Coalition for Sustainable Cement Manufacturing & Environment
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June 10, 2016

Ms. Mary Nichols
Chairman
California Air Resources Board
1001 "I" Street
Post Office Box 2815
Sacramento, California 95812

Subject: **Comments on May 18, 2016 Public Workshop on Emissions Leakage Potential Studies**

Dear Ms. Nichols:

The Coalition for Sustainable Cement Manufacturing and Environment ("CSCME"), a coalition of all five cement manufacturers in California,[1] provides these comments on the California Air Resources Board's ("CARB's") May 18, 2016 Public Workshop on Emissions Leakage Potential Studies.

Based on the data and information provided in the leakage studies and in CARB's workshop presentation, CSCME is unable to comment fully on the quality of the leakage studies, their relevance to the California cement industry, and their utility to a transparent, robust, and valid classification framework necessary to minimize the risk of leakage under AB 32. The data and information presented in the studies and the workshop are incomplete and insufficient for this task. Accordingly, CSCME must necessarily limit its comments to (1) a summary of several fundamental and immediate concerns based solely on the information presented in the studies and the workshop and (2) an initial set of data and information requests regarding the domestic and international leakage studies, and further reserves the right to provide additional comments on CARB's proposals.

CSCME looks forward to receiving additional data and information in response to its requests and to providing substantially more detailed comments regarding the leakage studies and their proposed role in addressing the California cement industry's significant risk of leakage.

[1] The Coalition includes CalPortland Company, Cemex, Inc., Lehigh Southwest Cement Company, Mitsubishi Cement Corporation, and National Cement Company of California Inc. There are ten cement plants located in California, eight of which are currently operating.

A. FUNDAMENTAL AND IMMEDIATE CONCERNS WITH THE LEAKAGE STUDIES

According to CARB, the leakage studies presented at the May 18, 2016 workshop "will inform staff's proposal for assessing leakage risk and updating assistance factors for allocation starting in the third compliance period (vintage 2018 allowances)."[2] CARB also indicated that it will be "{r}eplacing old metrics with new metrics" developed in the studies.[3] Based solely on the limited data available in the studies and the limited time provided to review and analyze the studies, CSCME has fundamental and immediate concerns with CARB's approach, including:

- CARB is proposing to replace two existing metrics (greenhouse gas ("GHG") intensity and trade exposure) that are transparent and independently verifiable with two new metrics (domestic value added loss and international market transfer rate) that are neither transparent nor independently verifiable. CSCME believes that any leakage classification framework must be based on data that is transparent and can be independently verified by regulators, the regulated community, and other interested parties.

- CARB is proposing to issue revisions to the allowance allocation methodology in July 2016 for the third compliance period based solely on the results of two studies that took five years to conduct and were just released in May 2016. This timetable raises critical questions about whether CARB staff and interested parties are being provided sufficient time to review the studies, ask clarifying questions, understand the data sources and methodologies employed, consider the results, and assess their value and application in the context of an allowance allocation framework.

- According to CARB, these studies break new ground in existing research. Although CSCME applauds CARB and the researchers for pushing the boundaries of existing research, it raises critical questions about the robustness of the results and whether the conclusions will stand the test of time. CSCME believes that, at a bare minimum, prudent policymaking should be based on analysis that has been subjected to an objective peer review process, results that have been replicated by other research, and conclusions that are relatively insensitive to assumptions, model specifications, and the range of other decisions made by the individual researchers.

- According to CARB, the proposed new metrics "more precisely measure leakage."[4] CARB's conclusion and its proposal to apply the results of the studies effectively ignore the studies' limitations, as openly acknowledged by the studies' authors. This is especially true with respect to applying the results of the international leakage study and, in particular, the international transfer rate. For instance, CARB proposes to use the international transfer rates as the basis of allowance allocation decisions despite the extensive caveats offered by the authors of that study, including:

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[2] CARB Workshop Presentation, Cap-and-Trade Regulation 2016 Amendments: Public Workshop on Emissions Leakage Potential Studies, May 18, 2016 ("CARB Workshop Presentation"), at 11.

[3] CARB Workshop Presentation at 18.

[4] CARB Workshop Presentation at 18.

