National Lime Association
LIME
The Versatile Chemical

August 5, 2011

Mr. Steven Cliff
California Air Resources Board
1001 "I" Street
Post Office Box 2185
Sacramento, CA 95812

Comments on CARB's July 25, 2011 Modified Text for the
Proposed California Cap on Greenhouse Gas Emissions & Market-Based Compliance Regulation

Dear Mr. Cliff

The National Lime Association (NLA) appreciates the opportunity to submit comments on the California Air Resources Board's (CARB) proposed regulations to implement the greenhouse gas cap-and-trade program authorized under Assembly Bill 32, the Global Warming Solutions Act of 2006 (AB 32). NLA is the trade association for manufacturers of calcium oxide and calcium hydroxide, collectively referred to as "lime." Our members produce more than 98% of the commercial lime produced in the United States.

AB 32 directs CARB to design all GHG emission-reduction measures, including market-based compliance mechanisms, in a manner that minimizes leakage to the extent feasible. [1] California's legislature defined leakage as "a reduction in emissions in greenhouse gases within the state that is offset by an increase in emissions of greenhouse gases outside the state." [2]

Our comments focus on the proposed rate of decline of the cap, or "Cap Adjustment Factor" (CAF) in Table 9-2. CARB has proposed that, for the cement industry, the rate of decline of the cap should be applied only to energy-related emissions because there is no method available to reduce so-called "process emissions". Our comments explain that the same approach should be adopted for the lime industry because our process emissions are similarly irreducible, and comprise even a greater percentage of total GHG emissions. Furthermore, lime produced in California has a lower GHG intensity than virtually all other lime produced in the United States. If the lime industry in California is subject to an unduly severe CAF, lime production will undoubtedly relocate to states or countries that do not face comparable GHG regulations. Such displacement of lime production and jobs outside the state expressly contravenes AB 32's mandate to minimize leakage to the extent feasible.

[1] Health and Safety Code (HSC) § 38562(b)(8).
[2] HSC § 38505 (j); *see* Statement of Reasons at II-26.

CARB's Proposed Allowance System to Minimize Leakage

To address the risk of carbon leakage in the industrial sector, CARB has proposed to allocate allowances according to an output-based benchmarking system. The quantity of allowances (A) allocated to an industry is calculated as follows:

$$A = O \times B \times \alpha \times C$$

Where:

O = an entity's output
B = an industry's GHG intensity benchmark
α = the transition & leakage assistance factor, which is based on an industry's leakage exposure
C = cap adjustment factor (CAF), which declines in proportion with the economy wide-cap

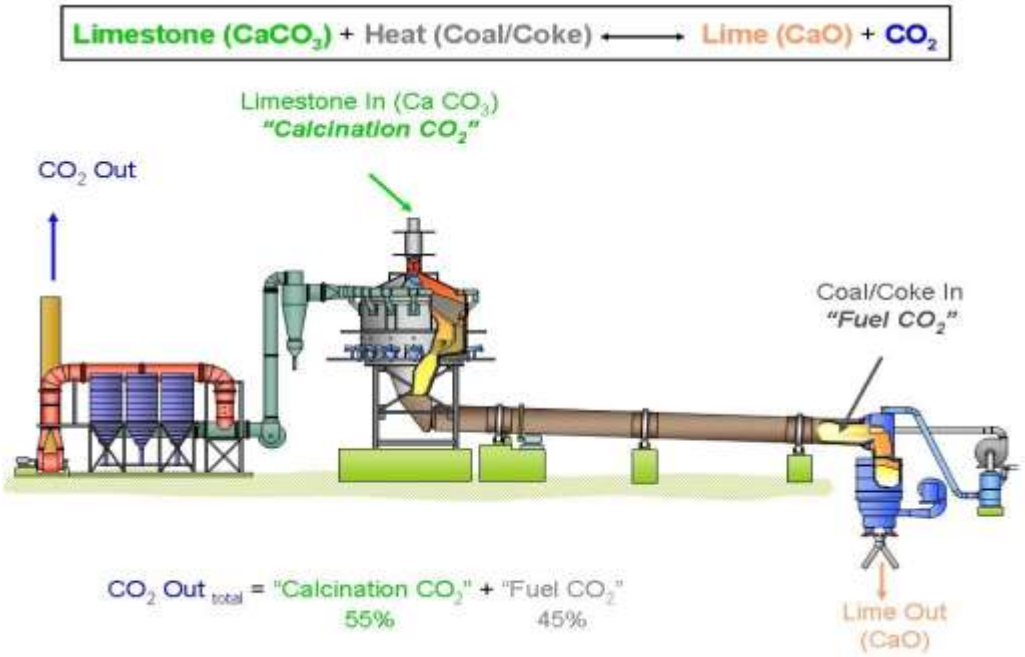
For most industries, CARB has proposed a CAF that declines in equal increments from 1.0 to .85 between 2013 and 2020 (roughly 1.8% per year). However, for the cement industry, CARB has proposed a different CAF that declines at half the rate used for other industries (i.e., 0.9 percent per year). CARB's rationale for this approach is as follows:

