they can report a lower Product Carbon Footprint that reflects the reduced emissions embodied in the materials they purchase.

At the same time, recognition in major standards is still evolving, and the scheme is being designed to be fully compatible with them:

- *Greenhouse Gas Protocol (GHGP):* Currently revising both its *Corporate Accounting Standard* and *Scope 3 Standard*, while also developing new guidance through its Actions and Market Instruments working group. GCCA is actively engaging so that CoC – and specifically Book & Claim systems – are treated as valid instruments for emissions accounting under these standards.
- *Science Based Targets initiative (SBTi):* In the draft update of its Corporate Net-Zero Standard v2 draft *(under development)*, SBTi has introduced Environmental

Attribute Certificates (EACs) as potential instruments to attribute Scope 3 abatement, but final rules for cement and concrete are still under development.

- *Building certification schemes:* The system is also being developed so that certificates can be used to support green building certifications, pending acceptance from building label owners such as USGBC, BRE or DGNB.

To get a sense of the complexity of the value chain, how many different actors/companies are there typically between cement companies and final project delivery that could be indirectly impacted by the green premium on cement? Can the book & claim improve the absorption of the green premium through the value chain?

The cement and concrete value chain typically involves four main levels – from cement and concrete producers to ready-mix and precast manufacturers, construction contractors, and finally asset owners - in some cases, companies may be vertically integrated across these levels. This structure makes the value chain complex and fragmented, as cement is sold mainly in local, project-based transactions focused on minimizing upfront costs. Therefore, the entities making purchasing decisions are often not the same as those setting sustainability targets or willing to pay a premium for low-carbon materials.

The Book & Claim system addresses this challenge by allowing the green premium to be absorbed wherever demand exists – at any level of the value chain, including end buyers. By decoupling the low-carbon attribute from the physical product, it also enables producers to tap into regionally dispersed demand that would otherwise be inaccessible through physical trade, ensuring that early investments in deep decarbonization are rewarded more efficiently across markets

How should Book-and-Claim mechanisms be designed to support smaller firms experiencing financial or technical delays in deploying carbon capture technology?

The Book & Claim system supports smaller firms by unlocking access to global demand for low-carbon materials that would otherwise be out of physical reach. This flexibility allows smaller firms to secure offtake agreements from international customers, helping them finance or de-risk future deep decarbonization investments.

How does the scheme treat producers that already have a low-carbon footprint due to early adoption of decarbonization technologies?

Early adoption is rewarded since producers that have already reduced their emissions are better positioned to generate EACs. Because their operations are cleaner, any new decarbonization project delivers a stronger impact than in a traditional plant, allowing a

larger portion of production to qualify for certification and generate more value under the scheme.

What is the expected timeline for the registry to bridge the ramp up of decarbonized materials?

GCCA's Roadmap to Net Zero outlines the industry's pathway to achieve net zero emissions by 2050. The roadmap identifies the ramp-up of breakthrough deep decarbonization technologies (i.e., carbon capture, kiln electrification and decarbonized raw materials) as a fundamental lever to meet the industry's long-term commitments.

GCCA's Book & Claim system is being established to bridge the transition period toward that goal. Its purpose is to create an early market signal and incentive for producers deploying breakthrough technologies, at a time when these solutions remain costly and volumes of decarbonized materials are still limited. The system will support the scale-up phase of these technologies, though the system is expected to phase out as low-carbon materials become widely available and mainstream, in line with the industry's ambition.

Is it going to be applied worldwide or are there specific geographical boundaries?

The scheme is designed to be global in scope, allowing all regions to generate and trade certificates under one consistent framework that supports worldwide decarbonization.

That said, early implementation may begin at regional level to facilitate regulatory alignment and market development through pilot projects. These regional applications will still follow a common architecture and Rulebook, ensuring consistency and enabling a smooth transition towards a fully global scheme in the future.

Is there a price rationale for EAC or will there be a market for it?

The rulebook provides accounting guidance for EACs, whereas their value is determined independently by the market. The system is designed to establish a credible, standardized certificate that enables transparent trading between producers and buyers across the value chain.

1.2. Eligibility criteria, functional unit and tech scope

Is there a specific list of activities that will enable the generation of EACs?

The Book & Claim framework is technology agnostic — there is no specific list of eligible activities. Any decarbonization technology can generate EACs, provided it meets the scheme's integrity and verification criteria.

EACs can only be issued for projects that deliver verified, deep decarbonization within the clinker production process:

- Reaches the minimum threshold of 25% of low-carbon production over total
- Achieve at least "Near-Zero" emission levels (and potentially A/B levels if included in the final design) when Non-proportional Mass Balance is applied
- Are independently verified under recognized LCA and MRV standards (ISO 14044, EN 15804)

Within this framework, the following decarbonization technologies are currently recognized as capable of achieving eligible emission factors:

- Carbon Capture and Storage (CCS)
- Alternative "novel" binders
- Kiln electrification combined with Decarbonated Raw Materials (DRMs) – with a sufficiently high DRM share to reach eligible EF
- Biomass fuels combined with Decarbonated Raw Materials (DRMs) – with a sufficiently high DRM share to reach eligible EF

Is the book-and-claim system applied to the clinker? or the Portland cements (regardless of clinker content)? or all products coming out of the site (e.g. kiln dust co-products concrete plants located at same site next to cement plant)?"

The system applies only to decarbonization projects that address emissions at the clinker-equivalent level, since clinker production is where most CO_2 emissions occur in the cement and concrete value chain. Emissions from activities after the clinker stage - such as cement grinding, concrete production - are not eligible for EAC generation.

