

**AMENDMENT TO RULES COMMITTEE PRINT 117-**

**31**

**OFFERED BY MR. LAMB OF PENNSYLVANIA**

Page 641, after line 22, insert the following:

1 **Subtitle G—Steel Upgrading Part-**  
2 **nerships and Emissions Reduc-**  
3 **tion**

4 **SEC. 10671. LOW-EMISSIONS STEEL MANUFACTURING RE-**  
5 **SEARCH PROGRAM.**

6 (a) PROGRAM.—Subtitle D of title IV of the Energy  
7 Independence and Security Act of 2007 (42 U.S.C. 17111  
8 et seq.) is amended by inserting after section 454 the fol-  
9 lowing:

10 **“SEC. 454A. LOW-EMISSIONS STEEL MANUFACTURING RE-**  
11 **SEARCH PROGRAM.**

12 “(a) PURPOSE.—The purpose of this section is to en-  
13 courage the research and development of innovative tech-  
14 nologies aimed at—

15 “(1) increasing the technological and economic  
16 competitiveness of industry and manufacturing in  
17 the United States; and

1           “(2) achieving significant net nonwater green-  
2           house emissions reductions in the production proc-  
3           esses for iron, steel, and steel mill products.

4           “(b) DEFINITIONS.—In this section:

5           “(1)           COMMERCIALLY           AVAILABLE  
6           STEELMAKING.—The term ‘commercially available  
7           steelmaking’ means the current production method  
8           of iron, steel, and steel mill products.

9           “(2) CRITICAL MATERIAL.—The term ‘critical  
10          material’ has the meaning given such term in section  
11          7002 of division Z of the Consolidated Appropria-  
12          tions Act, 2021 (Public Law 116–260).

13          “(3) CRITICAL MINERAL.—The term ‘critical  
14          mineral’ has the meaning given such term in section  
15          7002 of division Z of the Consolidated Appropria-  
16          tions Act, 2021 (Public Law 116–260).

17          “(4) ELIGIBLE ENTITY.—The term ‘eligible en-  
18          tity’ means—

19                 “(A) an institution of higher education;

20                 “(B) an appropriate State or Federal enti-  
21                 ty, including a federally funded research and  
22                 development center of the Department;

23                 “(C) a nonprofit research institution;

24                 “(D) a private entity;

1           “(E) any other relevant entity the Sec-  
2           retary determines appropriate; and

3           “(F) a partnership or consortium of two or  
4           more entities described in subparagraphs (A)  
5           through (E).

6           “(5) LOW-EMISSIONS STEEL MANUFAC-  
7           TURING.—The term ‘low-emissions steel manufac-  
8           turing’ means advanced or commercially available  
9           steelmaking with the reduction, to the maximum ex-  
10          tent practicable, of net nonwater greenhouse gas  
11          emissions to the atmosphere from the production of  
12          iron, steel, and steel mill products.

13          “(c) IN GENERAL.—Not later than 180 days after  
14          the date of enactment of the America COMPETES Act  
15          of 2022, the Secretary shall establish a program of re-  
16          search, development, demonstration, and commercial ap-  
17          plication of advanced tools, technologies, and methods for  
18          low-emissions steel manufacturing.

19          “(d) REQUIREMENTS.—In carrying out the program  
20          under subsection (c), the Secretary shall—

21                 “(1) coordinate this program with the programs  
22                 and activities authorized in title VI of division Z of  
23                 the Consolidated Appropriations Act, 2021;

24                 “(2) coordinate across all relevant program of-  
25                 fices of the Department, including the Office of

1 Science, Office of Energy Efficiency and Renewable  
2 Energy, the Office of Fossil Energy, and the Office  
3 of Nuclear Energy;

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

9 “(4) conduct research, development, and dem-  
10 onstration of low-emissions steel manufacturing  
11 technologies that have the potential to increase do-  
12 mestic production and employment in advanced and  
13 commercially available steelmaking.

