Coalition for Sustainable Cement Manufacturing & Environment (CSCME) (Steve Coppinger)

On behalf of the Coalition for Sustainable Cement Manufacturing & Environment (CSCME), we respectfully are providing the attached comments in regards to the Proposed Amendments to the Regulation for the Mandatory Reporting of Greenhouse Gas Emissions. Thank you for your consideration of our comments.

Coalition for Sustainable Cement Manufacturing & Environment
1107 9th Street, Suite 1011 | Sacramento, CA 95814 | (916) 447-9884

March 9, 2026

Ms. Lauren Sanchez
Chair, California Air Resources Board
1001 "I" Street
Post Office Box 2815
Sacramento, California 95812

Subject: The California Cement Industry's Comments on the Proposed Amendments to the Regulation for the Mandatory Reporting of Greenhouse Gas Emissions

The Coalition for Sustainable Cement Manufacturing & Environment ("CSCME") offers these comments on the January 20, 2026, California Air Resources Board's ("CARB") Proposed Amendments to the Regulation for the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms ("Proposed Amendments").

CSCME is a coalition of all five cement manufacturers in California.[1] As described in the industry's roadmap to net carbon neutrality, we support the state's greenhouse gas ("GHG") reduction goals and are committed to achieving carbon neutrality by 2045.[2] That commitment is backed by nearly two decades of working cooperatively and constructively with legislators and regulators to develop policies that advance the state's climate goals and promote the technologically feasible and cost-effective reduction of GHG emissions while minimizing the risk of economic and emissions leakage. Those efforts include:

- Working with CARB on the design and implementation of the Cap-and-Invest ("C&I") program.
- Supporting the passage of AB 398, which extended the program to 2030.
- Supporting the passage of AB 1207, which extended the program to 2045.

CSCME also worked closely with the legislature, environmental advocacy groups, and other interested stakeholders to develop and support the passage of SB 596. Supported by supermajorities in both the Assembly and the Senate, SB 596 recognized the unique challenges associated with achieving carbon neutrality in the California cement industry and established a statutory basis for enacting cement-specific tools within the C&I program that remove barriers to deep decarbonization and minimize the risk of leakage, including a border carbon adjustment.[3]

All cement plants operating in California are covered by the Mandatory Reporting Regulation ("MRR"), which requires California cement producers to report annual GHG emissions, electricity consumption, and cement production to CARB. CSCME appreciates that CARB's MRR Proposed Amendments include new MRR reporting requirements for cement importers. Establishing

import reporting is a constructive and necessary first step toward transparency in implementing a BCA. However, definitions and methodologies must be carefully crafted and precise if the framework is to support a future BCA. If the data collected today are to serve as the basis for compliance-grade policy tomorrow, the structure must be rigorous from inception.

Moreover, CARB should explicitly commit to a clear implementation timeline for an incremental BCA applied to imports and specifically designed to equalize the carbon compliance burden for all cement consumed in California. Such action is necessary to close the "carbon loophole" that favors imports and shifts production and investment outside the state's climate policy frameworks, which not only harms the California cement industry but also directly undermines California's decarbonization efforts.

The MRR Proposed Amendments and the Proposed Amendments to the Regulation for the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms ("C&I Proposed Amendments") also expand the definition of cement output to include supplementary cementitious material ("SCMs"). CSCME strongly supports expanding the scope of the output measure for covered cement plants to include SCMs, as increasing the production and consumption of blended cements will be a critical pathway for reducing the industry's GHG footprint and achieving net carbon neutrality by 2045.

We look forward to continuing to work with CARB to strengthen the C&I program and close the gap between the state's climate ambitions and the practical realities associated with achieving net carbon neutrality in hard-to-decarbonize industries, such as cement.

Sincerely,

Steve Coppinger
Chair, Executive Committee
Coalition for Sustainable Cement Manufacturing & Environment

CC:
Honorable Steven S. Cliff, Ph.D., Executive Officer, California Air Resources Board
Rajinder Sahota, Deputy Executive Officer, California Air Resources Board
Edie Chang, Deputy Executive Officer, California Air Resources Board
Mark Sippola, Chief, California Air Resources Board
Rachel Gold, Esq. Supervisor, California Air Resources Board
Mihoyo Fuji, Staff Air Pollution Specialist, California Air Resources Board
Michael Turgeon, Staff Air Pollution Specialist, California Air Resources Board

Section 1. Border Carbon Adjustment

The California cement industry is widely recognized as both difficult to decarbonize and highly exposed to the risk of leakage from imported cement as California producers bear carbon costs that imported cement does not. As allowance allocations decline in the absence of a functional BCA mechanism, this asymmetry intensifies. These challenges heighten the urgency of creating a policy and regulatory environment that ensures that local cement producers are not placed at a competitive disadvantage to imports that are not held to a similar environmental standard.

Import reporting is an important first step toward a BCA. However, reporting alone does not address the immediate and increasing competitive imbalance. The cement industry has consistently advocated for a BCA that levels the competitive playing field and ensures that leakage protection does not erode faster than border measures are implemented.

1.1 The State of the California Cement Industry

As described in detail in our companion comment letter on the C&I Proposed Amendments, the California cement industry is recognized as hard-to-decarbonize and is highly exposed to leakage due to a variety of factors, including the following:

- **Exceptionally High GHG Emissions Intensity.** The cement industry has one of the highest GHG intensities of any California industry, as measured by GHG emissions per dollar of economic value added. This GHG intensity is multiple times greater than any other major California industry and results in the cement industry facing a higher compliance burden associated with carbon pricing mechanisms. For an emissions-intensive industry like cement, even small increases in carbon costs, whether due to increases in carbon price or other regulatory measures, can have a devastating effect on a producer's economic viability.
- **A Dominant Share of Process Emissions.** Cement production entails a significant amount of process emissions – that is, GHG emissions that result from the chemical transformation of limestone into clinker, as opposed to fuel combustion. Process emissions represent roughly two-thirds of the industry's GHG footprint.
- **Extreme Exposure to Import Competition.** The cement industry is **extremely vulnerable to imports** because:
    - Cement is a fungible, globally traded commodity that is purchased primarily based on price.
    - The vast majority of California cement demand is within a short distance of the coast, and therefore, demand can be easily met by imports from outside California with less stringent environmental regulations, including from sources located vast distances from the California market.
    - California has the infrastructure capacity (*i.e.*, terminals) to readily accommodate a rapid expansion of imports.

The California cement industry's extreme exposure to import competition is compounded by the fact that California cement manufacturers are required to surrender C&I allowances for the GHG emissions associated with their products — a requirement that does not apply to cement importers. This regulatory asymmetry creates a "carbon loophole" that gives a competitive advantage to cement sourced from outside California and undermines the state's climate objectives by amplifying the risk of economic and emissions leakage and by preventing long-term investments in deep decarbonization within the California cement industry.

An incremental BCA would close the carbon loophole for imports by ensuring that similar carbon costs are imposed on all cement consumed in California, regardless of where it is produced. Such a measure is essential to both minimize leakage and strengthen the overall integrity of California's climate programs.

