

**Suspend the Rules and Pass the Bill, H.R. 7685, With an Amendment**

**(The amendment strikes all after the enacting clause and inserts a new text)**

118<sup>TH</sup> CONGRESS  
2<sup>D</sup> SESSION

# H. R. 7685

To strengthen and enhance the competitiveness of American industry through the research and development of advanced technologies to improve the efficiency of cement, concrete, and asphalt production, and for other purposes.

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IN THE HOUSE OF REPRESENTATIVES

MARCH 15, 2024

Mr. MILLER of Ohio (for himself and Mrs. FOUSHEE) introduced the following bill; which was referred to the Committee on Science, Space, and Technology

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## A BILL

To strengthen and enhance the competitiveness of American industry through the research and development of advanced technologies to improve the efficiency of cement, concrete, and asphalt 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 “Innovative Mitigation  
5 Partnerships for Asphalt and Concrete Technologies Act”  
6 or the “IMPACT Act”.

1 **SEC. 2. ADVANCED CEMENT, CONCRETE, AND ASPHALT**  
2 **PRODUCTION RESEARCH PROGRAM.**

3 (a) PROGRAM.—Part I of subtitle C of title V of the  
4 Infrastructure Investment and Jobs Act (Public Law 117–  
5 58) is amended by inserting after section 40522 the fol-  
6 lowing new section:

7 **“SEC. 40523. ADVANCED CEMENT, CONCRETE, AND AS-**  
8 **PHALT PRODUCTION RESEARCH PROGRAM.**

9 “(a) DEFINITIONS.—In this section:

10 “(1) ADVANCED PRODUCTION.—The term ‘ad-  
11 vanced production’ means production of cement,  
12 concrete, or asphalt with one or more of the fol-  
13 lowing improvements with respect to the production  
14 of commercially available cement, concrete, or as-  
15 phalt:

16 “(A) Improved cost-effectiveness.

17 “(B) Improved quality, durability, engi-  
18 neering performance, and resilience.

19 “(C) Improved efficiency of resource con-  
20 sumption and material demand.

21 “(2) ALTERNATIVE FUELS.—The term ‘alter-  
22 native fuels’ means any solid, liquid, or gaseous ma-  
23 terials, or a combination thereof, used to replace or  
24 supplement any portion of fuels used in combustion  
25 or pyrolysis for low-emissions cement, concrete, or  
26 asphalt.

1           “(3) **COMMERCIALLY AVAILABLE.**—The term  
2           ‘commercially available’, with respect to cement, con-  
3           crete, and asphalt, means that the cement, concrete,  
4           or asphalt is—

5                   “(A) readily and widely available for pur-  
6                   chase in the United States; and

7                   “(B) produced using a production method  
8                   of cement, concrete, or asphalt products, as ap-  
9                   plicable, that is widely in use.

10           “(4) **ELIGIBLE ENTITY.**—The term ‘eligible en-  
11           tity’ means any of the following:

12                   “(A) An institution of higher education.

13                   “(B) An appropriate State or Federal enti-  
14                   ty, including a federally funded research and  
15                   development center of the Department.

16                   “(C) A nonprofit research institution.

17                   “(D) A private entity.

18                   “(E) Any other relevant entity the Sec-  
19                   retary determines appropriate.

20                   “(F) A partnership or consortium of two  
21                   or more entities described in subparagraphs (A)  
22                   through (E).

23           “(5) **ENGINEERING PERFORMANCE-BASED**  
24           **STANDARD.**—The term ‘engineering performance-  
25           based standard’ means an existing engineering

1 standard with respect to which the requirements ap-  
2 plicable to such standard are stated in terms of re-  
3 quired results, with criteria for verifying compliance  
4 rather than specific composition, design, or proce-  
5 dure.

6 “(6) INSTITUTION OF HIGHER EDUCATION.—  
7 The term ‘institution of higher education’ has the  
8 meaning given such term in section 101 of the High-  
9 er Education Act of 1965 (20 U.S.C. 1001).

10 “(7) LOW-EMISSIONS CEMENT, CONCRETE, AND  
11 ASPHALT.—The term ‘low-emissions cement, con-  
12 crete, and asphalt’ means cement, concrete, asphalt  
13 binder, or asphalt mixture that reduces, to the max-  
14 imum extent practicable, greenhouse gas or directly-  
15 related copollutant emissions to levels below commer-  
16 cially available cement, concrete, or asphalt.

