118TH CONGRESS
1ST SESSION

S. 3439

To strengthen and enhance the competitiveness of cement, concrete, asphalt binder, and asphalt mixture production in the United States through the research, development, demonstration, and commercial application of technologies to reduce emissions from cement, concrete, asphalt binder, and asphalt mixture production, and for other purposes.

IN THE SENATE OF THE UNITED STATES

DECEMBER 7, 2023

Mr. COONS (for himself and Mr. TILLIS) introduced the following bill; which was read twice and referred to the Committee on Energy and Natural Resources

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A BILL

To strengthen and enhance the competitiveness of cement, concrete, asphalt binder, and asphalt mixture production in the United States through the research, development, demonstration, and commercial application of technologies to reduce emissions from cement, concrete, asphalt binder, and asphalt mixture production, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the ''Concrete and Asphalt Innovation Act of 2023''.

SEC. 2. DEFINITIONS.

In this Act:

(1) BASELINE EMBODIED GREENHOUSE GAS EMISSIONS.—The term ''baseline embodied greenhouse gas emissions'' has the meaning given the term in section 458(b) of the Energy Independence and Security Act of 2007.

(2) COMMERCIALLY AVAILABLE.—The term ''commercially available'' has the meaning given the term in section 458(b) of the Energy Independence and Security Act of 2007.

(3) EMBODIED GREENHOUSE GAS EMISSIONS.—The term ''embodied greenhouse gas emissions'' has the meaning given the term in section 458(b) of the Energy Independence and Security Act of 2007.

(4) ENGINEERING PERFORMANCE STANDARD.—The term ''engineering performance standard'' has the meaning given the term in section 458(b) of the Energy Independence and Security Act of 2007.

(5) ENVIRONMENTAL PRODUCT DECLARATION.—The term ''environmental product declaration'' means a product-specific type III environmental product declaration that—

(A) conforms to ISO Standard 14025;

(B) assesses the embodied greenhouse gas emissions of the product;

(C) assesses copollutant emissions; and

(D) allows for environmental impact comparisons between different cements, concretes, asphalt binders, and asphalt mixtures produced using the same product category rule.

(6) LOW-EMISSIONS CEMENT, CONCRETE, ASPHALT BINDER, OR ASPHALT MIXTURE.—The term ''low-emissions cement, concrete, asphalt binder, or asphalt mixture'' has the meaning given the term in section 458(b) of the Energy Independence and Security Act of 2007.

(7) PORTLAND CEMENT.—The term ''portland cement'' means any hydraulic cement produced by pulverizing portland-cement clinker, usually including calcium sulfate and other ingredients as identified in specifications.

(8) SECRETARY.—The term ''Secretary'' means the Secretary of Energy.

(9) TASK FORCE.—The term ''Task Force'' means the Interagency Task Force for Concrete and Asphalt Innovation established under section 7(a).

SEC. 3. LOW-EMISSIONS CEMENT, CONCRETE, ASPHALT BINDER, AND ASPHALT MIXTURE PRODUCTION RESEARCH PROGRAM.

(a) IN GENERAL.—Subtitle D of title IV of the Energy Independence and Security Act of 2007 (42 U.S.C. 17111 et seq.) is amended by adding at the end the following:

"SEC. 458. LOW-EMISSIONS CEMENT, CONCRETE, ASPHALT BINDER, AND ASPHALT MIXTURE PRODUCTION RESEARCH PROGRAM.

''(a) PURPOSE.—The purpose of this section is to advance the research and development of innovative technologies aimed at—

''(1) achieving significant greenhouse gas emissions and copollutant emissions reductions in the production processes for cement, concrete, asphalt binder, and asphalt mixture products;

''(2) increasing the technological and economic competitiveness of industry and production in the United States;

''(3) increasing the stability of supply chains through enhanced domestic production, nearshoring, and cooperation with allies; and

''(4) creating quality domestic jobs.

''(b) DEFINITIONS.—In this section:

''(1) ALTERNATIVE FUELS.—The term 'alternative fuels' means any solid, liquid, or gaseous material, or any combination of those materials, used to replace or supplement any portion of fuels used in combustion or pyrolysis for the production of low-emissions cement, concrete, asphalt binder, or asphalt mixture.

''(2) BASELINE EMBODIED GREENHOUSE GAS EMISSIONS.—The term 'baseline embodied greenhouse gas emissions' means the reported regional industry averages of embodied greenhouse gas emissions of cement, concrete, asphalt binder, or asphalt mixture, as determined by the Secretary under subsection (i)(1).

''(3) COMMERCIALLY AVAILABLE.—The term 'commercially available', with respect to cement, concrete, asphalt binder, and asphalt mixture, means that the cement, concrete, asphalt binder, or asphalt mixture is, or the component materials of cement, concrete, asphalt binder, and asphalt mixture are—

''(A) readily and widely available for public purchase in the United States; and

''(B) produced using a production method that is widely in use.

