

DECARBONIZING VIRGINIA'S INDUSTRIAL POLLUTION WITH LOW-CARBON CONCRETE

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EXECUTIVE SUMMARY

Virginia is on a path to decarbonize several sectors of the economy as the Commonwealth will reduce power plant carbon pollution to zero by 2050 and is also taking action on transportation through the Virginia Clean Car Standards and other laws enacted in 2021. However, the industrial sector, which accounts for approximately 10%¹ of the state's emissions and is considered difficult to abate, hasn't received as much attention from policymakers. Carbon emissions from the concrete industry, however, can be addressed through incentives in the state's concrete procurement process to begin to address this major pollution source in an industry-friendly, voluntary way.

CHALLENGE

Concrete is the world's most common construction material. Its main binding ingredient, Portland cement, accounts for roughly 7% of global carbon emissions.² A range of established and emerging production changes, made on a voluntary basis, can significantly reduce the climate impact of concrete. This includes technologies that utilize and store carbon from industrial sources in the material's different components and production processes. In short, the technology is here to make lower-carbon concrete on the producer side.

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SOLUTION

Because the State Department of Transportation and related agencies are among the largest purchasers of concrete in Virginia, Virginia government purchasing can accelerate market demand for low-carbon alternatives in the private sector through the state's ongoing procurement process. Indeed, concrete procurement is

a major state opportunity to use its power of the purse to reduce carbon pollution from industrial sources. Accordingly, a number of states, municipalities, and counties have proposed or implemented climate-based procurement initiatives to capitalize on this opportunity.

Specifically, a market-based approach can encourage concrete producers to incorporate carbon-reducing methods and products into their bids for state contracts. Lower-carbon mixes – as measured by standardized, third-party lifecycle analyses – gain a competitive advantage during the state's bid evaluation and therefore a greater likelihood of winning contracts. This market-based approach enlists market efficiency to select for positive climate outcomes, builds demand for long-term innovation, and limits fiscal impact and bureaucratic complexity.

Here's how it works:

- For Virginia concrete contracts, bidders may choose to voluntarily submit Environmental Product Declarations ("EPDs") in their bid proposals, to quantify the environmental impact of the concrete across the entire production process. The Global Warming Potential (GWP) measures the carbon pollution associated with concrete production.
- Bidders who submit EPDs are eligible for a "shadow" price discount in the procurement process that automatically (but artificially) lowers their bid, for the purpose of the state's bid selection: the more climate-friendly a bid is, the more likely it is to win the contract.
- The bid with the top-performing (i.e. lowest) GWP score receives a maximum discount of 5%, which effectively "caps" the premium the state pays for cleaner concrete at 5%.

POLICY RECOMMENDATIONS

- Incentivize cleaner concrete through the state's ongoing procurement process.
- Reform the state's concrete performance to reward clean and green innovation.

James River at Sunset - Richmond, Va |
Image credit: Jenn Clarke

