

## Calendar No. 58

117TH CONGRESS  
1ST SESSION

# S. 1260

To establish a new Directorate for Technology and Innovation in the National Science Foundation, to establish a regional technology hub program, to require a strategy and report on economic security, science, research, innovation, manufacturing, and job creation, to establish a critical supply chain resiliency program, and for other purposes.

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### IN THE SENATE OF THE UNITED STATES

APRIL 20, 2021

Mr. SCHUMER (for himself, Mr. YOUNG, Ms. HASSAN, Ms. COLLINS, Mr. COONS, Mr. PORTMAN, Ms. BALDWIN, Mr. GRAHAM, Mr. PETERS, Mr. BLUNT, Mr. DAINES, Mr. VAN HOLLEN, Mr. ROMNEY, and Mr. KELLY) introduced the following bill; which was read twice and referred to the Committee on Commerce, Science, and Transportation

MAY 13, 2021

Reported by Ms. CANTWELL, with an amendment

[Strike out all after the enacting clause and insert the part printed in *italie*]

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## A BILL

To establish a new Directorate for Technology and Innovation in the National Science Foundation, to establish a regional technology hub program, to require a strategy and report on economic security, science, research, innovation, manufacturing, and job creation, to establish a critical supply chain resiliency program, 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 “Endless Frontier Act”.

5 **SEC. 2. FINDINGS.**

6        Congress finds the following:

7            (1) For over 70 years, the United States has  
8        been the unequivocal global leader in scientific and  
9        technological innovation, and as a result the people  
10       of the United States have benefitted through good-  
11       paying jobs, economic prosperity, and a higher qual-  
12       ity of life.

13            (A) Today, however, this leadership posi-  
14       tion is being eroded and challenged by foreign  
15       competitors, some of which are stealing intellec-  
16       tual property and trade secrets of the United  
17       States and aggressively investing in research  
18       and commercialization to dominate the key ex-  
19       isting and future technology fields.

20            (B) While the United States once led the  
21       world in the share of our economy invested in  
22       research, our Nation now ranks 9th globally in  
23       total research and development and 12th in  
24       publicly financed research and development.

1           (C) While wages for American workers  
2           rose in parallel with growth in national produc-  
3           tivity from the end of World War II through  
4           most of the 1970s, since then wage growth has  
5           been uneven and labor's share in national in-  
6           come has declined.

7           (2) Without a significant increase in investment  
8           in research, education, technology transfer, intellec-  
9           tual property, manufacturing, and other core  
10          strengths of the United States innovation ecosystem,  
11          it is only a matter of time before the global competi-  
12          tors of the United States overtake the United States  
13          in terms of technological primacy. The country that  
14          wins the race in key technologies—such as artificial  
15          intelligence, quantum computing, advanced commu-  
16          nications, and advanced manufacturing—and uses  
17          technological innovation to support high-quality jobs  
18          and incomes will be the superpower of the future.

19          (3) The Federal Government must catalyze  
20          United States innovation by boosting research in-  
21          vestments focused on discovering, creating, commer-  
22          cializing, and demonstrating new technologies and  
23          manufacturing those technologies domestically  
24          throughout the country to ensure the leadership of  
25          the United States in the industries of the future.

1           (4) The distribution of innovation jobs and in-  
2           vestment in the United States has become largely  
3           concentrated in just a few locations, while much of  
4           the Nation has been left out of growth in the innova-  
5           tion sector. More than 90 percent of the Nation's in-  
6           novation sector employment growth in the last 15  
7           years was generated in just 5 major metropolitan  
8           areas. The Federal Government must address this  
9           imbalance in opportunity by—

10                   (A) dramatically increasing funding for  
11                   science and engineering research and expanding  
12                   partnerships with the private sector to build  
13                   new technology hubs across the country;

14                   (B) spreading high-quality innovation sec-  
15                   tor jobs more broadly;

16                   (C) increasing the participation of under-  
17                   represented populations, engaging workers, and  
18                   collaborating with labor organizations in inno-  
19                   vation efforts to tap the talent and potential of  
20                   the entire Nation to ensure the United States  
21                   leads the industries of the future; and

22                   (D) building regional capacity in such crit-  
23                   ical areas as entrepreneurship, access to capital  
24                   and other investment, and supply chain develop-  
25                   ment.

1           (5) As President Franklin D. Roosevelt stated,  
2           “[N]ew frontiers of the mind are before us, and if  
3           they are pioneered with the same vision, boldness,  
4           and drive with which we have waged this war we can  
5           create a fuller and more fruitful employment and a  
6           fuller and more fruitful life.”

7           (6) As Vannevar Bush stated in his 1945 re-  
8           port entitled *Science, The Endless Frontier*, “New  
9           products, new industries, and more jobs require con-  
10          tinuous additions to knowledge of the laws of nature,  
11          and the application of that knowledge to practical  
12          purposes. Similarly, our defense against aggression  
13          demands new knowledge so that we can develop new  
14          and improved weapons. This essential, new knowl-  
15          edge can be obtained only through basic scientific re-  
16          search.”

17          (7) Since their inception, the National Science  
18          Foundation and other key Federal agencies, like the  
19          Department of Energy, have carried out vital work  
20          supporting basic and applied research to create  
21          knowledge that is a key driver of the economy of the  
22          United States and enhances the Nation’s security.

1 **SEC. 3. IMPROVING TECHNOLOGY AND INNOVATION RE-**  
2 **SEARCH AT THE NATIONAL SCIENCE FOUN-**  
3 **DATION.**

4 (a) **PROVIDING AUTHORITY TO DISSEMINATE INFOR-**  
5 **MATION.**—Section 11 of the National Science Foundation  
6 Act of 1950 (42 U.S.C. 1870) is amended—

7 (1) in subsection (j), by striking “and” after  
8 the semicolon;

9 (2) in subsection (k), by striking the period at  
10 the end and inserting “; and”; and

11 (3) by adding at the end the following:

12 “(1) provide for the widest practicable and appro-  
13 priate dissemination of information within the United  
14 States concerning the Foundation’s activities and the re-  
15 sults thereof.”.

16 (b) **ESTABLISHMENT OF DIRECTORATE FOR TECH-**  
17 **NOLOGY AND INNOVATION.**—The National Science Foun-  
18 dation Act of 1950 (42 U.S.C. 1861 et seq.) is amended—

19 (1) in section 8 (42 U.S.C. 1866), by inserting  
20 at the end the following: “Such divisions shall in-  
21 clude the Directorate for Technology and Innovation  
22 established under section 8A.”; and

23 (2) by inserting after section 8 the following:

1 **“SEC. 8A. IMPROVING RESEARCH AND ESTABLISHING DI-**  
 2 **RECTORATE FOR TECHNOLOGY AND INNOVA-**  
 3 **TION.**

4 “(a) DEFINITIONS.—In this section:

5 “(1) COMMUNITY COLLEGE.—The term ‘com-  
 6 munity college’ has the meaning given the term ‘jun-  
 7 ior or community college’ in section 312(f) of the  
 8 Higher Education Act of 1965 (20 U.S.C. 1058(f)).

9 “(2) DESIGNATED COUNTRY.—The term ‘des-  
 10 ignated country’ means a country that has been ap-  
 11 proved and designated in writing by the President  
 12 for purposes of this section, after providing—

13 “(A) not less than 30 days of advance noti-  
 14 fication and explanation to the relevant con-  
 15 gressional committees before the designation;  
 16 and

17 “(B) in-person briefings to such commit-  
 18 tees, if requested during the 30-day advance no-  
 19 tification period described in subparagraph (A).

20 “(3) DIRECTORATE.—The term ‘Directorate’  
 21 means the Directorate for Technology and Innova-  
 22 tion established under subsection (b).

23 “(4) EMERGING RESEARCH INSTITUTION.—The  
 24 term ‘emerging research institution’ means an insti-  
 25 tution of higher education with an established under-  
 26 graduate student program that has, on average for

1 the 3 years prior to an application for an award  
2 under this section, received less than \$35,000,000 in  
3 Federal research funding.

4 “(5) FEDERAL RESEARCH FACILITY.—The term  
5 ‘Federal research facility’ includes a research labora-  
6 tory of the Department of Agriculture and any other  
7 federally funded research and development center.

8 “(6) HISTORICALLY BLACK COLLEGE OR UNI-  
9 VERSITY.—The term ‘historically Black college or  
10 university’ has the meaning given the term ‘part B  
11 institution’ in section 322 of the Higher Education  
12 Act of 1965 (20 U.S.C. 1061).

13 “(7) INSTITUTION OF HIGHER EDUCATION.—  
14 The term ‘institution of higher education’ has the  
15 meaning given the term in section 101(a) of the  
16 Higher Education Act of 1965 (20 U.S.C. 1001(a)).

17 “(8) KEY TECHNOLOGY FOCUS AREAS.—The  
18 term ‘key technology focus areas’ means the areas  
19 included on the most recent list under subsection  
20 (d)(2).

21 “(9) LABOR ORGANIZATION.—The term ‘labor  
22 organization’ has the meaning given the term in sec-  
23 tion 2(5) of the National Labor Relations Act (29  
24 U.S.C. 152(5)), except that such term shall also in-  
25 elude—



1           “(A) any organization composed of labor  
2 organizations, such as a labor union federation  
3 or a State or municipal labor body; and

4           “(B) any organization which would be in-  
5 eluded in the definition for such term under  
6 such section 2(5) but for the fact that the orga-  
7 nization represents—

8           “(i) individuals employed by the  
9 United States, any wholly owned Govern-  
10 ment corporation, any Federal Reserve  
11 Bank, or any State or political subdivision  
12 thereof;

13           “(ii) individuals employed by persons  
14 subject to the Railway Labor Act (45  
15 U.S.C. 151 et seq.); or

16           “(iii) individuals employed as agricul-  
17 tural laborers.

18           “(10) ~~MINORITY-SERVING INSTITUTION.~~—The  
19 term ‘minority-serving institution’ means an institu-  
20 tion described in section 371(a) of the Higher Edu-  
21 cation Act of 1965 (20 U.S.C. 1067q(a)).

22           “(11) ~~NATIONAL LABORATORY.~~—The term ‘Na-  
23 tional Laboratory’ has the meaning given the term  
24 in section 2 of the Energy Policy Act of 2005 (42  
25 U.S.C. 15801).