Certificates are therefore issued for verified low-carbon clinker (or clinker-equivalent) production, and once created, they can be linked to cement or concrete products downstream, transferring the verified low-carbon attribute through the value chain.

Regarding kiln dust: it can be part of an eligible decarbonization route when it is used as a decarbonated raw material within the kiln and the resulting clinker production meets all scheme criteria for EAC generation, including the emission thresholds and proper Non-proportional Mass Balance.

GCCA also needs to evaluate use of Pet Coke and other raw materials within its domain of assessing the Net Zero

GCCA's cement and concrete Book & Claim system is technology-agnostic. Any project can qualify so long as it delivers deep decarbonization at the clinker-equivalent level, within defined system boundaries, using attributional accounting, Non-proportional Mass Balance, and independent verification.

Pet coke as well as all other fuels and raw materials used in clinker production are evaluated within scope - their emissions are fully reflected in the plant's verified product emission factor. Conversely, decarbonated raw materials can contribute to eligibility, provided they help achieve the required low clinker-equivalent emission factor.

Would grid decarbonization of grid power also be within the scope of decarbonization?

Grid decarbonization is recognized as a lever within the GCCA Roadmap to Net Zero, accounting for roughly 6% of the total contribution to achieving net-zero emissions by 2050.

However, within GCCA's Book & Claim framework, grid decarbonization alone is not directly eligible for certificate generation, since the system focuses on deep, plant-level decarbonization at the clinker-equivalent stage.

Roughly 40% of emissions come from fuel combustion in kilns, which are currently powered by fossil fuels. Emerging technologies such as kiln electrification could make grid decarbonization relevant in the future, but only if they are combined with measures that also address process emissions and together meet the system's eligibility criteria for deep-decarbonization projects.

Will the certificates specify which technology was used to generate them?

The final design of the certificates and the exact information to be displayed are still under development and will be defined in later versions of the Rulebook. However, it is foreseen that each certificate will clearly specify the decarbonization technology applied to generate it. This transparency is essential to ensure credibility, traceability, and verifiability of the emission reductions represented by each certificate, and will be part of the information recorded in the central registry once the design is finalized.

How is the baseline of emission set? What are the criteria?

The detailed operational mechanics for EAC calculation methodologies will be set out in *Appendix 2 (pending finalization)*.

What has already been defined is that, to generate EACs, producers must meet the system's eligibility criteria outlined in *section 2.4.1. Eligibility criteria for certificate*

generation. Producers quantify emissions using primary, verified production data under an attributional approach. Through non-proportional Mass Balance, they may concentrate verified low-carbon inputs into specific product batches within site boundaries. Certificates are then issued only when attributional accounting and mass balance compliance are verified by 3rd-parties.

1.3. Accounting and integrity rules

What do you mean by non-proportional mass balance? Can you elaborate?

Non-proportional Mass Balance, introduced in ISO 13662 (under development) as the "Mass Balance Credit Method", allows low-carbon inputs to be attributed to certain output products. In this framework, we've renamed it to avoid confusion with traditional carbon credits concepts based on consequential attribution.

It enables producers to concentrate the benefits of decarbonized inputs (like captured CO_2) into selected product batches, instead of distributing them evenly across all production. This makes it possible to create clearly defined low-carbon batches clinker that can then be monetized via EACs.

However, attribution must still be technically feasible — the low-carbon input can only be linked to the outputs it physically affects (e.g., biomass fuels cannot reduce process emissions from clinker production, therefore, only fuel-related emissions may be reduced and attributed through Non-proportional Mass Balance).

How does the scheme ensure that the use of non-proportional mass balance does not lead to greenwashing?

The Rulebook sets guardrails for Non-proportional Mass Balance and requires independent third-party verification to ensure integrity and prevent double-counting. Key rules include:

- Attribution must be technically feasible, which means it is only allowed against the inputs to which the reduction technology applied is relevant (e.g., fuel measures cannot reduce process emissions).
- Non-proportional MB applies only at input level and within a single production site to ensure proper implementation, as well as incentivize each plant to implement deep decarbonization projects, instead of pooling small improvements from different facilities.
- Verification checks the application of non-proportional MB rules, emissions data and certificate generation requirements, among other elements.

Can a producer concentrate small emission reductions to claim that part of its production is net zero?

No, non-proportional mass balance may only be applied in proportion to the reduction technology implemented. It cannot be used to artificially concentrate minor reductions to declare part of production as "net zero". Attribution is restricted to the emission sources affected by the applied technology, ensuring that claims accurately reflect verified decarbonization results.

Is it prohibited, or very restricted, to perform mass balances between different cement plants?

Mass balance between plants at input level are not allowed under our scheme. Non-proportional Mass Balance has two clear guardrails; it can only be applied within a single production site at input level.

Within a single site:

- To incentivize deep decarbonization projects at plant level, instead of allowing marginal, scattered efforts across several sites
- To guarantee traceability and auditability of decarbonization efforts

At input level:

- This limitation only applies to inputs, since the low-carbon outputs (EACs) are not site-bound under the uncoupled (Book & Claim) model.

It's not clear in the current framework document that the originating physical product is also subject to the same conditions in terms of using and retiring the EAC. For example, if the EAC is sold elsewhere, the originating product is no longer a "low carbon" product relative to the value chain level to prevent double counting. Is this correct?

Yes, that is correct. Once an Environmental Attribute Certificate (EAC) has been sold separately from the physical batch, the originating product is no longer considered low-carbon. The low-carbon attribute has been transferred to the buyer through the EAC, and therefore cannot be claimed by the producer or any other party in the originating value chain.

