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**Public Comment on EPIC 5 Investment Plan Building
Decarbonization Initiative Matt Roberts**

Additional submitted attachment is included below.

Public Comment on EPIC 5 Investment Plan: Building Decarbonization Initiative

Submitted by: Matt Roberts, Center for the Built Environment, UC Berkeley

Re: EPIC 5 Building Decarbonization Initiative

Thank you for providing the opportunity to comment on the EPIC 5 Building Decarbonization Initiative. I encourage the CEC to expand the Building Decarbonization Initiative to explicitly consider and include whole-life carbon and embodied carbon considerations that are quantified using life cycle assessment (LCA). Whole-life and embodied carbon will ensure decarbonization is addressed holistically, rather than simply shifting emissions from one building or infrastructure life cycle stage to another. Within the Cost-effective Industrial Decarbonization topic, I recommend the consideration for both supply (emissions along the supply-chain to produce the materials we use) and demand-side (the design and construction strategies that drive demand for materials) perspectives and strategies to more effectively address emissions across the entire value chain. Within the Decarbonizing Construction Materials for Cost-Effective Infrastructure, I would strongly recommend aligning this work with on-going research, funded through the California Air Resources Board (CARB)¹, that seeks to identify cost-effective decarbonization strategies for building materials. Since infrastructure and buildings rely on many of the same material supply-chains, decarbonization strategies that target materials suppliers will influence emissions associated with the materials they produce and therefore help to drive emissions reductions for both the buildings and infrastructure that use these low-carbon materials. Our on-going research, funded through the CARB, is quantifying the decarbonization potential and associated implementation costs for a variety of strategies and interventions that target both the supply and demand of materials to support the development of embodied carbon reduction policies. This work can easily be replicated or expanded to quantify the decarbonization potential of infrastructure material demands or replicated for other materials that are used within infrastructure projects that have not been considered within the scope of the current analysis.

The embodied emissions of buildings and infrastructure are equal to, if not greater than, their operational counterparts. The methods and assessment protocols already exist in the form of EN 15978, EN 15804, ISO 14040, ISO 14044 and ISO 21930. Similar to operational decarbonization, the reduction of embodied and whole-life carbon needs to consider strategies that reduce the emissions of the materials we use but also how we use these materials in an efficient and sufficient manner. LCA provides the framework to assess the trade-offs, environmental hotspots and decarbonization potential at all points along the value chain from raw material extraction, through material production construction, use and ultimately end-of-life and resource recovery. It is my greatest recommendation for the CEC to include explicit recommendations and considerations for more research into LCA for decarbonization initiatives to ensure we are addressing emissions holistically.

I encourage the CEC to fund research, demonstrations and resources that advance the decarbonization of building materials from both the supply and demand of these materials while taking a whole-life perspective. This multi-faceted approach to decarbonization will yield deeper and more cost-effective emissions reductions while ensuring emissions are sufficiently addressed rather than simply shifted from one life cycle stage to another.

¹ <https://cbe.berkeley.edu/research/low-carbon-building-material-alternatives/>