Coalition for Sustainable Cement Manufacturing & Environment
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October 26, 2023

Ms. Liane M. Randolph
Chair
California Air Resources Board
1001 "I" Street
Post Office Box 2815
Sacramento, California 95812

Subject: **The California Cement Industry's Comments on Recent Workshop on Potential Amendments to the Cap-and-Trade Regulation**

Dear Chair Randolph:

The Coalition for Sustainable Cement Manufacturing and Environment ("CSCME") provides these comments on the California Air Resources Board ("CARB") October 5, 2023 California Public Workshop: Potential Amendments to the Cap-and-Trade Regulation.

CSCME is a coalition of all five cement manufacturers in California.[1] Since the passage of AB 32 in 2006, the California cement industry has worked cooperatively and constructively with legislators and regulators to develop policies that advance the state's climate goals and promote the reduction of greenhouse gas ("GHG") emissions in the cement industry while minimizing the risk of economic and emissions leakage. Those efforts include working with CARB on the initial design and implementation of the cap-and-trade program and working with legislators to refine and extend the program under AB 398. It also includes working collaboratively with legislators, environmental advocacy groups, and other stakeholders to develop SB 596, which aligned with the cement industry's vision of achieving net carbon neutrality by 2045 and directed CARB to develop a sector-specific strategy to do so.[2]

As a result of these policies and associated industry investments, the cement industry has made significant contributions to achieving California's GHG emissions reduction targets. For instance, the industry produced roughly the same amount of cement in 2020 as it did in 2008, but with 13% fewer total GHG emissions and 22% fewer combustion-related emissions.[3] Although the global cement industry accounts for approximately 8% of global GHG emissions, the California cement industry accounts for only about 2% of the state's GHG emissions.[4] Despite accounting for a relatively small share of the state's total GHG emissions, a healthy and carbon neutral cement industry is critical to achieving California's climate, resilience, and economic goals.

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[1] The Coalition includes CalPortland Company, Cemex, Inc., Martin Marietta Materials, Mitsubishi Cement Corporation, and National Cement Company of California Inc. There are seven cement plants currently in operation in California.

[2] For more details regarding the industry's plan, see cncement.org/attaining-carbon-neutrality.

[3] Calculated using industry data from U.S. Geological Survey (2000-2019). Annual Mineral Commodity Summary; California Air Resources Board (2021). 2000-2019 GHG Inventory (2021 Edition). Full Inventory - Economic Sector Categorization; and California Air Resources Board (2021). 2020 GHG Facility and Entity Emissions. Full Inventory - Economic Sector Categorization.

[4] For global estimates, see *Chatham House (2018). Making Concrete Change*. For California estimates, see *CARB (Oct 2022). California Greenhouse Gas Emissions for 2000 to 2020 - Trends of Emissions and Other Indicators. Figure 4.*

I. POLICY CONTEXT

The California cement industry supports the state's GHG reduction goals and is committed to achieving carbon neutrality by 2045.

Preserving and extending the state's existing cap-and-trade program is essential to achieving this goal. By establishing a clear price signal, the cap-and-trade program provides the cement industry with a relatively predictable financial incentive and policy environment as it evaluates long-term investments in emissions abatement measures. In addition, the cap-and-trade program's allowance allocation system has been critical to reducing the risk of emissions leakage in the cement industry.

The importance of reducing GHG emissions while maintaining a viable and vibrant local cement industry cannot be overstated. Cement is an essential commodity for modern economies and is critical to realizing the state's environmental, economic, infrastructure, affordable housing, and climate resilience goals. A strong local cement industry is essential to increasing the resiliency of infrastructure in the most environmentally responsible manner possible, as a ton of California-produced cement is likely to have a lower lifecycle GHG footprint than imported cement, especially when considering additional GHG emissions associated with transporting cement to the state.

