



July 31, 2024

Rajinder Sahota
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Re: Brimstone's Comments on the July 10th Workshop on Potential Amendments to the Cap-and-Trade Regulation

Dear Ms. Sahota:

Brimstone Energy, Inc. ("Brimstone") appreciates the opportunity to comment on the July 10, 2024, Cap-and-Trade Program Workshop. Brimstone strongly supports California's climate goals—most significantly achieving carbon neutrality and net-negative greenhouse gas emissions no later than 2045—and the efforts of the California Air Resources Board ("CARB") to achieve these objectives by strengthening and extending the Cap-and-Trade program. We look forward to continuing to collaborate with CARB to ensure that the program accommodates and effectively supports new, innovative industrial scale facilities, including those deploying transformational ultra-low-carbon cement and concrete technologies. These solutions are necessary both to achieve the state's overall climate goals as well as the additional requirements for the cement sector set forth in SB 596 (Becker).

We also note that accelerating industrial decarbonization, including in the cement sector, and also scaling novel carbon dioxide removal strategies, such as carbon mineralization, depend on various supporting policies. These include continued implementation of the Low Carbon Fuel Standard, SB 596 (Becker), SB 905 (Caballero) and the SB 27 (Skinner) carbon removal registry. The state must also advance industrial decarbonization through focused demand-side strategies, such as using advance procurement commitments to catalyze the scale-up of deeply decarbonized cement, concrete, and other building materials. This is proposed in SB 1073 (Skinner), which is currently pending in the California State Assembly.

About Brimstone

Brimstone is a California-based company, headquartered in Oakland, with a deeply decarbonized process for making ordinary portland cement ("OPC"), the type of cement used in virtually all construction today. OPC production rivals cars in terms of climate impact, accounting for 7.5 percent of global carbon emissions annually.

The Brimstone process uses carbon-free calcium silicate rocks, rather than limestone. This approach produces industry standard OPC (ASTM C150) while immediately avoiding 60

percent of emissions (i.e. the emissions that result directly from the heating of limestone). The process also co-produces another ingredient (supplementary cementitious materials), which independently reduces the carbon footprint of concrete. In March 2024, the Department of Energy's Industrial Demonstrations Program announced that Brimstone was selected to negotiate an award of up to \$189 million to construct its first commercial demonstration plant.

Cap-and-Trade Program should support decarbonizing cement sector, carbon removal

The Cap-and-Trade Program represents a linchpin for achieving California's climate change goals and decarbonizing the industrial sector, including the cement industry. We support strengthening the program in-line with AB 32 objectives of achieving maximum technologically achievable and cost-effective greenhouse gas reductions. We note, however, that scaling new low-carbon technologies from Brimstone and other leading industrial climate solutions takes significant capital. We appreciate the challenge of balancing market signals to encourage investments in deep decarbonization while providing runway for those technologies and facilities to come online, and we appreciate CARB staff hosting the workshop to invite stakeholder discussion as to how this balance may best be achieved.

Brimstone does not currently have specific feedback on the budget allocation scenarios presented. We offer, however, the following overarching comments and recommendations regarding development of the program:

- While the state has developed a wide array of policies and largely established the trajectory for reducing emissions from many sectors—including transportation, power, and building—progress for the industrial sector has been slower. Accordingly, accounting for the goals of SB 596 goals and the pace of industrial sector emissions reductions set out in the 2022 Scoping Plan, CARB should design an allowance allocation scheme based on projected emissions reductions and targeted trajectories for decarbonizing the industrial sector.
- Achieving deep industrial decarbonization will require significant investments and time to design, permit, and construct new infrastructure and facilities to provide low carbon fuels, capture carbon, and manufacture low-carbon cement and other materials. Calibrating the Cap-and-Trade Program to unlock value and spur private investment will be important to developing these critical industries in California.
- CARB should make it easy for new facilities to participate in, qualify for, and gain value from the program. This must include brand-new industrial facilities in their first years of operation (i.e. without baseline performance) as well as high-performing facilities that may not meet emissions thresholds required for coverage under the Mandatory Reporting Regulation ("MRR") or Cap-and-Trade.
- While we appreciate the role of carbon capture and sequestration in achieving California's climate change goals, CARB should avoid inadvertently incentivizing the unnecessary production (and subsequent capture) of carbon dioxide when alternative strategies exist that have a much lower baseline production of CO₂ or which avoid producing it entirely. In particular, CARB should ensure that the combined value of

