

119TH CONGRESS
1ST SESSION

S. _____

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

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

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.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Concrete and Asphalt
5 Innovation Act of 2025”.

1 **SEC. 2. DEFINITIONS.**

2 Unless otherwise provided, in this Act:

3 (1) **ALTERNATIVE FUELS.**—The term “alter-
4 native fuels” means any solid, liquid, or gaseous ma-
5 terial, or any combination of those materials, used to
6 replace or supplement any portion of fuels used in
7 combustion or pyrolysis for the production of low-
8 emissions cement, concrete, asphalt binder, or as-
9 phalt mixture.

10 (2) **BASELINE EMBODIED GREENHOUSE GAS**
11 **EMISSIONS.**—The term “baseline embodied green-
12 house gas emissions” means the reported industry
13 averages (using regional averages, if available, and
14 otherwise using national averages) of embodied
15 greenhouse gas emissions of cement, concrete, as-
16 phalt binder, or asphalt mixture, as determined by
17 the Secretary under section 3(h)(1).

18 (3) **COMMERCIALLY AVAILABLE.**—The term
19 “commercially available”, with respect to cement,
20 concrete, asphalt binder, and asphalt mixture, means
21 that the cement, concrete, asphalt binder, or asphalt
22 mixture is, or the component materials of cement,
23 concrete, asphalt binder, and asphalt mixture are—

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

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

3 (4) DEPARTMENT.—The term “Department”
4 means the Department of Energy.

5 (5) ELIGIBLE ENTITY.—The term “eligible enti-
6 ty” means—

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

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

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

15 (D) an Indian tribe (as defined in section
16 207(m)(1) of title 23, United States Code);

17 (E) a State energy office (as defined in
18 section 124(a) of the Energy Policy Act of 2005
19 (42 U.S.C. 15821(a)));

20 (F) a State energy financing institution
21 (as defined in section 1701 of the Energy Pol-
22 icy Act of 2005 (42 U.S.C. 16511));

23 (G) an institution of higher education;

24 (H) a nonprofit research institution;

25 (I) a private entity;

1 (J) any other relevant entity the Secretary
2 determines to be appropriate; and

3 (K) a partnership or consortium of 2 or
4 more entities described in any of subparagraphs
5 (A) through (J).

6 (6) EMBODIED GREENHOUSE GAS EMISSIONS.—

7 The term “embodied greenhouse gas emissions”
8 means greenhouse gas (as defined in section 901 of
9 the Energy Independence and Security Act of 2007
10 (42 U.S.C. 17321)) emissions, measured in kilo-
11 grams of carbon dioxide-equivalent emissions, gen-
12 erated as a result of the production of a material,
13 including extraction, production, transport, and
14 manufacturing.

15 (7) ENGINEERING PERFORMANCE STANDARD.—

16 The term “engineering performance standard”
17 means a standard in which the requirements are
18 stated in terms of required results, with criteria for
19 verifying compliance rather than specific composi-
20 tion, design, or procedure.

21 (8) ENVIRONMENTAL PRODUCT DECLARA-
22 TION.—The term “environmental product declara-
23 tion” means a product-specific type III environ-
24 mental product declaration that—

25 (A) conforms to ISO Standard 14025;

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

3 (C) assesses copollutant emissions; and

4 (D) allows for environmental impact com-
5 parisons between different cements, concretes,
6 asphalt binders, and asphalt mixtures produced
7 using the same product category rule.

8 (9) LOW-EMISSIONS CEMENT, CONCRETE, AS-
9 PHALT BINDER, OR ASPHALT MIXTURE.—The term
10 “low-emissions cement, concrete, asphalt binder, or
11 asphalt mixture” means cement, concrete, asphalt
12 binder, or asphalt mixture—

13 (A) that has substantially lower embodied
14 greenhouse gas emissions and copollutant emis-
15 sions than the baseline embodied greenhouse
16 gas emissions of the cement, concrete, asphalt
17 binder, or asphalt mixture, as applicable; and

18 (B) the substantially lower embodied
19 greenhouse gas emissions and copollutant emis-
20 sions of which are achieved through any com-
21 bination of—

22 (i) production processes using low-car-
23 bon feedstocks;

1 (ii) higher energy efficiency at the
2 level of the cement, concrete, asphalt bind-
3 er, or asphalt mixture plant;

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

7 (iv) local production of, and use of lo-
8 cally sourced material in, the concrete or
9 asphalt mixture, resulting in reduced con-
10 crete or asphalt mixture delivery miles and
11 reduced emissions from transportation;

12 (v) the reduction of clinker content in
13 the cement component of concrete or the
14 substitution of clinker content with less
15 carbon-intensive alternative materials, such
16 as slag cement, coal ash, natural
17 pozzolans, recycled ground-glass pozzolan,
18 or other supplementary cementitious mate-
19 rial;

20 (vi) the reduction of petroleum-based
21 asphalt in the asphalt binder component of
22 asphalt mixtures, or the substitution of pe-
23 troleum-based asphalt with less carbon-in-
24 tensive alternative materials such as

1 biobased binder, recycled material, or other
2 alternative;

3 (vii) the reduction of cement in con-
4 crete or asphalt binder in asphalt mixtures
5 through mixture optimization, including
6 the use of admixtures;

7 (viii) the capture, storage, or use of
8 point source carbon dioxide emissions dur-
9 ing the cement, concrete, or asphalt binder
10 production process;

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

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

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

17 (10) NATIONAL LABORATORY.—The term “Na-
18 tional Laboratory” has the meaning given the term
19 in section 2 of the Energy Policy Act of 2005 (42
20 U.S.C. 15801).