17 “(8) RURAL AREA.—The term ‘rural area’ has  
18 the meaning given such term in section 343(a) of  
19 the Consolidated Farm and Rural Development Act  
20 (7 U.S.C. 1991(a)).

21 “(b) ESTABLISHMENT.—Not later than 180 days  
22 after the date of the enactment of this section, the Sec-  
23 retary shall establish a program of research, development,  
24 demonstration, and commercial application of advanced  
25 tools, technologies, and methods for advanced production

1 and use of low-emissions cement, concrete, and asphalt in  
2 order to—

3 “(1) increase the technological and economic  
4 competitiveness of industry and production in the  
5 United States;

6 “(2) expand and increase the stability of supply  
7 chains through enhanced domestic production,  
8 nearshoring, and cooperation with allies;

9 “(3) achieve measurable greenhouse gas or di-  
10 rectly related copollutant emissions reductions in the  
11 production processes for cement, concrete, and as-  
12 phalt products; and

13 “(4) create quality domestic jobs.

14 “(c) REQUIREMENTS.—In carrying out the program  
15 under subsection (b), the Secretary shall—

16 “(1) coordinate with the programs and activi-  
17 ties authorized under title VI of division Z of the  
18 Consolidated Appropriations Act, 2021 (relating to  
19 industrial and manufacturing technologies) and the  
20 amendments made by such title;

21 “(2) coordinate across all relevant program of-  
22 fices of the Department, including the Office of  
23 Science, the Advanced Research Projects Agency-  
24 Energy, the Office of Clean Energy Demonstrations,  
25 the Office of Energy Efficiency and Renewable En-

1 energy, the Office of Fossil Energy, the Office of In-  
2 dustrial Efficiency and Decarbonization, the Office  
3 of Manufacturing and Energy Supply Chains, and  
4 the Office of Nuclear Energy;

5 “(3) leverage, to the extent practicable, the re-  
6 search infrastructure of the Department, including  
7 scientific computing user facilities, x-ray light  
8 sources, neutron scattering facilities, and nanoscale  
9 science research centers; and

10 “(4) conduct research, development, demonstra-  
11 tion, and commercial application of the advanced  
12 production of low-emissions cement, concrete, and  
13 asphalt that have the potential to increase domestic  
14 production and employment in both advanced and  
15 commercially available processes.

16 “(d) STRATEGIC PLAN.—

17 “(1) IN GENERAL.—Not later than 180 days  
18 after the establishment of the program under sub-  
19 section (b), the Secretary shall develop a 5-year stra-  
20 tegic plan identifying research, development, dem-  
21 onstration, and commercial application goals for  
22 such program. The Secretary shall submit such plan  
23 to the Committee on Science, Space, and Technology  
24 of the House of Representatives and the Committee  
25 on Energy and Natural Resources of the Senate.

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

3           “(A) identify programs at the Department  
4 related to the advanced production of low-emis-  
5 sions cement, concrete, and asphalt that sup-  
6 port the research, development, demonstration,  
7 and commercial application activities described  
8 in this section, and the demonstration projects  
9 under subsection (f);

10           “(B) establish technological and pro-  
11 grammatic goals to achieve the requirements  
12 specified in subsection (e); and

13           “(C) include timelines for the accomplish-  
14 ment of such goals developed under the plan.

15           “(3) UPDATES TO PLAN.—Not less than once  
16 every two years, the Secretary shall submit to the  
17 Committee on Science, Space, and Technology of the  
18 House of Representatives and the Committee on En-  
19 ergy and Natural Resources of the Senate an up-  
20 dated version of the strategic plan under paragraph  
21 (1).

22           “(e) FOCUS AREAS.—In carrying out the program es-  
23 tablished in subsection (e), the Secretary shall focus on  
24 the following:

1           “(1) Carbon capture technologies for low-emis-  
2           sions cement, concrete, and asphalt production proc-  
3           esses, which may include the following:

4                   “(A) Oxycombustion and chemical looping  
5           technologies.

6                   “(B) Precombustion technologies.

7                   “(C) Post combustion technologies.

8                   “(D) Direct carbon dioxide separation  
9           technologies.

10           “(2) Materials, technologies, inputs, and proc-  
11           esses that—

12                   “(A) produce fewer greenhouse gas or di-  
13           rectly related copollutant emissions during pro-  
14           duction, use, and end use of cement, concrete,  
15           and asphalt; or

16                   “(B) provide quality, durability, resilience,  
17           engineering, or other performance metrics equal  
18           to or greater than commercially available prod-  
19           ucts.