The originating physical batch becomes an “unlabeled product”, to which the appropriate residual emissions are assigned. This ensures that the total emissions of the site remain balanced and that no double counting occurs. Managing these residual emissions is a critical integrity safeguard, and the detailed methodology for doing so will be defined in *Appendix 2 of the Rulebook (pending finalization)*.

If a project uses low carbon concrete and it is sold as an EAC, what can the owner of the asset claim? E.g., can they say low carbon concrete, but not account for the emission reductions? Will there be a claims guidance provided?

If a project uses low-carbon concrete but the corresponding Environmental Attribute Certificate (EAC) has been sold separately, the asset owner cannot claim that the project used low-carbon concrete or account for the associated emission reductions. The low-carbon attribute has been transferred through the EAC and can only be claimed by the certificate holder to avoid double counting.

However, the physical concrete can still be referred to as standard concrete produced by a plant engaged in decarbonization efforts, without making a quantified carbon reduction claim.

A claims guidance document will be developed as part of the Rulebook's future versions to clearly define what each value-chain actor can and cannot claim under different scenarios. This will ensure consistent, transparent communication and alignment with recognized carbon accounting standards.

When a company purchases an EAC, what happens to the CFP of the physical product they have purchased?

When a company purchases an EAC, the final product they report adopts the certificate's verified product carbon footprint. In parallel, residual emissions management "refers to the process of assigning the appropriate emissions to the 'unlabeled product', i.e., the physical product once a certificate has been uncoupled." This is a critical aspect of the scheme because keeping a consistent global emissions balance is essential for integrity and credibility; the detailed rules for managing residuals will be set out in *Appendix 2 of the Rulebook (pending finalization)*.

If a project uses low-carbon cement or concrete, but the EAC is sold separately, who can claim the emissions benefit?

Only the EAC holder can make an emissions claim. If the certificate has been sold, the physical product must be treated as standard (grey) material in any GHG inventory. This ensures that each claim is made once and that Scope 3 accounting remains transparent and traceable.

1.4. Alignment with reporting frameworks and regulatory programs

How does the recognition of EACs fit within existing reporting frameworks?

At present, Environmental Attribute Certificates (EACs) are not yet formally recognized in corporate greenhouse gas accounting or target-setting frameworks such as the GHG Protocol or SBTi. Both entities are actively assessing the role of Chain of Custody and Book & Claim models, and GCCA and its members are engaged directly in these discussions to support potential recognition of EACs as valid instruments.

Most recently, in the SBTi's Corporate Net-Zero Standard v2 draft *(under development)*, EACs are formally introduced as potential viable instruments to account for and attribute Scope 3 emission abatement, marking a shift from previous versions.

SBTi requires project-specific EPDs tied to the actual materials used on site. How does GCCA's Book & Claim framework plan to reconcile this with embodied carbon reporting on real projects where only physical EPD-backed reductions currently count toward Scope 3 targets? And as a follow up question: Is the intention to create a parallel reporting stream (e.g. voluntary or financial) or is there engagement with SBTi/WRI to explore eventual recognition under formal Scope 3 accounting frameworks?

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Are there also other targets next to scope 3 reduction like acceptance from building certifications?

Yes. Beyond enabling Scope 3 emissions reporting, the system also aims for recognition by green building certifications and public procurement schemes. The goal is for certificates to be accepted within frameworks like LEED and BREEAM, allowing projects to demonstrate the use of verified low-carbon cement and concrete in line with building-level sustainability standards.

Is the intention that the environmental certificates be accounted for 'below-the-line' in GHG inventories?

No, EACs are not included in your GHG inventory. Your inventory reflects your actual, measured emissions from production, including any changes achieved through decarbonization efforts.

EACs are attributional certificates that represent the low-carbon characteristics of your products. They are created after emissions are measured, to transfer those low-carbon attributes through the value chain, enabling customers to use them for Scope 3 or product-level reporting.

How is selling certificates compatible with reporting Scope 1 & 2 reductions, and how does this relate to voluntary carbon markets?

The Rulebook clarifies that product certificates represent attributional, product-based emissions, not offset or reduction credits. Selling certificates does not alter the producer's Scope 1 or 2 reporting; the verified emission reductions remain accounted for at facility level. This differs from voluntary carbon markets, where entities trade emission reduction or removal credits representing avoided or reduced emissions.

Under the GCCA scheme, double-counting is not permitted; certificates and credits can only be issued if they refer to distinct emission sources.

If a cement plant sells emissions allowances (e.g., under the EU ETS), can it still generate and sell EACs without double counting?

Yes. The two instruments serve different purposes and don't interfere with each other.

Allowances are permits to emit under a regulatory system. If a plant emits less than the permits it holds, it can sell the unused ones – this does not create a transferable emission reduction and does not modify Scope 1 reporting.

EACs are created from the plant's verified Scope 1 emissions data, using attributional accounting and Non-proportional Mass Balance. They reflect the low-carbon attribute of the product and are used by customers to reduce their Scope 3 footprint – but they never alter the producer's Scope 1 emissions.

Because allowances relate to compliance permits and EACs relate to product attributes derived from actual Scope-1 emissions, there is no overlap in claims and therefore no double counting or double monetization.

How is an EAC any different to a carbon credit? who verifies the EACs?

How is an EAC different from a carbon credit?

EACs are attributional, product-based certificates that record the verified CO_2 footprint per ton of clinker-equivalent achieved in production and are used downstream for Scope 3 reporting. They are not offsets and do not substitute for emissions outside the value chain. Carbon credits in voluntary markets represent reductions or removals outside a buyer's value chain and are used to offset residual emissions. Under the Rulebook, double-counting is not permitted; any use of carbon credits must be for distinct emission sources separate from EACs.