1.2 The Need & Rationale for an Incremental BCA

From the cement industry's perspective, the most tailored and least disruptive measure to level the carbon playing field between California producers and imports, while minimizing the impact on affordability, is to adopt an incremental BCA. Under an incremental BCA:

- California producers would continue to receive allowance allocations at a per unit rate each year, which would continue to decline each year according to the cement industry's cap adjustment factor ("CAF").
- Cement importers would incur costs for the GHG emissions associated with their products consumed in California, but only on the portion that exceeds the per-unit allocation rate applied to California producers.

This design ensures that imports are held to comparable standards, preserves the incentive for domestic producers to reduce the GHG intensity of their products, and minimizes the price impacts associated with a full carbon cost adjustment for downstream users of cement.

An incremental BCA would add a modest carbon cost to imported cement equal to the net cost that the product would incur if it were produced in California. This approach provides a wide range of important benefits, including:

- Continuing to provide California cement manufacturers with a clear, consistent incentive to reduce their GHG intensity.
- Ensuring that imported cement is held to similar standards and reducing the risk that deep decarbonization investments will be undermined by imports that are not held to similar standards.
- Allowing domestic producers to recover a portion of the costs associated with deep decarbonization investments via the market while minimizing the negative impact on affordability due to its incremental nature.

- Effectively closing California's carbon accounting loophole by ensuring the state holds itself responsible for the GHG emissions associated with its cement consumption — not just those that are produced within its borders.

1.3 Statutory & Policy Mandates

CARB has long acknowledged the importance of border adjustments as a leakage-minimization tool. In its foundational leakage analysis (Appendix K) published in 2010, CARB recognized that border adjustments are a first-choice mechanism for addressing leakage risk.[4] In December 2010, CARB adopted Resolution 10-42, which found that:

> *The high emissions intensity of cement production relative to the value of the product produced makes the cement sector particularly well-suited as a pilot project for the development and consideration of a border adjustment approach to addressing the potential for leakage that could result from increases in cement importation.*[5]

Accordingly, the Board directed the Executive Officer to:

> *review the technical and legal issues related to implementation of a border adjustment to impose obligations on importers of cement that are equivalent to those faced by California cement manufacturers under the cap-and-trade regulation, and to implement such a provision (either as part of the 15-day modifications, if it is feasible, or as part of another process) if it is necessary to avoid leakage in the cement sector.* [6]

The California legislative record also points in a clear direction. AB 32 requires CARB to "minimize leakage" in designing emissions reduction regulations.[7] AB 398, which extended the C&I program to 2030, required CARB to report to the Legislature on program progress and recommend necessary statutory changes to reduce emissions leakage, including the potential for a border carbon adjustment.[8] SB 596, which was supported by supermajorities in both chambers, explicitly directs CARB to develop a comprehensive strategy for the state's cement sector, including:

> *provisions to minimize and mitigate potential leakage and account for embedded emissions of greenhouse gases in imported cement in a similar manner to emissions of greenhouse gases for cement produced in the state, such as through a border carbon adjustment mechanism.* [9]

The cement industry has consistently advocated for such a measure across more than a decade of regulatory proceedings. The policy rationale for an incremental approach has remained consistent throughout: by limiting the importer's compliance obligation to the difference between the GHG intensity of the imported product and the per-unit allocation rate received by California producers, an incremental BCA levels the competitive playing field while minimizing the impact on affordability for California customers. This design ensures that imports are held to comparable standards, preserves the incentive for both domestic producers and importers to

reduce the GHG intensity of their products, and minimizes the price impacts associated with a full carbon cost adjustment for downstream users of cement.

In summary, the regulatory record, legislative record, and policy rationale all point in the same direction: California should implement an incremental border carbon adjustment for imported cement. The question is not whether such a mechanism is warranted — it is how quickly CARB can bring it to fruition.

1.4 CARB Should Establish a Timeline to Implement an Incremental BCA

The ISOR provides the following rationale for the proposed new reporting requirements for cement importers:

> *SB 596 (Greenhouse gases: cement sector: net-zero emissions strategy, 2021-2022) establishes a target of net-zero GHG emissions for the cement sector in California by 2045 and requires emissions reductions from all cement used in California, including imported cement. This amendment is necessary to collect the data needed to track and analyze GHG emissions associated with imported cement used in California to support implementation of SB 596.*[10]

As explained above, SB 596 also directs CARB to consider a BCA to minimize carbon leakage and account for GHG emissions embedded in imported cement in a similar manner as GHG emissions from cement produced in California. The cement industry supports CARB's actions to adopt a BCA, which are aligned with CARB's mandate in SB 596. However, CARB has not provided a timeline for implementation for the BCA, which creates uncertainty for the California cement industry. The ability to underwrite decarbonization investments depends on expectations of a functional BCA – without a credible timeline, capital deployment is likely to stall.

In addition, CARB has made no commitment to interim protection during the implementation of a BCA, such as a freeze of the CAF. Due to a combination of a declining CAF and escalating allowance prices, the carbon cost differential between California producers and importers has reached an unsustainable level. California's cement plants already operate under some of the world's most stringent emissions standards, air quality regulations, and environmental requirements, and since the passage of AB 32, the California manufacturing footprint contracted from eleven plants to seven, with no closures reversed. Until an effective BCA is in place, continuing to tighten the CAF will simply worsen the situation for the cement industry and stifle the necessary conditions for significant decarbonization investments. A temporary pause would give both the cement industry and CARB the time to transition to an effective BCA without losing ground on climate progress.

Section 2. Expanding the MRR to Cover Reporting by Cement Importers

The MRR Proposed Amendments establish new MRR reporting requirements for cement importers that take effect with data year 2027.[11] Specifically, importers will be required to report the annual GHG emissions associated with imported cement and clinker from each manufacturing facility, calculated as the product of the quantity imported and the facility's cement GHG emissions intensity ("CEI").

CSCME supports CARB's proposal to establish new MRR reporting requirements for cement importers. The collection of data on the volume, origin, and GHG emissions associated with imported cement is a constructive and necessary first step — both for informing the design and implementation of a BCA, as discussed in Section 1, and for fulfilling the legislative mandate of SB 596 to develop a strategy for achieving net-zero emissions from all cement consumed in California, including imported cement.

This section assesses the proposed approach and identifies specific enhancements to the MRR Proposed Amendments.

2.1 Coverage

In Section 95101(a)(1)(H) of the MRR Proposed Amendments, CARB applies the annual GHG reporting requirements to importers of cement whose total annual emissions from imported cement or clinker equal or exceed 10,000 MT CO2e, as calculated pursuant to Section 95126(b)(3) of the MRR Proposed Amendments.[12] CSCME has concerns that this provision, including when read with other MRR provisions, may not provide sufficient protection from potential attempts to evade or circumvent reporting obligations.