20           “(3) Medium- and high-temperature heat-gen-  
21           eration technologies used for the advanced produc-  
22           tion of low-emissions cement, concrete, and asphalt  
23           which may include the following:

24                   “(A) Alternative fuels.



1           “(B) Renewable heat-generation and stor-  
2           age technology.

3           “(C) Electrification of heating processes.

4           “(D) Other clean heat-generation tech-  
5           nologies and sources.

6           “(4) Technologies and practices that increase  
7           the efficiency of energy use, natural resource con-  
8           sumption, or material demand, which may include  
9           the following:

10           “(A) Designing products that encourage  
11           reuse, refurbishment, remanufacturing, and re-  
12           cycling.

13           “(B) Minimizing waste, including waste  
14           heat, from low-emissions cement, concrete, and  
15           asphalt production processes, including through  
16           the reuse of waste as a resource in other indus-  
17           trial processes for mutual benefit.

18           “(C) Increasing the overall energy effi-  
19           ciency of low-emissions cement, concrete, and  
20           asphalt production processes, including through  
21           life cycle assessments.

22           “(5) Technologies and approaches to reduce  
23           greenhouse gas or directly related copollutant emis-  
24           sions from the advanced production of cement, con-  
25           crete, and asphalt.

1           “(6) High-performance computing to develop  
2 advanced materials and production processes that  
3 may contribute to the focus areas described in para-  
4 graphs (1) through (5), including the following:

5           “(A) Modeling, simulation, and optimiza-  
6 tion of the design of cost-effective and energy-  
7 efficient products and processes.

8           “(B) The use of digital prototyping and  
9 additive production to enhance product design.

10          “(7) Advanced sensor technologies and methods  
11 to monitor and quantify the performance of low-  
12 emissions cement, concrete, and asphalt materials at  
13 scale and under a variety of conditions.

14          “(8) Technologies that can be retrofitted at ce-  
15 ment, concrete, and asphalt plants that represent  
16 the most common facility types in the United States  
17 and in other countries, with consideration for field  
18 validation of such retrofits.

19          “(9) Best practices for data standardization  
20 and data sharing tools and technologies, in coordina-  
21 tion with relevant Federal agencies.

22          “(10) Fundamental research in chemistry and  
23 materials science to identify the following:

24           “(A) Novel materials and alternative do-  
25 mestic feedstocks and processing operations for

1 the advanced production of low-emissions ce-  
2 ment, concrete, and asphalt.

3 “(B) Improved understanding by eligible  
4 entities of the mechanisms that determine the  
5 performance and durability of low-emissions ce-  
6 ment, concrete, and asphalt over time.

7 “(f) DEMONSTRATIONS.—

8 “(1) ESTABLISHMENT.—Not later than 180  
9 days after the date of the enactment of this section,  
10 the Secretary, in carrying out the program estab-  
11 lished in subsection (b), and in collaboration with  
12 the Secretary of Transportation, the Administrator  
13 of General Services, industry partners, institutions  
14 of higher education, and National Laboratories, shall  
15 support demonstrations of advanced production of  
16 low-emissions cement, concrete, and asphalt that  
17 uses either—

18 “(A) a single technology or practice; or

19 “(B) a combination of multiple tech-  
20 nologies or practices.

21 “(2) SELECTION REQUIREMENTS.—In carrying  
22 out the demonstrations under paragraph (1), the  
23 Secretary shall select eligible entities to carry out  
24 demonstration projects and to the maximum extent  
25 practicable—

1           “(A) encourage regional diversity among  
2 eligible entities, including participation by enti-  
3 ties located in rural areas;

4           “(B) encourage technological diversity  
5 among eligible entities; and

6           “(C) ensure that specific projects se-  
7 lected—

8           “(i) expand on the existing technology  
9 demonstration programs of the Depart-  
10 ment;

11           “(ii) are based on the extent of green-  
12 house gas emissions reductions achieved;  
13 and

14           “(iii) prioritize leveraging matching  
15 funds from non-Federal sources.

16           “(3) REPORTS.—The Secretary shall submit to  
17 the Committee on Science, Space, and Technology of  
18 the House of Representatives and the Committee on  
19 Energy and Natural Resources of the Senate—

20           “(A) not less frequently than once every  
21 two years for the duration of the demonstra-  
22 tions under paragraph (1), a report describing  
23 the performance of such demonstration; and

24           “(B) if any such demonstration is termi-  
25 nated, an assessment of the success of, and

1 education provided by, the measures carried out  
2 by such demonstration.