''(4) ELIGIBLE ENTITY.—The term 'eligible entity' means—

''(A) a Federal entity, including a federally funded research and development center of the Department;

''(B) a State, territory, or possession of the United States;

''(C) a municipality of a State or equivalent geographic area in a territory or possession of the United States;

''(D) a State energy office (as defined in section 124(a) of the Energy Policy Act of 2005 (42 U.S.C. 15821(a)));

''(E) a State energy financing institution (as defined in section 1701 of the Energy Policy Act of 2005 (42 U.S.C. 16511));

''(F) an institution of higher education;

''(G) a nonprofit research institution;

''(H) a private entity;

''(I) any other relevant entity the Secretary determines to be appropriate; and

''(J) a partnership or consortium of 2 or more entities described in any of subparagraphs (A) through (I).

''(5) EMBODIED GREENHOUSE GAS EMISSIONS.—The term 'embodied greenhouse gas emissions' means greenhouse gas emissions, measured in global warming potential, generated as a result of the production of a material, including mining, refining, manufacturing, and shipping.

''(6) ENGINEERING PERFORMANCE STANDARD.—The term 'engineering performance standard' means a standard in which the requirements are stated in terms of required results, with criteria for verifying compliance rather than specific composition, design, or procedure.

''(7) LOW-EMISSIONS CEMENT, CONCRETE, ASPHALT BINDER, OR ASPHALT MIXTURE.—The term 'low-emissions cement, concrete, asphalt binder, or asphalt mixture' means cement, concrete, asphalt binder, or asphalt mixture, as determined by the Secretary under subsection (i)(1)—

''(A) that has substantially lower embodied greenhouse gas emissions and copollutant emissions than the baseline embodied greenhouse gas emissions of the cement, concrete, asphalt binder, or asphalt mixture, as applicable; and

''(B) the substantially lower embodied greenhouse gas emissions and copollutant emis-

sions of which are achieved through any combination of—

''(i) production processes using low-carbon feedstocks;

''(ii) higher energy efficiency at the level of the cement, concrete, asphalt binder, or asphalt mixture plant;

''(iii) low-carbon fuel substitution at the level of the cement, concrete, asphalt binder, or asphalt mixture plant;

''(iv) local production of, and use of locally sourced material in, the concrete or asphalt mixture, resulting in reduced concrete or asphalt mixture delivery miles and reduced emissions from transportation;

''(v) the reduction of clinker content in the cement component of concrete or the substitution of clinker content with less carbon-intensive alternative materials, such as slag cement, coal ash, natural pozzolans, recycled ground-glass pozzolan, or other supplementary cementitious material;

''(vi) the reduction of petroleum-based asphalt in the asphalt binder component of

asphalt mixtures, or the substitution of petroleum-based asphalt with less carbon-intensive alternative materials such as biobased binder, recycled material, or other alternative;

''(vii) the reduction of cement in concrete or asphalt binder in asphalt mixtures through mixture optimization, including the use of admixtures;

''(viii) the capture, storage, or use of point source carbon dioxide emissions during the cement, concrete, or asphalt binder production process;

''(ix) the use and storage of carbon in concrete or asphalt mixture materials;

''(x) the use of noncarbonate feedstocks at the level of the cement plant; or

''(xi) other technologies, practices, or processes determined by the Secretary.

''(8) NATIONAL LABORATORY.—The term 'National Laboratory' has the meaning given the term in section 2 of the Energy Policy Act of 2005 (42 U.S.C. 15801).

''(9) RELEVANT CENTERS.—The term 'relevant Centers' means—

"(A) the Turner-Fairbank Highway Research Center;

"(B) the William J. Hughes Technical Center;

"(C) the U.S. Army Engineer Research and Development Center, including the Construction Engineering Research Laboratory; and

"(D) the Technical Service Center of the Bureau of Reclamation.

"(10) TASK FORCE.—The term 'Task Force' means the Interagency Task Force for Concrete and Asphalt Innovation established under section 7(a) of the Concrete and Asphalt Innovation Act of 2023.

"(c) ESTABLISHMENT OF PROGRAM.—Not later than 180 days after the date of enactment of the Concrete and Asphalt Innovation Act of 2023, the Secretary shall establish a program of research, development, demonstration, and commercial application of tools, technologies, and methods for the production and use of low-emissions cement, concrete, asphalt binder, or asphalt mixture.

"(d) REQUIREMENTS.—In carrying out the program established under subsection (c), the Secretary shall—

"(1) coordinate the activities carried out under that program with, as applicable—

"(A) the activities of the Industrial Efficiency and Decarbonization Office of the Office of Energy Efficiency and Renewable Energy of the Department, the Advanced Materials and Manufacturing Technologies Office of the Office of Energy Efficiency and Renewable Energy of the Department, the Office of Fossil Energy and Carbon Management of the Department, the Office of Manufacturing and Energy Supply Chains of the Department, the Building Technologies Office of the Department, the Office of Clean Energy Demonstrations of the Department, the Department of Transportation, the Department of Defense, and the General Services Administration, including activities carried out pursuant to a collaborative research and development partnership described in section 6(a) of the American Energy Manufacturing Technical Corrections Act (42 U.S.C. 6351(a));

"(B) the activities carried out under sections 454, 455, and 456; and

"(C) activities carried out pursuant to the national plan for smart manufacturing technology development and deployment developed

under section 6006 of the Energy Act of 2020 (42 U.S.C. 17115a); and

''(2) conduct research, development, and demonstration of technologies for the production and use of low-emissions cement, concrete, asphalt binder, and asphalt mixtures that have the potential to increase—

''(A) domestic production and use of low-emissions cement, concrete, asphalt binder, and asphalt mixtures; and

''(B) employment in fields relating to that domestic production and use.