First, CSCME considers that the 10,000 MT CO2e threshold may be too high to ensure that sufficient imports are covered by the reporting obligation and any subsequent BCA obligation. CARB should closely monitor the efficacy of the threshold, including an assessment of the number of reporting entities, other data on California consumption, and import volumes to assess whether this threshold is causing evasion actions to avoid reporting of material volumes of cement imports. Moreover, before implementing a BCA, CARB should consider lowering the threshold if necessary to address potential evasion.

Second, the primary exporting countries of cement to California are Asian countries (*e.g.*, Vietnam, Thailand, China), which have a longstanding history of setting up various importing affiliates and deploying other corporate structures to evade or circumvent U.S. trade measures. Cement importers sourcing from these countries could establish similar schemes to evade or circumvent the MRR import reporting requirements.

The MRR currently incorporates concepts of reporting based on common ownership or common control, and in the MRR Proposed Amendments, CARB revised the definition of “supplier” to cover “an entity, or multiple entities held under common ownership or common control that is …

an importer of cement…." However, it is not clear whether and how this would apply to assessing whether an importer of cement is required to calculate emissions for purposes of meeting the 10,000 MT CO2e threshold by aggregating the emissions for all entities under common ownership or common control.

To ensure that all entities owned or controlled by the same entity are part of the same total annual emissions calculation for purposes of applying any threshold under Section 95101(a)(1)(H), CARB should clarify or confirm that all entities subject to common ownership or common control and that are cement importers must aggregate emissions for purposes of determining the applicability of the cement importer reporting requirements. Moreover, to facilitate administration and enforcement, CARB should require cement importers to report all direct and indirect corporate associations similar to the requirements in Section 95830 (Registration with ARB) and Section 95833 (Disclosure of Corporate Associations).

2.2 Definition of "Importer of Cement" or "Cement Importer"

The MRR Proposed Amendments define an "importer of cement" or "cement importer" as:

> *the owner or operator of a cement terminal receiving imported cement or clinker if the terminal owner/operator owns the imported cement or clinker being received. If the terminal owner or operator does not own the imported cement or clinker or clinker being received, then the importer of cement is the first entity that owns and receives the imported cement or clinker in California, such as the owner of the concrete batch plant purchasing the imported cement or clinker for consumption.*[13]

The definition of "importer of cement" requires clarification. The proposed definition identifies the reporting entity as the owner or operator of a cement terminal receiving imported cement or clinker (if the terminal owner/operator owns the product), or the first entity that owns and receives the imported cement or clinker in California (if the terminal owner/operator does not own the product). This definition may be workable in most cases, but it also creates ambiguity in situations involving, for example, intermediate ownership transfers, consignment arrangements, or other complex logistics or supply chain situations.

CSCME proposes that CARB revise the definition of "importer of cement" or "cement importer" to align with the current definition of "Enterer" under Section 95802(a) of the C&I Regulation, which is applied to imports under the Low Carbon Fuel Standard, as follows:

> *"Importer of cement" or "cement importer" means an entity that imports cement or clinker into California and who is the importer of record under federal customs law or the owner of the cement or clinker upon import into California, if the cement or clinker is not subject to federal customs law.*

CSCME recommends that CARB work with industry stakeholders to further clarify the definition and, where necessary, develop guidance on how the reporting obligation applies in common but

potentially ambiguous transaction structures. The goal should be to ensure that the definition effectively captures import volumes consumed in California and provides clarity regarding the reporting obligations for those entities that are importing cement into California.

2.3 Scope of Reporting: Treatment of Re-Exports

Section 95126 of the MRR Proposed Amendments allows cement importers to exclude re-exports entirely from reporting.[14] However, allowing entire categories of transactions to disappear from the dataset undermines visibility at precisely the stage when CARB claims to be testing data availability and reporting mechanics. Moreover, such additional reporting will enable CARB to reconcile various data sources to monitor compliance and identify distortions or anomalies in data that could indicate potential evasion or circumvention of reporting requirements. CARB should instead require that cement importers report these transactions and identify them as re-exports.

2.4 Verification of Cement Importer Data

The MRR Proposed Amendments provide that the cement importer data will not be subject to verification.[15] The absence of third-party verification creates a data reliability gap. CARB proposes that cement importer data should be exempted from verification because the data is "based on best available data and not subject to a Cap-and-Invest Program compliance obligation."[16] CSCME understands CARB's rationale: verification requirements are typically tied to compliance obligations, and imposing verification on a reporting-only framework could be seen as disproportionate. However, the practical consequence is that the data collected under Section 95126 will be self-reported, unverified, and of uncertain reliability, which will limit its usefulness both for policy analysis and as a foundation for a future BCA.

This concern is particularly acute with respect to the facility-specific CEI calculation. Under the proposed framework, to the extent all or almost all importers do not just select the default to avoid any reporting burden, an importer who claims to know the annual GHG emissions and production of a foreign manufacturing facility can calculate and report a facility-specific CEI with no external check on the accuracy of that claim. The incentive structure is clear: importers who report a lower-than-default CEI face no consequences for inaccuracy, while importers who cannot or do not report facility-specific data are assigned the default. Without some form of data quality assurance — whether through full third-party verification, a simplified attestation process, or CARB staff's review of reported methodologies — the facility-specific pathway is vulnerable to systematic underreporting.

CSCME is not suggesting that CARB immediately impose the same rigorous verification standards that apply to California cement producers. We recognize that requiring third-party verification of foreign plant data would be impractical in the near term in the absence of applying compliance obligations. But there is a middle ground between no verification and full verification, and finding

that middle ground is essential if the data is to serve as the foundation for a credible BCA. Therefore, CSCME urges CARB to consider a phase-in verification requirement.

One potential option would mirror the EU's phased-in verification requirements for its Carbon Border Adjustment Mechanism ("CBAM"). For the implementation of the CBAM, the EU established a clearly defined transition period (2023-2025) in which importers of covered CBAM products were required to report a set of data on a quarterly basis, including emissions embedded in their goods, without a requirement of third-party verification. However, when the CBAM fully entered into force in January 2026, third-party verification of such data became mandatory.[17] Moreover, the European Commission and the national authorities of EU Member States continuously monitored reported emissions and corresponding trade to identify practices of circumvention and non-compliance with the CBAM Regulation.[18] In addition, the Commission would communicate to the competent national authority a list of incomplete or "suspicious reports" (*i.e.*, where the Commission had reason to believe that the reports failed to comply with the CBAM Regulation), and the national authorities could subsequently initiate a review or a potential correction procedure, which could lead to penalties.[19] This approach allowed the EU to collect and assess the necessary data from importers, while providing importers time to build their reporting and compliance programs and adjust to new monitoring and reporting rules that would become subject to verification.

Importantly, although importers were not subject to mandatory verification during the transition period, as explained above, the EU could impose penalties on importers (*e.g.*, for failing to submit the required quarterly CBAM reports or for submitting incomplete or suspicious reports).[20] Similarly, the MRR Proposed Amendments should make clear that, even without a verification requirement, all data provided to CARB is subject to applicable penalties for false statements and may be subject to future verification if necessary to address potential concerns regarding accuracy, completeness, etc.