3 “(4) TERMINATION.—The Secretary may termi-  
4 nate the demonstratives under paragraph (1) if the  
5 Secretary determines that sufficient low-emissions  
6 cement, concrete, and asphalt produced through ad-  
7 vanced production are commercially available domes-  
8 tically at a price comparable to the price of cement,  
9 concrete, and asphalt produced through traditional  
10 methods of production.

11 “(g) TECHNICAL ASSISTANCE PROGRAM.—

12 “(1) IN GENERAL.—The Secretary, in consulta-  
13 tion with the Secretary of Transportation, the Sec-  
14 retary of Commerce (acting through the Director of  
15 the National Institute of Standards and Tech-  
16 nology), the Administrator of General Services, the  
17 Administrator of the Environmental Protection  
18 Agency, and appropriate representatives of relevant  
19 standards development organizations, shall provide  
20 technical assistance to eligible entities to carry out  
21 an activity described in paragraph (2) to promote  
22 the commercial application of technologies for the  
23 production and use of low-emissions cement, con-  
24 crete, and asphalt.

1           “(2) ACTIVITIES DESCRIBED.—An activity re-  
2           ferred to in paragraph (1) is any of the following:

3                   “(A) Efforts related to collecting data that  
4                   could be used in the updating of local codes,  
5                   specifications, and standards to engineering  
6                   performance-based standards.

7                   “(B) A lifecycle assessment of the final  
8                   product.

9                   “(C) An environmental impact comparison  
10                  between different cements, concretes, and as-  
11                  phalts.

12                  “(D) A techno-economic assessment.

13                  “(E) An environmental permitting or other  
14                  regulatory process.

15                  “(F) An evaluation or testing activity.

16                  “(G) Any other activity that promotes the  
17                  commercial application of technologies devel-  
18                  oped through the program under 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 one or more regional centers  
3           to provide technical assistance to eligible entities to  
4           carry out the activity described in paragraph (2)(A).

5           “(h) ADDITIONAL COORDINATION.—

6           “(1) MANUFACTURING USA.—In carrying out  
7           this section the Secretary shall consider—

8                   “(A) leveraging the resources of relevant  
9                   existing Manufacturing USA Institutes de-  
10                  scribed in section 34(d) of the National Insti-  
11                  tute of Standards and Technology Act (15  
12                  U.S.C. 278s(d));

13                   “(B) integrating program activities into a  
14                   relevant existing Manufacturing USA Institute;  
15                   or

16                   “(C) awarding financial assistance, con-  
17                   sistent with section 34(e) of the National Insti-  
18                   tute of Standards and Technology Act (15  
19                   U.S.C. 278s(e)), to a person or group of per-  
20                   sons to assist the person or group of persons in  
21                   planning, establishing, or supporting a Manu-  
22                   facturing U.S.A. institute focused on advanced  
23                   production of low-emissions cement, concrete,  
24                   and asphalt.

1           “(2) OTHER FEDERAL AGENCIES.—In carrying  
2           out this section, the Secretary shall coordinate with  
3           other Federal agencies, including the Department of  
4           Defense, the Department of Transportation, and the  
5           National Institute of Standards and Technology,  
6           that are carrying out research and development ini-  
7           tiatives to increase industrial competitiveness and  
8           achieve measurable greenhouse gas or directly re-  
9           lated copollutant emissions reductions through the  
10          advanced production of cement, concrete, and as-  
11          phalt.

12          “(i) SUNSET.—This section shall terminate seven  
13          years after the date of the enactment of this section.

14          “(j) RESEARCH SECURITY.—The activities author-  
15          ized under this section shall be applied in a manner con-  
16          sistent with subtitle D of title VI of the Research and De-  
17          velopment, Competition, and Innovation Act (enacted as  
18          division B of Public Law 117–167 (42 U.S.C. 19231 et  
19          seq.)).

20          “(k) RULE OF CONSTRUCTION.—Nothing in this sec-  
21          tion may be construed to amend, alter, or affect the au-  
22          thorities of the Secretary to define, establish, or enforce  
23          new environmental industry standards for, or related to,  
24          cement, concrete, or asphalt.”.



1           (b) CLERICAL AMENDMENT.—The table of contents  
2 in section 1(b) of the Infrastructure Investment and Jobs  
3 Act is amended by inserting after the item relating to sec-  
4 tion 40522 the following new item:

“Sec. 40523. Advanced cement, concrete, and asphalt production research pro-  
gram.”.