Who verifies the EACs?

EACs are independently verified by accredited third-party bodies (ISO/IEC 17029 or 17065) before issuance and at transfer/retirement. Verification covers plant GHG data, correct application of Non-proportional Mass Balance, certificate volumes, registry entries, and claims; issuers undergo annual verification, with auditable records retained for at least five years to ensure traceability and prevent double-counting.

Can certificates and carbon credits be issued over the same emissions?

No, the Rulebook clearly states that double counting is not permitted under any circumstance. While the scheme allows for the parallel generation of carbon credits and certificates, this is only acceptable if they refer to distinct emission sources. Certificates represent attributional, product-based emissions, whereas carbon credits are reduction or avoidance instruments.

All issuance is verified by third parties to ensure non-overlapping accounting and full traceability.

How will the program work in conjunction with regulatory credits in relation to CO2 reductions?

The GCCA system complements, rather than replaces, existing regulatory credit mechanisms. Regulatory credits apply to Scope 1 emissions and are used by producers to comply with carbon-pricing or emissions-trading requirements; they do not alter reported Scope 1 values.

GCCA certificates, in contrast, are product-based and attributional: they record the verified CO_2 footprint per ton of clinker-equivalent achieved in production and can be used by customers for Scope 3 reporting. Because the two systems operate at different levels, they can coexist without overlapping or double counting, ensuring integrity in both compliance and value-chain accounting.

Regarding cement pricing for the customers and the cost implications would the certificates be acceptable by local regulatory bodies so that the industry can avail carbon credits from the governmental agencies?

EACs themselves cannot be used to avail carbon credits from governmental agencies, as they are designed for voluntary downstream market use—to document verified low-carbon production and support Scope 3 reporting, not regulatory compliance. However, the same decarbonization projects that make a producer eligible to generate GCCA certificates (such as carbon capture and storage) may also qualify separately for recognition or crediting under government compliance programs, if those programs' rules are met. In short, the two systems operate independently.

How will EACs and Emission trading systems (ETSs) work together? Is it complementing or even competing with the ETS system?

Emission Trading Systems (ETSs) and Environmental Attribute Certificates (EACs) address different parts of the emissions landscape and are therefore complementary but not overlapping. ETSs regulate and account for Scope 1 and Scope 2 emissions at the installation level. They are compliance mechanisms that put a price on direct emissions from cement production and energy use.

EACs under the Book & Claim framework, on the other hand, are designed for Scope 3 accounting. They allow verified, product-level emission reductions achieved at the producer's site to be attributed to downstream actors in the value chain without affecting the producer's own Scope 1 or 2 reporting.

Has Article 6 approval (ITMO/A6.4ER) been considered?

Article 6 mechanisms have been considered in the design of the scheme, but they serve a different purpose. The Book & Claim framework is based on attributional product accounting, which allows verified emission reductions to be reflected in the product's carbon footprint and used for corporate Scope 3 reporting.

By contrast, Article 6 (ITMOs/A6.4ERs) operates under the Paris Agreement for government-level compliance and national inventory adjustments, not for product or corporate accounting. While both mechanisms can coexist, double monetization of the same emission reduction is not permitted.

The Rulebook therefore allows parallel participation in Article 6 projects only if they refer to distinct emission sources, ensuring clear separation and integrity between both systems.

Will you be looking at Scope 1, 2, & 3 emissions only or will you also consider Scope 4 emissions?

The scheme focuses on Scope 1, Scope 2, and upstream Scope 3 emissions within the cradle-to-gate boundary (A1–A3) of cement and concrete production, consistent with LCA and EPD methodologies. These cover process emissions, energy-related emissions, and upstream transport and material inputs.

Scope 4 emissions (avoided emissions) are not included in the current framework, as the Rulebook follows an attributional accounting approach based on verified, product-specific emissions data. Including avoided emissions would risk overlap with other accounting systems and reduce transparency.

I believe Europe is just thinking of incorporating Scope 4 emissions but it's in discussion. So, complete Net Zero as assessed by regulatory requirements may differ from what GCCA may require. If so, how will you handle this discrepancy?

Product certificates (EACs) do not change a producer's Scope 1—the plant still reports its actual, measured emissions. EACs are product-based, attributional certificates that record verified emissions at the clinker-equivalent level and transfer that low-carbon attribute downstream.

Customers can then reflect this in their Scope 3/product footprints for the cement or concrete they purchase. EACs are not Scope 1 or Scope 2 compliance instruments; they simply enable transparent, traceable Scope 3 attribution.

1.5. Alignment with EPDs

How will these EACs be used alongside/ in conjunction with EPDs?

They are complementary. EPDs remain the authoritative, LCA-based record of cradle-to-gate emissions, while EACs translate verified low-carbon attributes into a transferable, auditable claim for value-chain reporting. The registry then uses those EACs to generate an EPD-equivalent for Scope 3 claims.

How do you see interaction and/or positioning of the B&C framework alongside the GCCA LCRs and EPDs?

The GCCA Low Carbon Ratings for Cement and Concrete have been used to define the emission thresholds accepted into the Book & Claim framework. These ratings set the eligibility criteria for what qualifies in the system; currently, this criteria is limited to Near-Zero emissions level and, if confirmed in the final design, A and B low-carbon levels.

With regards to EPDs, our Book & Claim framework is complementary to EPDs. EPDs remain the authoritative, LCA-based record of cradle-to-gate emissions, while EACs translate verified low-carbon attributes into a transferable, auditable claim for value-chain reporting. The registry then uses those EACs to generate an EPD-equivalent for Scope 3 claims.