> More than half of the emissions from clinker production result from **"chemical processes** " in the creation of the cement itself, with no direct method available for reducing emissions intensity of this chemical process (emphasis added). For this reason, staff is providing a separate rate of decline: in effect applying the cap decline factor only to the energy use portion of the industries' emissions. [3]

The "chemical process" in the creation of cement referred to by CARB staff (i.e., release of CO_2 from limestone, or $CaCO_3$, also known as "calcination") is the same process inherent in the production of lime. The U.S. lime industry's calcinations emissions comprise roughly 55% of total GHG emissions, as illustrated on the next page.

The illustration depicts the use of coal/coke because, at the national level, more than 95% of lime is manufactured in kilns that use coal and/or coke as the primary fuel. However, because lime in California is produced with non-solid fuels, which are less GHG intensive than coal or coke, calcination emissions from the lime produced in California represent a higher percentage of total GHG emissions than the national average. Specifically, calcination emissions for lime produced in California comprise about 60% of total GHG emissions.

[3] CARB Appendix J: Allowance Allocation, at J-40.



The Lime Industry in California has a Disproportionately High Risk of Leakage

The sole rationale that CARB has offered for developing a special CAF for the cement industry is that roughly half the cement industry's GHGs are irreducible. On this score, the lime industry is indistinguishable from the cement industry. Carbon capture and storage (CCS) is generally conceded to be unavailable for at least a decade, and will take even longer to scale down to plants of the size used in the lime industry. In the absence of CCS, only a small fraction of the lime industry's emissions are reducible through technologically feasible and cost-effective measures. Like the cement industry, the lime industry would need to decrease fuel -related emissions at more than twice the rate of decline of the overall cap in order for the industry to "keep pace with" the CAF proposed for all industries except the cement industry.

Comments submitted to CARB by the Coalition for Sustainable Cement Manufacturing & Environment (hereinafter referred to as the "Cement Coalition") suggest that the cement industry alone requires a special CAF because it has a "unique" set of characteristics that places it at an extreme and disproportionately high risk of leakage. [4] The Cement Coalition describes three characteristics as giving rise to this uniqueness: "Unparalleled" High GHG Intensity, High Trade Exposure, and Substantial Irreducible Process Emissions. As explained below, the lime industry in California likewise has an extreme and disproportionately high risk of leakage, and thus should also be afforded an industry-specific CAF that recognizes the irreducible nature of more than 50 percent of the industry's GHG emissions and the attendant high risk of leakage faced by the lime industry.

GHG Intensity: Under CARB's regulations, an industry's GHG Intensity is measured in terms of metric tons of CO_2e per million dollars of value added (CO_2e/$M value added). The Cement Coalition has pointed out that:

[4] Cement Coalition letter to Susan Kennedy, Office of Governor Arnold Schwarzenegger, October 20, 2010.