1           “(12) RELEVANT CONGRESSIONAL COMMIT-  
2           TEES.—The term ‘relevant congressional commit-  
3           tees’ means—

4                   “(A) the Committee on Armed Services,  
5                   the Committee on Commerce, Science, and  
6                   Transportation, the Committee on Energy and  
7                   Natural Resources, the Committee on Appro-  
8                   priations, the Committee on Foreign Relations,  
9                   the Committee on Health, Education, Labor,  
10                  and Pensions, and the Select Committee on In-  
11                  telligence of the Senate; and

12                  “(B) the Committee on Armed Services,  
13                  the Committee on Science, Space, and Tech-  
14                  nology, the Committee on Appropriations, the  
15                  Committee on Foreign Affairs, and the Perma-  
16                  nent Select Committee on Intelligence of the  
17                  House of Representatives.

18           “(13) STEM.—The term ‘STEM’ has the  
19           meaning given such term in section 2 of the America  
20           COMPETES Reauthorization Act of 2010 (Public  
21           Law ~~111–358~~; 42 U.S.C. ~~6621~~ note).

22           “(14) TRIBAL COLLEGE OR UNIVERSITY.—The  
23           term ‘Tribal college or university’ has the meaning  
24           given the term in section 316(b)(3) of the Higher  
25           Education Act of 1965 (20 U.S.C. 1059c(b)(3)).

1           “(15) UNDERREPRESENTED POPULATIONS.—

2           The term ‘underrepresented populations’ means  
3           women, minorities, veterans, tribal populations, per-  
4           sons with disabilities, and other populations that are  
5           underrepresented in STEM.

6           “(b) ESTABLISHMENT OF DIRECTORATE FOR TECH-  
7           NOLOGY AND INNOVATION.—

8           “(1) IN GENERAL.—Not later than 90 days  
9           after the date of enactment of the Endless Frontier  
10          Act, the Director shall establish in the Foundation  
11          a Directorate for Technology and Innovation. The  
12          Directorate shall carry out the duties and respon-  
13          sibilities described in this section, in order to further  
14          the following goals:

15                 “(A) Strengthening the leadership of the  
16                 United States in critical technologies, as de-  
17                 scribed as a critical national need in section  
18                 7018 of the America COMPETES Act (42  
19                 U.S.C. 1862o-5), through basic research in the  
20                 key technology focus areas and the commer-  
21                 cialization of those technologies to businesses in  
22                 the United States.

23                 “(B) Addressing and mitigating technology  
24                 challenges integral to the geostrategic position

1 of the United States through the activities au-  
2 thorized by this section.

3 “(C) Enhancing the competitiveness of the  
4 United States in the key technology focus areas  
5 by improving education in the key technology  
6 focus areas and attracting more students to  
7 such areas at all levels of education.

8 “(D) Consistent with the mission and oper-  
9 ations of the Foundation, fostering the eco-  
10 nomic and societal impact of federally funded  
11 research and development through an acceler-  
12 ated translation of basic advances in the key  
13 technology focus areas into processes and prod-  
14 ucts, known as technology transfer, that can  
15 help achieve national goals related to economic  
16 competitiveness, domestic manufacturing, na-  
17 tional security, shared prosperity, energy and  
18 the environment, health, education and work-  
19 force development, and transportation.

20 “(E) Utilizing the full potential of the  
21 United States workforce by encouraging broad-  
22 er participation in key technology focus areas  
23 by underrepresented populations.

24 “(F) Ensuring the programmatic work of  
25 the Directorate and Foundation incorporates a

1 workforce perspective from labor organizations  
2 and workforce training organizations.

3 ~~“(2) ORGANIZATION AND ADMINISTRATIVE~~  
4 ~~MATTERS.—~~

5 ~~“(A) PROGRAM MANAGERS.—~~The employ-  
6 ees of the Directorate may include program  
7 managers for the key technology focus areas,  
8 who may perform a role similar to program  
9 managers employed by the Defense Advanced  
10 Research Projects Agency for the oversight and  
11 selection of programs supported by the Direc-  
12 torate.

13 ~~“(B) SELECTION OF RECIPIENTS.—~~Recipi-  
14 ents of support under the programs and activi-  
15 ties of the Directorate shall be selected by pro-  
16 gram managers or other employees of the Di-  
17 rectorate and the selection criteria for financial  
18 assistance awards shall include intellectual  
19 merit and broader impacts, including economic  
20 impacts on the advanced technology production  
21 system of the United States. The Directorate  
22 may use a peer review process or the authorities  
23 provided under subsection (c), or some com-  
24 bination of such process and authorities, to in-  
25 form the selection of award recipients.

1           “(C) REPORT.—Not later than 1 year  
2 after the date of enactment of the Endless  
3 Frontier Act, the Director shall prepare and  
4 submit a report to the relevant congressional  
5 committees regarding the use of alternative  
6 methods for the selection of recipients and the  
7 distribution of funding to recipients as com-  
8 pared to the traditional peer review process.

9           “(D) ASSISTANT DIRECTORS.—The Direc-  
10 tor shall appoint an Assistant Director for the  
11 Directorate, in the same manner as other As-  
12 sistant Directors of the Foundation are ap-  
13 pointed.

14           “(3) REPORT.—Not later than 120 days after  
15 the date of enactment of the Endless Frontier Act,  
16 the Director shall prepare and submit a report to  
17 the relevant congressional committees regarding the  
18 establishment of the Directorate.

19           “(e) PERSONNEL MANAGEMENT AUTHORITIES FOR  
20 THE FOUNDATION.—In addition to the authorities and re-  
21 quirements of section 15, the Director shall have the fol-  
22 lowing authorities:

23           “(1) EXPERTS IN SCIENCE AND ENGINEER-  
24 ING.—The Director shall have the authority to carry  
25 out a program of personnel management authority

1 in the same manner, and subject to the same re-  
2 quirements, as the program of personnel manage-  
3 ment authority authorized for the Director of the  
4 Defense Advanced Research Projects Agency under  
5 section 1599h of title 10, United States Code, for  
6 the Defense Advanced Research Projects Agency.

7 “(2) HIGHLY QUALIFIED EXPERTS IN NEEDED  
8 OCCUPATIONS.—In addition to the authority pro-  
9 vided under paragraph (1), the Director shall have  
10 the authority to carry out a program of personnel  
11 management authority in the same manner, and  
12 subject to the same requirements, as the program to  
13 attract highly qualified experts carried out by the  
14 Secretary of Defense under section 9903 of title 5,  
15 United States Code. Individuals hired by the Direc-  
16 tor through such authority shall include individuals  
17 with expertise in business creativity, innovation man-  
18 agement, design thinking, entrepreneurship, venture  
19 capital, and related fields.

20 “(3) ADDITIONAL HIRING AUTHORITY.—To the  
21 extent needed to carry out the duties in paragraph  
22 (1), the Director is authorized to utilize hiring au-  
23 thorities under section 3372 of title 5, United States  
24 Code, to staff the Directorate with employees from  
25 other Federal agencies, State and local governments,

1 Indian Tribes and Tribal organizations, institutions  
 2 of higher education, and other organizations, as de-  
 3 scribed in that section, in the same manner and sub-  
 4 ject to the same conditions, that apply to such indi-  
 5 viduals utilized to accomplish other missions of the  
 6 Foundation.

7 “(d) DUTIES AND FUNCTIONS OF THE DIREC-  
 8 TORATE.—

9 “(1) DEVELOPMENT OF TECHNOLOGY FOCUS  
 10 OF THE DIRECTORATE.—The Director shall—

11 “(A) through the Directorate, advance in-  
 12 novation in the key technology focus areas  
 13 through basic and translational research and  
 14 other activities described in this section;

15 “(B) develop and implement strategies to  
 16 ensure that the activities of the Directorate are  
 17 directed toward the key technology focus areas  
 18 in order to accomplish the goals described in  
 19 subsection (b)(1) consistent with the most re-  
 20 cent report conducted under section 5(b) of the  
 21 Endless Frontier Act; and

22 “(C) develop and focus on innovation  
 23 methods, processes, and promising practices  
 24 that can affect the speed and effectiveness of  
 25 innovation processes at scale.



1           “(2) KEY TECHNOLOGY FOCUS AREAS.—

2                   “(A) INITIAL LIST.—The initial key tech-  
3 nology focus areas are—

4                           “(i) artificial intelligence, machine  
5 learning, and other software advances;

6                           “(ii) high performance computing,  
7 semiconductors, and advanced computer  
8 hardware;

9                           “(iii) quantum computing and infor-  
10 mation systems;

11                           “(iv) robotics, automation, and ad-  
12 vanced manufacturing;

13                           “(v) natural and anthropogenic dis-  
14 aster prevention or mitigation;

15                           “(vi) advanced communications tech-  
16 nology;

17                           “(vii) biotechnology, medical tech-  
18 nology, genomics, and synthetic biology;

19                           “(viii) cybersecurity, data storage, and  
20 data management technologies;

21                           “(ix) advanced energy, batteries, and  
22 industrial efficiency; and

23                           “(x) advanced materials science, engi-  
24 neering, and exploration relevant to the

1 other key technology focus areas described  
2 in this subparagraph.

3 ~~“(B) REVIEW OF KEY TECHNOLOGY FOCUS~~  
4 ~~AREAS AND SUBSEQUENT LISTS.—~~

5 ~~“(i) ADDING OR DELETING KEY~~  
6 ~~TECHNOLOGY FOCUS AREAS.—Beginning~~  
7 ~~on the date that is 3 years after the date~~  
8 ~~of enactment of the Endless Frontier Act,~~  
9 ~~and every 3 years thereafter, the Director,~~  
10 ~~in coordination with the Director of the~~  
11 ~~Office of Science and Technology Policy,~~  
12 ~~the Director of National Institute of~~  
13 ~~Standards and Technology, the Secretary~~  
14 ~~of Energy, the Secretary of Defense, the~~  
15 ~~Director of the National Institutes of~~  
16 ~~Health, and, as appropriate, the heads of~~  
17 ~~other departments and agencies—~~

18 ~~“(I) shall review the list of key~~  
19 ~~technology focus areas;~~

20 ~~“(II) may consider the challenges~~  
21 ~~and recommendations identified in the~~  
22 ~~report required by section 11 of the~~  
23 ~~Endless Frontier Act; and~~

24 ~~“(III) as part of that review, may~~  
25 ~~add or delete key technology focus~~

1 areas if societal challenges or the com-  
2 petitive threats to the United States  
3 have shifted (whether because the  
4 United States or other nations have  
5 advanced or fallen behind in a techno-  
6 logical area); subject to clause (ii).

7 “(ii) LIMIT ON KEY TECHNOLOGY  
8 FOCUS AREAS.—Not more than 10 key  
9 technology focus areas shall be included on  
10 the list of key technology focus areas at  
11 any time.