1.6. Registry and governance

What role does the registry play in the scheme?

The digital registry is the backbone of the B&C system, recording each certificate's issuance, transfer, and retirement, ensuring that every claim is unique, traceable and verifiable. This system creates a transparent audit trail that prevents double counting and builds trust in the integrity of the model.

Will the registry be centralized by GCCA? (meaning not at one player level)?

The final governance model of the registry is still being defined, but it is foreseen that the system will be centralized and managed independently, not at the level of any single market participant. The registry will operate under the oversight of a dedicated governing entity, ensuring consistency, transparency, and equal access for all participants. The long-term goal is for the registry to function as a neutral, trusted, and centrally managed system, with strong verification and audit processes in place to guarantee its integrity.

Which organization will take responsibility of the accuracy and upkeep of the centralized registry?

The governance model for the scheme is currently being defined. However, the registry will be managed by an entity operating under strict governance, transparency, and verification requirements to ensure the accuracy, integrity, and proper upkeep of all records. The Rulebook also foresees regular third-party audits to maintain confidence in the system's operation and data quality.

Will the registry be publicly available to view?

The detailed design and disclosure of the registry are still under development and will be defined in later stages of the Rulebook. However, the system is being designed to ensure the highest level of transparency and traceability. Certain confidential data may remain restricted to protect commercial sensitivity, but overall, the registry will be built to support public trust and verification of all transactions.

1.7. Alternative Book & Claim schemes for cement and concrete

RMI have released their own book and claim framework in conjunction with GMA and is intended to be a global framework. Will the GCCA framework work alongside the RMI framework or will the frameworks be merged?

Both initiatives share the same ambition of enabling a credible, scalable Book & Claim system for low-carbon cement and concrete. At this stage, both teams are exploring possible paths forward to optimize collaboration and alignment across the industry, ensuring needs of both buyers and producers are reflected.

2. Book & Claim sessions with GCCA members

2.1. Environmental Attribute Certificates (EACs) for cement and concrete

Is a product certificate the same as an EAC certificate?

Yes, they both refer to the same instrument: a verified, attributional certificate that transfers the product's low-carbon attribute through the value chain.

Does the producer of the "grey" cement get any Scope 1 emission reduction benefit?

EACs are product-level, attributional instruments that are used only by buyers within the value chain to support their Scope 3 reporting.

A producer's Scope 1 reporting is unchanged by EACs. They continue to report their actual emissions at plant level in Scope 1, regardless of whether EACs are generated or sold.

If a cement producer is buying carbon credits certificates to meet its regulatory requirement for producing low carbon clinker/cement, can they generate EACs?

Carbon credits and product certificates serve different purposes. Carbon credits reflect reduced, removed or avoided CO_2 and are used for offsetting or compliance, whereas product certificates reflect product-level environmental attributes.

Actual, verified plant-level emissions, not credit purchases, determine whether production meets the thresholds to generate EACs.

Can certificates from one cement supplier be transferred to another supplier?

No, EACs cannot be purchased or transferred between producers. They can only be purchased by downstream buyers within the cement and concrete value chain and used for their Scope 3 reporting.

Can producers buy EACs via the platform and act like any other buyer?

No, producers cannot buy EACs as downstream buyers. Their role in the system is restricted to generating and issuing certificates. Buying EACs is restricted to downstream actors within the cement and concrete value chain; lateral (same-tier) transfers, which are not permitted in the system.

Buyers are more willing to buy EACs from their cement supplier. Can producers buy EACs for their downstream customers?

No, producers cannot buy EACs for their downstream customers; a producer can only generate and issue an EAC.

Nevertheless, in an uncoupled model, producers can still use their decarbonized production to issue EACs that are sold both to their own physical customers and to unrelated buyers, helping finance deep decarbonization projects wherever they occur and match their supply with scattered demand for low-carbon materials.

Is it possible for different producers to exchange certificates with each other? What if these different producers are partners?

No. Producers cannot purchase or transfer product certificates. Certificates can only be purchased by downstream buyers within the cement value chain for their S3 reporting.

Even if two producers are partners, they still cannot transfer certificates between themselves. Once issued, EACs can only flow downstream to eligible buyers. Under GCCA's uncoupled (Book & Claim) model, certificates may be purchased by any downstream buyer within the cement value chain – direct or indirect – regardless of which producer supplied their physical cement.

How will a Book and Claim process encourage investment in CCUS across the industry when certificates can be purchased?

Producers cannot purchase certificates. EACs are only purchased by downstream buyers for their Scope 3 reporting, and they do not alter a producer's Scope 1 & 2 accounting. Book & Claim therefore does not give producers any mechanism to avoid decarbonizing their operations.

By enabling buyers across the cement value chain to purchase these certificates, Book & Claim supports funding for deep decarbonization projects globally. CCUS is one eligible pathway, but the system is technology-agnostic and designed to incorporate any solution that meets the defined eligibility criteria.

2.2. System design choices

What are current considerations on organizational scoping of non-proportional Mass Balance? What is the background for restricting Non-proportional mass balance to "Single production site" and thereby not allow Non-proportional Mass Balance across multiple production sites?

Non-proportional mass balance maximizes the value of certificates by concentrating low-carbon attributes, but allowing Non-proportional Mass Balance across several plants would let companies aggregate scattered, minor decarbonization improvements, undermining the system's goal of deep decarbonization.

Setting the single-plant boundary acts as a key safeguard for credibility and robustness. It ensures proper implementation, keeps the system under tighter operational control, encourages genuine deep-decarbonization projects, and makes verification more transparent and auditable.

Can you share examples of qualified "deep decarbonization technologies" - beyond CCS?