2.5 Default Value for Cement Import Reporting

CARB's current proposal to rely on a single default GHG intensity factor of 0.758 MT CO_2e per short ton of cement is a substantial design flaw, as it does not differentiate between when importers might override the default because they have actual data readily available on a particular aspect of the product's GHG intensity.[21]

CSCME recommends that CARB adopt a components-based default method in the final MRR amendments, as discussed below.

2.5.1 Guiding Principles

It is essential that the implementation of an incremental BCA be grounded in a small number of clear and consistent principles that create a fair, transparent, and defensible system that supports

California's climate goals, including minimizing the risk of emissions leakage and creating the conditions necessary to support long-term investments in deep decarbonization.

Similar Standards: Cement consumed in California — whether produced inside or outside the state — should be held to similar environmental standards. Policies that impose carbon costs on in-state producers but exempt imported product distort the market, increase leakage risk, and ultimately undermine the effectiveness of the C&I Program.

Consistent Methodologies: The methodology for measuring GHG emissions should be as similar as possible for in-state and out-of-state cement. Wherever feasible, emissions should be calculated using comparable scopes, boundary conditions, and reporting and verification protocols. This ensures a level playing field and reduces the potential for regulatory gamesmanship or arbitrage.

Credible Data Sources: All data used to quantify GHG emissions — including emissions factors, fuel mixes, energy consumption, and transportation distances — should be drawn from credible, transparent, and verifiable sources. Where possible, CARB should prioritize peer-reviewed, jurisdiction-neutral, and independently vetted datasets.

Conservative Default Values: In cases where importers are unable or unwilling to provide data that meets standards similar to those applied to in-state producers, CARB should apply default emission values that rely on reasonable but conservative assumptions — thereby maintaining the integrity of the program and creating an incentive for data transparency.

The following sections outline an interim approach that aligns with these guiding principles.

2.5.2 CARB's Proposed Default Framework

The proposed language requires importers to calculate emissions by multiplying the volume of cement or clinker received from a given foreign facility by that facility's average annual GHG intensity and then aggregating across facilities.[22] CARB's approach is significantly flawed for several reasons.

First, a single default factor unnecessarily collapses several distinct sources of GHG emissions (process emissions, kiln combustion emissions, non-kiln combustion emissions, electricity-related emissions, and transportation-related emissions) into a single number. While this approach has the virtue of simplicity, it does not allow CARB to distinguish between the components of an imported product's GHG footprint that are more or less amenable to reporting and verification. Process emissions, for example, are driven by well-understood chemistry and can be estimated with reasonable confidence based on clinker content alone. Kiln combustion emissions, by contrast, are a function of plant-specific kiln efficiency and fuel mix — variables that differ substantially across facilities and countries. A single aggregated default cannot capture these differences and establishes an "all-or-nothing" standard for importers to demonstrate that their actual emissions profile differs from the default.

Second, the single default factor does not include transportation-related GHG emissions, which represent a material component of the total GHG footprint of imported cement. California cement producers effectively incur zero transportation-related GHG costs for delivering product to the California market (their product "enters" the market at the plant gate). Imported cement, by contrast, must be shipped, typically by ocean-going vessel over thousands of miles. Excluding transportation emissions from the reporting framework understates the true GHG footprint of imported cement and creates a gap in the data that will need to be addressed if and when import reporting transitions to a compliance framework.

Third, the proposed default factor appears to be based on a methodology that approximates the GHG intensity of a representative cement plant but does not account for the fact that the plants actually exporting to California may have materially different emissions profiles. The MRR ISOR indicates that the methods used to calculate the default factor are provided in the Technical Support Document, but the relationship between the default and the actual emissions of the primary exporting countries (Vietnam, Thailand, Mexico) is not transparent in the regulatory record.[23]

2.5.3 Proposed Enhancement to Default Framework

There are five primary sources of GHG emissions associated with cement imports:

(1) Process GHG Emissions

(2) Kiln Combustion GHG Emissions

(3) Non-Kiln Combustion GHG Emissions

(4) Electricity-Related GHG Emissions

(5) Transportation-Related GHG Emissions[24]

The scope of an incremental BCA should include all five sources, given that:

- California cement manufacturers directly incur carbon costs associated with the first three factors via the C&I program.
- California cement manufacturers indirectly incur carbon costs associated with electricity consumption.
- The transportation-related GHG emissions associated with delivering finished cement to the California market represent a significant and material portion of an imported product's total GHG footprint.

The GHG intensity of imported cement can vary based on several factors, including but not limited to the amount of clinker in the finished product, the energy efficiency of the kiln, the types of fuels used in the kiln, the GHG intensity of the electric power grid in the region the cement was

produced, the modes of transportation used to deliver the finished product to the California market, and the distance traveled to the California market.

There are several real-world factors that have the potential to greatly simplify the design and implementation of an interim approach:

- The amount of clinker in imported cement is almost always known within reasonable margins, as it is a key variable in using the product in a safe and effective fashion.
- It is highly likely that an exporting plant utilizes modern pre-heater, pre-calciner kiln technology, which makes it possible to estimate its energy efficiency with a reasonable degree of confidence.
- The vast majority of cement is currently imported from countries that do not have strict environmental regulations or climate commitments, and therefore, it is reasonable to assume that they use coal as a primary kiln fuel.
- There are credible estimates of the GHG intensity of the electric power grid in various countries and sub-national regions that can be used to estimate the GHG emissions associated with electric power consumption.
- The vast majority of cement currently imported into California is via maritime transportation, as opposed to rail or truck.

CARB can leverage these real-world factors to establish an interim framework that uses conservative default values based on credible, real-world assumptions to estimate the GHG intensity of imported cement while providing importers with an option to secure a more favorable GHG intensity by submitting product or plant-specific data that meets California's high standard for data reporting, consistent with what is required of domestic cement manufacturers.

2.5.4 Analytical Framework for Determining Default Emissions Factors

The total GHG intensity of imported product (MT of GHG emissions per MT of cement) can be expressed as the product of the clinker ratio of the product (MT of clinker per MT of cement) and the sum of individual GHG intensity factors (all expressed as GHG emissions per MT of clinker) associated with the five primary sources. Specifically:

Total GHG Intensity = C x (P + K + N + E + T)

Where,

C = The clinker ratio (MT clinker per MT cement)

P = The process emissions GHG intensity factor (MT GHG emissions per MT of clinker)

K = The kiln combustion GHG intensity factor (MT GHG emissions per MT of clinker)

N = The non-kiln combustion GHG intensity factor (MT GHG emissions per MT of clinker)

E = The electricity GHG intensity factor (MT GHG emissions per MT of clinker)

T = The transportation GHG intensity factor (MT GHG emission per MT of clinker)

Given a reasonable estimate for the total GHG intensity of the imported product, an importer's obligations can then be calculated by multiplying the quantity of cement imported by the incremental GHG intensity of the product (*i.e.*, the difference between the year's allowance allocation rate for California producers and the imported product's total GHG intensity).