12 “(iii) UPDATING FOCUS AREAS AND  
13 DISTRIBUTION.—Prior to completion of  
14 each review under this subparagraph, the  
15 Director shall make the list of key tech-  
16 nology focus areas readily available to the  
17 public and available for public comment,  
18 including, at a minimum, by publishing the  
19 list in the Federal Register even if no  
20 changes are expected to be made to the  
21 prior list.

22 “(iv) EXTRAORDINARY CIRCUMSTANCE  
23 WAIVER.—In extraordinary circumstances,  
24 the Director of the Office of Science and  
25 Technology Policy may grant the Director

1 the ability to add or delete key technology  
 2 focus areas without acting in coordination  
 3 as described in clause (i). If such an ability  
 4 is determined to be necessary by the Direc-  
 5 tor of the Office of Science and Technology  
 6 Policy, the Director and the Director of  
 7 the Office of Science and Technology Pol-  
 8 icy shall not later than 15 days ahead of  
 9 such a waiver being granted submit a de-  
 10 tailed description and justification to the  
 11 relevant congressional committees.

12 ~~“(3) ACTIVITIES.—~~

13 ~~“(A) IN GENERAL.—In carrying out the~~  
 14 ~~duties and functions of the Directorate, the Di-~~  
 15 ~~rector—~~

16 ~~“(i) may make awards in a techno-~~  
 17 ~~logically neutral manner for key technology~~  
 18 ~~focus areas to—~~

19 ~~“(I) individual institutions of~~  
 20 ~~higher education for work at centers~~  
 21 ~~or by individual researchers or teams~~  
 22 ~~of researchers;~~

23 ~~“(II) not-for-profit entities; and~~

24 ~~“(III) consortia that—~~

1           “(aa) shall include and be  
2 led by an institution of higher  
3 education, or by a not-for-profit  
4 entity designed to support tech-  
5 nology development, and may in-  
6 clude ~~1~~ or more additional insti-  
7 tutions of higher education;

8           “(bb) shall include at least  
9 one of the following:

10           “(AA) a historically  
11 Black college or university;

12           “(BB) a Tribal College  
13 or University;

14           “(CC) another minor-  
15 ity-serving institution;

16           “(DD) an institution  
17 that participates in the Es-  
18 tablished Program to Stimu-  
19 late Competitive Research  
20 under section ~~113~~ of the Na-  
21 tional Science Foundation  
22 Authorization Act of 1988  
23 (42 U.S.C. 1862g);

24           “(EE) an emerging re-  
25 search institution that is not

1 classified as a very high re-  
2 search activity by the Car-  
3 negie Classification of Insti-  
4 tutions of Higher Education  
5 and that has an under-  
6 graduate enrollment with a  
7 majority of students who are  
8 from underrepresented pop-  
9 ulations; or  
10 “(FF) a community  
11 college; and  
12 “(ee) may include 1 or  
13 more—  
14 “(AA) entities described  
15 in subclause (I) or (II) and  
16 industries, including  
17 startups, small businesses,  
18 and public-private partner-  
19 ships;  
20 “(BB) economic devel-  
21 opment organizations or  
22 venture development organi-  
23 zations, as such term is de-  
24 fined in section 28(a) of the  
25 Stevenson-Wydler Tech-

1 nology Innovation Act of  
2 1980;  
3 “(CC) National Labora-  
4 tories;  
5 “(DD) Federal labora-  
6 tories, as defined in section  
7 4 of the Stevenson-Wydler  
8 Technology Innovation Act  
9 of 1980 (15 U.S.C. 3703);  
10 “(EE) Federal research  
11 facilities;  
12 “(FF) labor organiza-  
13 tions;  
14 “(GG) entities de-  
15 scribed in subelause (I) or  
16 (II) from allied or partner  
17 countries;  
18 “(HH) other entities if  
19 determined by the Director  
20 to be vital to the success of  
21 the program; and  
22 “(II) binational re-  
23 search and development  
24 foundations and funds, ex-

1 cluding foreign entities of  
2 concern;

3 “(ii) may partner with other direc-  
4 torates of the Foundation for projects or  
5 research, including—

6 “(I) to pursue basic questions  
7 about natural, human, and physical  
8 phenomena that could enable ad-  
9 vances in the key technology focus  
10 areas;

11 “(II) to study questions that  
12 could affect the design (including  
13 human interfaces), operation, deploy-  
14 ment, or the social and ethical con-  
15 sequences of technologies in the key  
16 technology focus areas, including the  
17 development of technologies that com-  
18 plement or enhance the abilities of  
19 workers and impact of specific innova-  
20 tions on domestic jobs and equitable  
21 opportunity; and

22 “(III) to further the creation of a  
23 domestic workforce capable of advane-  
24 ing, using, and adapting to key tech-  
25 nology focus areas and understanding



1 and improving the impact of key tech-  
2 nology focus areas on STEM teaching  
3 and learning advancing the key tech-  
4 nology focus areas, including engaging  
5 relevant partners in research and in-  
6 novation programs;

7 “(iii) may provide funds to any other  
8 Federal agencies for intramural or extra-  
9 mural work in the key technology focus  
10 areas through research, manufacturing, or  
11 other means;

12 “(iv) may make awards under the  
13 SBIR and STTR programs (as defined in  
14 section 9(e) of the Small Business Act (15  
15 U.S.C. 638(e))); and

16 “(v) may enter into and perform such  
17 contracts, other transactions, or other ar-  
18 rangements, or modifications thereof, as  
19 may be necessary in the conduct of the  
20 work of the Directorate and on such terms  
21 as the Director considers appropriate, in  
22 furtherance of the purposes of this Act.

23 “(B) REPORTS.—Not later than 180 days  
24 after the date of enactment of the Endless  
25 Frontier Act, the Director, in coordination with

1 the Secretary of State and the Director of the  
2 Office of Science and Technology Policy, shall  
3 prepare and submit to the relevant congress-  
4 sional committees—

5 “(i) a plan to seek out additional in-  
6 vestments from—

7 “(I) certain designated countries;

8 and

9 “(II) entities other than institu-  
10 tions of higher education; and

11 “(ii) the planned activities of the Di-  
12 rectorate to secure federally funded science  
13 and technology pursuant to section 1746 of  
14 the National Defense Authorization Act for  
15 Fiscal Year 2020 (Public Law 116-92)  
16 and section 223 of William M. (Mac)  
17 Thornberry National Defense Authoriza-  
18 tion Act for Fiscal Year 2021 (Public Law  
19 116-283).

20 “(C) ANNUAL BRIEFING.—Each year, the  
21 Director shall formally request a briefing from  
22 the Secretary of Defense, the Secretary of Com-  
23 merce, the Director of the Federal Bureau of  
24 Investigation, the Director of National Intel-  
25 ligence, and as appropriate other department or

1 agency heads regarding their efforts to preserve  
2 the United States advantages generated by the  
3 activity of the Directorate.

4 “(4) INTERAGENCY COOPERATION.—

5 “(A) IN GENERAL.—In carrying out this  
6 section, the Director and other Federal research  
7 agencies, in consultation with the United States  
8 Patent and Trademark Office where appro-  
9 priate, shall work cooperatively with each other  
10 to further the goals of this section in the key  
11 technology focus areas.

12 “(B) COORDINATION WITH NIST AND DE-  
13 PARTMENT OF ENERGY.—In making research  
14 awards under this section, the Director shall, as  
15 appropriate, work in coordination with the Di-  
16 rector of the National Institute of Standards  
17 and Technology and the Secretary of Energy.

18 “(C) COMPTROLLER GENERAL REPORT.—  
19 Each year, the Comptroller General of the  
20 United States shall prepare and submit a report  
21 to Congress, and shall simultaneously submit  
22 the report to the Director and the Director of  
23 the Office of Science and Technology Policy, de-  
24 scribing the interagency cooperation that oc-

1 curred during the preceding year pursuant to  
 2 this paragraph, including a list of—

3 “(i) any funds provided under para-  
 4 graph (3)(A)(ii) to other divisions of the  
 5 Foundation; and

6 “(ii) any funds provided under para-  
 7 graph (3)(A)(iii) to other Federal research  
 8 agencies.

9 “(5) PROVIDING SCHOLARSHIPS, FELLOWSHIPS,  
 10 AND OTHER STUDENT SUPPORT.—

11 “(A) IN GENERAL.—The Director, acting  
 12 through the Directorate, shall fund under-  
 13 graduate scholarships (including at community  
 14 colleges), graduate fellowships and traineeships,  
 15 and postdoctoral awards in the key technology  
 16 focus areas.

17 “(B) IMPLEMENTATION.—The Director  
 18 may carry out subparagraph (A) by providing  
 19 funds—

20 “(i) for making awards—

21 “(I) directly to students; and

22 “(II) to institutions of higher  
 23 education or consortia of institutions  
 24 of higher education, including those  
 25 institutions or consortia involved in

1 operating university technology cen-  
2 ters established under paragraph (6);  
3 and

4 “(ii) to programs in Federal research  
5 agencies that have experience awarding  
6 such scholarships, fellowships, traineeships,  
7 or postdoctoral awards.

8 “(C) BROADENING PARTICIPATION.—In  
9 carrying out this paragraph, the Director  
10 should work to increase the participation of  
11 underrepresented populations in fields related  
12 to the key technology focus areas. For that pur-  
13 pose, the Director may take such steps as es-  
14 tablishing or augmenting programs targeted at  
15 underrepresented populations, and supporting  
16 traineeships or other relevant programs at insti-  
17 tutions of higher education with high enroll-  
18 ments of underrepresented populations.

19 “(D) INNOVATION.—In carrying out this  
20 paragraph, the Director shall encourage innova-  
21 tion in graduate education, including through  
22 encouraging institutions of higher education to  
23 offer graduate students opportunities to gain  
24 experience in industry or government as part of  
25 their graduate training, and through support

1 for students in professional masters programs  
2 related to the key technology focus areas:

3 ~~“(E) SUPPLEMENT, NOT SUPPLANT.—~~The  
4 Director shall ensure that funds made available  
5 under this paragraph shall be used to create ad-  
6 ditional support for postsecondary students and  
7 shall not displace funding for any other avail-  
8 able support.