> [t]he cement industry's GHG intensity is estimated to be **13,744** metric tons of CO_2e per million dollars of value added -- almost three times higher than CARB's "high" GHG intensity threshold and more than three times higher than the GHG intensity of the next most emissions-intensive industry (iron and steel mills).[5]

However, the Cement Coalition's analysis omits the lime industry.[6] As set forth in Appendix K to CARB's proposed regulation, the lime industry's GHG intensity is estimated to be **29,398** CO_2e/$M value added, more than twice that of the cement industry.[7]

Trade Intensity: Under CARB's proposed regulations, trade intensity is defined as the value of a sector's imports and exports, divided by the value of its shipments and exports. CARB has classified the lime industry's trade intensity as low (and the cement industry's as medium). [8] However, as recognized by CARB, in assessing an industry's overall exposure to carbon leakage, GHG intensity is far more important than trade intensity. [9] The reason for this is simple. Even if a sector is currently not exposed to foreign competition, imports from states not subject to carbon constraints (as well as foreign countries) are inevitable if a sector's GHG –related costs in California increase substantially.[10]

It is a virtual certainty that the lime industry's GHG-related costs in California will be very substantial. The industry has an extraordinary GHG intensity, and more than half of its GHG emissions are irreducible. Moreover, unlike the cement industry, the lime industry in California is already using non-solid fuels, therefore foreclosing GHG reduction opportunities through fuel switching.

The CAF Should be Applied Only to Energy-related GHG Emissions

As demonstrated above, the lime industry in California is more vulnerable to carbon leakage than the cement industry. To minimize this vulnerability, the proposed special CAF for the cement industry in Table 9-2 should be extended to the lime industry.

Alternatively, CARB should exclude process emissions from the CAF for all industries. Unlike energy-related emissions, there is no practical technology for capturing or sequestering them. Purchasing allowances for process emissions will result in tremendous increases in the cost of these commodities, harming the industries' customers in essential industries. These increased costs will not encourage measures to reduce process emissions, because the only way to reduce them is to curtail

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[5] Cement Coalition Final Comments on CARB's Oct. 28, 2010 Proposed Cap-And-Trade Regulation and Supporting Document, December 15, 2010, at 6.

[6] The lime industry was omitted not only from the Cement Coalition's analysis in its December 15, 2010 comments, but also from a graph attached to the Coalition's October 20 comments to Susan Kennedy, Governor Schwarzenegger's Chief of Staff (attached). The Cement Coalition used this graph to depict the cement industry's GHG intensity as "unparalleled," and presented it to Ms. Kennedy at an October 13, 2010 meeting. *See* attachment, at 1.

[7] CARB Appendix K, Leakage Analysis, Table K-4.

[8] CARB Appendix K, Table K-7.

[9] *See* CARB Appendix K, at K-14

[10] For this reason, in addition to a two-pronged test to address leakage, which evaluates both a sector's GHG intensity and trade intensity, the cap-and-trade system under both the EU ETS and the American Clean Energy and Security (ACES) Act of 2009 (H.R. 2454) contain an alternative, single-pronged test that provides free allowances to sectors that have an especially high level of GHG intensity, even if the sector is not presently exposed to import competition.

manufacturing, which will cost jobs, sending production overseas and to states other than California. Furthermore, this leakage will result in significantly greater overall GHG emissions because lime production will relocate to facilities using coal and coke, as opposed to the non-solid fuels used in California.

The lime industry believes that excluding all process emissions is a preferable approach because it is based, not on qualitative judgments as to how disproportionately large an industry's vulnerability is to leakage, but rather on what CARB staff intended to do, i.e.,

> . . . provid[e] a separate rate of decline: in effect applying the cap decline factor only to the energy use portion of the industries emissions. [11]

However, if CARB disagrees, at a minimum, Table 9-2 must be revised to apply the special, less stringent cement industry CAF to the lime industry in order to comply with AB 32's mandate to minimize leakage.