14 “(e) STRATEGIC PLAN.—

15 “(1) IN GENERAL.—Not later than 180 days  
16 after the date of enactment of the America COM-  
17 PETES Act of 2022, the Secretary shall develop a  
18 5-year strategic plan identifying research, develop-  
19 ment, demonstration, and commercial application  
20 goals for the program established in subsection (c).  
21 The Secretary shall submit this plan to the Com-  
22 mittee on Science, Space, and Technology of the  
23 House of Representatives and the Committee on En-  
24 ergy and Natural Resources of the Senate.

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

3                   “(A) identify programs at the Department  
4                   related to low-emissions steel manufacturing  
5                   that support the research, development, dem-  
6                   onstration, and commercial application activities  
7                   described in this section, and the demonstration  
8                   projects under subsection (h);

9                   “(B) establish technological and pro-  
10                  grammatic goals to achieve the requirements of  
11                  subsection (d); and

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

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

20           “(f) FOCUS AREAS.—In carrying out the program es-  
21           tablished in subsection (e), the Secretary shall focus on—

22                   “(1) medium- and high-temperature heat gen-  
23                   eration technologies used for low-emissions steel  
24                   manufacturing, which may include—

1           “(A) alternative fuels, including hydrogen  
2           and biomass;

3           “(B) alternative reducing agents, including  
4           hydrogen;

5           “(C) renewable heat generation technology,  
6           including solar and geothermal;

7           “(D) electrification of heating processes,  
8           including through electrolysis; and

9           “(E) other heat generation sources;

10          “(2) carbon capture technologies for advanced  
11          and commercially available steelmaking processes,  
12          which may include—

13                 “(A) combustion and chemical looping  
14                 technologies;

15                 “(B) use of slag to reduce carbon dioxide  
16                 emissions;

17                 “(C) pre-combustion technologies; and

18                 “(D) post-combustion technologies;

19          “(3) smart manufacturing technologies and  
20          principles, digital manufacturing technologies, and  
21          advanced data analytics to develop advanced tech-  
22          nologies and practices in information, automation,  
23          monitoring, computation, sensing, modeling, and  
24          networking to—

1           “(A) model and simulate manufacturing  
2           production lines;

3           “(B) monitor and communicate production  
4           line status; and

5           “(C) model, simulate, and optimize the en-  
6           ergy efficiency of manufacturing processes;

7           “(4) technologies and practices that minimize  
8           energy and natural resource consumption, which  
9           may include—

10           “(A) designing products that enable reuse,  
11           refurbishment, remanufacturing, and recycling;

12           “(B) minimizing waste from advanced and  
13           commercially available steelmaking processes,  
14           including through the reuse of waste as re-  
15           sources in other industrial processes for mutual  
16           benefit;

17           “(C) increasing resource efficiency; and

18           “(D) increasing the energy efficiency of  
19           advanced and commercially available  
20           steelmaking processes;

21           “(5) alternative materials and technologies that  
22           produce fewer emissions during production and re-  
23           sult in fewer emissions during use, which may in-  
24           clude—

25           “(A) innovative raw materials;

1                   “(B) high-performance lightweight mate-  
2                   rials;

3                   “(C) substitutions for critical materials  
4                   and critical minerals; and

5                   “(D) other technologies that achieve sig-  
6                   nificant carbon emission reductions in low-emis-  
7                   sions steel manufacturing, as determined by the  
8                   Secretary; and

9                   “(6) high-performance computing to develop ad-  
10                  vanced materials and manufacturing processes con-  
11                  tributing to the focus areas described in paragraphs  
12                  (1) through (5), including—

13                   “(A) modeling, simulation, and optimiza-  
14                   tion of the design of energy efficient and sus-  
15                   tainable products; and

16                   “(B) the use of digital prototyping and ad-  
17                   ditive manufacturing to enhance product de-  
18                   sign.

19                  “(g) TESTING AND VALIDATION.—The Secretary, in  
20                  consultation with the Director of the National Institute  
21                  of Standards and Technology, shall support the develop-  
22                  ment of standardized testing and technical validation of  
23                  advanced and commercially available steelmaking and low-  
24                  emissions steel manufacturing through collaboration with



1 one or more National Laboratories, and one or more eligi-  
2 ble entities.