9 ~~“(6) UNIVERSITY TECHNOLOGY CENTERS.—~~

10 ~~“(A) IN GENERAL.—~~From amounts made  
11 available to the Directorate, the Director shall,  
12 through a competitive application and selection  
13 process, make awards to institutions of higher  
14 education or consortia described in paragraph  
15 ~~(3)(A)(i)(III)~~ to establish university technology  
16 centers:

17 ~~“(B) USES OF FUNDS.—~~

18 ~~“(i) IN GENERAL.—~~A center estab-  
19 lished under an award under subparagraph  
20 ~~(A)—~~

21 ~~“(I) shall use support provided~~  
22 ~~under such subparagraph—~~

23 ~~“(aa) to carry out basic and~~  
24 ~~translational research to advance~~

1 innovation in the key technology  
2 focus areas; and

3 “(bb) to further the develop-  
4 ment and commercialization of  
5 innovations, including inventions,  
6 in the key technology focus areas,  
7 including—

8 “(AA) innovations de-  
9 rived from research carried  
10 out under item (aa); through  
11 such activities as  
12 translational research, proof-  
13 of-concept development, and  
14 prototyping; in order to re-  
15 duce the cost, time, and risk  
16 of commercializing new tech-  
17 nologies;

18 “(BB) to promote pat-  
19 enting and commercializa-  
20 tion of inventions derived  
21 from research carried out  
22 under item (aa); and

23 “(CC) through the use  
24 of public-private partner-  
25 ships; and

1                   “(H) may use support provided  
2                   under such subparagraph—

3                   “(aa) for the costs of equip-  
4                   ment;

5                   “(bb) for the costs associ-  
6                   ated with technology transfer and  
7                   commercialization, including pat-  
8                   enting and licensing; or

9                   “(cc) for other activities or  
10                  costs necessary to accomplish the  
11                  purposes of this section, includ-  
12                  ing for operations and staff.

13                  “(ii) SUPPORT OF REGIONAL TECH-  
14                  NOLOGY HUBS.—Each center established  
15                  under subparagraph (A) may support and  
16                  participate in, as appropriate, the activities  
17                  of any regional technology hub designated  
18                  under section 28(b)(1)(A) of the Steven-  
19                  son-Wydler Technology Innovation Act of  
20                  1980.

21                  “(C) SELECTION PROCESS.—In selecting  
22                  recipients under this paragraph, the Director  
23                  shall consider—



1           “(i) the capacity of the applicant to  
2 pursue and advance basic and translational  
3 research;

4           “(ii) the extent to which the appli-  
5 cant’s proposed research would be likely to  
6 advance American competitiveness in 1 or  
7 more key technology focus areas;

8           “(iii) the extent to which the appli-  
9 cant’s proposal would broaden participa-  
10 tion by underrepresented populations in  
11 those areas;

12           “(iv) the capacity of the applicant to  
13 engage industry, labor, and other appro-  
14 priate organizations on any advances;

15           “(v) whether the applicant’s proposed  
16 research will, where applicable, contribute  
17 to growth in domestic manufacturing ca-  
18 pacity and job creation;

19           “(vi) the quality of plans for dissemi-  
20 nation of research and technology results,  
21 in accordance with relevant export control  
22 laws;

23           “(vii) how the applicant will, where  
24 applicable, encourage the training and par-  
25 ticipation of entrepreneurs and the trans-

1           lation of research results to practice, in-  
2           cluding the development of new businesses;

3           “~~(viii)~~ how the applicant will encour-  
4           age the participation of inventors and en-  
5           trepreneurs and the development of new  
6           businesses, where applicable;

7           “~~(ix)~~ regional and geographic diver-  
8           sity;

9           “~~(x)~~ in the case of a consortium, the  
10          extent to which the proposal includes insti-  
11          tutions listed in paragraph  
12          ~~(3)(A)(i)(III)(bb)~~; and

13          “~~(xi)~~ the amount of funds from indus-  
14          try organizations described in subpara-  
15          graph ~~(D)(ii)~~ the applicant would use to-  
16          wards establishing the center under sub-  
17          paragraph ~~(A)~~.

18          “~~(D)~~ REQUIREMENTS.—The Director shall  
19          ensure that any institution of higher education  
20          or consortium receiving an award under sub-  
21          paragraph ~~(A)~~ has—

22          “~~(i)~~ the capacity or the ability to ac-  
23          quire the capacity to advance the goals de-  
24          scribed in subsection ~~(b)(1)~~; and

1           “(ii) secured contributions for estab-  
 2           lishing the center under subparagraph (A)  
 3           from industry organizations in an amount  
 4           not less than 10 percent of the total  
 5           amount of the award the institution or  
 6           consortium would receive under subpara-  
 7           graph (A).

8           “(7) MOVING TECHNOLOGY FROM LABORATORY  
 9           TO MARKET.—

10           “(A) PROGRAM AUTHORIZED.—

11           “(i) IN GENERAL.—The Director, in  
 12           coordination with the Director of the Na-  
 13           tional Institute of Standards and Tech-  
 14           nology, shall establish a program in the  
 15           Directorate to make awards, on a competi-  
 16           tive basis, to institutions of higher edu-  
 17           cation or consortia described in paragraph  
 18           (3)(A)(i)(III)—

19           “(I) to build capacity at an insti-  
 20           tution of higher education or within  
 21           the consortium and facilitate collabo-  
 22           ration with firms in the key tech-  
 23           nology focus areas to increase the  
 24           likelihood that new technologies in the

1 key technology focus areas will suc-  
2 ceed in the commercial market; and

3 “(H) with the goal of promoting  
4 experiments with a range of models  
5 that institutions of higher education  
6 or consortia could use to—

7 “(aa) enable new tech-  
8 nologies and inventions to mature  
9 to the point where the tech-  
10 nologies are more likely to suc-  
11 ceed in the commercial market  
12 and promote the creation of high-  
13 quality jobs in the United States;  
14 and

15 “(bb) reduce the risks to  
16 commercial success for new tech-  
17 nologies and inventions earlier in  
18 their development.

19 “(ii) USE FOR TRAINING.—An award  
20 under this subparagraph for a purpose de-  
21 scribed in subclause (I) or (H) of clause (i)  
22 may also enable the institution of higher  
23 education or consortium to provide train-  
24 ing and support to scientists, engineers,  
25 and inventors who are interested in re-

1 search, technology transfer, and commer-  
2 cialization, including patenting and licens-  
3 ing, if the use is included in the proposal  
4 submitted under subparagraph (B).

5 “(B) PROPOSALS.—An institution of high-  
6 er education or consortium desiring an award  
7 under this paragraph shall submit a proposal to  
8 the Director at such time, in such manner, and  
9 containing such information as the Director  
10 may require. The proposal shall include a de-  
11 scription of—

12 “(i) the broader impact of the pro-  
13 posal;

14 “(ii) the steps the applicant is study-  
15 ing or will take to enable technology trans-  
16 fer to reduce the risks for commercializa-  
17 tion for new technologies, including how  
18 the applicant will collaborate with firms in  
19 the key technology focus areas;

20 “(iii) why such steps are likely to be  
21 effective;

22 “(iv) how such steps differ from pre-  
23 vious efforts to reduce the risks for com-  
24 mercialization for new technologies;

1           “(v) whether the commercial viability  
2           of any new technologies will promote the  
3           creation of high-quality jobs in the United  
4           States;

5           “(vi) how the applicant will, where ap-  
6           plicable, encourage the participation of in-  
7           ventors and entrepreneurs and the develop-  
8           ment of new businesses; and

9           “(vii) how the applicant will, where  
10          applicable, encourage the training and par-  
11          ticipation of entrepreneurs and the trans-  
12          lation of research results to practice, in-  
13          cluding the development of new businesses.

14          “(C) USE OF FUNDS.—A recipient of an  
15          award under this paragraph shall use award  
16          funds to reduce the risks for commercialization  
17          for new technologies, which may include—

18                 “(i) creating and funding competitions  
19                 to allow entrepreneurial ideas from institu-  
20                 tions of higher education or consortia de-  
21                 scribed in paragraph (3)(A)(i)(III) to illus-  
22                 trate their commercialization potential;

23                 “(ii) facilitating relationships among  
24                 local and national business leaders, includ-

1 ing investors, and potential entrepreneurs  
2 to encourage successful commercialization;

3 “(iii) creating or supporting entities  
4 that could enable researchers to further de-  
5 velop new technology, through patient cap-  
6 ital investment, advice, staff support, or  
7 other means;

8 “(iv) providing facilities for start-up  
9 companies where technology maturation  
10 could occur;

11 “(v) covering legal and other fees as-  
12 sociated with technology transfer and com-  
13 mercialization, including patenting and li-  
14 censing; and

15 “(vi) revising institution policies, in-  
16 cluding policies related to intellectual prop-  
17 erty and faculty entrepreneurship, to ac-  
18 complish the goals of this paragraph.

19 “(D) REPORTING ON COMMERCIALIZATION  
20 BASED ON METRICS.—The Director shall estab-  
21 lish—

22 “(i) metrics related to commercializa-  
23 tion for an award under this paragraph;  
24 and

1           “(ii) a reporting schedule for recipi-  
2           ents of such awards that takes into ac-  
3           count both short- and long-term goals of  
4           the program under this paragraph.

5           “(8) TEST BEDS.—

6           “(A) PROGRAM AUTHORIZED.—

7           “(i) IN GENERAL.—The Director, in  
8           coordination with the Director of the Na-  
9           tional Institute of Standards and Tech-  
10          nology, shall establish a program in the  
11          Directorate to make awards, on a competi-  
12          tive basis, to institutions of higher edu-  
13          cation or consortia described in paragraph  
14          (3)(A)(i)(III) to establish and operate test  
15          beds and fabrication facilities to advance  
16          the operation, integration, deployment,  
17          and, as appropriate, manufacturing of new,  
18          innovative technologies in the key tech-  
19          nology focus areas, which may include  
20          hardware or software. The goal of such  
21          test beds and facilities shall be to accel-  
22          erate the movement of innovative tech-  
23          nologies into the commercial market  
24          through the private sector.



1           “(ii) COORDINATION.—In establishing  
2           the program under clause (i), the Director  
3           shall ensure coordination in establishing  
4           new test beds under this paragraph with  
5           other test beds supported by the Founda-  
6           tion or established under Manufacturing  
7           USA to avoid duplication and maximize  
8           the use of Federal resources.

9           “(B) PROPOSALS.—A proposal submitted  
10          under this paragraph shall, at a minimum, de-  
11          scribe—

12           “(i)(I) the technology or technologies  
13           that will be the focus of the test bed or  
14           fabrication facility;

15           “(II) the goals of the work to be done  
16           at the test bed or facility; and

17           “(III) the expected schedule for com-  
18           pleting that work;

19           “(ii) how the applicant will assemble a  
20           workforce with the skills needed to operate  
21           the test bed or facility;

22           “(iii) how the applicant will ensure  
23           broad access to the facility;

24           “(iv) how the applicant will collabo-  
25           rate with firms in the key technology focus

1 areas, including through coordinated re-  
2 search and development and funding, to  
3 ensure that work in the test bed or facility  
4 will contribute to the commercial viability  
5 of any technologies and will include col-  
6 laboration from industry and labor organi-  
7 zations;

8 “(v) how the applicant will encourage  
9 the participation of inventors and entre-  
10 preneurs and the development of new busi-  
11 nesses;

12 “(vi) how the applicant will increase  
13 participation by underrepresented popu-  
14 lations;

15 “(vii) how the applicant will dem-  
16 onstrate that the commercial viability of  
17 any new technologies will support the ere-  
18 ation of high-quality domestic jobs;

19 “(viii) how the test bed or facility will  
20 operate after Federal funding has ended;  
21 and

22 “(ix) how the test bed will disseminate  
23 lessons and other technical information to  
24 United States firms or allied or partner  
25 country firms in the United States.