The stakes of achieving net carbon neutrality in the California cement industry are high. If successful, California will provide the world with a model for how to achieve net neutrality in an industry that is difficult to electrify, difficult to decarbonize, and highly exposed to the risk of economic and emissions leakage. If unsuccessful, California will provide the world with a cautionary tale about how climate policy can damage a local industry, resulting in both fewer jobs and greater global GHG emissions. CSCME looks forward to working with CARB and other stakeholders to ensure that California has a strong, carbon neutral local cement industry in 2045, which will inevitably require a cap-and-trade program that provides a predictable carbon price and stable policy environment that supports relatively high-cost, high-stakes, and long-lived investments in decarbonization.

II. THE CALIFORNIA CEMENT INDUSTRY FACES A UNIQUELY CHALLENGING PATH TO NET ZERO

While carbon neutrality is an ambitious goal for any sector, it is particularly challenging for the cement industry, which is widely recognized as both difficult to decarbonize and highly exposed to the risk of leakage. These twin challenges heighten the urgency of creating a policy and regulatory environment that incentivizes long-term investments in deep decarbonization and ensures that local cement producers are not placed at a competitive disadvantage to imports that are not held to a similar environmental standard.

The California cement industry is highly exposed to the risk of economic and emissions leakage due to a variety of factors, including but not limited to the fact that:

- Cement is a fungible, globally traded commodity that is purchased primarily based on price.
- Cement production entails a significant amount of process emissions (i.e., unavoidable emissions resulting from the chemical reaction of converting limestone into clinker; cannot be mitigated by fuel switching), which constitute roughly two-thirds of the industry's GHG footprint.

- The cement industry is an emissions-intensive industry in which relatively small increases in carbon costs, whether due to increases in carbon prices or other regulatory measures, can have a devastating effect on a producer's economic viability.
- The vast majority of California cement demand is within a short distance of the coast and, therefore, demand can be easily met by jurisdictions with less stringent environmental regulations, including distant nations in Asia.
- California has the infrastructure capacity (i.e., terminals) to readily accommodate a rapid expansion of imports.

These facts lead to a series of general principles regarding any amendments to the cap-and-trade regulation that affect the California cement industry. First, as a difficult-to-decarbonize industry, the California cement industry merits special consideration with respect to the state's decarbonization strategies, as acknowledged by previous iterations of the program and SB 596. Second, given the significant amount of process emissions, carbon capture, utilization, and storage ("CCUS") technologies will be essential to decarbonizing the local cement industry by 2045, including many factors that remain outside its control (i.e., development of cost-effective and safe CO_2 transportation to sites where it can be sequestered and/or utilized in a beneficial manner). Third, given the industry's extreme risk of leakage, CARB should adopt a regulatory framework that holds domestic and imported cement to similar environmental standards.

CARB has repeatedly and consistently confirmed the unique nature of the cement industry via policy adjustments in prior rulemakings, including but not limited to: (1) designating the California cement industry as a "high leakage risk" industry that merits a full assistance factor in the allowance allocation system and (2) providing the cement industry with a less stringent cap adjustment factor due to having a significant share of process emissions. Likewise, as early as 2010, CARB identified the cement industry as a sector that might serve as a useful pilot project in testing the efficacy of a carbon border adjustment.[5] In 2021, the California legislature and Governor Newsom recognized the unique nature of the cement industry via SB 596, which requires CARB to develop a cement-specific strategy for achieving net carbon neutrality by 2045 and to remove existing barriers to achieving that goal, including creating a mechanism that would apply similar regulatory costs to all cement *consumed* in California.[6]

III. CALIFORNIA'S CAP-AND-TRADE PROGRAM HAS BEEN SUCCESSFUL; LATE-STAGE TARGET ADJUSTMENTS THREATEN TO UNDERMINE THIS SUCCESS

California's cap-and-trade program is the centerpiece of a portfolio approach to drive down the state's economy-wide emissions. By almost any measure, the cap-and-trade program has been immensely successful at achieving its intended goals. Not only did California achieve its 2020 GHG emissions targets, but it did so several years ahead of schedule and incurred minimal economic costs.

CARB's strong track record of success was built by adhering to a handful of key principles, including:

[5] California Air Resources Board Resolution 10-42 (Dec 2010) directed CARB to evaluate a pilot carbon border adjustment for the cement sector.