3 “(h) DEMONSTRATION.—

4 “(1) ESTABLISHMENT.—Not later than 180  
5 days after the date of enactment of the America  
6 COMPETES Act of 2022, the Secretary, in carrying  
7 out the program established in subsection (c), and in  
8 collaboration with industry partners, institutions of  
9 higher education, and the National Laboratories,  
10 shall support an initiative for the demonstration of  
11 low-emissions steel manufacturing, as identified by  
12 the Secretary, that uses either—

13 “(A) a single technology; or

14 “(B) a combination of multiple tech-  
15 nologies.

16 “(2) SELECTION REQUIREMENTS.—Under the  
17 initiative established under paragraph (1), the Sec-  
18 retary shall select eligible entities to carry out dem-  
19 onstration projects and to the maximum extent prac-  
20 ticable—

21 “(A) encourage regional diversity among  
22 eligible entities, including participation by rural  
23 States;

24 “(B) encourage technological diversity  
25 among eligible entities; and

1           “(C) ensure that specific projects se-  
2           lected—

3           “(i) expand on the existing technology  
4           demonstration programs of the Depart-  
5           ment; and

6           “(ii) prioritize projects that leverage  
7           matching funds from non-Federal sources.

8           “(3) REPORTS.—The Secretary shall submit to  
9           the Committee on Science, Space, and Technology of  
10          the House of Representatives and the Committee on  
11          Energy and Natural Resources of the Senate—

12          “(A) not less frequently than once every  
13          two years for the duration of the demonstration  
14          initiative under this subsection, a report de-  
15          scribing the performance of the initiative; and

16          “(B) if the initiative established under this  
17          subsection is terminated, an assessment of the  
18          success of, and education provided by, the  
19          measures carried out by recipients of financial  
20          assistance under the initiative.

21          “(i) ADDITIONAL COORDINATION.—

22          “(1) MANUFACTURING U.S.A.—In carrying out  
23          this section the Secretary shall consider—

24          “(A) leveraging the resources of relevant  
25          existing Manufacturing USA Institutes de-

1           scribed in section 34(d) of the National Insti-  
2           tute of Standards and Technology Act (15  
3           U.S.C. 278s(d));

4                   “(B) integrating program activities into a  
5           relevant existing Manufacturing USA Institute;  
6           or

7                   “(C) establishing a new institute focused  
8           on low-emissions steel manufacturing.

9           “(2) OTHER FEDERAL AGENCIES.—In carrying  
10          out this section, the Secretary shall coordinate with  
11          other Federal agencies that are carrying out re-  
12          search and development initiatives to increase indus-  
13          trial competitiveness and achieve significant net  
14          nonwater greenhouse emissions reductions through  
15          low-emissions steel manufacturing, including the De-  
16          partment of Defense, Department of Transportation,  
17          and the National Institute of Standards and Tech-  
18          nology.

19          “(j) OTHER REQUIREMENTS.—All laborers and me-  
20          chanics employed by contractors or subcontractors in the  
21          performance of construction, alteration or repair work car-  
22          ried out, in whole or in part, with assistance made avail-  
23          able under this section shall be paid wages at rates not  
24          less than those prevailing on projects of a character simi-  
25          lar in the locality as determined by the Secretary of Labor

1 in accordance with subchapter IV of chapter 31 of title  
2 40, United States Code. With respect to the labor stand-  
3 ards specified in this section, the Secretary of Labor shall  
4 have the authority and functions set forth in Reorganiza-  
5 tion Plan Numbered 14 of 1950 (64 Stat. 1267; 5 U.S.C.  
6 App.) and section 3145 of title 40, United States Code.”.

7 (b) CLERICAL AMENDMENT.—Section 1(b) of the  
8 Energy Independence and Security Act of 2007 (42  
9 U.S.C. 17001 note) is amended in the table of contents  
10 by inserting after the item relating to section 454 the fol-  
11 lowing:

“Sec. 454A. Low-Emissions Steel Manufacturing Research Program.”.