1           “(C) AWARDS.—Awards made under this  
2 paragraph shall be for 7 years, with the possi-  
3 bility of 5-year extensions.

4           “(D) AUTHORIZED USE OF FUNDS.—An  
5 awardee under this paragraph may, in order to  
6 achieve the purposes described in subparagraph  
7 (A)(i), use the award for the purchase of equip-  
8 ment, the support of graduate students and  
9 postdoctoral researchers, and the salaries of  
10 staff.

11           “(E) RESULTS.—An awardee under this  
12 paragraph may publish and share with the pub-  
13 lic the results of the work conducted under this  
14 paragraph.

15           “(F) INTERAGENCY SEMI-ANNUAL MEET-  
16 INGS.—The Director, the Director of the Na-  
17 tional Institute of Standards and Technology,  
18 and the heads of other departments and agen-  
19 cies, or their designees, with test bed related eq-  
20 uities shall hold an annual meeting to coordi-  
21 nate their respective test bed related invest-  
22 ments, future years plan, and other appropriate  
23 matters, to avoid conflicts and duplication of ef-  
24 forts. Upon request by Congress, Congress shall  
25 be briefed on the results of the meetings.

1           “(9) INAPPLICABILITY.—Section 5(e)(1) shall  
2           not apply to grants, contracts, awards, or other ar-  
3           rangements made under this section.

4           “(e) AREAS OF FUNDING SUPPORT.—Subject to the  
5           availability of funds to carry out this section, the Director  
6           shall endeavor, for each fiscal year, to use—

7           “(1) not less than 35 percent of funds provided  
8           to the Directorate for such year to carry out sub-  
9           section (d)(6);

10          “(2) not less than 15 percent of such funds to  
11          carry out the purpose of subsection (d)(5)—

12                 “(A) with the goal of awarding, across the  
13                 key technology focus areas—

14                         “(i) not fewer than 1,000 postdoctoral  
15                         awards;

16                         “(ii) not fewer than 2,000 graduate  
17                         fellowships and traineeships; and

18                         “(iii) not fewer than 1,000 under-  
19                         graduate scholarships, including scholar-  
20                         ships to attend community colleges;

21                 “(B) of which not less than 10 percent of  
22                 the funds designated under this paragraph shall  
23                 be used to support additional awards to focus  
24                 on community college training, education, and  
25                 teaching programs that increase the participa-

1 tion of underrepresented populations in science,  
2 technology, engineering, and mathematics, in-  
3 cluding technical programs through programs  
4 such as the Advanced Technological Education  
5 program;

6 “(C) of which not less than 20 percent of  
7 the funds designated under this paragraph shall  
8 be used to support awards for post-doctorate  
9 fellowships, graduate fellowships and  
10 traineeships, and undergraduate scholarships  
11 through institutions of higher education, and  
12 other institutions, located in jurisdictions that  
13 participate in the Established Program to Stim-  
14 ulate Competitive Research under section 113  
15 of the National Science Foundation Authoriza-  
16 tion Act of 1988 (42 U.S.C. 1862g); and

17 “(D) if funds remain after carrying out  
18 subparagraphs (A), (B), and (C), awards to in-  
19 stitutions of higher education to enable the in-  
20 stitutions to fund the development and estab-  
21 lishment of new or specialized courses of edu-  
22 cation for graduate, undergraduate, or technical  
23 college students;

24 “(3) not less than 5 percent of such funds to  
25 carry out subsection (d)(7);

1           ~~“(4) not less than 10 percent of such funds to~~  
2           ~~carry out subsection (d)(8);~~

3           ~~“(5) not less than 15 percent of such funds to~~  
4           ~~carry out research and related activities pursuant to~~  
5           ~~subclauses (I) and (II) of subsection (d)(3)(A)(ii);~~  
6           ~~and~~

7           ~~“(6) not less than 20 percent of such funds to~~  
8           ~~support research in the key technology focus areas~~  
9           ~~through the Established Program to Stimulate Com-~~  
10          ~~petitive Research under section 113 of the National~~  
11          ~~Science Foundation Authorization Act of 1988 (42~~  
12          ~~U.S.C. 1862g).~~

13          ~~“(f) TECHNICAL ASSISTANCE FOR AWARD RECIPI-~~  
14          ~~ENTS AND APPLICANTS.—The Director may—~~

15                 ~~“(1) coordinate with other Federal agencies to~~  
16                 ~~establish interagency and multidisciplinary teams to~~  
17                 ~~provide technical assistance to recipients of, and pro-~~  
18                 ~~spective applicants for, awards under this section;~~

19                 ~~“(2) by Federal interagency agreement and not-~~  
20                 ~~withstanding any other provision of law, transfer~~  
21                 ~~funds available to carry out this section to the head~~  
22                 ~~of another Federal agency to facilitate and support~~  
23                 ~~the provision of such technical assistance; and~~

24                 ~~“(3) enter into contracts with third parties to~~  
25                 ~~provide such technical assistance.~~

1       “(g) AUTHORIZATION OF APPROPRIATIONS AND LIM-  
2 ITATIONS.—

3           “(1) AUTHORIZATION FOR THE OFFICE OF IN-  
4 SPECTOR GENERAL.—From any amounts appro-  
5 priated for the Foundation for a fiscal year, there is  
6 authorized to be appropriated for necessary expenses  
7 of the Office of Inspector General of the Foundation  
8 an amount of not less than \$10,000,000 in any fis-  
9 cal year appropriation for the Foundation, for over-  
10 sight of the programs and activities established  
11 under this section in accordance with the Inspector  
12 General Act of 1978.

13           “(2) SUPPLEMENT AND NOT SUPPLANT.—The  
14 amounts authorized to be appropriated to carry out  
15 this section shall supplement, and not supplant, any  
16 other amounts already appropriated to the Founda-  
17 tion or Office of Inspector General of the Founda-  
18 tion, except with respect to transfers described in  
19 paragraph (3).

20           “(3) TRANSFER OF FUNDS AUTHORITY.—For  
21 fiscal years 2022 through 2024, the Director shall  
22 transfer any funds appropriated to the Directorate  
23 to any other directorate or office of the Foundation  
24 for activities directly related to the key technology  
25 focus areas.

1           “(4) NO NEW AWARDS.—The Director shall not  
 2           make any new awards for the activities described in  
 3           this section for any fiscal year in which the total  
 4           amount appropriated to the Foundation (not includ-  
 5           ing amounts appropriated for the Directorate) is less  
 6           than the total amount appropriated to the Founda-  
 7           tion (not including such amounts), adjusted by the  
 8           rate of inflation, for the previous fiscal year.

9           “(5) NO FUNDS FOR CONSTRUCTION.—No  
 10          funds provided under this section shall be used for  
 11          construction.

12          “(h) RULES OF CONSTRUCTION.—Nothing in this  
 13          section or any other amendments made to this Act by the  
 14          Endless Frontier Act shall be construed to alter the mis-  
 15          sion of any directorate of the Foundation existing prior  
 16          to the date of enactment of such Act, or to alter the award  
 17          selection methods or criteria used by such directorates.”.

18          (c) CHIEF DIVERSITY OFFICER.—The National  
 19          Science Foundation Act of 1950 (42 U.S.C. 1861 et seq.);  
 20          as amended by subsection (b), is further amended by in-  
 21          serting after section 8A the following:

22          “**SEC. 8B. CHIEF DIVERSITY OFFICER.**

23          “(a) CHIEF DIVERSITY OFFICER.—



1           “(1) APPOINTMENT.—The Director shall ap-  
2           point a Chief Diversity Officer of the National  
3           Science Foundation.

4           “(2) QUALIFICATIONS.—The Chief Diversity  
5           Officer should have significant experience with diver-  
6           sity and inclusion, in particular within the Federal  
7           Government and science community.

8           “(3) OVERSIGHT.—The Chief Diversity Officer  
9           shall report directly to the Director in the perform-  
10          ance of the duties of the Chief Diversity Officer  
11          under this section.

12          “(b) DUTIES.—The Chief Diversity Officer is respon-  
13          sible for providing advice on policy, oversight, guidance,  
14          and coordination with respect to matters of the National  
15          Science Foundation related to diversity and inclusion.  
16          Other duties may include—

17                 “(1) establishing and maintaining a strategic  
18                 plan that publicly states a diversity definition, vision,  
19                 and goals for the National Science Foundation;

20                 “(2) defining a set of strategic metrics that  
21                 are—

22                         “(A) directly linked to key organizational  
23                         priorities and goals;

24                         “(B) actionable; and

1           “(C) actively used to implement the stra-  
2           tegie plan under paragraph (1);

3           “~~(3)~~ advising in the establishment of a strategie  
4           plan for diverse participation by institutions of high-  
5           er education, including community colleges, histori-  
6           cally Black colleges and universities, Tribal colleges  
7           or universities, and other minority-serving institu-  
8           tions (as such terms are defined in section 8A(a)),  
9           and individuals;

10           “~~(4)~~ advising in the establishment of a strategie  
11           plan for outreach to, and recruiting from, untapped  
12           locations and underrepresented populations; and

13           “~~(5)~~ performing such additional duties and ex-  
14           ercise such powers as the Director may prescribe.”.

15           (d) ANNUAL REPORT ON UNFUNDED PRIORITIES.—

16           (1) ANNUAL REPORT.—Not later than 10 days  
17           after the date on which the budget of the President  
18           for a fiscal year is submitted to Congress pursuant  
19           to section 1105 of title 31, United States Code, the  
20           National Science Board shall submit to the Presi-  
21           dent and to Congress a report on the unfunded pri-  
22           orities of the National Science Foundation.

23           (2) ELEMENTS.—Each report submitted under  
24           paragraph (1) shall provide—

1           (A) for each directorate of the National  
2 Science Foundation for the most recent, fully  
3 completed fiscal year—

4           (i) the proposal success rate;

5           (ii) the percentage and total funding  
6 of proposals that were not funded and that  
7 met the criteria for funding; and

8           (iii) the most promising research  
9 areas covered by proposals described in  
10 clause (ii); and

11          (B) a list, in order of priority, of the next  
12 activities approved by the National Science  
13 Board to be undertaken in the Major Research  
14 Equipment and Facilities Construction account.