Thank you in advance for considering these comments. If you have any questions about them, please do not hesitate to contact me at 703 243-5488 or aseeger@lime.org

Sincerely,

Arline M. Seeger
Executive Director

cc: Mihoyo Fuji
David Kennedy

[11] CARB Appendix J: Allowance Allocation at J-40.

COALITION FOR SUSTAINABLE CEMENT MANUFACTURING & ENVIRONMENT
1029 J Street, Suite 300, Sacramento, CA 95814

October 20, 2010

Ms. Susan Kennedy, Chief of Staff
Office of Governor Arnold Schwarzenegger
State Capitol Building
Sacramento, CA 95814

Re: October 13, 2010 Meeting with the California Cement Industry Regarding Implementation of AB 32

Dear Ms. Kennedy:

On behalf of the Coalition for Sustainable Cement Manufacturing and Environment ("CSCME"), I thank you for the opportunity to express our concerns about CARB's draft staff plan for implementation of AB 32. CSCME has worked constructively with the state of California over the last three years to develop an environmentally-effective, economically-efficient, and equitable regulatory framework.

A statutory requirement of AB 32 is the minimization of leakage. Minimizing leakage is not only a necessary element for the statutory success of GHG reductions, but is also of paramount importance to maintaining the viability of the California cement industry and preserving a sustainable and reliable supply of cement to meet the state's demand for public and private infrastructure construction. Moreover, due to the substantial transportation-related GHG emissions required to ship cement long distances, a ton of cement produced in California will always be cleaner than a ton of cement shipped to California from outside of the United States. Thus, a program design that avoids leakage in the cement industry must be a primary goal of AB 32.

THE CEMENT INDUSTRY IS AT HIGH RISK OF LEAKAGE

As we discussed, the cement industry has an extraordinarily high exposure to carbon leakage due to three predominant characteristics:

(1) Extraordinarily High GHG Intensity: As demonstrated on the attached graph (presented at the 10/13/10 meeting), the California cement industry's GHG intensity is unparalleled.

(2) High Trade Exposure: The industry's vulnerability to import competition has been extensively documented by the U.S. International Trade Commission ("ITC"). The ITC found that the elasticity of substitution between U.S. and imported cement is in the range of 4 to 8. Put in perspective, if the cement industry attempted to pass through a carbon price of only $20 per ton, imports would increase by a staggering 100 to 200 percent.

(3) Substantial Irreducible Process Emissions: Approximately 59% of the cement industry's direct GHG emissions are process emissions, which are an unalterable consequence of the chemical process required to convert limestone into cement clinker. In the absence of carbon capture and storage technology, only a small fraction of the remaining 41% of emissions are potentially reducible

through technologically-feasible and cost-effective measures (CCS technology is generally conceded to be unattainable before 2020).

Many California industries exhibit one of these characteristics, and some exhibit two; however, the cement industry is the only California industry that exhibits all three characteristics - a combination that results in an extraordinarily high risk of leakage.

CARB OCTOBER STAFF REPORT - EFFORTS TO REDUCE THE RISK OF LEAKAGE

As discussed, we are continuing to have discussions with CARB on many open issues that will impact the allocation of free allowances. Although we are hopeful that we can reach agreement on a framework that will minimize leakage, the proposal that CARB presented to us would expose the industry to a very high risk of leakage. In this regard, it is important to note that each individual element of CARB's proposed formula impacts the final quantity of free allowances and thus the level of leakage protection. As we discussed at the meeting, it is also important to realize that any uniform adjustment across all industries has a disproportionately higher impact on compliance costs for those industries with high emission intensities, effectively diluting the level of leakage protection. With respect to the cement industry, CARB confirmed that the following elements will be reflected in the October Staff Report:

(1) The application of the full leakage assistance factor to reflect that the cement industry is in the high leakage risk category;

(2) The use of a cement output metric (clinker, gypsum, and limestone);

(3) Reducing the amount of the cap adjustment factor to ensure equitable treatment of the industry due to its high process emissions (the amount was not stated, but the cap adjustment is presumed to be reduced by the average industry process emissions of approximately 59%); and

(4) A California industry average carbon intensity benchmark reduced by a uniform 10% benchmark adjustment factor starting in 2012.