''(e) FOCUS AREAS.—In carrying out the program established under subsection (c), the Secretary shall focus on—

''(1) carbon capture technologies for cement or asphalt binder production processes, which may include—

''(A) oxycombustion and chemical looping technologies;

''(B) precombustion technologies;

''(C) postcombustion technologies; or

''(D) direct carbon dioxide separation technologies;

''(2) alternative materials, technologies, and processes that—

''(A) produce fewer greenhouse gas and co-pollutant emissions during production, use, or end use of cement, concrete, asphalt binder, or asphalt mixtures; and

''(B) with respect to quality, durability, and resilience, provide products that are equivalent to or better than commercially available products;

''(3) medium- and high-temperature heat-generation technologies used for production of low-emissions cement, asphalt binder, and asphalt mixtures, which may include—

''(A) alternative fuels;

''(B) renewable heat-generation and storage technology;

''(C) electrification of heating processes; or

''(D) other heat-generation and storage sources;

''(4) technologies and practices that minimize energy and natural resource consumption, which may include—

''(A) designing products that enable reuse, refurbishment, remanufacturing, or recycling;

"(B) minimizing waste, including waste heat, from cement, concrete, asphalt binder, and asphalt mixture production processes, including through the reuse of waste as a resource in other industrial processes for mutual benefit;

"(C) increasing resource efficiency; or

"(D) increasing the energy efficiency of cement, concrete, asphalt binder, or asphalt mixture production processes;

"(5) technologies and approaches to reduce co-pollutants from the production of cement, concrete, asphalt binder, or asphalt mixtures, including—

"(A) sulfur dioxide;

"(B) nitrogen oxide;

"(C) particulate matter;

"(D) carbon monoxide emissions; and

"(E) a hazardous air pollutant (as defined in section 112(a) of the Clean Air Act (42 U.S.C. 7412(a)));

"(6) high-performance computing to develop advanced materials and production processes that may contribute to the focus areas described in paragraphs (1) through (5), including—

''(A) modeling, simulation, and optimization of the design of energy-efficient and sustainable products; and

''(B) the use of digital prototyping and additive production to enhance product design; and

''(7) technologies that can be retrofitted at cement, concrete, asphalt binder, or asphalt mixture plants that represent the most common facility types in the United States and in other countries.

''(f) STRATEGIC PLAN.—

''(1) IN GENERAL.—Not later than 180 days after the date of enactment of the Concrete and Asphalt Innovation Act of 2023, the Secretary shall develop and submit to the Committee on Energy and Natural Resources of the Senate and the Committee on Science, Space, and Technology of the House of Representatives a 5-year strategic plan identifying research, development, demonstration, and commercial application goals for the program established under subsection (c).

''(2) CONTENTS.—The strategic plan developed under paragraph (1) shall—

"(A) establish technological and programmatic goals to achieve the requirements described in subsection (d);

"(B) document existing activities of the Department relating to low-emissions cement, concrete, asphalt binder, or asphalt mixtures;

"(C) identify existing programs of the Department that—

"(i) relate to the production of low-emissions cement, concrete, asphalt binder, or asphalt mixtures; and

"(ii) support, or could support, the research, development, demonstration, and commercial application activities described in this section, including any demonstration projects carried out under subsection (g);

"(D) to avoid duplication of efforts, incorporate findings from—

"(i) the document of the Department entitled 'Industrial Decarbonization Roadmap', numbered DOE/EE–2635, and dated September 2022; and

"(ii) the document of the Department entitled 'Pathway to Commercial Liftoff:

Low-Carbon Cement', and dated September 2023;

"(E) identify any new programs needed to fully carry out this section;

"(F) identify resource needs of the Department relating to the research, development, and demonstration of technologies for the production and use of low-emissions cement, concrete, asphalt binder, and asphalt mixtures;

"(G) identify research areas that the private sector is unable or unwilling to undertake due to the cost of, or risks associated with, the research; and

"(H) identify and engage in opportunities for the Department, National Laboratories, and relevant Centers to participate in international standards setting to enhance United States manufacturing competitiveness.

"(3) UPDATES TO PLAN.—Not less frequently than once every 2 years, the Secretary shall submit to the Committee on Energy and Natural Resources of the Senate and the Committee on Science, Space, and Technology of the House of Representatives an updated version of the strategic plan developed under paragraph (1).

''(g) DEMONSTRATION INITIATIVE.—

''(1) ESTABLISHMENT.—Not later than 180 days after the date of enactment of the Concrete and Asphalt Innovation Act of 2023, the Secretary, in consultation with industry partners, institutions of higher education, environmental nongovernmental organizations, the Secretary of Transportation, the Administrator of General Services, National Laboratories, and relevant Centers, shall establish, as part of the program established under subsection (c), an initiative (referred to in this subsection as the 'initiative') for the demonstration of 1 or more methods for the production of low-emissions cement, concrete, asphalt binder, and asphalt mixtures that use either—

''(A) a single technology; or

''(B) a combination of multiple technologies.