15 (c) PILOT PROGRAM.—

16          (1) IN GENERAL.—The Director, acting  
17 through the Directorate, shall establish a 5-year  
18 pilot program for awarding grants to eligible part-  
19 nerships to build research and education capacity at  
20 emerging research institutions to enable such insti-  
21 tutions to contribute to programs run by the Direc-  
22 torate.

23          (2) APPLICATIONS.—An eligible partnership  
24 seeking a grant under this subsection shall submit  
25 an application to the Director at such time, in such

1 manner, and containing such information as the Di-  
2 rector may reasonably require, including a statement  
3 of how the partnership will use the funds awarded  
4 through the grant to achieve a lasting increase in  
5 the research and education capacity of each emerg-  
6 ing research institution included in the eligible part-  
7 nership.

8 (3) ACTIVITIES.—An eligible partnership receiv-  
9 ing a grant under this subsection may use the funds  
10 awarded through such grant for—

11 (A) faculty salaries and training;

12 (B) research experiences for undergraduate  
13 and graduate students;

14 (C) maintenance and repair of research  
15 equipment and instrumentation; and

16 (D) any other activities the Director deter-  
17 mines appropriate.

18 (4) DEFINITIONS.—In this subsection:

19 (A) DIRECTOR.—The term “Director”  
20 means the Director of the National Science  
21 Foundation.

22 (B) DIRECTORATE; EMERGING RESEARCH  
23 INSTITUTION.—The terms “Directorate” and  
24 “emerging research institution” have the mean-  
25 ings given such terms in section 8A(a) of the

1 National Science Foundation Act of 1950, ex-  
2 cept that, with respect to the term “emerging  
3 research institution”, the reference in para-  
4 graph (4) of such section to an award under  
5 section 8A of that Act shall be deemed a ref-  
6 erence to a grant under this subsection.

7 (C) ELIGIBLE PARTNERSHIP.—The term  
8 “eligible partnership” means a partnership of—

9 (i) at least 1 emerging research insti-  
10 tution; and

11 (ii) at least 1 institution classified as  
12 a very high research activity by the Car-  
13 negie Classification of Institutions of High-  
14 er Education.

15 **SEC. 4. ENDLESS FRONTIER FUND.**

16 (a) IN GENERAL.—There is authorized to be appro-  
17 priated a total of \$112,410,000,000 for fiscal years 2022  
18 through 2026 for the implementation of this Act and the  
19 amendments made by this Act. Such funds shall be avail-  
20 able for the implementation of this Act and the amend-  
21 ments made by this Act, and shall be administered by the  
22 Director of the Office of Science and Technology Policy  
23 (referred to in this section as the “Director”).

24 (b) USE OF FUNDS.—

1           ~~(1) SUBMISSION OF ANNUAL ALLOCATION.—~~

2           Until the date on which all of the amounts in the  
3           Fund described in subsection (a) are expended, the  
4           Director shall annually submit to Congress, together  
5           with the annual budget of the United States, a list  
6           of allocations to agencies and departments to imple-  
7           ment this Act and the amendments made by this Act  
8           that includes a detailed description of each program  
9           proposed to be funded, including the estimated ex-  
10          penditures from the Fund for the program for the  
11          applicable fiscal year.

12           ~~(2) ALTERNATE ALLOCATION.—~~

13           ~~(A) IN GENERAL.—~~The Commerce, Jus-  
14           tice, Science, and Related Agencies Appropria-  
15           tions Act for the relevant fiscal year may pro-  
16           vide for alternate allocation of amounts made  
17           available under this section.

18           ~~(B) ALLOCATION BY PRESIDENT.—~~

19           ~~(i) NO ALTERNATE ALLOCATIONS.—~~If  
20           Congress has not enacted legislation estab-  
21           lishing alternate allocations as described in  
22           subparagraph (A) by the date on which the  
23           Act making full-year appropriations for  
24           Commerce, Justice, Science, and Related  
25           Agencies for the applicable fiscal year is

1           enacted into law, amounts made available  
2           under this section shall be allocated by the  
3           Director.

4           (ii) **INSUFFICIENT ALTERNATE ALLO-**  
5           **EATION.**—If Congress enacts legislation es-  
6           tablishing alternate allocations for amounts  
7           made available under this section that are  
8           less than the full amount authorized to be  
9           appropriated to the Fund for that fiscal  
10          year under subsection (a), the difference  
11          between the amount authorized to be ap-  
12          propriated and the alternate allocation  
13          shall be allocated by the Director.

14          (e) **LIMITATION.**—No funds provided under this sec-  
15          tion shall be used for construction, except in the case of  
16          infrastructure projects described in section 28(b)(1)(B) of  
17          the Stevenson-Wydler Technology Innovation Act of 1980  
18          (Public Law 96–480), as added by section 7(a) of this Act.

19          (d) **SENSE OF CONGRESS.**—It is the sense of Con-  
20          gress that, during the period of fiscal years 2022 through  
21          2026, the Director shall make available, from amounts  
22          made available under subsection (a)—

23                  (1) \$9,425,000,000 to the regional technology  
24          hub program under section 28 of the Stevenson-

1       Wydler Technology Innovation Act of 1980 (Public  
2       Law 96-480), as added by section 7 of this Act;

3               (2) ~~\$575,000,000~~ to the comprehensive regional  
4       technology strategy grant program under section 29  
5       of the Stevenson-Wydler Technology Innovation Act  
6       of 1980 (Public Law 96-480), as added by section  
7       8 of this Act, of which \$100,000,000 shall be made  
8       available for each of fiscal years 2022 and 2023 and  
9       \$125,000,000 shall be made available for each of fis-  
10      eal years 2024 through 2026;

11              (3) ~~\$100,000,000,000~~ to the Directorate for  
12      Technology and Innovation of the National Science  
13      Foundation, of which ~~\$5,000,000,000~~ shall be made  
14      available for fiscal year 2022, ~~\$10,000,000,000~~ shall  
15      be made available for fiscal year 2023,  
16      ~~\$20,000,000,000~~ shall be made available for fiscal  
17      year 2024, ~~\$30,000,000,000~~ shall be made available  
18      for fiscal year 2025, and ~~\$35,000,000,000~~ shall be  
19      made available for fiscal year 2026; and

20              (4) ~~\$2,410,000,000~~ for the period of fiscal  
21      years 2022 through 2026 to the Manufacturing  
22      USA Program for activities described under section  
23      9 of this Act.



1 **SEC. 5. STRATEGY AND REPORT ON ECONOMIC SECURITY,**  
2 **SCIENCE, RESEARCH, AND INNOVATION TO**  
3 **SUPPORT THE NATIONAL SECURITY STRAT-**  
4 **EGY.**

5 (a) **DEFINITIONS.**—In this section:

6 (1) **APPROPRIATE COMMITTEES OF CON-**  
7 **GRESS.**—The term “appropriate committees of Con-  
8 gress” means—

9 (A) the Committee on Agriculture, Nutri-  
10 tion, and Forestry, the Committee on Appro-  
11 priations, the Committee on Armed Services,  
12 the Committee on Banking, Housing, and  
13 Urban Affairs, the Committee on the Budget,  
14 the Committee on Commerce, Science, and  
15 Transportation, the Committee on Energy and  
16 Natural Resources, the Committee on Finance,  
17 the Committee on Foreign Relations, the Com-  
18 mittee on Health, Education, Labor, and Pen-  
19 sions, the Committee on Homeland Security  
20 and Governmental Affairs, the Committee on  
21 the Judiciary, and the Select Committee on In-  
22 telligence of the Senate; and

23 (B) the Committee on Agriculture, the  
24 Committee on Appropriations, the Committee  
25 on Armed Services, the Committee on the  
26 Budget, the Committee on Education and

1 Labor, the Committee on Energy and Com-  
2 merce, the Committee on Financial Services,  
3 the Committee on Foreign Affairs, the Com-  
4 mittee on Homeland Security, the Committee  
5 on the Judiciary, the Committee on Oversight  
6 and Reform, the Committee on Science, Space,  
7 and Technology, the Committee on Ways and  
8 Means, and the Permanent Select Committee  
9 on Intelligence of the House of Representatives.

10 (2) KEY TECHNOLOGY FOCUS AREA.—The term  
11 “key technology focus area” means an area included  
12 on the most recent list under section 8A(d)(2) of the  
13 National Science Foundation Act of 1950.

14 (3) NATIONAL SECURITY STRATEGY.—The term  
15 “national security strategy” means the national se-  
16 curity strategy required by section 108 of the Na-  
17 tional Security Act of 1947 (50 U.S.C. 3043).

18 (b) STRATEGY AND REPORT.—

19 (1) IN GENERAL.—In 2021 and in each year  
20 thereafter before the applicable date set forth under  
21 paragraph (2), the Director of the Office of Science  
22 and Technology Policy, in coordination with the Di-  
23 rector of the National Economic Council, the Direc-  
24 tor of the National Science Foundation, the Sec-  
25 retary of Commerce, the Secretary of Energy, the

1 National Security Council, the United States Patent  
2 and Trademark Office, and the heads of other rel-  
3 evant Federal agencies and in consultation with rel-  
4 evant nongovernmental partners, shall—

5 (A) review such strategy, programs, and  
6 resources as the Director of the Office of  
7 Science and Technology Policy determines per-  
8 tain to United States national competitiveness  
9 in science, research, innovation, and technology  
10 transfer, including patenting and licensing, to  
11 support the national security strategy;

12 (B) develop or revise a strategy for the  
13 Federal Government to improve the national  
14 competitiveness of the United States in science,  
15 research, and innovation to support the national  
16 security strategy; and

17 (C) submit to the appropriate committees  
18 of Congress—

19 (i) a report on the findings of the Di-  
20 rector with respect to the review conducted  
21 under subparagraph (A); and

22 (ii) the strategy developed or revised  
23 under subparagraph (B).

1           (2) APPLICABLE DATES.—In each year, the ap-  
2           plicable date set forth under this paragraph is as fol-  
3           lows:

4                   (A) In 2021, December 31, 2021.

5                   (B) In 2022 and every year thereafter—

6                           (i) in any year in which a new Presi-  
7                           dent is inaugurated, October 1 of that  
8                           year; and

9                           (ii) in any other year, the date that is  
10                           90 days after the date of the transmission  
11                           to Congress in that year of the national se-  
12                           curity strategy.