21 (11) PORTLAND CEMENT.—The term “portland
22 cement” means any hydraulic cement produced by
23 pulverizing portland-cement clinker, usually includ-
24 ing calcium sulfate and other ingredients as identi-
25 fied in specifications.

1 (12) RELEVANT CENTERS.—The term “relevant
2 Centers” means—

3 (A) the Turner-Fairbank Highway Re-
4 search Center;

5 (B) the William J. Hughes Technical Cen-
6 ter;

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

10 (D) the Technical Service Center of the
11 Bureau of Reclamation;

12 (E) the National Institute of Standards
13 and Technology; and

14 (F) any other center or institute identified
15 by the Secretary.

16 (13) SECRETARY.—The term “Secretary”
17 means the Secretary of Energy.

18 (14) TASK FORCE.—The term “Task Force”
19 means the Interagency Task Force for Concrete and
20 Asphalt Innovation established under section 7(a).

1 **SEC. 3. LOW-EMISSIONS CEMENT, CONCRETE, ASPHALT**
2 **BINDER, AND ASPHALT MIXTURE PRODUC-**
3 **TION RESEARCH PROGRAM.**

4 (a) PURPOSE.—The purpose of this section is to ad-
5 vance the research and development of innovative tech-
6 nologies aimed at—

7 (1) achieving significant greenhouse gas emis-
8 sions and copollutant emissions reductions in the
9 production processes for cement, concrete, asphalt
10 binder, and asphalt mixture products;

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

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

17 (4) creating quality domestic jobs.

18 (b) ESTABLISHMENT OF PROGRAM.—Not later than
19 180 days after the date of enactment of this Act, the Sec-
20 retary shall establish a program of research, development,
21 demonstration, and commercial application of tools, tech-
22 nologies, and methods for the production and use of low-
23 emissions cement, concrete, asphalt binder, or asphalt
24 mixture.

25 (c) REQUIREMENTS.—In carrying out the program
26 established under subsection (b), the Secretary shall—

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

3 (A) the activities of the Industrial Effi-
4 ciency and Decarbonization Office of the Office
5 of Energy Efficiency and Renewable Energy of
6 the Department, the Advanced Materials and
7 Manufacturing Technologies Office of the Office
8 of Energy Efficiency and Renewable Energy of
9 the Department, the Office of Fossil Energy
10 and Carbon Management of the Department,
11 the Office of Manufacturing and Energy Supply
12 Chains of the Department, the Building Tech-
13 nologies Office of the Department, the Office of
14 Clean Energy Demonstrations of the Depart-
15 ment, the Department of Transportation, the
16 Department of Defense, and the General Serv-
17 ices Administration, including activities carried
18 out pursuant to a collaborative research and de-
19 velopment partnership described in section 6(a)
20 of the American Energy Manufacturing Tech-
21 nical Corrections Act (42 U.S.C. 6351(a));

22 (B) the activities carried out under sec-
23 tions 454, 455, and 456 of the Energy Inde-
24 pendence and Security Act of 2007 (42 U.S.C.
25 17113, 17114, 17115); and

1 (C) activities carried out pursuant to the
2 national plan for smart manufacturing tech-
3 nology development and deployment developed
4 under section 6006 of the Energy Act of 2020
5 (42 U.S.C. 17115a); and

6 (2) conduct research, development, and dem-
7 onstration of technologies for the production and use
8 of low-emissions cement, concrete, asphalt binder,
9 and asphalt mixtures that have the potential to in-
10 crease—

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

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

16 (d) FOCUS AREAS.—In carrying out the program es-
17 tablished under subsection (b), the Secretary shall focus
18 on—

19 (1) carbon capture and utilization technologies
20 for cement or asphalt binder production processes,
21 which may include—

22 (A) oxycombustion and chemical looping
23 technologies;

24 (B) precombustion technologies;

25 (C) postcombustion technologies;

1 (D) direct carbon dioxide separation tech-
2 nologies;

3 (E) reactive carbon capture technologies;
4 or

5 (F) carbon utilization technologies;

6 (2) alternative materials, technologies, and
7 processes that—

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

12 (B) with respect to quality, durability, and
13 resilience, provide products that are equivalent
14 to or better than commercially available prod-
15 ucts;

16 (3) medium- and high-temperature heat-genera-
17 tion technologies used for production of low-emis-
18 sions cement, asphalt binder, and asphalt mixtures,
19 which may include—

20 (A) alternative fuels;

21 (B) renewable heat-generation and storage
22 technology;

23 (C) electrification of heating processes;

24 (D) other heat-generation and storage
25 sources;

1 (E) products that enable higher efficiency
2 of cement, concrete, or asphalt utilization; or

3 (F) products that have increased durability
4 and require less frequent replacement;

5 (4) technologies and practices that minimize en-
6 ergy and natural resource consumption, which may
7 include—

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

10 (B) minimizing waste, including waste
11 heat, from cement, concrete, asphalt binder,
12 and asphalt mixture production processes, in-
13 cluding through the reuse of waste as a re-
14 source in other industrial processes for mutual
15 benefit;

16 (C) increasing resource efficiency; or

17 (D) increasing the energy efficiency of ce-
18 ment, concrete, asphalt binder, or asphalt mix-
19 ture production processes;

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

23 (A) sulfur dioxide;

24 (B) nitrogen oxide;

25 (C) particulate matter;

1 (D) carbon monoxide emissions; and

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

5 (6) high-performance computing to develop ad-
6 vanced materials and production processes that may
7 contribute to the focus areas described in para-
8 graphs (1) through (5), including—

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

12 (B) the use of digital prototyping and ad-
13 ditive production to enhance product design;
14 and

15 (7) technologies that can be retrofitted at ce-
16 ment, concrete, asphalt binder, or asphalt mixture
17 plants that represent the most common facility types
18 in the United States and in other countries.