[6] Greenhouse Gases: Cement Sector: Net-zero Emissions Strategy, California Senate Bill 596 (2021-2022).

- Provide a consistent carbon allowance price signal that incentivizes investment in decarbonization while mitigating economic and emissions leakage through targeted free allocation of allowances to high-risk industries.
- Create a predictable regulatory environment that encourages allocating capital to the long-term investments needed to reach carbon neutrality.
- Develop sector-specific approaches that appropriately balance the desire for a unified framework with the need to recognize that different industries face different challenges and circumstances with respect to decarbonization.

CARB should prioritize these principles if it hopes to replicate and sustain prior success. Unfortunately, if taken at face value, the proposed amendments to the cap-and-trade program threaten to upend all three pillars of prior success. Specifically, any amendment to the cap adjustment factors would create a situation in which the supply (and, therefore, price) of allowances is less predictable, the nature of essential (and seemingly settled) policy parameters are subject to revision, and the treatment of critical sectors (particularly the cement industry) seems constantly in flux.

Any proposed amendments to the cap-and-trade program should only proceed with those considerations in mind. Rather than radically revising the program by significantly reducing the cap during the current phase, CARB should instead continue its diligent implementation of the existing cap-and-trade program in a way that fulfills the original promise of AB 32, which is to deliver technologically feasible and cost-effective reductions in GHG emissions that also minimize the risk of emissions leakage.

IV. PROPOSED AMENDMENTS TO THE CAP ADJUSTMENT FACTOR WOULD HAVE A NEGATIVE IMPACT ON NEAR-TERM INVESTMENT AND THE FEASIBILITY OF THE CALIFORNIA CEMENT INDUSTRY'S LONG-TERM GOALS

As result of updates to the California GHG emissions inventory and the increased ambition of the 2022 Scoping Plan, CARB proposed a range of cap adjustment scenarios that, in all cases, increase near-term stringency to achieve more rapid progress to carbon neutrality. These changes, if taken at face value, would translate into hundreds of millions of dollars in additional compliance costs for California cement producers. In addition to significantly amplifying the cement industry's leakage risk, such changes would also jeopardize and arrest any planned long-term strategies to achieve carbon neutrality by 2045.

Over the past 15 years, the California cement industry has complied with the state's cap-and-trade regulations, and our individual companies have each plotted their unique initial pathway to carbon neutrality under the assumption that the current regulatory framework will remain in place through the end of this decade. The changes to the cap-and-trade program highlighted at the Workshop, if applied to the California cement industry, would have several significant impacts, including:

- Increasing leakage risk for the cement industry, whether that is done explicitly through reduced allowance allocations via changes to cap adjustment factors, or implicitly through placing upward pressure on allowance prices. Regardless of the mechanics, the result will run counter to AB 32's requirement to minimize leakage risk.

- Reducing the amount of capital available in the cement industry at precisely the moment in which it is needed to make substantial investments in decarbonizing the industry and achieving net carbon neutrality by 2045.
- Permanently increasing uncertainty and undermining confidence in the cap-and-trade program for the cement industry, other covered entities, market participants, and various stakeholders, who will no longer have assurances that foundational program elements (such as the size of the overall cap and the allocation of allowances until 2030) will not be significantly altered again in the future.

Although the cement industry recognizes that the cap-and-trade program must evolve over time, we believe that any major changes to the program should be purely forward-looking and that CARB should avoid "moving the goal posts" when it comes to long-established decisions. The decisions that CARB made as result of the 2017 Scoping Plan process have formed the basis of the California cement industry's regulatory assumptions for 2021-2030. Dramatically changing these assumptions can have a devastating near-term impact on the industry's ability to survive in California without materially affecting the shared end goal of reaching carbon neutrality by 2045. Accordingly, we recommend that CARB focus its attention on the design of the post-2030 program and what is needed to achieve carbon neutrality in the long term, as opposed to changes to foundational elements of the 2021-2030 program, which were established several years ago.