Clinker Ratio

The clinker ratio represents the volume of clinker relative to the volume of cement. Currently, the vast majority of cement imported into California meets the ASTM C150 specifications, which calls for clinker to represent 90%-95% of the total content, with the variance primarily depending on the amount of gypsum or limestone blended into the product. As a general matter, the clinker ratio of imported cement should be documented and known by the importer, as such information is essential to using cement in a safe and effective manner. That said, in the event that the importer does not report product-specific data regarding the clinker ratio, CSCME recommends that CARB assume that any imported cement meets ASTM C150 specifications and assign it a default clinker factor of 95%.

Process Emissions

Process emissions are the result of a chemical reaction associated with converting limestone into cement clinker. Therefore, a reasonable default process emissions factor can be estimated based on a combination of physical quantities and well-established chemical formulas.

With respect to physical quantities, the primary variable is the amount of clinker in the finished product, which can be easily calculated based on the volume of cement imported and the clinker ratio (as described above).

With respect to factors related to the chemical transformation of limestone, CSCME recommends a default process emissions factor of 0.547 metric tons of GHG emissions per metric ton of clinker. This recommendation is based on three observations:

(1) The factor is consistent with the CSI protocol, which is a widely accepted and often-used methodology for calculating GHG emissions throughout the global cement industry.[25]

(2) The factor accounts for all three sources of process emissions (*i.e.,* calcium carbonate, magnesium carbonate, and organic carbon), which ensures that the GHG accounting framework is as complete as possible.

(3) The factor is consistent with the scope of GHG emissions obligations imposed on California cement producers, which are required to use continuous emission monitoring systems (CEMS) that account for all GHG emissions released from the kiln, including all process-related emissions, regardless of their source.

To illustrate this approach, imagine that 10,000 metric tons of cement are imported into California, but no product-specific data is provided to CARB. In that instance, CARB would multiply the default process emissions factor of 0.547 MT of GHG emissions per MT of clinker by an assumed clinker ratio (*i.e.*, MT of clinker / MT of cement) of 95% — resulting in a GHG emissions intensity of 0.5197 MT of GHG emission per MT of cement associated with process emissions.

To be clear, CARB could also develop alternative default factors for other types of cement that could conceivably be imported into California in meaningful quantities over the next few years, such as Portland Limestone Cement or other blended cements. That said, starting with an assumed 95% clinker share and allowing importers to provide additional data to override that default assumption is likely to be the quickest path to implementing an incremental BCA, while still providing importers with a reasonable pathway to submit product-specific data.

Kiln Combustion Emissions

Kiln combustion emissions result from the use of fuels during the pyro-processing stage. These emissions are primarily a function of two factors: (1) the energy efficiency of the kiln (*e.g.,* MMBtu consumed per metric ton of clinker output) and (2) the GHG intensity of the fuel mix (*e.g.,* metric tons of CO_2-e per MMBtu consumed).

Kiln Energy Efficiency

For the purpose of setting default GHG emissions factors for imported cement, CSCME recommends that CARB assume that imported cement is produced using pre-heater, pre-calciner technology. Although it is possible that imported cement is produced using a less efficient technology, we believe this is a reasonable assumption for plants that are economically competitive enough to export to the California market.

In the absence of verified plant-level data, CSCME recommends that CARB apply a default kiln efficiency of 3.3 MMBtu per metric ton of clinker, which reflects the Environmental Protection Agency's estimate of the energy use for modern pre-heater, pre-calciner kilns.[26] This assumption is technically reasonable and appropriately conservative in light of the regulatory asymmetry and lack of transparency associated with imported cement.

GHG Intensity of Fuel Mix

The GHG intensity of the kiln fuel mix is a function of two components: (1) the composition of the fuels consumed and (2) the GHG emissions rate associated with each fuel. Coal is typically the primary fuel used in cement kilns, although a range of other fuels may also be used in varying proportions, including petroleum coke, natural gas, tires, biomass, and certain alternative fuels. The fuel mix used in any particular kiln is likely to depend on local market conditions — namely, the availability and price of each fuel. In addition, the use of alternative fuels can be dictated by non-market factors, such as technical limitations, emission regulations, and political/permitting constraints.

In the absence of verified plant-level data, CSCME recommends that CARB apply a default fuel GHG intensity that assumes that coal was the exclusive fuel used to produce the clinker, which is the most likely scenario for cement plants currently exporting to the California market. That default factor could be based on fuel emission factors published by the EPA or another credible source. For instance, according to the EPA's GHG Emission Factor Hub, the emissions factor for bituminous coal (a widely used type of coal in cement plants in Asia) is approximately 94 kg CO2-e per MMBtu.[27]

Total Kiln Combustion Emissions Factor

Given the assumptions outlined above, CSCME recommends that CARB apply a default kiln combustion GHG emissions factor of 0.31 MT GHG per MT of clinker (3.3 MMBtu per metric ton of clinker x 94 kg CO_2-e per MMBtu) / 1000) to imported cement, provided that the importer does not provide verified plant-level data to the contrary. This default factor would then be applied to the clinker content to determine the kiln combustion emissions factor for a particular metric ton of cement. For instance, cement that conformed to the ASTM C150 standard and, therefore, would be assumed to have a 95% clinker content would receive a default kiln combustion emissions factor of 0.294 (0.312 x 0.95).

Non-Kiln Combustion Emissions

Non-kiln combustion emissions result from the burning of fossil fuels outside of pyro-processing. Sources of non-kiln combustion emissions may include: on-site equipment; room heating and cooling; on-site power generation; and drying of raw materials and mineral components. The drying of raw materials and mineral components, in particular, can be a significant source of emissions outside of the kiln.

CSCME has not identified a credible third-party source for establishing a default GHG emissions factor for non-kiln combustion emissions. Accordingly, for the purpose of establishing an interim framework, we recommend that CARB use MRR data to calculate the average ratio between non-kiln and kiln combustion fuels in the California cement industry and apply that same ratio to imported cement as a default assumption. Again, cement importers will have the option to submit plant-specific data in the event that this default assumption does not apply to the plant at which the cement was produced.

Electricity-Related Emissions

The grinding of raw materials and finished product are the primary drivers of indirect electricity emissions, though plant lighting and on-site electric motors also contribute to a plant's electricity consumption footprint.

Conceptually, electricity emissions per unit of output can be decomposed into two factors:

(1) A plant-specific electricity efficiency factor (kWh per MT clinker).[28]

(2) A grid-specific GHG intensity factor (GHGs per kWh).

For the purpose of establishing an interim framework, CSCME recommends that CARB establish a default electricity efficiency factor based on the electricity consumption data reported by California plants in MRR reports. In the absence of the cement importer submitting credible data regarding the producing plant's electricity efficiency, that factor would then be multiplied by the GHG intensity factor for the grid in the region or country in which the plant is located.[29]

Transportation-Related Emissions

Indirect transportation emissions primarily result from shipping finished product from the producer to the California market. In theory, clinker or cement could be shipped into the California market by truck, rail, ocean-going vessel, or a combination of these methods. Additional transportation-related emissions can result from the loading and unloading of product. As a practical matter, however, clinker or cement is rarely shipped by land over long distances. In contrast, historical experience indicates that large amounts of cement (and less frequently clinker) can be (and has been) economically shipped by sea over long distances.

