



CONCRETE AND ASPHALT INNOVATION ACT OF 2023 (S. 3439)

The Concrete and Asphalt Innovation Act (CAIA) of 2023 strengthens the competitiveness of American manufacturing by developing technologies to reduce emissions of cement, concrete, and asphalt production.

SUMMARY

The industrial sector is slated to be the largest emitting sector of the U.S. economy by 2035, surpassing the energy and transportation sectors. The key to reducing industrial emissions is to clean up emissions from cement, concrete, and asphalt sectors that are a necessity in the daily lives of people across the world for roads, highways, buildings, and more. Changing how we produce these essential materials is no easy task and will require policy support to discover, demonstrate, and scale innovative production methods and materials.

Technological innovation is key to strengthening America's domestic manufacturing competitiveness for cement, concrete, and asphalt since the U.S. has a large import reliance on these materials. The CAIA establishes DOE's first research, development, and demonstration (RD&D) program focused on low-emission cement, concrete, and asphalt production to strengthen American manufacturing, increase supply chain resilience, lower dependence on foreign countries, and position America to export low-emissions technologies to capitalize on the rising global demand for cleaner industrial materials. These efforts include applied RD&D on new production methods, public-private partnerships to commercialize new low-emissions technologies and targeted procurement to provide demand certainty for innovative products to enter the market and scale up.

The U.S. needs continued innovation to keep pace and ensure we are researching and deploying cutting-edge, innovative technologies to maintain a competitive advantage. Furthermore, multiple private companies are making commitments to decarbonize their production, and buyers are interested in purchasing lower-emissions cement, concrete, and asphalt. Targeted public and private sector support for emerging technologies will be necessary to help these companies to achieve these ambitious goals.

HISTORY:

Recently enacted legislation, including the Infrastructure Investment and Jobs Act (IIJA) of 2021 and the CHIPS and Science Act of 2022, provide resources to the Department of Energy (DOE) for industrial demonstration programs within the Office of Clean Energy Demonstration and direction for steel innovation (RD&D). However, direction for cement, concrete, and asphalt was not included, and further RD&D at the DOE and coordination with other government entities is needed. Supporting industry by providing policy incentives for innovators working on these groundbreaking technologies will allow America to continue to lead in the cement, concrete, and asphalt industrial subsector.

SPECIFICS:

The Concrete and Asphalt Innovation Act establishes new programs at DOE and the U.S. Department of Transportation (DOT) including:

- **Dedicated RD&D Program:** Establishes DOE's first crosscutting RD&D program for advanced, low-emission cement, concrete, and asphalt technologies. Requires DOE to establish long-term cost, performance, and demonstration targets for different types of low-emission cement, concrete, and asphalt manufacturing.
- **Strategic Plan:** Directs DOE to develop a 5-year strategic plan to support RD&D activities, establish technological and programmatic goals, and set timelines to accomplish goals developed under the plan.
- **Low-Carbon Manufacturing Institutes:** Authorizes DOE to leverage existing Manufacturing USA Institutes or establish two new institutes: one for cement & concrete and one for asphalt. These institutes will develop partnerships with private sector partners to trial later-stage R&D and boost workforce development and job creation in domestic cement, concrete, and asphalt sectors.
- **Federal Highway Administration (FHWA) Grant Program:** Authorizes FHWA to establish a voluntary grant program for any state DOT that increases its adoption of performance-based specifications to facilitate the purchase of low-emissions cement, concrete, and asphalt. The grant program provides reimbursement for states to purchase low-carbon materials and funds technical assistance needed to modernize specifications to be performance-based.
- **Advanced Purchase Commitment (APC):** Authorizes DOT to procure and/or commit to purchase low-emissions cement, concrete, and asphalt if conditions for quality, delivery, and low-emissions are met. The APC provides demand certainty needed for low-emissions producers to scale the production of innovative products.

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