Our principle concern is with the last element of CARB's proposal -- a 10% uniform reduction in the intensity benchmark for all industries. This not only imposes a much more stringent benchmark on the cement industry than other industries due to our high level of process emissions, but is also an approach that counteracts effective leakage protection for the following reasons:

- It is arbitrary and bears no relation to the cement industry's assessed leakage risk or its ability to attain such a target through technologically-feasible and cost-effective abatement options.

- It is implemented immediately in 2012 and as such does not provide the industry with any transition to meet what is an unattainable objective.

- It does not reward early actions or other additional investments in energy and carbon efficiency (relative to other plants in the United States) already taken by the California cement industry.

- Because the benchmark does not include indirect emissions, the industry would face leakage risk if it does not receive sufficient rebates from local distribution companies to cover the increased cost of power resulting from AB 32.

Indeed, CARB's proposed 10% reduction to the benchmark is far more aggressive than leading climate change proposals at the federal level (*e.g.*, Waxman-Markey and Kerry-Lieberman), which envision free allowance allocations beyond the 2020 timeframe that are up to 100% of each industry's average GHG intensity.

Furthermore, CARB has signaled that, despite confirmation from counsel in both CalEPA and the Attorney General's office that there are no legal obstacles to doing so, it is unwilling to implement an incremental border adjustment for imported cement but rather intends to monitor imports and react to leakage by adjusting elements of its framework in the future, after irreversible harm has already been done. A border adjustment is essential to enabling California producers to pass through to consumers the immediate costs associated with CARB's current approach to GHG reductions.

ESSENTIAL CHANGES TO REDUCE THE RISK OF LEAKAGE

Ultimately, CARB's proposed benchmark would expose the cement industry to immediate and irreparable harm when the regulations become effective in 2012. The majority of, if not all, cement producers will incur significant compliance costs that will not be faced by imports, placing domestic cement at a competitive market disadvantage within the first year of the program. Moreover, the imbalance in favor of imports will grow due to the combined multiplier effect of the unachievable benchmark factor multiplied by the continuing annual reduction of the cap adjustment factor; none of which will be imposed upon imported cement.

Accordingly, to avoid causing irreversible harm to the industry and undermining the state's climate change objectives, CSCME requests your assistance in ensuring that CARB:

(1) Establishes a benchmark factor for process-related emissions between 2012-2020 that is equal to 100% of the California cement industry average GHG intensity for such emissions (i.e., process-related GHG emissions per ton of output);

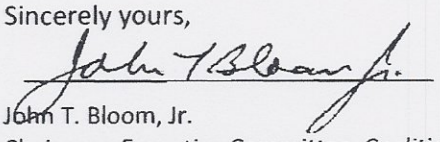
(2) Establishes a benchmark factor for combustion-related emissions in 2012 that is equal to 100% of the California cement industry average GHG intensity for such emissions (i.e., combustion-related emissions per ton of output);

(3) Delays any reduction in the benchmark factor for combustion-related emissions until an incremental border adjustment for imported cement is implemented;

(4) In the event that an incremental border adjustment is implemented, ensures that the benchmark factor for combustion-related emissions is reduced gradually to 90% in 2020.

We would like to continue working cooperatively with you and CARB to establish a climate change regulatory program for the cement industry that minimizes leakage and can serve as a model for the United States and for other countries.

Sincerely yours,



John T. Bloom, Jr.
Chairman, Executive Committee, Coalition for Sustainable Cement Manufacturing & Environment
Vice President & Chief Economist, U.S. Operations, Cemex

CC:
Dan Pellissier, California Governor's Office
Linda Adams, California Environmental Protection Agency
Michael Gibbs, California Environmental Protection Agency
Mary Nichols, California Air Resources Board
James Goldstene, California Air Resources Board
Kevin Kennedy, California Air Resources Board

GHG Intensities by Industry
(GHG Emissions per Million $ Value Added)