Commentary on SB 596 from Building Transparency

Building Transparency is a nonprofit organization whose mission is to provide open access data and tools necessary to enable the building and construction industry to reduce its embodied carbon footprint. Essential to this mission is advocating for policy that facilitates fair and science-based decarbonization actions in the construction sector.

SB 596 has the potential to positively affect the greenhouse gas (GHG) emissions landscape from California’s cement industry. Thus, it is critical that the rules surrounding GHG accounting and the 2019 benchmarking process are appropriate, justified, and align with established scientific precedent in this field.

The following are Building Transparency’s suggestions related to development and implementation of SB 596.

1. **Leverage the existing knowledge base of the field of life cycle assessment (LCA) as the accounting methodology for GHG emissions**

In particular, international standards (*e.g*. ISO 21930:2017) have led to standardized rules for LCA of products called Product Category Rules (PCRs). PCRs allow for the creation of environmental product declarations (EPDs), which report the environmental impacts (including the global warming potential) of products. The benefit of PCRs is that they provide established accounting rules such that product EPDs published using these PCRs are comparable to one another. Using LCA for quantifying GHG emissions for cement products allows for a readily adoptable methodology for the 2019 baseline created for SB 596.

Furthermore, the North American PCRs for cement[[1]](#footnote-1) and slag cement[[2]](#footnote-2) have already established methods for such complicated accounting considerations as treatment of waste fuels, by-product raw materials, and allocation of inputs, outputs, co-products, and waste. Notably, only two cement plants in California have product-specific EPDs for their cement products thus far. Calculating a baseline emissions profile of the cement plants in California is a critical first step to decarbonization efforts. Creating EPDs and/or third party reviewed LCAs should be the only accepted methodology for assessing greenhouse gas emission profiles of cement products.

1. **Support and contribute to further improvements to the cement PCR and related PCRs for upcoming technologies that reduce GHG emissions.**

SB 596 provides a great opportunity to refine PCRs to account for GHG emissions reductions from upcoming decarbonization technologies. For instance, there is currently a need for the cement PCR to quantify emissions reductions from technologies such as carbon capture utilization and storage (CCUS) and other emerging cement decarbonization technologies.

1. **Scrutinize proposed decarbonization levers with a critical lens and conduct requisite LCAs**

Many decarbonization levers have been proposed, but the most conspicuous options are not always the most beneficial levers for decarbonization. For instance, switching to alternative fuels is a highly discussed lever for reducing emissions. However, the term ‘alternative fuels’ encompasses a wide range of fuel types that should not be aggregated into one category. It is possible for certain alternative fuels to significantly reduce GHG emissions (*e.g.* fast-growing biogenic wastes like husks or shells). However, many other sources of alternative and waste fuels may not significantly reduce GHG emissions as fuel sources for a variety of reasons. For instance, if waste fuels are from fossil-derived waste, slow-growth biogenic material, or are associated with high moisture contents, then overall GHG emissions from these fuels are often higher than traditional kiln fuels. **Substituting these types of fuels, while well-intentioned, actually increases GHG emissions**. A robust, third-party LCA on cement production using different waste fuels should be conducted; this is the most scientific and defensible way to compare GHG emission reductions.

Contrastingly, using high efficiency kiln technologies are less discussed because they have high capital costs and are less trendy, but overall are highly effective in reducing GHG emissions from cement production. Although California’s cement plants utilize preheater and precalciner kiln technologies, they do not employ the state-of-the art, energy-efficient technologies that have been deployed in recent years in countries like India and China[[3]](#footnote-3). Subsidizing and supporting improvements in efficiency are worthwhile investments.

1. PCR for Portland, Blended, Masonry, Mortar, and Plastic (Stucco) Cements v3.2. NSF International (2020). <https://www.cement.org/docs/default-source/pcr-2020/pcr-portland-cement-2020.pdf?sfvrsn=9acee2bf_2> [↑](#footnote-ref-1)
2. PCR for Slag Cement v2.0. NSF International (2020).

 https://www.slagcement.org/Portals/11/xBlog/uploads/2021/2/25/PCRSlagCement-2020.pdf [↑](#footnote-ref-2)
3. Hasanbeigi, Ali, Cecilia Springer, "California’s Cement Industry." ClimateWorks Foundation (2019). https://www.climateworks.org/wp-content/uploads/2019/02/CA-Cement-benchmarking-report-Rev-Final.pdf [↑](#footnote-ref-3)