19 (e) STRATEGIC PLAN.—

20 (1) IN GENERAL.—Not later than 180 days
21 after the date of enactment of this Act, the Sec-
22 retary shall develop and submit to the Committee on
23 Energy and Natural Resources of the Senate and
24 the Committee on Science, Space, and Technology of
25 the House of Representatives a 5-year strategic plan

1 identifying research, development, demonstration,
2 and commercial application goals for the program
3 established under subsection (b).

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

6 (A) establish technological and pro-
7 grammatic goals to achieve the requirements
8 described in subsection (c);

9 (B) document existing activities of the De-
10 partment and other Federal agencies relating to
11 low-emissions cement, concrete, asphalt binder,
12 or asphalt mixtures;

13 (C) identify existing programs of the De-
14 partment that—

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

18 (ii) support, or could support, the re-
19 search, development, demonstration, and
20 commercial application activities described
21 in this section, including any demonstra-
22 tion projects carried out under subsection
23 (f);

24 (D) to avoid duplication of efforts, incor-
25 porate findings from—

1 (i) the document of the Department
2 entitled “Industrial Decarbonization Road-
3 map”, numbered DOE/EE–2635, and
4 dated September 2022;

5 (ii) the document of the Department
6 entitled “Pathway to Commercial Liftoff:
7 Low-Carbon Cement”, and dated Sep-
8 tember 2023;

9 (iii) the Label Program for Low Em-
10 bodied Carbon Construction Materials of
11 the Environmental Protection Agency and
12 any other relevant program of the Environ-
13 mental Protection Agency; and

14 (iv) the Energy Star program estab-
15 lished by section 324A of the Energy Pol-
16 icy and Conservation Act (42 U.S.C.
17 6294a);

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

20 (F) identify resource needs of the Depart-
21 ment relating to the research, development, and
22 demonstration of technologies for the produc-
23 tion and use of low-emissions cement, concrete,
24 asphalt binder, and asphalt mixtures;

1 (G) identify research areas that the private
2 sector is unable or unwilling to undertake due
3 to the cost of, or risks associated with, the re-
4 search; and

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

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

17 (f) DEMONSTRATION INITIATIVE.—

18 (1) ESTABLISHMENT.—Not later than 180 days
19 after the date of enactment of this Act, the Sec-
20 retary, in consultation with industry partners, insti-
21 tutions of higher education, environmental non-
22 governmental organizations, the Secretary of Trans-
23 portation, the Administrator of General Services,
24 National Laboratories, and relevant Centers, shall
25 establish, as part of the program established under

1 subsection (b), an initiative (referred to in this sub-
2 section as the “initiative”) for the demonstration of
3 1 or more methods for the production of low-emis-
4 sions cement, concrete, asphalt binder, and asphalt
5 mixtures that use either—

6 (A) a single technology; or

7 (B) a combination of multiple technologies.

8 (2) SELECTION OF ELIGIBLE ENTITIES.—

9 (A) IN GENERAL.—The Secretary shall se-
10 lect eligible entities to carry out demonstration
11 projects under the initiative.

12 (B) REQUIREMENTS.—In selecting eligible
13 entities to carry out demonstration projects
14 under subparagraph (A), the Secretary, to the
15 maximum extent practicable, shall—

16 (i) ensure—

17 (I) regional diversity among the
18 eligible entities selected, including by
19 selecting eligible entities located in
20 rural areas (as defined in section
21 343(a) of the Consolidated Farm and
22 Rural Development Act (7 U.S.C.
23 1991(a)));

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

1 (III) that the projects carried out
2 by those eligible entities under the ini-
3 tiative expand on the existing tech-
4 nology demonstration programs of the
5 Department; and

6 (ii) prioritize the selection of eligible
7 entities—

8 (I) based on the extent to which
9 the projects carried out by the eligible
10 entities contribute to emissions reduc-
11 tions; and

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

15 (3) REPORTS.—

16 (A) IN GENERAL.—Not less frequently
17 than once every 2 years for the duration of the
18 initiative, the Secretary shall submit to the
19 Committee on Energy and Natural Resources of
20 the Senate and the Committee on Science,
21 Space, and Technology of the House of Rep-
22 resentatives a report that, for the period cov-
23 ered by the report—

1 (i) describes the activities carried out
2 by the Secretary in support of the initia-
3 tive;

4 (ii) provides a review of the cost-com-
5 petitiveness and other value streams, the
6 technology readiness level, and the adop-
7 tion readiness level of each technology
8 demonstrated under the initiative;

9 (iii) describes the status and outcomes
10 of any projects carried out under the ini-
11 tiative; and

12 (iv) recommends appropriate applica-
13 tion of cement, concrete, asphalt binder,
14 and asphalt mixture materials, in consulta-
15 tion with engineering and design experts
16 with demonstrated records of utilization of
17 novel materials in construction.