To the extent that CARB decides to lower the cap to reflect "increasing ambition," it should do so in a way that does not negatively affect industry allowance allocations. This is especially true of the California cement industry, given its significant process emissions, high degree of leakage risk, and difficult-to-decarbonize status. And it is especially true given that California has not yet implemented an effective measure that levels the playing field between local and imported cement (i.e., a carbon border adjustment or similar mechanism).

V. IN AMENDING THE CAP-AND-TRADE PROGRAM, CARB SHOULD NOT OVERLOOK SECTOR-SPECIFIC OPPORTUNITIES TO REMOVE BARRIERS TO DECARBONIZING THE CEMENT INDUSTRY

Per the existing allowance allocation system, the cement industry will (regardless of any amendments to cap-and-trade) continue to face a declining cap adjustment factor. This decline will only increase the cost disparity between local and imported cement and, therefore, the risk of emissions leakage over time. Accordingly, CARB should act swiftly to remove barriers to decarbonizing the local cement industry via the cap-and-trade program, including but not limited to:

- Adopting a carbon border adjustment or other similar market mechanism that levels the playing field with imported cement. The adoption of policy mechanisms to level the playing field with imported products is neither unprecedented nor impractical. CARB has been implementing such a mechanism in the electric power sector since the inception of the cap-and-trade program almost a decade ago. Likewise, CARB has adopted resolutions recognizing the importance of such measures to the California cement industry and directed staff to investigate their feasibility.[7] Specifically, we propose that CARB implement an incremental carbon border adjustment (or functionally similar mechanism) that subjects locally produced and imported cement to similar environmental standards and compliance costs.

[7] California Air Resources Board Resolution 10-42 (December 2010).

Unless and until such a measure is adopted, it will be difficult (if not impossible) for local cement producers to confidently invest large sums of capital in any of the deep decarbonization measures needed to achieve carbon neutrality, including CCUS.

- Expand the definition of cement output under the allowance allocation system to include and incentivize the production of blended cements. When CARB established the narrower definition of cement to support the output-based allowance allocation system, the cement produced and sold in California consisted almost exclusively of clinker, gypsum, and limestone. But the industry now has the potential to evolve significantly, due in part to state climate policies as well as individual corporate commitments to improve environmental performance across their entire operations. We recommend that the definition of cement output explicitly include supplementary cementitious materials that are commonly used today, including but not limited to slag cement, fly ash, natural pozzolans, calcined clays, and silica fume. We also recommend that CARB establish a process that allows producers to petition to add a new material to the list of alternative materials that have the potential to reduce the clinker content of cement without sacrificing product performance.

- Amend the cap-and-trade regulation to recognize and incentivize the capture, sequestration, and/or utilization of carbon. The California cap-and-trade program does not include a protocol that exempts captured and sequestered or utilized carbon from compliance allocations. To address the lack of financial incentives, various stakeholders have recommended that CARB adopt the Low Carbon Fuel Standard ("LCFS") CCS protocol for the cap-and-trade program. Regardless of the particular method used, CARB should clarify how captured, sequestered, and/or utilized carbon will be treated under the cap-and-trade program in the future so that cement producers have sufficient predictability when considering long-term investments in CCUS.

- Expand the cement industry's access to and use of renewable natural gas ("RNG"). RNG is a critical component of decarbonization for the cement industry. Unlocking RNG usage for the cement industry provides a near-term pathway for the industry to meaningfully reduce its combustion-related emissions. Moreover, when derived from certain feedstocks, RNG has a negative carbon intensity, which means that RNG has the potential to play an important role in offsetting unavoidable industry emissions on the path to carbon neutrality. The development of policy solutions to prioritize RNG deployment in the cement industry aligns with both supply constraints and the optimal use of such supply. RNG supply is limited, especially compared to the fossil natural gas that it is intended to displace. To maximize climate benefits, RNG should be directed into industries with significant carbon footprints, high process heat requirements, and limited abatement alternatives. The cement industry fulfills all these conditions, and it also requires a relatively small amount of RNG to realize large reductions in industry emissions — just 8% of statewide RNG potential would be sufficient to cut the cement industry's combustion emissions in half.[8] The primary barrier for deployment in the cement industry is regulatory in nature. RNG production requires financial incentives to be economically viable. However, current regulations effectively restrict the use of RNG to the transportation sector and prevent more valuable applications of RNG (i.e., fuel for difficult-to-decarbonize industries). In California, the primary incentive for RNG production comes from LCFS credits that producers accrue when selling RNG

[8] Energy Futures Initiative. (2019) Optionality, Flexibility, and Innovation: Pathways for Deep Decarbonization in California. 66-67

products to transportation sector end-users. LCFS credits (combined with federal renewable fuel standard credits) are sufficiently high to disincentivize RNG production for other uses like cement production or other industrial applications.