''(2) SELECTION OF ELIGIBLE ENTITIES.—

''(A) IN GENERAL.—The Secretary shall select eligible entities to carry out demonstration projects under the initiative.

''(B) REQUIREMENTS.—In selecting eligible entities to carry out demonstration projects

under subparagraph (A), the Secretary, to the maximum extent practicable, shall—

"(i) ensure—

"(I) regional diversity among the eligible entities selected, including by selecting eligible entities located in rural areas (as defined in section 343(a) of the Consolidated Farm and Rural Development Act (7 U.S.C. 1991(a)));

"(II) technological diversity among the eligible entities selected; and

"(III) that the projects carried out by those eligible entities under the initiative expand on the existing technology demonstration programs of the Department; and

"(ii) prioritize the selection of eligible entities—

"(I) based on the extent to which the projects carried out by the eligible entities contribute to emissions reductions; and

''(II) that will carry out projects that leverage matching funds from non-Federal sources.

''(3) REPORTS.—

''(A) IN GENERAL.—Not less frequently than once every 2 years for the duration of the initiative, the Secretary shall submit to the Committee on Energy and Natural Resources of the Senate and the Committee on Science, Space, and Technology of the House of Representatives a report that, for the period covered by the report—

''(i) describes the activities carried out by the Secretary in support of the initiative;

''(ii) provides a review of the cost-competitiveness and other value streams, the technology readiness level, and the adoption readiness level of each technology demonstrated under the initiative;

''(iii) describes the status and outcomes of any projects carried out under the initiative; and

''(iv) recommends appropriate application of cement, concrete, asphalt binder,

and asphalt mixture materials, in consultation with engineering and design experts with demonstrated records of utilization of novel materials in construction.

''(B) FINAL REPORT.—If the initiative is terminated, the Secretary shall submit to the Committee on Energy and Natural Resources of the Senate and the Committee on Science, Space, and Technology of the House of Representatives a report assessing the success of, and any education provided by, the demonstration projects carried out by any recipients of financial assistance under the initiative.

''(4) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to the Secretary to carry out the initiative $200,000,000 for the period of fiscal years 2025 through 2029.

''(5) TERMINATION.—The Secretary may terminate the initiative if the Secretary determines that sufficient low-emissions cement, concrete, asphalt binder, and asphalt mixtures are commercially available domestically at a price comparable to the price of cement, concrete, asphalt binder, and asphalt mixtures produced through traditional methods of production.

''(h) TECHNICAL ASSISTANCE PROGRAM.—

''(1) IN GENERAL.—The Secretary, in consultation with the Secretary of Transportation, the Secretary of Commerce (acting through the Director of the National Institute of Standards and Technology), the Administrator of General Services, and the Administrator of the Environmental Protection Agency, shall provide technical assistance to eligible entities to carry out an activity described in paragraph (2) to promote the commercial application of technologies for the production and use of low-emissions cement, concrete, asphalt binder, or asphalt mixtures.

''(2) ACTIVITIES DESCRIBED.—An activity referred to in paragraph (1) is—

''(A) the updating of local codes, specifications, and standards to engineering performance standards;

''(B) a lifecycle assessment of the final product;

''(C) an environmental product declaration (as defined in section 2 of the Concrete and Asphalt Innovation Act of 2023);

''(D) a techno-economic assessment;

''(E) an environmental permitting or other regulatory process;

''(F) an evaluation or testing activity; or

''(G) any other activity that promotes the commercial application of technologies developed through the program established under subsection (c).

''(3) APPLICATIONS.—The Secretary shall seek applications for technical assistance under this subsection—

''(A) on a competitive basis; and

''(B) on a periodic basis, but not less frequently than once every 12 months.

''(4) REGIONAL CENTERS.—The Secretary may designate or establish 1 or more regional centers to provide technical assistance to eligible entities to carry out the activity described in paragraph (2)(A).

''(i) DETERMINATION OF EMISSION LEVELS.—

''(1) BASELINE EMBODIED GREENHOUSE GAS EMISSIONS.—The Secretary shall—

''(A) determine current baseline embodied greenhouse gas emissions of cement, concrete, asphalt binder, and asphalt mixtures, including a detailed methodology for determining each of those emissions; and

"(B) within 1 year of the date of enactment of the Concrete and Asphalt Innovation Act of 2023, determine a timeline for regional-level emissions reductions, to the maximum extent practicable, taking into consideration—

"(i) potential for greenhouse gas emissions reductions;

"(ii) feedstock availability;

"(iii) equipment and skilled workforce availability;

"(iv) technology and market readiness levels of low-emissions cement, concrete, asphalt binder, and asphalt mixture technologies;

"(v) the regulatory and specification landscape; and

"(vi) any other factor, as determined by the Secretary.

"(2) CONFORMING LOW-EMISSIONS CEMENT, CONCRETE, ASPHALT BINDER, OR ASPHALT MIXTURES FOR DEPARTMENT OF TRANSPORTATION ADVANCE PURCHASE COMMITMENTS.—The Secretary shall establish or update, as applicable, a reasonable but ambitious threshold, expressed as a percentage-based delta relative to the current baseline embodied

greenhouse gas emissions, for purposes of defining conforming low-emissions cement, concrete, asphalt binder, or asphalt mixtures under section 6(b)(2) of the Concrete and Asphalt Innovation Act of 2023, which shall be reassessed not less frequently than once every 2 years.