- *"The natural next step, from the perspective of a policy maker looking to assess leakage risk and target leakage mitigation measures, is to translate these responsiveness measures to corresponding measures of market transfer and associated emissions leakage.* ***However, pushing on to this next step amounts to pushing up against the limits of available data****."*[5]

- *"One complication is that calibrating the measures of leakage risk implied by the theory* ***requires dividing one noisy estimate by another****. Other caveats include the fact that we cannot directly observe foreign production and instead* ***employ an imperfect proxy****. In what follows, we describe a conceptually consistent,* ***albeit noisy and caveated****, derivation of leakage risk measures."*[6]

- *"****Given the noisiness of these estimates, we cannot estimate the transfer rate for any given industry with any degree of confidence****."*[7]

- *"****A ratio of noisy numbers can be very noisy****; our industry-specific estimates of market transfer rates are sensitive to changes in how the underlying estimating equations are specified."*[8]

- *"Finally, we use our elasticity estimates to calibrate upper bounds on market transfer rates and associated leakage potential.* ***The imprecision of our estimates makes it difficult to estimate leakage potential for any particular industry with any degree of precision****. That said, looking across industries, clear patterns emerge. Consistent with CARB's policy, this study's leakage estimates are highest for those industries classified as 'high' risk of leakage[.]"*[9]

CARB should avoid applying the results of the studies in a manner that ignores their known limitations and goes beyond their practical utility.

- In discussing the studies during the workshop, CARB offered the blanket assertion that their proposed approach is "conservative" with respect to leakage risk.[10] Although CSCME does not have a view on whether this assertion is true for other industries, it is certainly not true for the California cement industry. For instance, neither study fully considers the impact of process emissions, which constitute the majority of GHG emissions in the California cement industry.[11] As a result, the effects

[5] Meredith Fowlie, Mar Reguant, and Stephen P. Ryan, "Measuring Leakage Risk," May 2016 ("International Leakage Report"), at 38 (emphasis added).

[6] International Leakage Report at 38 (emphases added).

[7] International Leakage Report at 39 (emphasis added).

[8] International Leakage Report at 39 (emphasis added).

[9] International Leakage Report at 7 (emphasis added).

[10] CARB Workshop Presentation at 25.

[11] The International Leakage Report casually considers the impact of process emissions in an ancillary analysis (see Table 11), while the Domestic Leakage Report implicitly assumes that there is no compliance cost associated with process emissions (see discussion at 16).

of a given carbon price on the cement industry is likely to be at least twice as large as the primary estimates presented in the studies. It is critical that process emissions be fully considered when assessing an industry's exposure to leakage.

- The studies are based on historical relationships and observed outcomes. It is not clear that the conditions that prevailed during the timeframes studied, which encompass an unprecedented bursting of the housing bubble and severe economic recession, remain or will remain applicable to the California cement industry, which is still wrestling with the remnants of a sluggish economic recovery and operating in a global marketplace that is plagued by overcapacity. Accordingly, CARB should be especially sensitive to the fact that past performance (i.e., "what has happened") is not necessarily a good predictor of future outcomes (i.e., "what will happen"), especially if the underlying conditions of competition have substantially changed.

- Both studies effectively assume that an industry's response to a given decline in energy costs will be similar to its response to an identical increase in carbon costs. However, an industry's response could be fundamentally different if decision makers believe that changes in operating costs are more likely to be temporary (e.g., changes due to market-driven fluctuations in energy costs) as opposed to permanent (e.g., changes due to a policy-driven increase in carbon costs). Neither study appears to substantiate the critical assumption that the response to these fundamentally different types of operating cost "shocks" is likely to be symmetrical.

- Finally, regardless of whether CARB maintains the existing two metrics or substitutes them with results from the studies, it will still be taking an exceptionally narrow view of the various factors that contribute to leakage risk. CSCME recommends that CARB develop a more robust leakage assessment framework that considers a wide range of factors, including:

    - an industry's exposure to compliance costs;

    - an industry's ability to reduce its exposure to compliance costs by the availability of technologically feasible and cost effective abatement opportunities; and

    - an industry's ability to pass through realized compliance costs, which is dictated by a range of factors, including:

        - the substitutability of the product,

        - the price sensitivity of customers,

        - the contestability of the market, and

- competitor incentives and behavior, which – for the cement industry – are characterized by the capital-intensive nature of the industry and the existence of worldwide overcapacity in the industry.[12]

B. PRELIMINARY QUESTIONS

CARB announced that it will propose updates to assistance factors in the initial regulatory change proposal to be released in July 2016 and will present proposed changes to the Board at the September 2016 Board hearing. In order to facilitate the necessary transparency in the regulatory development process and to enable CSCME to comment effectively, we provide the following requests to CARB for data and information used in the leakage studies. CSCME requests this data and information as soon as possible given the substantial scope and complexity of the leakage studies and the compressed timeframe in which CARB plans to apply the results of the studies to change the methodology applied to minimize the risk of leakage to the California cement industry.