The system is technology-agnostic. Any solution can qualify as a deep decarbonization technology if it delivers the required emission factor and meets the eligibility criteria (e.g., Near Zero or, if included, related to clinker-eq. production, A/B levels, minimum share of decarbonized production, financial additionality).

For Near-Zero, examples beyond CCS include:

- Kiln electrification (or 100% use of biofuels) combined with Leilac technology
- Alternative primary binders (novel chemistries), incorporated through equivalence tables for structural equivalence to clinker.

If A and B low-carbon levels are included, a combination of kiln electrification (or biofuels) and high use of Decarbonated Raw Materials could meet those thresholds and qualify for EAC generation.

Is flash calciner an accepted technology under Book & Claim?

The scheme is technology-agnostic. Any solution can qualify as long as it meets the eligibility criteria: achieving the required emission-factor thresholds under Non-proportional Mass Balance, meeting the minimum share of decarbonized production, applying single-site mass balancing and demonstrating financial additionality.

However, eligibility is tied to the clinker-equivalent functional unit. Only technologies that decarbonize clinker or produce clinker-equivalent primary binders (i.e., novel chemistries) can generate EACs. Calcined clays are SCMs, not clinker or clinker-equivalent, and therefore do not qualify for EAC generation under the current framework.

If calcined clays were to be introduced into the scheme, financial additionality would likely become a limiting factor, since in many markets calcined clay projects already have a viable business case and would not meet this requirement. While calcined clays are not eligible for EAC generation, the system still reflects their benefit, as lower clinker content means downstream buyers need to purchase fewer EACs to address their Scope 3 footprint.

Are only Near-Zero cements allowed on Book & Claim, or also reduced CO_2 cements (e.g., LC3-cement)?

Only clinker-equivalent production that meets the system's Emission Factor thresholds, as well as the rest of the defined eligibility criteria can generate EACs.

LC3 and similar reduced-CO_2 cements lower emissions mainly through clinker substitution. While they are not eligible for EAC generation, the system still reflects their benefit, as lower clinker content means downstream buyers need to purchase fewer EACs to address their Scope 3 footprint.

How does this scheme link with the GCCA's low carbon ratings for cement and concrete? Will that rating apply to the grey product only if a cement producer uses Book and Claim to sell its EACs?

GCCA's Low-Carbon Ratings are used in the scheme to define the emission thresholds that determine eligibility for certificate generation (e.g., Near Zero and, if included, A/B levels). The ratings guide the EF levels at which the clinker-equivalent production can generate EACs (under Non-proportional Mass Balance).

If a producer sells the EAC, the corresponding physical cement becomes an unlabeled ("grey") product and does not carry the low-carbon rating. The low-carbon attributes move with the EAC to the downstream buyer, while the physical product is assigned the appropriate residual emissions to avoid double counting, *to be detailed* in Appendix 2 of the Rulebook.

Will EACs be issued on gross or net CO_2 emissions? What is the rationale behind this approach?

EACs will be issued on the basis of gross CO_2, as this is the figure most used for Scope 3 reporting by downstream participants. Using gross emissions may require a refinement of GCCA's Low-Carbon Ratings definitions, which are currently based on Net GWP.

Nevertheless, both gross and net CO_2 values will still be reported within the EACs, in line with GCCA's current EPD guidance and to accommodate differing national programme practices.

Are there other types of additionality other than financial that could be considered? (e.g. technological additionality for low carbon disruptive technologies)

GCCA's system does not introduce technological additionality. Instead, stringent Emission Factor thresholds (Near Zero, and A/B if included), combined with minimum decarbonized production and single-site Non-proportional Mass Balance, already restrict eligibility to deep decarbonization technologies.

Alternative schemes have introduced regulatory additionality, excluding projects that decarbonize mainly to meet local regulation; a position which GCCA does not align with. Projects can participate as long as they meet the EF thresholds, eligibility requirements and financial additionality requirements defined in the scheme.

The concept of financial additionality could be challenged: a clinker with 80% alternative fuel and a cement with this clinker with 70% slag could reach low carbon rating without any real deep decarbonization technology? Would this be allowed?

Under GCCA's Low-Carbon Ratings definitions, a cement or concrete product can claim whatever emission factor level it achieves (e.g., standard, A, B, Near Zero), based on its carbon footprint.

Eligibility for EAC generation is a separate question. To issue EACs, a project must:

- Meet stringent EF thresholds at clinker-equivalent level,
- Demonstrate financial additionality (i.e., the project would not be economically viable in the absence of support), and
- Satisfy the rest of the eligibility criteria (e.g., minimum share of decarb. Production, proper use of single-site non-proportional mass balance)

Why is it assumed that an LC3 project has no additionality? What is the basis for this statement?

The scheme does not state that LC3 projects universally lack additionality. In many regions, LC3 and other calcined-clay solutions already have a commercially viable business case without requiring incremental incentives. In such contexts, they would generally not meet the scheme's financial additionality requirement.

Regarding additionality, what happens to projects near bankruptcy already implemented? Book and Claim is not yet operational; can we save these projects?

Deep decarbonization projects that would meet the scheme's strict eligibility criteria (i.e., meeting Near-Zero/A/B Emission Factors under single-site non-prop. MB at clinker-

equivalent level) are still very rare in the industry – for instance, Heidelberg Materials' Brevik plant is currently the only operational CCS project in the industry.

If, hypothetically, an eligible project had already been implemented before the scheme launch, demonstrating ex-post financial additionality would be extremely challenging, making their inclusion in the system unlikely.

