



June 27, 2023

The Honorable Dr. Steven Cliff
Executive Officer, California Air Resources Board
Sacramento, CA

Re: SB 596 - Cement Sector Net-Zero Emissions Strategy

Dear Dr. Cliff:

We write on behalf of the Decarbonized Cement and Concrete Working Group (“DC₂”) to offer our comments to the California Air Resources Board (“CARB”) on the Cement Sector Net-Zero Emissions Strategy (the “Cement Strategy”). The Cement Strategy has the potential to not only show how a single state can decarbonize the cement and concrete made and sold within its borders; it promises to demonstrate how governments throughout the United States and around the globe can act comprehensively to zero out the climate impact from the hardest to abate sectors.

The ultimate success of the Cement Strategy depends on incorporating a range of policy strategies, to achieve carbon reductions from the incumbent cement industry, where reform is long overdue; to optimize the use, mixing, and CO₂ content of cement and concrete; *and*, essentially, to accelerate the commercialization of newer cement and concrete technologies that promise even deeper, and more sustainable, emission cuts in the future. **Today, we write to underscore the importance of prioritizing policy solutions that will materially advance the production and scaling of, and market access for, ultra-low-carbon cement and concrete technologies, specifically through advance procurement commitments.** As explained below, such agreements represent the single most powerful policy strategy for eliminating market barriers and preventing truly transformational cement and concrete solutions from decarbonizing the industry.

DC₂ is a coalition of innovative companies at the forefront of the global effort to reduce carbon emissions from cement and concrete. Our ten current members—Biomason, Blue Planet Systems, Brimstone, CarbonBuilt, Chement, Fortera USA, Minus Materials, Queens Carbon, Sublime Systems, and Terra CO₂—are pioneering, North American venture- and private-sector-backed climate technology companies dedicated to delivering ultra-low-carbon, carbon-neutral, and carbon-negative cement and concrete solutions. Collectively, our technologies rethink production processes and feedstocks, introduce novel materials, and utilize or sequester CO₂ directly in concrete—all with the goal of decarbonizing the cement and concrete sectors. Four of DC₂’s founding members—Brimstone, Fortera, CarbonBuilt, and Blue Planet Systems—are based in California.

The leading, near-term carbon reduction strategies offered by the incumbent cement industry — such as adding limestone, calcined clay, or mixing cement with greater proportions

of blast furnace slag and coal-derived SCMs — are moves in the right direction, but many of these opportunities have been fully utilized or are limited in their impact. Collectively, these solutions are a good start, but will not help the industry achieve the level of carbon reduction required. New cement and concrete solutions, including those offered by DC₂ members, hold enormous promise for both zeroing out CO₂ in cement and concrete production and for permanently sequestering CO₂. Together, these solutions have the potential to achieve dramatic carbon reductions—and to eventually achieve the promise of carbon-negative construction. Bringing these solutions to market requires new low-carbon cement and concrete companies to satisfy a key prerequisite for commercial-scale financing: committed offtake, *i.e.* customers agreeing in advance to buy the future production of low-carbon cement or concrete plants.

We appreciate that SB 596 specifically directs CARB to evaluate new measures to overcome the market, statutory, and regulatory barriers standing in the way of decarbonizing cement and achieving net-zero greenhouse gas emissions in the sector, expressly directing CARB to “[e]valuate measures to support market demand and financial incentives to encourage the production and use of cement with low greenhouse gas intensity.” Certain structural barriers prevent even the most promising low-carbon cement and concrete startups from securing off-take commitments. First, the notorious boom-and-bust cycle of construction discourages private participants in the real estate market from entering long-term financial commitments. More fundamentally, it is government, not the private sector, that is the main purchaser of cement and concrete; in California, public agencies account for about 40 percent of all cement and concrete purchased annually. Accordingly, any financial underwriting will necessarily look to the government as the key source of cement and concrete demand.

Yet traditional public procurement in California and elsewhere in the United States—which focuses on individual projects put out for RFP, with materials specified, not directly procured—is not currently structured for advance purchases of commodities, such as cement or concrete. Indeed, the traditional menu of policy “fixes” for promoting low-carbon materials, such as new product specifications or “Buy Clean” incentives, may help products already in the market find traction. They will do nothing to scale up next-generation solutions, which depends first and foremost on entering firm, bankable purchase commitments from customers.

To enable the rapid development and scaling up of next-generation solutions to decarbonize the cement and concrete sectors, and to achieve California’s climate goals, advance procurement commitments are essential. Coupling these purchase commitments with other demand-side strategies, such as Buy Clean, can serve an important reinforcing function. Such alternatives, however, cannot replace the offtake agreements financial institutions require.

As a result, advance procurement commitments are increasingly seen as one of the most powerful strategies for accelerating the development and market entry of critical climate solutions. Earlier this year, the US Department of Energy identified the potential need for demand-support measures, such as advanced market commitments for low-carbon materials in a publicly released Request for Information (OCED-RFI-21-1). Moreover, using advance purchase agreements has long been the preferred approach for expanding clean energy generation; project developers leverage power purchase contracts from utilities, entered years in advance, to unlock financing for solar, wind, and other renewable projects. This is also the approach taken by the First Movers Coalition—a joint initiative of the Biden Administration and the World Economic Forum—which secured pledges from large private companies to use advance market

commitments to improve the market for certain low-carbon industrial materials, including cement and concrete. These private sector efforts, while important, are insufficient on their own to drive growth in the concrete market, given the dominant role of government procurement.

As one of the world's largest purchasers of cement and concrete, California has a tremendous opportunity to shape and develop the market for low-carbon cement and concrete both within and beyond its borders—to use its tremendous market power to strategically accelerate and scale up the production and availability of next-generation solutions. Establishing a public pathway by which California state agencies could enter advance procurement contracts would provide the most promising suppliers with the proof of demand they need to finance commercial production. At the same time, it would enable state agencies to establish a pipeline of ultra-low-carbon materials the state will increasingly need to meet its ambitious climate goals. Not only would this strategy help achieve the goals of SB 596, but place emerging California companies and their peers in other states at the epicenter of the global effort to decarbonize the cement industry.

Sincerely,
Decarbonized Cement & Concrete Working Group¹

¹ Correspondence can be directed to DC2@decarbonizedconcrete.org. Contacts and logos for member companies follow on the next page.

DC₂ Working Group Members



BIOMASON

Contact: Troy Hottle
troy.hottle@biomason.com



BRIMSTONE

Contact: Simon Brandler
simon@brimstone.com



chement

Contact: Gregory Houchins
greg@chement.co



**MINUS
MATERIALS**

Contact: Sarah Williams
sarah.williams@minusmaterials.com



Sublime Systems
Contact: Joe Hicken
joe@sublime-systems.com



Blue Planet

Contact: Laura Berland-Shane
laura@blueplanetsystems.com



CarbonBuilt
CARBON FOR GOOD

Contact: Sal Brzozowski
sbrzozowski@carbonbuilt.com



FORTERA

Contact: Kas Farsad
kfarsad@forterausa.com



**QUEENS
CARBON**

Contact: Daniel Kopp
daniel@queenscarbon.com



T E R R A
CO₂

Michele Blackburn
Contact: mblackburn@terraeco2.com