18 (B) FINAL REPORT.—If the initiative is
19 terminated, the Secretary shall submit to the
20 Committee on Energy and Natural Resources of
21 the Senate and the Committee on Science,
22 Space, and Technology of the House of Rep-
23 resentatives a report assessing the success of,
24 and any education provided by, the demonstra-

1 tion projects carried out by any recipients of fi-
2 nancial assistance under the initiative.

3 (4) AUTHORIZATION OF APPROPRIATIONS.—

4 There is authorized to be appropriated to the Sec-
5 retary to carry out the initiative \$200,000,000 for
6 the period of fiscal years 2025 through 2029.

7 (5) TERMINATION.—The Secretary may termi-
8 nate the initiative if the Secretary determines that
9 sufficient low-emissions cement, concrete, asphalt
10 binder, and asphalt mixtures are commercially avail-
11 able domestically at a price comparable to the price
12 of cement, concrete, asphalt binder, and asphalt mix-
13 tures produced through traditional methods of pro-
14 duction.

15 (g) TECHNICAL ASSISTANCE PROGRAM.—

16 (1) IN GENERAL.—The Secretary, in consulta-
17 tion with the Secretary of Transportation, the Sec-
18 retary of Commerce (acting through the Director of
19 the National Institute of Standards and Tech-
20 nology), and the Administrator of General Services,
21 shall provide technical assistance to eligible entities
22 to carry out an activity described in paragraph (2)
23 to promote the commercial application of tech-
24 nologies for the production and use of low-emissions

1 cement, concrete, asphalt binder, or asphalt mix-
2 tures.

3 (2) ACTIVITIES DESCRIBED.—An activity re-
4 ferred to in paragraph (1) is—

5 (A) the updating of local codes, specifica-
6 tions, and standards to engineering perform-
7 ance standards;

8 (B) a lifecycle assessment of the final
9 product;

10 (C) an environmental product declaration;

11 (D) a techno-economic assessment;

12 (E) an environmental permitting or other
13 regulatory process;

14 (F) an evaluation or testing activity; or

15 (G) any other activity that promotes the
16 commercial application of technologies devel-
17 oped through the program established under
18 subsection (b).

19 (3) APPLICATIONS.—The Secretary shall seek
20 applications for technical assistance under this sub-
21 section—

22 (A) on a competitive basis; and

23 (B) on a periodic basis, but not less fre-
24 quently than once every 12 months.

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

5 (h) DETERMINATION OF EMISSION LEVELS.—

6 (1) BASELINE EMBODIED GREENHOUSE GAS
7 EMISSIONS.—The Secretary shall determine current
8 baseline embodied greenhouse gas emissions of ce-
9 ment, concrete, asphalt binder, and asphalt mix-
10 tures, including a detailed methodology for deter-
11 mining each of those emissions.

12 (2) TIMELINE FOR REGIONAL-LEVEL EMISSIONS
13 REDUCTIONS.—Not later than 1 year after the date
14 of enactment of this Act, the Secretary shall deter-
15 mine a timeline for regional-level emissions reduc-
16 tions, to the maximum extent practicable, taking
17 into consideration—

18 (A) potential for greenhouse gas emissions
19 reductions;

20 (B) feedstock availability;

21 (C) equipment and skilled workforce avail-
22 ability;

23 (D) technology and market readiness levels
24 of low-emissions cement, concrete, asphalt bind-
25 er, and asphalt mixture technologies;

1 (E) the regulatory and specification land-
2 scape; and

3 (F) any other factor, as determined by the
4 Secretary.

5 (3) CONSULTATION.—

6 (A) EPA.—In carrying out this subsection,
7 the Secretary may consult with the Label Pro-
8 gram for Low Embodied Carbon Construction
9 Materials of the Environmental Protection
10 Agency and any other relevant program of the
11 Environmental Protection Agency.

12 (B) STAKEHOLDERS.—In carrying out this
13 subsection, the Secretary shall consult with the
14 following stakeholders, who shall reflect regional
15 diversity to the maximum extent practicable:

16 (i) Entities in the cement, concrete,
17 asphalt binder, and asphalt mixture sec-
18 tors, including—

19 (I) ready-mix or site-mixed con-
20 crete producers;

21 (II) precast concrete producers;

22 (III) portland cement and other
23 cement producers;

24 (IV) aggregate producers;

25 (V) asphalt binder producers;

1 (VI) asphalt mixture producers;

2 (VII) producers of emerging ce-
3 ment, concrete, asphalt binder, or as-
4 phalt mixture solutions; and

5 (VIII) distributors and users of
6 cement, concrete, asphalt binder, or
7 asphalt mixture production.

8 (ii) Contracting companies with at
9 least 1 Federal Government contract
10 awarded in the preceding 5 years.

11 (iii) Contracting companies with at
12 least 1 private sector contract awarded in
13 the preceding 5 years.