''(3) CONSULTATION.—In carrying out this subsection, the Secretary shall consult with the following stakeholders, who shall reflect regional diversity to the maximum extent practicable:

''(A) Entities in the cement, concrete, asphalt binder, and asphalt mixture sectors, including—

''(i) ready-mix or site-mixed concrete producers;

''(ii) precast concrete producers;

''(iii) portland cement (as defined in section 2 of the Concrete and Asphalt Innovation Act of 2023) and other cement producers;

''(iv) aggregate producers;

''(v) asphalt binder producers;

''(vi) asphalt mixture producers;

"(vii) producers of emerging cement, concrete, asphalt binder, or asphalt mixture solutions; and

"(viii) distributors and users of cement, concrete, asphalt binder, or asphalt mixture production.

"(B) Contracting companies with at least 1 Federal Government contract awarded in the preceding 5 years.

"(C) Contracting companies with at least 1 private sector contract awarded in the preceding 5 years.

"(D) Experts, including from nongovernmental organizations, on the environmental impact of cement, concrete, asphalt binder, and asphalt mixture production in architectural and nonarchitectural applications, with expertise in—

"(i) developing codes, specifications, and standards for cement, concrete, asphalt binder, and asphalt mixtures;

"(ii) conducting performance tests on cement, concrete, asphalt binder, and asphalt mixtures;

"(iii) working with the National Institute of Building Sciences;

"(iv) working for State departments of transportation from different regions of the United States; and

"(v) developing benchmarks for embodied greenhouse gas emissions.

"(E) Stakeholders in any other relevant industries, as determined by the Secretary.

"(j) MANUFACTURING USA INSTITUTES.—In carrying out this section, the Secretary shall—

"(1) support, including through financial assistance provided under subsection (e) of section 34 of the National Institute of Standards and Technology Act (15 U.S.C. 278s), Manufacturing USA institutes established or supported under section 4(d) of the Concrete and Asphalt Innovation Act of 2023;

"(2) leverage the resources of those Manufacturing USA institutes; and

"(3) integrate the activities carried out under the program established under subsection (c) with the activities of those Manufacturing USA institutes.

"(k) OTHER FEDERAL AGENCIES.—In carrying out this section, the Secretary shall coordinate with relevant officials at other Federal agencies that are carrying out

research and development initiatives to increase industrial competitiveness and achieve significant greenhouse gas emissions reductions in the production of low-emissions cement, concrete, asphalt binder, or asphalt mixtures, including relevant officials at the Department of Defense, the Department of Transportation, the General Services Administration, the Environmental Protection Agency, and the National Institute of Standards and Technology.''.

(b) CLERICAL AMENDMENT.—The table of contents in section 1(b) of the Energy Independence and Security Act of 2007 (Public Law 110–140; 121 Stat. 1494; 134 Stat. 2556; 134 Stat. 2559; 134 Stat. 2560; 135 Stat. 1067) is amended by adding at the end of the items relating to subtitle D of title IV the following:

''Sec. 458. Low-emissions cement, concrete, asphalt binder, and asphalt mixture production research program.''.

SEC. 4. LOW-EMISSIONS CONCRETE AND LOW-EMISSIONS ASPHALT MANUFACTURING USA INSTITUTES.

(a) DEFINITIONS.—In this section:

(1) ELIGIBLE ENTITY.—The term ''eligible entity'' has the meaning given the term in section 458(b) of the Energy Independence and Security Act of 2007 (as added by section 3).

(2) MANUFACTURING USA INSTITUTE.—The term ''Manufacturing USA institute'' has the meaning given the term in section 34(d) of the National

Institute of Standards and Technology Act (15 U.S.C. 278s(d)).

(3) SECRETARY.—The term ''Secretary'' means the Secretary of Commerce, acting through the Director of the National Institute of Standards and Technology.

(b) PURPOSE.—The purpose of this section is to support—

(1) the development of standardized testing and technical validation of low-emissions cement, concrete, asphalt binder, and asphalt mixtures; and

(2) the expansion, reskilling, and upskilling of the manufacturing workforce to increase employment in fields relating to the domestic production and use of low-emissions cement, concrete, asphalt binder, and asphalt mixtures.

(c) CONSIDERATIONS.—In carrying out this section, the Secretary shall consider strategies for—

(1) improving the durability and performance of cement, concrete, asphalt binder, and asphalt mixtures, including low-emissions cement, concrete, asphalt binder, and asphalt mixtures;

(2) reducing the cost of low-emissions cement, concrete, asphalt binder, and asphalt mixtures;

(3) supporting continuous innovation and emissions reductions in the production of low-emissions cement, concrete, asphalt binder, and asphalt mixtures;

(4) increasing employment in fields relating to the domestic production and use of low-emissions cement, concrete, asphalt binder, and asphalt mixtures; and

(5) providing information to satisfy the responsibilities of the Task Force.