Conceptually, the transportation emissions associated with importing a unit of product into the California market can be decomposed into two components: (1) the GHG emissions rate associated with the mode of transportation (metric tons of GHGs per ton-mile) and (2) the distance traveled.

For the purpose of establishing an interim framework, CSCME recommends that CARB establish a default GHG emissions rate for cement imported by sea. Specifically, CSCME recommend that CARB adopt the International Maritime Organization's Energy Efficiency Operational Indicator default emissions factor for GHG emissions per ton-mile for a "Handymax" dry bulk carrier, which is the most common vessel for transporting imported cement.[30] In the absence of the cement importer submitting credible data regarding the GHG emissions rate associated with ocean transportation, that factor would then be multiplied by the distance between ports, as published by the U.S. National Geospatial-Intelligence Agency.[31]

2.6 Summary

We recommend that CARB adopt a components-based default methodology that decomposes the GHG footprint of imported cement into process emissions, kiln combustion emissions, non-kiln combustion emissions, electricity-related emissions, and transportation-related emissions, with separate default factors for each component. We estimate that this approach will result in an aggregate default factor (i.e., the default factor that would apply if an importer does not submit any data to overcome any one of the default components) in the range of 0.90-0.95, depending on the source of imports. This approach produces more useful data, creates a natural pathway for importers to provide actual data, and aligns the reporting framework with the eventual implementation of a BCA.

Section 3. Proposed Revisions to MRR Reporting in the Cement Sector

The C&I Proposed Amendments modify the definition of output for cement from "Adjusted Clinker and Mineral Additives" to "Finished Cement," which expands the scope from ordinary portland cement (“OPC”) and limestone portland cement (“PLC”) to also include blended cements that incorporate SCMs. The C&I Proposed Amendments also expand the definition of “Cement” to include all types of cement that meet specification standards for, or demonstrate functional equivalence to, conventional cement types under, for example, ASTM C150, ASTM C595, and ASTM C1157.

CSCME strongly supports expanding the definition of output and the corresponding changes to the product-based allocation methodology. The changes are sound in principle and align the allocation framework with the direction in which the cement industry and the broader construction industry are moving. Blended cements that incorporate SCMs are a proven and immediately deployable pathway for reducing the GHG intensity of cement. By expanding the benchmark to include SCMs used to make finished cement, CARB creates a direct incentive for cement producers to increase their use. This is exactly the type of market-based decarbonization signal that the C&I program should be sending.

That being said, CSCME notes that the treatment of SCM producers under the allocation framework raises separate and distinct issues, as discussed further below. CSCME's support for the expanded cement definition should not be construed as support for extending industrial allowance allocation to SCM producers themselves, which we believe is both counter to the essential purpose of industrial allowance allocation and undermines the incentive to increase the production of blended cements that the expansion of the definition of cement is intended to support.

The comments below address the extension of allowance allocation to SCM producers under the C&I Proposed Amendments, related definitions and reporting obligations under the MRR Proposed Amendments, and definitions under both the C&I Proposed Amendments and the MRR Proposed Amendments.

3.1 Industrial Allowance Allocation for SCM Producers

CARB’s C&I Proposed Amendments would extend industrial allowance allocation to certain producers of SCMs. CARB’s approach is based on the premise that SCMs are the “functional equivalent” of cement when used to produce blended products. CSCME respectfully notes that this approach is in conflict with the foundational principles of industrial allocation under the C&I program, undermines the incentive that CARB seeks to create by expanding the definition of cement to include SCMs, and increases the risk of leakage in the California cement industry.

3.1.1 Assessment of CARB's Proposed Approach

SCMs Are Not the Functional Equivalent of Cement

SCMs are, by definition, supplementary. They *partially* substitute for clinker in blended cement formulations, and they are not stand-alone binders that can perform the structural and chemical function of clinker-based cement in isolation.

Clinker-based cement is the primary hydraulic binder in concrete. It is the component that drives the chemical hydration process that gives concrete strength and durability. SCMs displace a portion of clinker in blended formulations, but they rely on the presence of clinker to activate their performance characteristics. They do not constitute a complete or independent product equivalent to cement.

Treating SCMs as the "functional equivalent" of cement for purposes of allocation collapses a critical distinction in the cement-concrete supply chain. Cement is manufactured at emissions-intensive, trade-exposed industrial facilities operating kilns with significant process emissions. In contrast, SCM producers are neither manufacturers of finished cement nor emissions intensive operations. The same applies to concrete batch plants, which produce concrete by "batching" cement, SCMs, aggregates, and water.

Blurring these distinctions for allocation purposes creates a conceptual mismatch between regulatory constructs and industrial reality. The industrial allocation framework is product-based and benchmark-driven. It is not designed to treat upstream clinker production and downstream material blending as interchangeable activities.

Free Allocation Is Intended to Minimize Leakage in Exposed Industries

Under the C&I program, industrial allocation is explicitly justified as a leakage-minimization mechanism for emissions-intensive, trade-exposed sectors. Section 95891 establishes product-based benchmarks and cap adjustment factors ("CAFs") for industrial sectors in order to mitigate the risk that carbon costs imposed in California will shift production and associated emissions to jurisdictions without comparable constraints. The policy rationale is clear: free allocation is not a general industrial incentive. It is a targeted tool to address leakage risk in sectors that are both (1) emissions-intensive and (2) exposed to interstate or international trade.

SCM production does not meet these criteria:

- SCM production is not process-emissions intensive.
- Many SCMs are industrial byproducts (e.g., fly ash, slag) or low-process materials.
- There is no demonstration in the regulatory record that SCM producers face material leakage risk due to allowance compliance costs.

- The ISOR accompanying the proposed amendments does not provide an assessment of leakage exposure for SCM producers.

Absent such an analysis, extending allocation to SCM producers represents a departure from the program's own leakage-based logic.

Moreover, even if CARB were to conduct such an assessment, it is difficult to see how SCM production would qualify as emissions-intensive or meaningfully trade-exposed due to carbon costs. The very premise of SCM use is that it lowers the carbon intensity of cementitious materials. Extending leakage protection to industries not at risk of leakage will undermine the policy rationale for allocation and inviting broader challenges to the structure of the program.

Allocation to SCM Producers Undermines the Incentive to Expand Blended Cements

CARB has appropriately identified the expansion of blended cement as a critical near-term decarbonization pathway. SB 596 directs CARB to evaluate and implement measures to reduce the greenhouse gas intensity of cement used in California and to support market demand for lower-carbon cementitious products.

We understand that CARB's objective in this context is to ensure that the incentive to produce blended cement is not sensitive to where blending occurs in the supply chain. However, industrial allowance allocation is not the appropriate mechanism to achieve downstream demand incentives.

Under the proposed approach, if SCM producers receive allocation when selling to concrete batch plants or other downstream entities, allowance value effectively shifts away from clinker manufacturing facilities and toward activities that are neither emissions-intensive nor leakage-exposed. This does not strengthen the decarbonization signal for cement producers. It weakens it.