25% of total production volume is designated as a Book & Claim requirement. Please explain the basis for this setting. Are other methods of proving additionality not permitted?

With the application of Non-proportional Mass Balance, financial additionality becomes even more essential for our system. The 25% minimum share of decarbonized production, together with the single-site mass balance boundary, ensures that the system prioritizes material, deep-decarbonization projects rather than small or incremental improvements spread across different plants.

In addition, the scheme sets strict Emission Factor thresholds (Near Zero, and A/B levels if included) to limit eligibility only to technologies capable of delivering deep reductions. These technologies are not currently economically feasible without incremental monetary incentives.

What is GCCA's view/plan on establishing a universal framework?

GCCA's ambition is to build a global, consistent Book & Claim framework for the sector. While the geographic boundaries of the system are still under consideration, the foundational principles, system framework, and rules will remain global and unified.

Could the scheme be applied regionally to ensure regulatory parity and prevent certificates transfers from the Global North to the Global South, where conditions for deep decarbonization are advancing more slowly?

The scheme is being developed under a global framework, with common rules on measurement methodologies, verification, eligibility criteria for certificate generation and accounting models. This is meant to prevent market fragmentation and ensure that certificates are comparable across regions.

At the same time, the option of regional sub-systems is under consideration to reflect different regulatory contexts and market conditions, help ensure a competitive level playing field, and facilitate acceptance under regional regulatory frameworks. The final geographic boundaries of the system is a dimension *currently under discussion*.

Global Cement and Concrete Association

Follow up on the regional vs global approach: how have the B&C schemes being introduced in other industries (aviation, chemicals, etc…) approached the regional vs global issue?

Only two sectors have established comparable Book & Claim schemes. SAF uses a global model, while RECs operate under regional constraints, largely because the electricity grid imposes clear physical boundaries.

For cement and concrete, there is no equivalent physical constraint, so regionalization must strike the right balance: on one hand, enabling Book & Claim to broaden access to scattered demand pockets; on the other, maintaining a level playing field and fair competitiveness across regions.

2.3. Reporting standards and EAC claiming

Is the intention for Environmental Attribute Certificates to be completely separate from EPDs?

On the contrary. The aim is for EPDs to recognize EACs as viable instruments, and for EACs to become complementary to EPDs rather than separate from them.

EPDs remain the authoritative LCA-based record of cradle-to-gate emissions, while EACs provide a transferable, attributional mechanism to pass verified low-carbon attributes to downstream buyers. The scheme is being designed so that EACs can be used to generate an EPD-equivalent document for Scope 3 and other uses, in line with EN 15804 and related standards, subject to future acceptance by standard setters.

Should the booking-related data associated with a cement product claim be added to the Digital Product Passport (DPP) platform for traceability and compliance purposes?

The scheme is being designed to align with emerging regulatory frameworks such as EPDs, DPPs and other construction standards, with the long-term goal of securing formal recognition for Book & Claim attribution.

Until such recognition is granted, the system remains voluntary.

What is the compatibility of non-proportional mass balance with the DOPC under the Construction Products Regulation, given that the DOPC will replace the EPD as the main instrument for declaring cement performance? This concerns whether non-proportional mass balance can be used to declare environmental performance in a legally binding DOPC – not how EPDs might incorporate it.

GCCA's Book & Claim system is a voluntary scheme and will coexist with regulatory standards, such as the DOPC, until accepted. Regulators are currently assessing their positions on various relevant elements, such as the role of uncoupled EACs and Non-proportional Mass Balance.

Meanwhile, voluntary reporting standards are progressing more quickly, particularly for Scope 3 reporting in hard-to-abate sectors, and are starting to introduce uncoupled EACs as potential viable instruments.

The EPBD (European Performance of Buildings Directive) will require project owners to report the whole life cycle carbon footprint of their new construction projects (>1,000m² GFA) from 2027, later carbon baselines per sqm will be introduced; how can EACs be used in this reporting?

EACs can support the embodied-carbon (A1–A3) component of whole-life-carbon reporting by providing a verified, attributional emission factor for the clinker-equivalent used in the project. When a project owner purchases and claims EACs, the registry generates an EPD-equivalent document based on the product purchased (e.g., cement or concrete).

This EPD-equivalent document incorporates the EACs at the clinker-equivalent level, reducing the embodied-carbon value of the underlying clinker volumes used in the cement or concrete mix.

Use of EACs for EPBD reporting ultimately depends on formal acceptance of Book & Claim attribution within EN 15804 and related EU guidance. The scheme is being designed to align with these standards so that, once accepted, EACs can be reflected in project-level embodied-carbon disclosures.

How will the carbon certificates supplied to a construction project be considered in the building LCA according to EN15978 – will EN15978 be open to accept those certificates?

Under EN 15978, embodied-carbon results are based on EPD-aligned product data for A1–A3. EACs can only be reflected in a building LCA once EN 15804 / EN 15978 formally recognize Book & Claim attribution as a valid instrument for adjusting product-level emission factors.

The scheme is being designed to align with these standards so that, if accepted, an EPD-equivalent document generated through the registry could be used as the input for A1–A3 in the EN 15978 calculation. This EPD-equivalent would sit at the level of the purchased material (e.g., cement or concrete) and would incorporate the EAC-adjusted clinker-equivalent emissions.

How can Project owners handle those certificates? Could they purchase more certificates than required from cement/concrete and decarbonize other construction materials?

Project owners can only use certificates to reflect the emissions of the cementitious products actually used in their project.

Each EAC is always linked to cementitious product (clinker, cement, concrete or equivalent), based on the scheme's clinker-equivalent functional unit.