13           (c) ELEMENTS.—

14                   (1) REPORT.—Each report submitted under  
15                   subsection (b)(1)(C)(i) shall include the following:

16                           (A) An assessment of public and private  
17                           investment in civilian and military science and  
18                           technology and its implications for the  
19                           geostrategic position and national security of  
20                           the United States.

21                           (B) A description of the prioritized eco-  
22                           nomic security interests and objectives, includ-  
23                           ing domestic job creation, of the United States  
24                           relating to science, research, and innovation  
25                           and an assessment of how investment in civilian

1 and military science and technology can ad-  
2 vance those objectives.

3 ~~(C)~~ An assessment of how regional efforts  
4 are contributing and could contribute to the in-  
5 novation capacity of the United States, includ-  
6 ing—

7 (i) programs run by State and local  
8 governments; and

9 (ii) regional factors that are contrib-  
10 uting or could contribute positively to inno-  
11 vation.

12 ~~(D)~~ An assessment of—

13 (i) workforce needs for competitive-  
14 ness and national security in key tech-  
15 nology areas; and

16 (ii) Federal support needed—

17 (I) to expand domestic and inter-  
18 national student pathways into key  
19 technology areas; and

20 (II) to improve workforce devel-  
21 opment and employment systems, as  
22 well as programs and practices to  
23 upskill incumbent workers.

24 ~~(E)~~ An assessment of barriers to competi-  
25 tiveness in key technology focus areas and bar-

1           riers to the development and evolution of start-  
2           ups, small and mid-sized business entities, and  
3           industries in key technology focus areas.

4           (F) An assessment of the effectiveness of  
5           the Federal Government, federally funded re-  
6           search and development centers, and national  
7           labs in supporting and promoting technology  
8           commercialization and technology transfer, in-  
9           cluding an assessment of the adequacy of Fed-  
10          eral research and development funding in pro-  
11          moting competitiveness and the development of  
12          new technologies.

13          (G) An assessment of manufacturing ca-  
14          pacity, logistics, and supply chain dynamics of  
15          major export sectors, including access to a  
16          skilled workforce, physical infrastructure, and  
17          broadband network infrastructure.

18          (H) An assessment of how the Federal  
19          Government is increasing the participation of  
20          underrepresented populations in science, re-  
21          search, innovation, and manufacturing.

22          (I) An assessment of the effectiveness of  
23          the Federal Government, federally funded re-  
24          search and development centers, and national  
25          laboratories in transitioning technologies and

1 processes that emerge from federally funded re-  
2 search to new domestic manufacturing growth  
3 and job creation across sectors in the United  
4 States.

5 (2) STRATEGY.—Each strategy submitted  
6 under subsection (b)(1)(C)(ii) shall include the fol-  
7 lowing:

8 (A) A plan to utilize available tools to ad-  
9 dress or minimize the leading threats and chal-  
10 lenges and to take advantage of the leading op-  
11 portunities, particularly in regards to tech-  
12 nology areas central to competition between the  
13 United States and China, including the fol-  
14 lowing:

15 (i) Specific objectives, tasks, metrics,  
16 and milestones for each relevant Federal  
17 agency.

18 (ii) Specific plans to support public  
19 and private sector investment in research,  
20 technology development, education and  
21 workforce development, and domestic man-  
22 ufacturing in key technology focus areas  
23 supportive of the national economic com-  
24 petitiveness of the United States and to

1 foster the prudent use of public-private  
2 partnerships.

3 (iii) Specific plans to promote environ-  
4 mental stewardship and fair competition  
5 for United States workers.

6 (iv) A description of—

7 (I) how the strategy submitted  
8 under subsection (b)(1)(C)(ii) sup-  
9 ports the national security strategy;  
10 and

11 (II) how the strategy submitted  
12 under such subsection is integrated  
13 and coordinated with the most recent  
14 national defense strategy under sec-  
15 tion 113(g) of title 10, United States  
16 Code.

17 (v) A plan to encourage the govern-  
18 ments of countries that are allies or part-  
19 ners of the United States to cooperate with  
20 the execution of the strategy submitted  
21 under subsection (b)(1)(C)(ii), where ap-  
22 propriate.

23 (vi) A plan to encourage certain inter-  
24 national and multilateral organizations to



1 support the implementation of such strat-  
2 egy.

3 (vii) A plan for how the United States  
4 should develop local and regional capacity  
5 for building innovation ecosystems across  
6 the Nation by providing Federal support.

7 (viii) A plan for strengthening the in-  
8 dustrial base of the United States.

9 (B) An identification of additional re-  
10 sources, administrative action, or legislative ac-  
11 tion recommended to assist with the implemen-  
12 tation of such strategy.

13 (d) FORM OF REPORTS AND STRATEGIES.—Each re-  
14 port and strategy submitted under subsection (b)(1)(C)  
15 shall be submitted in unclassified form, but may include  
16 a classified annex.

17 **SEC. 6. SUPPLY CHAIN RESILIENCY PROGRAM.**

18 (a) DEFINITIONS.—In this section:

19 (1) CRITICAL INDUSTRY.—The term “critical  
20 industry” means—

21 (A) key technology focus areas, as defined  
22 in section 8A(a) of the National Science Foun-  
23 dation Act of 1950, as added by section 3(b) of  
24 this Act; and

1           (B) areas identified by the report in sub-  
2           section (f).

3           (2) CRITICAL INFRASTRUCTURE.—The term  
4           “critical infrastructure” has the meaning given the  
5           term in the Critical Infrastructures Protection Act  
6           of 2001 (42 U.S.C. 5195e).

7           (3) FOREIGN ENTITY.—The term “foreign enti-  
8           ty” —

9           (A) means —

10           (i) the government of a foreign coun-  
11           try;

12           (ii) a foreign political party;

13           (iii) an individual who is not a pro-  
14           tected individual (as defined in section  
15           274B(a)(3) of the Immigration and Na-  
16           tionality Act (8 U.S.C. 1324b(a)(3))); or

17           (iv) a partnership, association, cor-  
18           poration, organization, or other combina-  
19           tion of persons organized under the laws  
20           of, or having its principal place of business  
21           in, a foreign country; and

22           (B) includes —

23           (i) any person owned by, controlled  
24           by, or subject to the jurisdiction or direc-

- 1           tion of, a person described in subpara-  
2           graph (A);
- 3           (ii) any person, wherever located, that  
4           acts as an agent, representative, or em-  
5           ployee of a person described in subpara-  
6           graph (A);
- 7           (iii) any person that acts in any other  
8           capacity at the order or request, or under  
9           the direction or control, of—
- 10           (I) a person described in sub-  
11           paragraph (A); or
- 12           (II) a person, the activities of  
13           which are directly or indirectly super-  
14           vised, directed, controlled, financed, or  
15           subsidized in whole or in majority  
16           part by a person described in subpara-  
17           graph (A);
- 18           (iv) any person that directly or indi-  
19           rectly through any contract, arrangement,  
20           understanding, relationship, or otherwise  
21           owns not less than 25 percent of the equity  
22           interests of a person described in subpara-  
23           graph (A);

1           (v) any person with significant re-  
2           sponsibility to control, manage, or direct a  
3           person described in subparagraph (A);

4           (vi) any individual, wherever located,  
5           who is a citizen or resident of a country  
6           controlled by a person described in sub-  
7           paragraph (A); and

8           (vii) any corporation, partnership, as-  
9           sociation, or other organization organized  
10          under the laws of a country controlled by  
11          a person described in subparagraph (A).

12          (4) FOREIGN ENTITY OF CONCERN.—The term  
13          “foreign entity of concern” means a foreign entity  
14          that is—

15               (A) designated as a foreign terrorist orga-  
16               nization by the Secretary of State under section  
17               219(a) of the Immigration and Nationality Act  
18               (8 U.S.C. 1189(a));

19               (B) included on the list of specially des-  
20               ignated nationals and blocked persons main-  
21               tained by the Office of Foreign Assets Control  
22               of the Department of the Treasury (commonly  
23               known as the “SDN list”);

24               (C) owned by, controlled by, or subject to  
25               the jurisdiction or direction of a government of

1 a foreign country that is a covered nation (as  
2 defined in section 2533e(d) of title 10, United  
3 States Code);

4 (D) alleged by the Attorney General to  
5 have been involved in activities for which a con-  
6 viction was obtained under—

7 (i) chapter 37 of title 18, United  
8 States Code (commonly known as the “Es-  
9 pionage Act”);

10 (ii) section 951 or 1030 of title 18,  
11 United States Code;

12 (iii) chapter 90 of title 18, United  
13 States Code (commonly known as the  
14 “Economic Espionage Act of 1996”);

15 (iv) the Arms Export Control Act (22  
16 U.S.C. 2751 et seq.);

17 (v) section 224, 225, 226, 227, or 236  
18 of the Atomic Energy Act of 1954 (42  
19 U.S.C. 2274, 2275, 2276, 2277, and  
20 2284);

21 (vi) the Export Control Reform Act of  
22 2018 (50 U.S.C. 4801 et seq.); or

23 (vii) the International Emergency  
24 Economic Powers Act (50 U.S.C. 1701 et  
25 seq.); or

1           (E) determined by the Secretary, in con-  
2           sultation with the Secretary of Defense and the  
3           Director of National Intelligence, to be engaged  
4           in unauthorized conduct that is detrimental to  
5           the national security or foreign policy of the  
6           United States.

7           (5) LABOR ORGANIZATION.—The term “labor  
8           organization” has the meaning given such term in  
9           section 8A(a) of the National Science Foundation  
10          Act of 1950.

11          (6) PROGRAM.—The term “program” means  
12          the supply chain resiliency and crisis response pro-  
13          gram established under subsection (b).

14          (7) RELEVANT COMMITTEES OF CONGRESS.—  
15          The term “relevant committees of Congress”  
16          means—

17                (A) the Committee on Commerce, Science,  
18                and Transportation of the Senate;

19                (B) the Committee on Appropriations of  
20                the Senate;

21                (C) the Committee on Finance of the Sen-  
22                ate;

23                (D) the Committee on Homeland Security  
24                and Governmental Affairs of the Senate;

1           ~~(E)~~ the Committee on Armed Services of  
2 the Senate;

3           ~~(F)~~ the Select Committee on Intelligence of  
4 the Senate;

5           ~~(G)~~ the Committee on Science, Space, and  
6 Technology of the House of Representatives;

7           ~~(H)~~ the Committee on Energy and Com-  
8 merce of the House of Representatives;

9           ~~(I)~~ the Committee on Appropriations of the  
10 House of Representatives;

11           ~~(J)~~ the Committee on Ways and Means of  
12 the House of Representatives;

13           ~~(K)~~ the Committee on Homeland Security  
14 of the House of Representatives;

15           ~~(L)~~ the Committee on Armed Services of  
16 the House of Representatives; and

17           ~~(M)~~ the Permanent Select Committee on  
18 Intelligence of the House of Representatives.