The core purpose of expanding the definition of cement is to ensure that cement manufacturers can receive allocation based on lower-clinker blended products. That objective can be accomplished within the cement benchmark framework, without extending allocation to non-cement producers. Providing allocation to SCM producers creates a workaround that:

- Diverts allowance value away from clinker facilities that face genuine leakage risk;
- Complicates benchmark administration and product accounting; and
- Undermines the integrity of the product-based allocation structure.

In effect, the proposal attempts to use a leakage-mitigation tool to solve a downstream demand problem. Those are distinct policy challenges that warrant distinct policy instruments.

Industrial Allocation Is Not the Proper Tool to Drive Downstream Market Demand

If CARB's objective is to accelerate the adoption of blended cement in the concrete market, there are more direct and transparent tools available. These include:

- Procurement standards and performance-based specifications;
- Carbon intensity disclosure requirements (e.g., EPD-based policies);
- Advanced market commitments or targeted demand-side incentives; and
- Implementation of SB 596's directive to support low-GHG cement demand.

Industrial allowance allocation is designed to minimize leakage, not to subsidize input materials or restructure supply-chain incentives.

3.1.2 Summary of CSCME Recommendations

For these reasons, we urge CARB to:

- Refrain from extending industrial allocation to SCM producers.[32]
- Explore alternative, demand-side mechanisms to increase blended cement adoption downstream in lieu of industrial allowance allocation.

This approach would preserve the integrity of the leakage-protection framework, avoid definitional distortions in the cement-concrete supply chain, and more cleanly align policy instruments with policy objectives.

3.2 The Definition of "Finished Cement" (i.e., Output)

Under the C&I Proposed Amendments, CARB seeks to ensure equivalent treatment of SCM use regardless of where blending occurs in the supply chain. To accomplish this, the amendments propose a definition of "finished cement," which means "cement that includes adjusted clinker, mineral additives, and SCMs produced by a covered or opt-in covered entity."[33]

The proposed approach generally reflects several sound policy instincts. It explicitly recognizes the use of SCMs as a critical near-term pathway for reducing clinker-related emissions. By expanding the benchmark to include SCMs used to make finished cement, CARB creates a direct incentive for cement producers to increase their use. This is exactly the type of market-based decarbonization signal that the C&I program should be sending. As CARB acknowledges:

> *As California transitions to a decarbonized economy, it is important (1) to support increased use of low-carbon materials to make cement, and (2) to treat conventional and low-carbon cements on an equivalent basis when providing leakage protection if a low-carbon cement can be demonstrated to be functionally equivalent to conventional cement.*[34]

CSCME's supports CARB's proposals to change the definition of cement output from "Adjusted Clinker and Mineral Additives Produced" to "Finished Cement" and broaden the scope of output to include SCMs. However, as done with the prior output metric, we strongly recommend that CARB specify the components and calculation of "Finished Cement" for clarity. Specifically, we recommend that "Finished Cement" be defined as follows:

> "Finished cement" means ~~cement that includes adjusted clinker, mineral additives, and SCMs produced by a covered or opt-in covered entity~~ the annual amount of clinker, limestone, gypsum, baghouse dust, grind aids, and SCM output derived by using the following metric: Finished cement = clinker produced x (1 + (limestone, gypsum, baghouse dust, grind aids, and SCMs consumed)/clinker consumed)).

In addition, given that the prior output metric of "Adjusted Clinker and Mineral Additives Produced" no longer clearly serves a functional purpose, we recommend that CARB delete that definition in its entirety to avoid confusion in the future.

3.3 The Definition of "Cement"

The C&I and MRR Proposed Amendments define "cement" as:

> *"Cement" means a manufactured material that meets the specification standards for Portland cement (such as ASTM C150 (2022), which is incorporated by reference herein) or hydraulic blended cements (such as ASTM C595 (2023), which is incorporated by reference herein), or that meets performance-based standards for functional equivalents of Portland or hydraulic blended cements (such as ASTM C1157 (2023), which is incorporated by reference herein). Cement is used to make concrete, masonry cement, plastic (stucco) cement, and mortar cement.*[35]

CSCME proposes that CARB modify the definition of "cement" to delete the reference to the year of the ASTM standard (*i.e.*, "ASTM C150 (2022)). ASTM requires standards to be reviewed at least once every 5 years, and many standards are revised on a more frequent basis. For example, C595 is currently undergoing a major revision that allows for greater clinker substitution than the 2023 definition. The inclusion of the year of the ASTM will result in an overly limited definition of "cement," which undermines the purpose of expanding the definition, creates uncertainty for the cement industry, and will require additional CARB administrative oversight and action to ensure that the ASTM standard referenced in the definition reflects the year of the most recent change.

Moreover, CSCME recommends using "portland cement" rather than "Portland cement" as normally used in the industry and the ASTM standards. The corresponding change should be made to the definition of "Portland cement" in the MRR Proposed Amendments.[36]

3.4 The Definition of "Supplementary Cementitious Materials"

The C&I and MRR Proposed Amendments define SCMs as:

> *"Supplementary Cementitious Materials" or "SCMs" are materials that are added to and contribute to the properties of a cementitious mixture through hydraulic or pozzolanic activity, or both, such as fly ash, ground granulated blast furnace slag, silica fume, natural pozzolan, calcined clay, and glass pozzolan.*[37]

CSCME has no comments on the SCM definition, which recognizes the diverse range of SCMs that are currently available and may be developed in the future.

Section 4. Summary of CSCME Recommendations

For the reasons set forth above, CSCME respectfully urges CARB to:

- Pause the decline in the alternate CAF for the cement industry until a credible BCA mechanism is operational, at which point the CAF decline should resume on a trajectory that converges with the currently proposed schedule.
- Commit to and establish a timeline for implementation of an incremental BCA. Make clear in the regulatory record that import reporting is a precursor to a compliance-based BCA and commit to a general timeline for transitioning from reporting to compliance obligations.
- Monitor the efficacy of the import reporting threshold and develop additional protections from potential evasion and circumvention of reporting obligations by importers of cement.
- Clarify the definition of "importer of cement" or “cement importer” to address ambiguities involving intermediate ownership transfers, consignment arrangements, and downstream purchasers who may not be well-positioned to report upstream manufacturing data.
- Immediately introduce a requirement to submit data on imports of cement, including re-exports, with a phasing-in of the verification requirement to align with verification requirements for in-state cement plants.
- Establish review procedures to identify suspicious or incomplete cement import reporting and impose penalties for missing, incorrect, incomplete, and fraudulent reporting.
- Adopt a components-based default methodology that decomposes the GHG footprint of imported cement into process emissions, kiln combustion emissions, non-kiln combustion emissions, electricity-related emissions, and transportation-related emissions, with separate default factors for each component that an importer can override by submitting credible actual emissions data to CARB.
- Remove the application of the C&I allowance allocation program to SCM producers and implement corresponding revisions to applicable provisions and definitions under the C&I and MRR Proposed Amendments.