14 (iv) Experts, including from non-
15 governmental organizations, on the envi-
16 ronmental impact of cement, concrete, as-
17 phalt binder, and asphalt mixture produc-
18 tion in architectural and nonarchitectural
19 applications, with expertise in—

20 (I) developing codes, specifica-
21 tions, and standards for cement, con-
22 crete, asphalt binder, and asphalt
23 mixtures;

1 (II) conducting performance tests
2 on cement, concrete, asphalt binder,
3 and asphalt mixtures;

4 (III) working with the National
5 Institute of Building Sciences;

6 (IV) working for State depart-
7 ments of transportation from different
8 regions of the United States; and

9 (V) developing benchmarks for
10 embodied greenhouse gas emissions.

11 (v) Public agencies at the State, coun-
12 ty, and local government.

13 (vi) Stakeholders in any other relevant
14 industries, as determined by the Secretary.

15 (i) MANUFACTURING USA INSTITUTES.—In carrying
16 out this section, the Secretary shall—

17 (1) support, including through financial assist-
18 ance provided under subsection (e) of section 34 of
19 the National Institute of Standards and Technology
20 Act (15 U.S.C. 278s), Manufacturing USA insti-
21 tutes established or supported under section 4(d);

22 (2) leverage the resources of those Manufac-
23 turing USA institutes; and

1 (3) integrate the activities carried out under the
2 program established under subsection (b) with the
3 activities of those Manufacturing USA institutes.

4 (j) OTHER FEDERAL AGENCIES.—In carrying out
5 this section, the Secretary shall coordinate with relevant
6 officials at other Federal agencies that are carrying out
7 research and development initiatives to increase industrial
8 competitiveness and achieve significant greenhouse gas
9 emissions reductions in the production of low-emissions ce-
10 ment, concrete, asphalt binder, or asphalt mixtures, in-
11 cluding relevant officials at the Department of Defense,
12 the Department of Transportation, the General Services
13 Administration, and the National Institute of Standards
14 and Technology.

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

17 (a) DEFINITIONS.—In this section:

18 (1) MANUFACTURING USA INSTITUTE.—The
19 term “Manufacturing USA institute” has the mean-
20 ing given the term in section 34(d) of the National
21 Institute of Standards and Technology Act (15
22 U.S.C. 278s(d)).

23 (2) SECRETARY.—The term “Secretary” means
24 the Secretary of Commerce, acting through the Di-

1 rector of the National Institute of Standards and
2 Technology.

3 (b) PURPOSE.—The purpose of this section is to sup-
4 port—

5 (1) the development of standardized testing and
6 technical validation of low-emissions cement, con-
7 crete, asphalt binder, and asphalt mixtures;

8 (2) the expansion, reskilling, and upskilling of
9 the manufacturing workforce to increase employ-
10 ment in fields relating to the domestic production
11 and use of low-emissions cement, concrete, asphalt
12 binder, and asphalt mixtures; and

13 (3) the quantification of embodied greenhouse
14 gas emissions to identify low-emissions cement, con-
15 crete, and asphalt materials.

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

18 (1) improving the durability and performance of
19 cement, concrete, asphalt binder, and asphalt mix-
20 tures, including low-emissions cement, concrete, as-
21 phalt binder, and asphalt mixtures;

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

24 (3) supporting continuous innovation and emis-
25 sions reductions in the production of low-emissions

1 cement, concrete, asphalt binder, and asphalt mix-
2 tures;

3 (4) increasing employment in fields relating to
4 the domestic production and use of low-emissions ce-
5 ment, concrete, asphalt binder, and asphalt mix-
6 tures; and

7 (5) providing information to satisfy the respon-
8 sibilities of the Task Force.

9 (d) AUTHORITY TO ESTABLISH OR SUPPORT THE ES-
10 TABLISHMENT OF MANUFACTURING USA INSTITUTES
11 FOCUSED ON LOW-EMISSIONS CEMENT AND CONCRETE
12 AND LOW-EMISSIONS ASPHALT BINDER AND MIX-
13 TURES.—

14 (1) IN GENERAL.—Subject to subsection (g),
15 the Secretary may, in consultation with the Sec-
16 retary of Energy, the Secretary of Transportation,
17 the Secretary of Defense, and the Administrator of
18 the General Services Administration, establish, or
19 award financial assistance under section 34(e)(1) of
20 the National Institute of Standards and Technology
21 Act (15 U.S.C. 278s(e)(1)) to plan, establish, or
22 support, 2 Manufacturing USA institutes, 1 for low-
23 emissions cement and concrete and 1 for low-emis-
24 sions asphalt binder and mixtures that—

1 (A) establish advanced testing capabilities
2 for properties of low-emissions cement or con-
3 crete and low-emissions binder or mixtures, re-
4 spectively, produced by an eligible entity;

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

9 (C) support the development and imple-
10 mentation of education, training, and workforce
11 recruitment courses, materials, and programs
12 addressing workforce needs in fields related to
13 the domestic production and use of low-emis-
14 sions cement or concrete, and low-emissions as-
15 phalt binder or mixtures, respectively, through
16 training and education programs at all appro-
17 priate education levels;

18 (D) quantify embodied greenhouse gas
19 emissions for low-emissions cement, concrete,
20 asphalt binder, and mixtures; and

21 (E) provide collected information to the
22 Task Force.

23 (2) COORDINATION.—In addition to subpara-
24 graphs (A) through (E) of paragraph (1), the Sec-
25 retary shall require the Manufacturing USA insti-

1 tutes established, planned, or supported under such
2 paragraph to coordinate with the research program
3 established under section 3(b) to carry out activities
4 focused on researching, developing, demonstrating,
5 and deploying low-emissions cement, concrete, as-
6 phalt binder, and asphalt mixtures.