Domestic Leakage Study (Gray et al.)

1. Can you identify/confirm which table contains the data series that CARB intends to use to assess "Domestic Value-Added Loss" (e.g., Table 5, Table A1, or some other table)?

2. How is CARB planning to adjust the data to account for process emissions?

3. How are coal prices considered in the analysis? To what extent are the results applicable to an industry that primarily relies on coal (i.e., electricity and natural gas prices constitute a relatively small share of energy and operating costs)?

International Leakage Study (Fowlie et al.)

1. Figure 8 provides a heat map of international market transfer rates, but there does not appear to be a table that reports the rate for each industry. Could you please provide that data by industry?

2. Figure 8 uses energy intensity along the y-axis, but there does not appear to be a data table that reports energy intensity for each industry. Could you please provide that data by industry?

3. Figure 8 uses trade exposure along the x-axis, but there does not appear to be a data table that reports trade exposure by industry. Could you please provide that data by industry?

4. There does not appear to be a table in the study that reports production for each industry, which makes it impossible to verify the calculation of the international market transfer rate. Could you please provide that data by industry (similar to the data on exports and imports provided in Table 3)?

[12] *See* CSCME's "Comments Related to the Risk of Leakage in the Cement Sector" and Appendix submitted to CARB on March 10, 2016 (see attached).

5. Table 3 does not appear to list the units for export and import value. Please identify the units or confirm that the export and import value is specified in millions of dollars.

6. Table 11 provides estimated impacts for certain industries with and without process emissions. Could you please provide data on the process emissions used in those calculations, as well as the source(s) for that data?

7. CARB released an updated/revised version of the study, noting that "Revised International Report updates Figure 8 and corrects miscellaneous typos." However, we noticed that there were additional industries added to the charts in Figure 7. Were there any other material revisions to the paper?

8. Tables 6 and 7 report statistical results for the pooled dataset across output, import, and export values and a variety of specifications. Our understanding is that the industry-specific results were estimated in a similar fashion.

   a. If our understanding is correct, could you please provide a similar table for the cement industry, including coefficients, t-stats, R2, and number of observations for output, imports, and exports?

   b. If our understanding is incorrect, could you please elaborate on the analytical process and mechanics used to generate industry-specific estimates, as well as provide the relevant statistics that support any degree of confidence in those estimates.

   (Note: To the extent that providing industry-specific data may trigger a review regarding data disclosure, we would appreciate a qualitative explanation of the estimation process for industry-specific results and/or the number of observations used in estimating results for the cement industry.)

9. The study does not appear to include an explicit statement regarding the data timeframes. Based on various figures in the study (e.g., Figure 4), it appears that the dataset begins in 1997 and ends in 2012, but we could not find an explicit reference to the specific data timeframes in the text of the study. Could you please provide the data timeframe used to estimate the industry-specific elasticities?

10. The note in Table 3 suggests that the table summarizes trade data for 2010-15. Why is the import and export data represented in this table not from the same timeframe as that used to conduct the analysis? In addition, could you please clarify whether the data in this table was used in the analysis or is simply presented in Table 3 for illustrative purposes only?

11. How are coal prices considered in the analysis? To what extent are the results applicable to an industry that primarily relies on coal (i.e., electricity and natural gas prices constitute a relatively small share of energy and operating costs)?

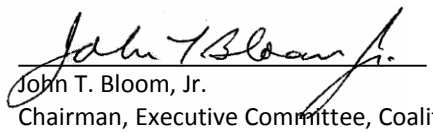
12. Does the analysis use or consider demand elasticities in any fashion? If so, what was the demand elasticity used for the cement industry?

C. CONCLUSION

As noted above, CSCME has fundamental and immediate concerns with CARB's proposal to apply the results of the leakage studies to revise the allocation methodology applicable to the cement industry. CSCME also requests that CARB facilitate CSCME's ability to comment effectively on the leakage study and CARB's proposal by providing additional data and information as highlighted in the above questions.

CSCME continues to look forward to working with CARB to achieve California's climate change objectives while minimizing the significant adverse effects of leakage on the California cement industry.

Sincerely yours,



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