(d) AUTHORITY TO ESTABLISH OR SUPPORT THE ESTABLISHMENT OF MANUFACTURING USA INSTITUTES FOCUSED ON LOW-EMISSIONS CEMENT AND CONCRETE AND LOW-EMISSIONS ASPHALT BINDER AND MIXTURES.—

(1) IN GENERAL.—Subject to subsection (g), the Secretary may, in consultation with the Secretary of Energy, the Secretary of Transportation, the Secretary of Defense, and the Administrator of the General Services Administration, establish, or award financial assistance under section 34(e)(1) of the National Institute of Standards and Technology Act (15 U.S.C. 278s(e)(1)) to plan, establish, or support, 2 Manufacturing USA institutes, 1 for low-

emissions cement and concrete and 1 for low-emissions asphalt binder and mixtures that—

(A) establish advanced testing capabilities for properties of low-emissions cement or concrete and low-emissions binder or mixtures, respectively, produced by an eligible entity;

(B) provide centralized, publicly available data on the properties of low-emissions cement or concrete and low-emissions asphalt binder or mixtures, respectively;

(C) support the development and implementation of education, training, and workforce recruitment courses, materials, and programs addressing workforce needs in fields related to the domestic production and use of low-emissions cement or concrete, and low-emissions asphalt binder or mixtures, respectively, through training and education programs at all appropriate education levels; and

(D) provide collected information to the Task Force.

(2) COORDINATION.—In addition to subparagraphs (A) through (D) of paragraph (1), the Secretary shall require the Manufacturing USA institutes established, planned, or supported under such

paragraph to coordinate with the research program established under section 458(c) of the Energy Independence and Security Act of 2007, as added by section 3, to carry out activities focused on researching, developing, demonstrating, and deploying low-emissions cement, concrete, asphalt binder, and asphalt mixtures.

(3) SUPPORT AND ASSISTANCE FOR STATES.—

(A) IN GENERAL.—The Manufacturing USA institutes established, planned, or supported under paragraph (1) shall, pursuant to a request from a State agency for testing support, guidance, or resources, provide the State agency with such testing support, guidance, or resources in the form of technical assistance or a grant.

(B) CONDITION.—The Secretary shall require, as a condition on the receipt of a grant under subparagraph (A), that the recipient of the grant make publicly available all data collected by the recipient using amounts from the grant.

(e) SELECTION OF CEMENT, CONCRETE, ASPHALT BINDER, OR ASPHALT MIXTURES FOR TESTING.—In selecting cement, concrete, asphalt binder, or asphalt mix-

tures from eligible entities for testing by the Manufacturing USA institutes established, planned, or supported under subsection (d)(1), the Manufacturing USA institutes shall—

(1) seek to achieve regional diversity in the cement, concrete, asphalt binder, or asphalt mixtures from eligible entities selected for testing;

(2) seek to achieve technological diversity in the cement, concrete, asphalt binder, or asphalt mixtures from eligible entities selected for testing;

(3) prioritize cement, concrete, asphalt binder, or asphalt mixtures from eligible entities that leverage matching funds from non-Federal sources; and

(4) prioritize projects that would have the greatest reduction in emissions on a lifecycle basis.

(f) ALTERNATIVES.—The Secretary may carry out this section by—

(1) leveraging resources of relevant existing Manufacturing USA institutes;

(2) integrating program activities into a relevant existing Manufacturing USA institute; or

(3) establishing new Manufacturing USA institutes in accordance with subsection (d).

(g) FUNDING.—The Secretary shall carry out this section using amounts otherwise available to the Secretary.

SEC. 5. FEDERAL HIGHWAY ADMINISTRATION.

(a) PERFORMANCE-BASED LOW-EMISSIONS TRANSPORTATION MATERIALS GRANTS.—

(1) PURPOSE.—The purpose of this subsection is to encourage States to improve State-level cement, concrete, asphalt binder, and asphalt mixture specifications and standards to facilitate the purchase of low-emissions cement, concrete, asphalt binder, or asphalt mixtures.

(2) ESTABLISHMENT.—The Administrator of the Federal Highway Administration (referred to in this section as the ''Administrator'') shall provide to States—

(A) reimbursement for the additional cost of using low-emissions cement, concrete, asphalt binder, and asphalt mixtures used in highway projects of the State;

(B) incentives for the acquisition of low-emissions cement, concrete, asphalt binder, and asphalt mixtures for use in highway projects of the State; and

(C) technical assistance to update the specifications and standards of the State to be performance-based specifications and standards.

(3) ELIGIBILITY.—To be eligible to receive reimbursement or incentives under this subsection, a State shall have in effect, as appropriate, special provisions, specifications, or standards, such as engineering performance standards, that facilitate the purchase of low-emissions cement, concrete, asphalt binder, and asphalt mixtures.

(4) COORDINATION.—In carrying out this subsection, the Administrator shall leverage the Every Day Counts Initiative of the Department of Transportation to promote the commercialization of low-emissions cement, concrete, asphalt binder, and asphalt mixtures.

(5) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to the Secretary to carry out this subsection $15,000,000 for the period of fiscal years 2025 through 2027.

(b) TIMELY APPROVAL OF CEMENT, CONCRETE, ASPHALT BINDER, OR ASPHALT MIXTURES.—

(1) IN GENERAL.—Not later than 180 days after the date of enactment of this Act, the Administrator shall establish a procedure under which States

may submit new low-emissions cement, concrete, asphalt binder, or asphalt mixtures for timely approval for use in highways projects of the State.