7 (3) SUPPORT AND ASSISTANCE FOR STATES.—

8 (A) IN GENERAL.—The Manufacturing
9 USA institutes established, planned, or sup-
10 ported under paragraph (1) shall, pursuant to
11 a request from a State agency for testing sup-
12 port, guidance, or resources, provide the State
13 agency with such testing support, guidance, or
14 resources in the form of technical assistance or
15 a grant.

16 (B) CONDITION.—The Secretary shall re-
17 quire, as a condition on the receipt of a grant
18 under subparagraph (A), that the recipient of
19 the grant make publicly available all data col-
20 lected by the recipient using amounts from the
21 grant.

22 (e) SELECTION OF CEMENT, CONCRETE, ASPHALT
23 BINDER, OR ASPHALT MIXTURES FOR TESTING.—In se-
24 lecting cement, concrete, asphalt binder, or asphalt mix-
25 tures from eligible entities for testing by the Manufac-

1 turing USA institutes established, planned, or supported
2 under subsection (d)(1), the Manufacturing USA insti-
3 tutes shall—

4 (1) seek to achieve regional diversity in the ce-
5 ment, concrete, asphalt binder, or asphalt mixtures
6 from eligible entities selected for testing;

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

10 (3) prioritize cement, concrete, asphalt binder,
11 or asphalt mixtures from eligible entities that lever-
12 age matching funds from non-Federal sources; and

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

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

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

19 (2) leveraging resources of relevant agencies,
20 such as the Cement and Concrete Center of Excel-
21 lence of the Department of Energy;

22 (3) integrating program activities into a rel-
23 evant existing Manufacturing USA institute; or

24 (4) establishing new Manufacturing USA insti-
25 tutes in accordance with subsection (d).

1 (g) FUNDING.—The Secretary shall carry out this
2 section using amounts otherwise available to the Sec-
3 retary.

4 **SEC. 5. FEDERAL HIGHWAY ADMINISTRATION.**

5 (a) PERFORMANCE-BASED LOW-EMISSIONS TRANS-
6 PORTATION MATERIALS GRANTS.—

7 (1) PURPOSE.—The purpose of this subsection
8 is to encourage States to improve State-level cement,
9 concrete, asphalt binder, and asphalt mixture speci-
10 fications and standards to facilitate the purchase of
11 low-emissions cement, concrete, asphalt binder, or
12 asphalt mixtures.

13 (2) ESTABLISHMENT.—The Administrator of
14 the Federal Highway Administration (referred to in
15 this section as the “Administrator”) shall provide to
16 States—

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

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

1 (C) technical assistance to update the spec-
2 ifications and standards of the State to be per-
3 formance-based specifications and standards;
4 and

5 (D) technical assistance to benchmark and
6 quantify embodied greenhouse gas emissions.

7 (3) REIMBURSEMENT AND INCENTIVE
8 AMOUNTS.—

9 (A) INCREMENTAL AMOUNT.—The amount
10 of reimbursement under paragraph (2)(A) shall
11 be equal to the incrementally higher cost of
12 using such materials relative to the cost of
13 using traditional materials, as determined by
14 the State and verified by the Administrator.

15 (B) INCENTIVE AMOUNT.—The amount of
16 an incentive under paragraph (2)(B) shall be
17 equal to 2 percent of the cost of using low-emis-
18 sions cement, concrete, asphalt binder, and as-
19 phalt mixtures on a highway project of the
20 State.

21 (C) LIMITATION.—Amounts provided for
22 reimbursement and incentives under this sub-
23 section may not exceed the amount authorized
24 to be appropriated under paragraph (6).

1 (4) ELIGIBILITY.—To be eligible to receive re-
2 imbursement or incentives under this subsection, a
3 State shall have in effect, as appropriate, special
4 provisions, specifications, or standards, such as engi-
5 neering performance standards, or a collection of
6 embodied greenhouse gas emissions reporting tools,
7 such as environmental product declarations, that fa-
8 cilitate the purchase of low-emissions cement, con-
9 crete, asphalt binder, and asphalt mixtures.

10 (5) COORDINATION.—In carrying out this sub-
11 section, the Administrator shall leverage the Every
12 Day Counts Initiative of the Department of Trans-
13 portation to promote the commercialization of low-
14 emissions cement, concrete, asphalt binder, and as-
15 phalt mixtures.

16 (6) AUTHORIZATION OF APPROPRIATIONS.—
17 There is authorized to be appropriated to the Sec-
18 retary to carry out this subsection \$15,000,000 for
19 the period of fiscal years 2025 through 2027.

20 (b) DIRECTORY OF LOW-EMISSIONS CEMENT, CON-
21 CRETE, ASPHALT BINDER, OR ASPHALT MIXTURES.—

22 (1) IN GENERAL.—The Administrator shall es-
23 tablish and maintain a publicly available directory of
24 low-emissions cement, concrete, asphalt binder, or
25 asphalt mixtures submitted by States that the Ad-

1 administrator determines to be eligible for reimburse-
2 ment or incentives under subsection (a).