Endnotes

[1] The Coalition includes CalPortland Company, Cemex, Inc., Mitsubishi Cement Corporation, National Cement Company of California Inc., and UNACEM North America. There are seven cement plants currently in operation in California with locations in Lebec, Lucerne Valley, Mojave, Oro Grande, Redding, Tehachapi, and Victorville.

[2] California Nevada Cement Association (July 2023). Achieving Carbon Neutrality in the California Cement Industry: Key Barriers & Policy Solutions. Second Edition. Available at https://www.cncement.org/resource-library/achieving-carbon-neutrality-for-california-cement-producers.

[3] SB 596 was sponsored by Senator Becker, passed the legislature with a supermajority in both chambers, and was supported by a diverse coalition of industry and environmental stakeholders.

[4] CARB (Oct 2010). Proposed Regulation to Implement the California Cap-and-Trade Program. Appendix K. Leakage Analysis. Page 33.

[5] CARB (Dec 2010). California Cap-and-Trade Program. Resolution 10-42. Page 4.

[6] CARB (Dec 2010). California Cap-and-Trade Program. Resolution 10-42. Page 11.

[7] AB 32 (Núñez and Pavley, Chapter 488, Statutes of 2006). Codified at California Health & Safety Code §38562(b)(8).

[8] AB 398 (Garcia, Chapter 135, Statutes of 2017), as codified at California Health & Safety Code §38591.2(c) (requiring CARB to report to the Legislature by December 31, 2025, on program progress and to "recommend necessary statutory changes to the program to reduce emissions leakage" including "the potential for a border carbon adjustment").

[9] AB 398 (Garcia, Chapter 135, Statutes of 2017), as codified at California Health & Safety Code §38591.2(c) (requiring CARB to report to the Legislature by December 31, 2025, on program progress and to "recommend necessary statutory changes to the program to reduce emissions leakage" including "the potential for a border carbon adjustment").

[10] *See* Staff Report: Initial Statement of Reasons ("ISOR") at 30.

[11] *See* MRR Proposed Amendments § 95101(a)(1)(H), § 95102, § 95103(f), and § 95126.

[12] *See* MRR Proposed Amendments § 95101(a)(1)(H) and ISOR at 30.

[13] *See* MRR Proposed Amendments § 95102(a).

[14] "Cement importers may elect to exclude any cement or clinker that is known to be imported into California and then exported for use outside of California from data reported under this section." *See* MRR Proposed Amendments § 95126.

[15] MRR Proposed Amendments § 95103(f).

[16] MRR Initial Statement of Reasons at 26-27.

[17] "Carbon Border Adjustment Mechanism (CBAM) Questions and Answers," Taxation and Customs Union (last updated December 17, 2024), available at: https://taxation-customs.ec.europa.eu/document/download/013fa763-5dce-4726-a204-69fec04d5ce2_en; "Carbon Border Adjustment Mechanism (CBAM) Questions and Answers," Taxation and Customs Union (last updated December 22, 2023), available at: https://taxation-customs.ec.europa.eu/system/files/2023-11/CBAM%20Frequently%20Asked%20Questions_November%202023.pdf.

[18] *Id*.

[19] *Id*.

[20] *Id*.

[21] CSCME also has significant concerns about the calculation of the default GHG intensity factor of 0.758 MT CO_2e per short ton of cement. They include but are not limited to the nature of the data used, the representativeness of that data, the lack of scoping to make the data more relevant to the current context, the methodology employed to compute the factor, and the exclusion of transportation emissions. Given that CSCME is proposing a fundamentally different analytical framework and an approach that seems more fit-for-purpose on its face, we elected not to elaborate on those concerns in this comment letter. However, in the event that CARB rejects this alternative and chooses to maintain its current approach, we would welcome the opportunity to submit an addendum to these comments that documents the conceptual and methodological flaws that underpin the proposed default GHG intensity factor.

[22] MRR Proposed Amendments § 95126.

[23] CSCME also requests that CARB incorporate into the default the amount of additional costs faced by California cement producers under the AB 32 Cost of Implementation Fee Regulation, pending extension of the application of this regulation to importers of cement.

[24] These are GHG emissions associated with transporting imported product from the plant to the point at which it enters the California market (e.g., a port). Accordingly, transportation-related GHG emissions are effectively zero for California cement producers, as the product enters the market when it passes through the producing plant's gate.

[25] Cement Sustainability Initiative (CSI). CO2 accounting and reporting standard for the cement industry, version 2.0 (2005). See also: Shen et al. Factory-level measurements on CO_2 emission factors of cement production in China. Renewable and Sustainable Energy Reviews (June 2014), which states: "In the absence of specific data, CSI (2005) thus recommends a default emission factor of 0.525 t CO2/t clinker with correction for calcination of MgCO3, and 0.547 t CO2/t clinker with the default raw meal-to-clinker ratio 1.55 and default total organic carbon (TOC) content in raw meal of 2 kg carbon/t raw meal."

[26] U.S, EPA, Alternative Control Techniques Document Update – NO_x Emissions from New Cement Kilns, Table 3-3 (November 2007).

[27] U.S, EPA, GHG Emission Factor Hub, Emission Factors for GHG Inventories (Last Updated January 2025). The emission factor includes CO_2, CH_4, and N_2O, which is consistent with the scope of GHG reporting in California.

[28] Note that the numerator corresponds to all electricity consumed by the plant — not just the portion associated with producing clinker.

[29] The International Energy Association (IEA) retains a robust database of grid electricity factors by country. IEA's annual dataset is not publicly available but can be purchased. The Institute for Global Environmental Strategies, a public interest incorporated foundation in Japan, also maintains a publicly accessible dataset of country and region-specific grid electricity emissions factors.

[30] Fourth Greenhouse Gas Study, International Maritime Organization (2020).

[31] Distances Between Ports (Pub. 151), The National Geospatial-Intelligence Agency (2001).

[32] CSCME also requests corresponding changes to the C&I and MRR Proposed Amendments, including, but not limited to the following: (1) remove the proposed revision in Section 95891 of the C&I Proposed Amendments to the variable $O_{a,\,t-2}$; (2) remove the rows in Table 8-1 of the C&I Proposed Amendments for "Mining (except oil and gas) for Supplementary Cementitious Materials" and "Nonmetallic Mineral Product Manufacturing for Supplementary Cementitious Materials"; (3) remove the rows in Table 9-1 of the C&I Proposed Amendments in the Cement Manufacturing NAICS Sector Definition for "Mining (except oil and gas) for Supplementary Cementitious Materials" and "Nonmetallic Mineral Product Manufacturing for Supplementary Cementitious Materials"; (4) delete the proposed Section 95110(5) and insert: "Annual quantity of SCMs consumed for blending (short tons) by SCM type."; and (5) delete Section 95115(22) of the MRR Proposed Amendments.

[33] C&I Proposed Amendments § 95802(a).

[34] C&I ISOR at 63.

[35] C&I Proposed Amendments § 95802(a); MRR Proposed Amendments § 95102(a).

[36] MRR Proposed Amendments § 95102(a).

[37] *See* C&I Proposed Amendments § 95802(a); MRR Proposed Amendments § 95102(b).