(2) SUBMISSION.—To be considered for approval under the procedure established under paragraph (1), a State shall submit an application to the Administrator at such time, in such manner, and containing such information as the Administrator determines to be necessary.

(3) DECISION DEADLINE.—Not later than 180 days after the date on which the Administrator receives an application under paragraph (2), the Administrator shall—

(A) approve the application; or

(B) deny the application.

(4) APPROVAL.—Low-emissions cement, concrete, asphalt binder, or asphalt mixtures approved under paragraph (3)(A) may be used in any highway project of the State.

(5) WRITTEN REASONS FOR DENIAL.—If the Administrator denies an application under paragraph (3)(B), the Administrator shall provide the State a written explanation for the denial.

SEC. 6. ADVANCE PURCHASE COMMITMENT AUTHORITY.

(a) PURPOSE.—The purposes of this section are—

(1) to authorize the Secretary to directly purchase or contractually guarantee the direct purchase of conforming low-emissions cement, concrete, asphalt binder, or asphalt mixtures; and

(2) to encourage continuous innovation and long-term emissions reductions in the production of concrete, cement, asphalt binder, and asphalt mixtures.

(b) DEFINITIONS.—In this section:

(1) ADVANCE PURCHASE COMMITMENT.—The term ''advance purchase commitment'' means a binding commitment from the Department of Transportation to purchase, 3 or more years in the future, from a private entity, a specified minimum quantity of conforming low-emissions cement, concrete, asphalt binder, or asphalt mixtures at a specified minimum price with the objective of establishing market demand for the conforming low-emissions cement, concrete, asphalt binder, or asphalt mixtures.

(2) CONFORMING LOW-EMISSIONS CEMENT, CONCRETE, ASPHALT BINDER, OR ASPHALT MIXTURE.—The term ''conforming low-emissions cement, concrete, asphalt binder, or asphalt mixture'' means a low-emissions cement, concrete, asphalt binder, or asphalt mixture that—

(A) meets or exceeds the threshold established by the Secretary of Energy under section 458(i)(2) of the Energy Independence and Security Act of 2007 that is in effect on the date on which the applicable advance purchase commitment is awarded under the program; and

(B) meets all applicable technical specifications established by the Secretary.

(3) PROGRAM.—The term ''program'' means the program established under subsection (c).

(4) SECRETARY.—The term ''Secretary'' means the Secretary of Transportation.

(c) ESTABLISHMENT OF PROGRAM.—Not later than 180 days after the date of enactment of this Act, the Secretary shall establish a program for awarding, on a competitive basis, advance purchase commitments.

(d) REQUIREMENT.—An advance purchase commitment shall be awarded under the program only after—

(1) a private entity submits to the Secretary—

(A) a statement describing the quantity and cost of the conforming low-emissions cement, concrete, asphalt binder, or asphalt mixture for which the advance purchase commitment is sought; and

(B)(i) an environmental product declaration;

(ii) in cases in which a private entity does not have sufficient production to generate an environmental product declaration, a lifecycle assessment consistent with ISO 14044 of the International Organization for Standardization; or

(iii) a preliminary environmental product declaration, which shall be verified within 1 year of fulfillment of delivery of materials pursuant to the advance purchase commitment; and

(2) the Secretary, based on those submissions—

(A) confirms that the embodied greenhouse gas emissions of the conforming low-emissions cement, concrete, asphalt binder, or asphalt mixture meet or exceed the threshold described in subsection (b)(2)(A); and

(B) based on the submission under paragraph (1)(B) otherwise verifies that the low-emissions cement, concrete, asphalt binder, or asphalt mixture is a conforming low-emissions cement, concrete, asphalt binder, or asphalt mixture.

(e) PREFERENCE CRITERIA.—In carrying out the program, the Secretary shall prioritize the award of advance purchase commitments based on the following factors:

(1) The degree of greenhouse gas emissions reduced during or in connection with the production of the applicable conforming low-emissions cement, concrete, asphalt binder, or asphalt mixture.

(2) The anticipated suitability of the conforming low-emissions cement, concrete, asphalt binder, or asphalt mixture for its intended use.

(3) The potential of the advance purchase commitment to increase the availability of, or financing for, conforming low-emissions cement, concrete, asphalt binder, or asphalt mixtures.

(4) The utilization or mineralization of carbon dioxide in the conforming low-emissions cement, concrete, or asphalt mixture, subject to the condition that the utilization or mineralization of the carbon dioxide does not lead to positive net carbon dioxide emissions.

(f) ASSIGNABILITY.—A contract entered into or material purchased pursuant to this section may be assigned to a State department of transportation or a local transportation authority at the discretion of the Secretary.

(g) CLARIFICATION.—Any update or revision to the threshold established by the Secretary of Energy under section 458(i)(2) of the Energy Independence and Security Act of 2007 shall not affect or otherwise apply to any advance purchase commitment awarded under the program before the date of that update or revision.

(h) FUNDING.—The Secretary shall carry out this section using amounts otherwise available to the Secretary.

SEC. 7. INTERAGENCY TASK FORCE FOR CONCRETE AND ASPHALT INNOVATION.