3 (2) SUBMISSION AND APPROVAL.—

4 (A) IN GENERAL.—Not later than 180
5 days after the date of enactment of this Act,
6 the Administrator shall establish a procedure
7 under which States may submit new low-emis-
8 sions cement, concrete, asphalt binder, or as-
9 phalt mixtures to be included in the directory
10 under paragraph (1).

11 (B) SUBMISSION.—To be considered for
12 inclusion in the directory under paragraph (1),
13 a State shall submit an application relating to
14 the low-emissions cement, concrete, asphalt
15 binder, or asphalt mixture to the Administrator
16 at such time, in such manner, and containing
17 such information as the Administrator deter-
18 mines to be necessary.

19 (C) DECISION DEADLINE.—Not later than
20 180 days after the date on which the Adminis-
21 trator receives an application under subpara-
22 graph (B), the Administrator shall—

23 (i) approve the application and include
24 the low-emissions cement, concrete, asphalt

1 binder, or asphalt mixture in the directory
2 under paragraph (1); or
3 (ii) deny the application.

4 (D) WRITTEN REASONS FOR DENIAL.—If
5 the Administrator denies an application under
6 subparagraph (C)(ii), the Administrator shall
7 provide the State a written explanation for the
8 denial.

9 (3) PROJECT SELECTION.—Low-emissions ce-
10 ment, concrete, asphalt binder, or asphalt mixtures
11 approved under paragraph (2)(C)(i) and included in
12 the directory under paragraph (1) may be used in
13 any highway project.

14 **SEC. 6. ADVANCE PURCHASE COMMITMENT PROGRAM.**

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

16 (1) to allow States to purchase or contractually
17 guarantee the direct purchase of conforming low-
18 emissions cement, concrete, asphalt binder, or as-
19 phalt mixtures; and

20 (2) to encourage continuous innovation and
21 long-term emissions reductions in the production of
22 concrete, cement, asphalt binder, and asphalt mix-
23 tures.

24 (b) ELIGIBLE PROJECTS.—Section 133 of title 23,
25 United States Code, is amended—

1 (1) in subsection (b), by adding at the end the
2 following:

3 “(25) A project that includes the use of innova-
4 tive, domestically produced cement, concrete, asphalt
5 mixture, or asphalt binder manufactured using a
6 process described in subsection (l)(1).

7 “(26) Subject to subsection (l)(2), a project
8 that is carried out through an advance multiyear
9 contract with a producer for a specified quantity and
10 specified price of innovative, domestically produced
11 cement, concrete, asphalt mixture, or asphalt binder
12 manufactured using a process described in sub-
13 section (l)(1).”; and

14 (2) by adding at the end the following:

15 “(l) REQUIREMENTS FOR CERTAIN PROJECTS.—

16 “(1) MANUFACTURING PROCESS DESCRIBED.—

17 The process referred to in paragraphs (25) and (26)
18 of subsection (b) is a manufacturing process that—

19 “(A) produces materials with—

20 “(i) superior durability to conven-
21 tional materials; and

22 “(ii) superior performance with re-
23 spect to—

24 “(I) compressive strength;

25 “(II) tensile strength; or

1 “(III) workability; or

2 “(B) produces materials that meet the en-
3 gineering specifications of the State and
4 achieves superior performance with respect to—

5 “(i) environmental performance; or

6 “(ii) energy efficiency.

7 “(2) ADVANCE MULTIYEAR CONTRACTS.—In
8 the case of an advance multiyear contract described
9 in subsection (b)(26), the contract—

10 “(A) shall not include in the cancellation
11 provisions consideration of recurring manufac-
12 turing costs of the producer associated with the
13 production of unfunded units to be delivered
14 under the contract;

15 “(B) shall provide that payments to the
16 producer under the contract are not made in
17 advance of incurred costs on funded units;

18 “(C) shall not include a price adjustment
19 based on a failure to award a follow-on con-
20 tract;

21 “(D) shall require that the producer sub-
22 mit to the applicable State a statement that de-
23 scribes the quantity and cost of the cement,
24 concrete, asphalt mixture, and asphalt binder;

1 “(E) shall require that the producer shall
2 demonstrate to the applicable State material
3 progress toward commercial production and
4 operational capacity of cement, concrete, as-
5 phalt mixture, or asphalt binder production
6 with respect to logistics, planned material stor-
7 age, handling capacities, and delivery mecha-
8 nisms, and includes termination options in the
9 event of failure to demonstrate such progress;
10 and

11 “(F) shall fulfill the preference criteria set
12 by the applicable State, to the maximum extent
13 practicable.”.

14 (c) STP SET-ASIDE.—Section 133(h)(6) of title 23,
15 United States Code, is amended by adding at the end the
16 following:

17 “(D) PROCUREMENT FOR INNOVATIVE
18 BUILDING MATERIALS.—

19 “(i) IN GENERAL.—In carrying out a
20 project under this subsection, a State may
21 use amounts set aside under this sub-
22 section to enter into an advance multiyear
23 contract described in subsection (l)(2) for
24 a specified quantity and specified price of
25 innovative, domestically produced cement,

1 concrete, asphalt mixture, or asphalt bind-
2 er.

3 “(ii) REQUIREMENT.—A State may
4 not provide payments to a producer under
5 a contract described in clause (i) unless
6 materials have been delivered according to
7 contract terms and conditions.”.