federal tax credits, Cap-and-Trade allowances, and other potential value streams that accrue to carbon capture projects do not distort the market in favor of capturing carbon at existing facilities over developing new, low-carbon facilities that avoid the over-production of CO₂ from the outset. We encourage CARB to aim to provide at least equal treatment for potential new market entrants and technologies compared to existing facilities with carbon capture, through allowance allocation or other mechanisms to ensure a level playing field.

- For technologies and processes where carbon removal is inherent to the process of producing a given product, CARB should allow reporting of co-product carbon removal under the MRR. CARB should allow facilities to report potentially negative emissions under MRR and opt-in to the Cap-and-Trade Program and receive the total sum of allowances at the product benchmark and carbon removals associated with production of the product. Notably, OPC is the relevant baseline for concrete additions, such as SCM, that reduce the carbon footprint of concrete (e.g. by reducing the amount of OPC required).
- As CARB has proposed, Cap-and-Trade should define the production of OPC based on the final product (ASTM C150 OPC), not the input material (e.g., limestone).
- CARB should develop new offset protocols for carbon dioxide removal, including from mineralization, and incorporate them into the program.

Complementary policies, including advance market commitments, needed to decarbonize cement sector, achieve climate neutrality

Achieving deep decarbonization and SB 596 goals will require significant investments in transformational solutions, including bringing new cement and concrete solutions to market that can both zero out CO₂ in cement and concrete production and permanently sequester CO₂. Obtaining financing to scale these low-carbon cement and concrete solutions, however, requires demonstrating market demand to the satisfaction of financial underwriters or government. This market demand does not currently exist, as the large users of cement and concrete (primarily government agencies) do not procure these products based on climate impacts.

Committed offtake, where customers agree in advance to purchase the future production from a facility, is a key prerequisite for achieving the commercial-scale financing needed to decarbonize the cement sector and others. This financing model, such as through power purchase agreements, has long been the standard for clean energy. But it has not been applied to decarbonized cement and concrete solutions, thus complicating financing and project development.

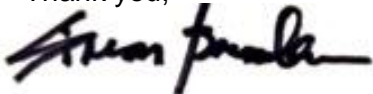
As CARB works through potential amendments to the Cap-and-Trade program, it is simultaneously implementing a number of additional policies that will help scale industrial decarbonization solutions. This includes development of a framework to achieve net-zero emissions in the cement sector under SB 596. We hope CARB will use those other forums, including the SB 596 process specifically, to elevate additional demand-support policies—including advance market commitments—to accelerate decarbonization of the industrial sector

and support the ambitions of the allowance allocation scenarios presented at the workshop. As CARB plots the appropriate allowance allocation budget and distribution, it should appreciate these opportunities to additionally support industrial sector decarbonization and move with confidence to develop and implement policies to achieve the Scoping Plan and related objectives.

Conclusion

Thank you again for the opportunity to comment on the recent Cap-and-Trade workshop. We look forward to working with you and other stakeholders through the Cap-and-Trade amendment process and other forums to accelerate industrial sector decarbonization and keep the state on track to meet and exceed its climate goals. Please do not hesitate to reach out if you have any questions about Brimstone or these comments.

Thank you,

A handwritten signature in black ink, appearing to read "Simon Brandler", written in a cursive style.

Simon Brandler

Vice President of Policy & Public Affairs