- Remove barriers to using lower carbon alternative fuels, including biomass-derived and refuse-derived fuels. Although there is an abundance of biomass residue in California that the cement industry could use as a low carbon feedstock, the state lacks the necessary infrastructure and market to economically divert residue to industrial users. Biomass-derived fuels can drive GHG reductions up to 10-15% of total cement industry emissions by replacing fossil fuels without generating emissions that are new to the carbon cycle. However, barriers posed by regulatory uncertainty and permitting processes that expose the industry to litigation stymy progress toward substituting fossil fuels for biomass-derived fuels. Furthermore, permitting challenges, low landfilling costs, and unfavorable classifications of potential feedstocks create a challenging supply landscape for refuse-derived fuels in California, despite high volumes of refuse that would enable the cement industry to meaningfully reduce its fossil fuel use. California has adopted nominally ambitious statutory landfill diversion goals, but it has not implemented the necessary policies to make good on those goals. It is currently more cost effective to landfill solid refuse than to manage them in a more environmentally responsible manner by using it to power cement kilns.[9]

- Recognize and incorporate cement's role as a carbon sink into GHG accounting frameworks. According to the United Nations Intergovernmental Panel on Climate Change, "the uptake of CO_2 in cement infrastructure ([re]carbonation) offsets about one half of the carbonate emissions from current cement production."[10] The exact amount of CO_2 reabsorbed by cement depends on specific conditions, particularly the amount of cement in hydrated concrete that is exposed to the atmosphere when crushed and demolished at the end of its life. But the key point is that recarbonation represents a non-zero, non-trivial amount of the industry's GHG footprint, and therefore, CARB should incorporate recarbonation in its definition of net-zero emissions by: (1) amending its inventory of carbon sinks to include cement; (2) recognizing recarbonation in its definition of net emissions from the cement industry; and (3) factoring recarbonation into the metrics that it uses to measure the cement industry's progress toward net-zero emissions.

VI. CONCLUSION

The California cement industry does not support the proposed amendments to the cap-and-trade program, as presented and if applied to the cement industry, given that they will: (1) increase the uncertainty regarding future allowance prices; (2) undermine the predictability with respect to long-term decarbonization investments; and (3) increase the risk of leakage in the California cement industry. We recommend that CARB resist efforts to tamper with its recipe for success and to avoid significantly changing foundational program elements in the middle of the 2021-2030 implementation phase. Instead, CARB should

[9] The success of European Union efforts to direct refuse from landfill to cement kilns underscores the imperative of policies and incentives that prioritize waste-to-energy conversion. For instance, as of 2018, the cement industries in several European Union countries had replaced more than 40% of their fossil fuel combustion with refuse-derived fuels. See WBCSD Getting the Numbers Right Reporting Project, "Thermal energy consumption by fuel category" (25aAGFC).

[10] United Nations Intergovernmental Panel on Climate Change (2021). Assessment Report 6 Climate Change 2021: The Physical Science Basis.

remain committed to the core principles that have made the cap-and-trade program a resounding success to date, look for opportunities to optimize the program within the bounds of current foundational elements, and focus its limited resources on the ultimate goal of achieving carbon neutrality by 2045.

We look forward to continuing to work with CARB and other stakeholders to make California's signature climate program an economically feasible, efficient, and effective pathway to carbon neutrality for the California cement industry by 2045.

Sincerely yours,

Erika Guerra
Chair, Executive Committee
Coalition for Sustainable Cement Manufacturing & Environment

CC:

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