8 **SEC. 7. INTERAGENCY TASK FORCE FOR CONCRETE AND**
9 **ASPHALT INNOVATION.**

10 (a) IN GENERAL.—The Secretary, in coordination
11 with the Secretary of Transportation, the Administrator
12 of General Services, the Secretary of Defense, and the Di-
13 rector of the National Institute of Standards and Tech-
14 nology, shall establish a task force, to be known as the
15 “Interagency Task Force for Concrete and Asphalt Inno-
16 vation”.

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

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

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

24 (3) supporting continuous innovation and emis-
25 sions reductions in the production of low-emissions

1 cement, concrete, asphalt binder, or asphalt mix-
2 tures;

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

6 (5) ensuring a trained workforce in fields re-
7 lated to the domestic production and use of low-
8 emissions cement, concrete, asphalt binder, or as-
9 phalt mixtures.

10 (c) COMPOSITION.—The Task Force shall be com-
11 posed of 2 members from each of—

12 (1) the Department of Energy;

13 (2) the Department of Transportation;

14 (3) the General Services Administration;

15 (4) the Department of Defense; and

16 (5) the National Institute of Standards and
17 Technology.

18 (d) CONSULTATION.—In carrying out the duties of
19 the Task Force, the Secretary shall consult with the fol-
20 lowing stakeholders, who shall reflect regional diversity to
21 the maximum extent practicable:

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

24 (A) ready-mix or site-mixed concrete pro-
25 ducers;

- 1 (B) precast concrete producers;
- 2 (C) portland cement and other cement pro-
- 3 ducers;
- 4 (D) aggregate producers;
- 5 (E) asphalt binder producers;
- 6 (F) asphalt mixture producers;
- 7 (G) producers of emerging cement, con-
- 8 crete, asphalt binder, or asphalt mixture solu-
- 9 tions; and
- 10 (H) distributors and users of cement, con-
- 11 crete, asphalt binder, or asphalt mixture pro-
- 12 duction.
- 13 (2) Contracting companies with at least 1 Fed-
- 14 eral Government contract awarded in the preceding
- 15 5 years.
- 16 (3) Contracting companies with at least 1 pri-
- 17 vate sector contract awarded in the preceding 5
- 18 years.
- 19 (4) Experts, including from nongovernmental
- 20 organizations, on the environmental impact of ce-
- 21 ment, concrete, asphalt binder, and asphalt mixture
- 22 production in architectural and nonarchitectural ap-
- 23 plications, with expertise in—

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

4 (B) conducting performance tests on ce-
5 ment, concrete, asphalt binder, and asphalt
6 mixtures;

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

9 (D) working for State or local departments
10 of transportation from different regions of the
11 United States; and

12 (E) developing benchmarks for embodied
13 greenhouse gas emissions.

14 (5) Stakeholders in any other relevant indus-
15 tries, as determined by the Secretary.

16 (e) RESPONSIBILITIES.—The Task Force shall—

17 (1) provide recommendations to the Secretary
18 on—

19 (A) the use of engineering performance
20 standards for low-emissions cement, concrete,
21 asphalt binder, and asphalt mixtures, including
22 taking into account lessons learned from the re-
23 imbursement and incentives provided under sec-
24 tion 5(a)(2);

1 (B) creating guidelines and best practices
2 for the testing and evaluation of low-emissions
3 cement, concrete, asphalt binder, and asphalt
4 mixtures, including taking into account lessons
5 learned from the Manufacturing USA institutes
6 planned, established, or supported under section
7 4(d);

8 (C) improving the product category rules
9 governing the creation of relevant environ-
10 mental product declarations for low-emissions
11 cement, concrete, asphalt binder, and asphalt
12 mixture, including—

13 (i) taking into account lessons learned
14 from the technical assistance program es-
15 tablished under section 3(g); and

16 (ii) coordinating with the Label Pro-
17 gram for Low Embodied Carbon Construc-
18 tion Materials of the Environmental Pro-
19 tection Agency and any other relevant pro-
20 gram of the Environmental Protection
21 Agency; and

22 (D) incentives that would encourage the
23 use of low-emissions cement, concrete, asphalt
24 binder, and asphalt mixtures;

1 (2) coordinate meetings and facilitate discus-
2 sions through forums such as roundtables, work-
3 shops, or conferences to inform the recommenda-
4 tions provided under paragraph (1); and

5 (3) host briefings and provide updates to—

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

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

10 (f) REPORT.—Once every 2 years, the Secretary, in
11 consultation with the Task Force, shall submit to Con-
12 gress a report that describes—

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

15 (B) the response of the Secretary to each of
16 those recommendations, including how best to imple-
17 ment each recommendation;

18 (2) the determinations made by the Secretary
19 under section 3(h)(1);

20 (3) changes to State and local codes and speci-
21 fications facilitated by the Task Force during the
22 period covered by the report; and

23 (4) meetings with cement, concrete, asphalt
24 binder, and asphalt mixture producers, contractors,
25 engineers, academics, State and local government of-

1 ficials, or any other relevant stakeholders coordi-
2 nated by the Task Force during the period covered
3 by the report.

4 (g) TERMINATION.—The Secretary may terminate
5 the Task Force if the Secretary determines that sufficient
6 low-emissions cement, concrete, asphalt binder, and as-
7 phalt mixtures are commercially available domestically at
8 a price comparable to the price of cement, concrete, as-
9 phalt binder, and asphalt mixtures produced through tra-
10 ditional methods of production.