(a) IN GENERAL.—The Secretary, in coordination with the Secretary of Transportation, the Administrator of General Services, the Secretary of Defense, the Director of the National Institute of Standards and Technology, and the Administrator of the Environmental Protection Agency, shall establish a task force, to be known as the ''Interagency Task Force for Concrete and Asphalt Innovation''.

(b) OBJECTIVES.—In carrying out the duties of the Task Force, the Task Force shall consider strategies for—

(1) improving the durability and performance of low-emissions cement, concrete, asphalt binder, or asphalt mixtures;

(2) reducing the cost of low-emissions cement, concrete, asphalt binder, or asphalt mixtures;

(3) supporting continuous innovation and emissions reductions in the production of low-emissions cement, concrete, asphalt binder, or asphalt mixtures;

(4) increasing employment in fields related to the domestic production of low-emissions cement, concrete, asphalt binder, or asphalt mixtures; and

(5) ensuring a trained workforce in fields related to the domestic production and use of low-emissions cement, concrete, asphalt binder, or asphalt mixtures.

(c) COMPOSITION.—The Task Force shall be composed of 2 members from each of—

(1) the Department of Energy;

(2) the Department of Transportation;

(3) the General Services Administration;

(4) the Department of Defense;

(5) the National Institute of Standards and Technology; and

(6) the Environmental Protection Agency.

(d) CONSULTATION.—In carrying out the duties of the Task Force, the Secretary shall consult with the fol-

lowing stakeholders, who shall reflect regional diversity to the maximum extent practicable:

(1) Entities in the cement, concrete, asphalt binder, and asphalt mixture sectors, including—

(A) ready-mix or site-mixed concrete producers;

(B) precast concrete producers;

(C) portland cement and other cement producers;

(D) aggregate producers;

(E) asphalt binder producers;

(F) asphalt mixture producers;

(G) producers of emerging cement, concrete, asphalt binder, or asphalt mixture solutions; and

(H) distributors and users of cement, concrete, asphalt binder, or asphalt mixture production.

(2) Contracting companies with at least 1 Federal Government contract awarded in the preceding 5 years.

(3) Contracting companies with at least 1 private sector contract awarded in the preceding 5 years.

(4) Experts, including from nongovernmental organizations, on the environmental impact of cement, concrete, asphalt binder, and asphalt mixture production in architectural and nonarchitectural applications, with expertise in—

(A) developing codes, specifications, and standards for cement, concrete, asphalt binder, and asphalt mixtures;

(B) conducting performance tests on cement, concrete, asphalt binder, and asphalt mixtures;

(C) working with the National Institute of Building Sciences;

(D) working for State departments of transportation from different regions of the United States; and

(E) developing benchmarks for embodied greenhouse gas emissions.

(5) Stakeholders in any other relevant industries, as determined by the Secretary.

(e) RESPONSIBILITIES.—The Task Force shall—

(1) provide recommendations to the Secretary on—

(A) the use of engineering performance standards for low-emissions cement, concrete,

asphalt binder, and asphalt mixtures, including taking into account lessons learned from the reimbursement and incentives provided under section 5(a)(2);

(B) creating guidelines and best practices for the testing and evaluation of low-emissions cement, concrete, asphalt binder, and asphalt mixtures, including taking into account lessons learned from the Manufacturing USA institutes planned, established, or supported under section 4(d);

(C) improving the product category rules governing the creation of relevant environmental product declarations for low-emissions cement, concrete, asphalt binder, and asphalt mixture, including taking into account lessons learned from the technical assistance program established under section 458(h) of the Energy Independence and Security Act of 2007; and

(D) incentives that would encourage the use of low-emissions cement, concrete, asphalt binder, and asphalt mixtures, including taking into account lessons learned from the advance purchase commitment program established under section 6(c);

(2) coordinate meetings and facilitate discussions through forums such as roundtables, workshops, or conferences to inform the recommendations provided under paragraph (1); and

(3) host briefings and provide updates to—

(A) the Committee on Energy and Natural Resources of the Senate; and

(B) the Committee on Science, Space, and Technology of the House of Representatives.

(f) REPORT.—Once every 2 years, the Secretary, in consultation with the Task Force, shall submit to Congress a report that describes—

(1)(A) each of the recommendations made under subsection (e)(1); and

(B) the response of the Secretary to each of those recommendations, including how best to implement each recommendation;

(2) the determinations made by the Secretary under section 458(i)(1) of the Energy Independence and Security Act of 2007;

(3) the threshold established under section 458(i)(2) of the Energy Independence and Security Act of 2007, including a justification for that threshold;

(4) changes to State and local codes and specifications facilitated by the Task Force during the period covered by the report; and

(5) meetings with cement, concrete, asphalt binder, and asphalt mixture producers, contractors, engineers, academics, State and local government officials, or any other relevant stakeholders coordinated by the Task Force during the period covered by the report.

(g) TERMINATION.—The Secretary may terminate the Task Force if the Secretary determines that sufficient low-emissions cement, concrete, asphalt binder, and asphalt mixtures are commercially available domestically at a price comparable to the price of cement, concrete, asphalt binder, and asphalt mixtures produced through traditional methods of production.

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