Certificates are designed to abate clinker-related Scope 3 emissions only, strictly tied to the consumption of cement/concrete in the value chain. This means project owners

cannot buy “extra” certificates to decarbonize other construction materials or to claim more abatement than the cementitious volumes they have actually purchased.

If a project uses a low-carbon concrete that was achieved via deep decarb AND other strategies (i.e., blended cements or alt fuels) could the project still claim use of a low-carbon cement even if the deep decarbonization EAC was sold elsewhere?

Once the EAC is sold, the low-carbon attributes of that production are no longer attached to the physical product. This means the project cannot claim lower Scope 3 embodied emissions for that cementitious material.

Selling the EAC transfers the verified low-carbon attributes associated with that clinker-equivalent unit to the certificate holder, ensuring that only one entity can claim the reduction in its Scope 3 emissions. The underlying physical cement from which the EACs were generated, is treated as “unlabeled” and managed under the system’s residual emissions management, *to be detailed* in Appendix 2 of the Rulebook.

However, what the end-customer purchases on the physical side still matters: if the project uses blended cement, reducing the product’s clinker content, the end-customer will need fewer EACs to abate its Scope 3 emissions.

Could the customer still claim the concrete is "low-carbon" by virtue of its use of blended cement without purchasing any additional EACs?

The customer may claim whatever low-carbon rating the physical product qualifies for under GCCA’s Low-Carbon Ratings for Cement and Concrete. If the concrete meets the A, B, or other low-carbon performance levels, that claim can be made without purchasing EACs, because it reflects the intrinsic emission factor of the physical product.

GCCA’s Book & Claim framework uses these same ratings to set the emission-factor thresholds for EAC generation at clinker level. EACs only come into play when a customer wants to claim the deep-decarbonization attributes (Near Zero, and A/B if included) that have been uncoupled from the physical product. Without EACs, the customer can only claim the rating corresponding to the cement or concrete they physically received.

So, for the accounts to balance, deeply decarbonized cement must be sold somewhere as a high carbon product? Where is that then?

When an EAC is issued and sold, the corresponding physical cement or concrete becomes an unlabeled (“grey”) product. It is not sold as a “high-carbon” product, but simply assigned the appropriate residual emission factor to ensure that global emissions remain balanced and no double counting occurs.

Managing these residual emission factors is a core integrity safeguard of the system and will be *detailed in Appendix 2 of the Rulebook*.

If a low carbon product is sold decoupled with an EAC that is sold to another user… producer should deliver an EPD of a standard concrete? Will this then need to have 2 EPDs for the same product (the real one, and the one as standard concrete)? EPD operators must have a specific process to create these 2 types of EPDs. Otherwise, how to control the EPD is the right one?

Yes, until Book & Claim attribution is formally recognized in EN 15804 and related standards, dual reporting will be required.

- The physical product continues to be disclosed through its standard EPD, reflecting its actual cradle-to-gate emissions.
- The EAC allows the downstream buyer to receive an EPD-equivalent document generated through the registry, which incorporates the low-carbon attribute transferred via the certificate.

This separation is necessary during the transition phase to ensure correct accounting and avoid double counting. The long-term intention is to reconcile these into a single accepted reporting framework, but until market and standards acceptance is secured, both outputs must coexist.

To claim a lower Scope 3 on behalf of the consumer, the relative CO_2 saving per certificate needs to be indicated too. Is this already reflected in the design of the EACs for the registry?

EACs do not express a "relative CO_2 saving". Each EAC provides a verified attributional product footprint for one ton of clinker-equivalent. This attributional footprint is what downstream buyers use for their Scope 3 reporting.

The registry design already supports downstream buyers' Scope 3 reporting needs, but it does so by providing a verified attributional emission factor, not a reduction claim or avoided-emissions figure.

2.4. GCCA's Book & Claim framework and next steps

Has a pilot phase been considered?

Yes. A pilot phase is explicitly foreseen in the development of the scheme.

- The Rulebook stresses that several design elements remain under consideration and will be refined through stakeholder feedback and upcoming pilot implementations.
- The geographic rollout may also begin regionally through small-scale pilots, helping test the system, build confidence, and align with regulators before scaling globally.

Will an external agency oversee the registry, or is it fully managed by the GCCA?

The registry will not be managed by any single market player. The final governance model is still being defined, but the plan is for a centralized, independently governed registry with strong oversight and third-party audits, not a system managed solely by GCCA or a single player.

What is the status of talks for potential alignment with the Rocky Mountain Institute's scheme?

Both GCCA and RMI share the objective of building a credible, scalable Book & Claim system for low-carbon cement and concrete. Discussions are ongoing, and both teams are exploring options to ensure alignment and compatibility across frameworks. The focus is on finding a path that reflects the needs of both buyers and producers and avoids fragmentation in the market.

As there are currently multiple EAC frameworks in the market, with varying levels of stringency, how does GCCA's proposed approach compare to others – for example, GMA's and Microsoft/carbon direct for cement?

GCCA's system has been designed to be highly robust and minimize the risk of double counting or greenwashing claims. Its stringent eligibility criteria are reinforced by strict MRV requirements, independent verification, and strong traceability.

Other EAC frameworks may differ on specific design choices, but GCCA's approach aims to set a high bar for integrity and credibility, ensuring that claims made through the system are verifiable and trusted by regulators, stakeholders and end-buyers.

When is the next revision expected to come out?

No specific timeline has been set for the next revision. The focus is currently on collecting feedback from this stakeholder consultation and from GCCA members, and incorporating appropriate comments into the framework.

On 3RD March, the GCCA Board will review Book & Claim developments and decide on next steps, which will help define the way forward for future updates of the Rulebook.