19           ~~(8)~~ SECRETARY.—The term “Secretary” means  
20 the Secretary of Commerce.

21           ~~(b)~~ ESTABLISHMENT.—The Secretary shall establish  
22 in the Department of Commerce a supply chain resiliency  
23 and crisis response program to carry out the activities de-  
24 scribed in subsection ~~(d)~~.

25           ~~(c)~~ MISSION AND PRIORITIES.—

1           (1) MISSION.—The mission of the program is  
2       to—

3           (A) ensure the leadership of the United  
4       States with respect to industries that are essen-  
5       tial to mid-term and long-term national security  
6       and economic competitiveness;

7           (B) promote, in partnership with the pri-  
8       vate sector and other relevant stakeholders, the  
9       resiliency of supply chains of the United States  
10      and allied or partner countries; and

11          (C) encourage partnerships between the  
12      Federal Government and industry, labor organi-  
13      zations, and State, local, territorial, and Tribal  
14      governments in order to better respond to sup-  
15      ply chain crises.

16          (2) PRIORITIES.—The program shall—

17          (A) in partnership with the private sector,  
18      build resilient and secure supply chains (includ-  
19      ing through the mid-term and long-term diver-  
20      sification of key supply chains, which shall in-  
21      clude the support of small- and medium-sized  
22      businesses) that can ensure the access of the  
23      United States to critical goods and services in  
24      the face of shocks, including pandemic and bio-  
25      logical threats, cyberattacks, extreme weather



1 events, terrorist and geopolitical attacks, great  
 2 power conflict, and other threats to national se-  
 3 curity, with key parts of such resilience being—

4 (i) the diversification of key supply  
 5 chains with allies or key partners; and

6 (ii) working with allies or key partners  
 7 through agreements and other commit-  
 8 ments; and

9 (B) support collaboration with allies or key  
 10 partners to collectively build and strengthen re-  
 11 siliant global supply chains, including through  
 12 identifying supply chain vulnerabilities, expand-  
 13 ing productive capacity, and stockpiling essen-  
 14 tial goods.

15 (d) ACTIVITIES.—Under the program, the Secretary,  
 16 acting through 1 or more bureaus or other divisions of  
 17 the Department of Commerce as appropriate, shall carry  
 18 out activities—

19 (1) to map and monitor key supply chains and  
 20 to identify current and future key supply chain gaps  
 21 and vulnerabilities in critical industries;

22 (2) to develop or identify opportunities to build  
 23 domestic capacity, and cooperate with allies or key  
 24 partners, to address supply chain gaps and  
 25 vulnerabilities in critical industries;

1           (3) to consult and collaborate with the Director  
2 of the Office of Management and Budget, the Sec-  
3 retary of Defense, the Secretary of Homeland Secu-  
4 rity, the Secretary of the Treasury, the Secretary of  
5 Energy, the Secretary of Transportation, the Sec-  
6 retary of Agriculture, the Secretary of State, the Di-  
7 rector of National Intelligence, the Director of the  
8 Office of Science and Technology Policy, and, as ap-  
9 propriate, the heads of other Federal departments  
10 and agencies to invest in urgent supply chain gaps;

11           (4) to encourage partnerships between the Fed-  
12 eral Government and industry, labor organizations,  
13 and State, local, territorial, and Tribal governments  
14 to better respond to crises;

15           (5) to support the distribution of critical re-  
16 sources to areas that have the greatest needs during  
17 crises;

18           (6) to develop contingency plans to ensure a re-  
19 siliant supply chain response for potential crises;

20           (7) to ensure that allies and key partners have  
21 supply chains that are capable of supporting critical  
22 industries; and

23           (8) to enter into agreements and partnerships  
24 with allied or partner governments to promote diver-  
25 sified and resilient supply chains that ensure supply

1 of critical goods to both the United States and allied  
2 companies.

3 (c) AUTHORITIES.—The Secretary may—

4 (1) establish a unified coordination group to  
5 serve as the primary method for coordinating be-  
6 tween and among Federal departments and agencies  
7 in response to known supply chain risks as well as  
8 for integrating private sector partners into efforts,  
9 as appropriate, to—

10 (A) study technical, engineering, and oper-  
11 ational data acquired on a voluntary basis from  
12 the private sector, in a manner that ensures  
13 any data provided by the private sector is kept  
14 confidential and as required under section 552  
15 of title 5, United States Code (commonly known  
16 as the “Freedom of Information Act”);

17 (B) directly receive whistleblower com-  
18 plaints with appropriate protection; and

19 (C) identify key competitiveness challenges  
20 in critical industries;

21 (2) enter into agreements with allied or partner  
22 governments regarding supply chain security assur-  
23 ances;

24 (3) coordinate with other divisions of the De-  
25 partment of Commerce and other Federal depart-

1       ments and agencies to leverage existing authorities,  
2       as of the date of enactment of this Act, to strength-  
3       en supply chain resilience; and

4           (4) with the approval of the Committee on Ap-  
5       propriations of the Senate and the Committee on  
6       Appropriations of the House of Representatives,  
7       transfer funds to, or receive funds from, other de-  
8       partments and agencies to implement the program.

9       (f) REPORT ON SUPPLY CHAIN RESILIENCY AND DO-  
10      MESTIC MANUFACTURING.—Not later than 180 days after  
11     the date of enactment of this Act, and not less frequently  
12     than every 2 years thereafter, the Secretary shall submit  
13     to the relevant committees of Congress a review, in coordi-  
14     nation with other relevant Federal departments and agen-  
15     cies—

16           (1) identifying—

17               (A) technologies critical to economic com-  
18               petitiveness and national security; and

19               (B) supplies critical to the crisis prepared-  
20               ness of the United States, such as medical sup-  
21               plies, personal protective equipment, disaster  
22               response necessities, electrical generation tech-  
23               nology, materials essential to critical infrastruc-  
24               ture operation or repair and renovation, and  
25               other supplies identified by the Secretary;

1           (2) describing—

2                   (A) the current domestic manufacturing  
3           base and supply chains for those technologies  
4           and supplies, including raw materials, produc-  
5           tion equipment, and other goods essential to the  
6           production of those technologies and supplies;  
7           and

8                   (B) the ability of the United States to  
9           maintain readiness and to surge produce those  
10          technologies and supplies in response to an  
11          emergency;

12           (3) identifying defense, intelligence, homeland,  
13          economic, domestic labor supply, natural, geo-  
14          political, or other contingencies that may disrupt,  
15          strain, compromise, or eliminate the supply chain for  
16          those technologies and supplies;

17           (4) assessing the resiliency and capacity of the  
18          domestic, allied, and partner manufacturing base,  
19          supply chains, and workforce to support the need for  
20          those technologies and supplies, including any single  
21          points of failure in those supply chains;

22           (5) assessing flexible manufacturing capacity  
23          available in the United States in cases of emergency;

1           (6) making specific recommendations to im-  
2           prove the security and resiliency of manufacturing  
3           capacity and supply chains by—

4                   (A) developing long-term strategies;

5                   (B) increasing visibility throughout mul-  
6           tiple supplier tiers;

7                   (C) identifying and mitigating risks, in-  
8           cluding the financial and operational risks of a  
9           supply chain, vulnerabilities to extreme weather  
10          events, cyberattacks, pandemic and biological  
11          threats, terrorist and geopolitical attacks, and  
12          other emergencies, and exposure to gaps in do-  
13          mestic sourcing and import exposure;

14                  (D) identifying enterprise resource plan-  
15          ning systems that are compatible across supply  
16          chain tiers and are affordable for small and me-  
17          dium-sized businesses;

18                  (E) understanding the total cost of owner-  
19          ship, total value contribution, and other best  
20          practices that encourage strategic partnerships  
21          throughout the supply chain;

22                  (F) understanding Federal procurement  
23          opportunities to increase resiliency of supply  
24          chains for goods and services and fill gaps in  
25          domestic purchasing;

1           (G) identifying policies to maximize domes-  
2           tie job retention and creation, including work-  
3           force development programs;

4           (H) identifying and mitigating risks associ-  
5           ated with allied or key partner countries in  
6           building more resilient supply chains; and

7           (I) identifying such other services as the  
8           Secretary considers necessary;

9           (7) providing guidance on technologies and sup-  
10          plies to be prioritized for assistance and other activi-  
11          ties under the Department of Commerce, the Na-  
12          tional Science Foundation, and other relevant Fed-  
13          eral agencies;

14          (8) reviewing and, if appropriate, expanding the  
15          sourcing of goods associated with critical technology  
16          areas from allies or key partners, including rec-  
17          ommendations for coordination with allies or key  
18          partners on sourcing critical products; and

19          (9) monitoring and strengthening the financial  
20          and operational health of small and medium enter-  
21          prises in domestic, allied, and partner supply chains  
22          to mitigate risks and ensure diverse, competitive  
23          supplier markets that are less vulnerable to single  
24          points of failure.

25          (g) ADDITIONAL HIRING AUTHORITY.—

1           (1) IN GENERAL.—To the extent needed to  
2 carry out the program, the Secretary may—

3           (A) utilize hiring authorities under section  
4 3372 of title 5, United States Code, to staff the  
5 program with employees from other Federal  
6 agencies, institutions of higher education, and  
7 other organizations as described in that section  
8 with relevant experience in supply chain man-  
9 agement and investment in the same manner  
10 and subject to the same conditions that apply  
11 to such individuals utilized to accomplish other  
12 missions of the Department of Commerce;

13           (B) appoint and fix the compensation of  
14 such temporary personnel as may be necessary  
15 to implement the requirements of this section  
16 relating to the program, without regard to the  
17 provisions of title 5, United States Code, gov-  
18 erning appointments in the competitive service;  
19 and

20           (C) appoint an individual appointed under  
21 subparagraph (B), after serving continuously  
22 for not less than 2 years, to a position in the  
23 Department of Commerce in the same manner  
24 that an employee serving in a position in the



1 competitive service may be transferred, reas-  
2 signed, or promoted.

3 ~~(2) NO REIMBURSEMENT.—Any assignment~~  
4 ~~provided under paragraph (1)(A) shall be made~~  
5 ~~without reimbursement.~~

6 ~~(3) EFFECT OF APPOINTMENT.—An individual~~  
7 ~~appointed as described in paragraph (1)(C) shall be~~  
8 ~~considered to be appointed under a career-condi-~~  
9 ~~tional appointment, unless the individual, as of the~~  
10 ~~date on which the individual is appointed, has com-~~  
11 ~~pleted a sufficient amount of creditable service to at-~~  
12 ~~tain a permanent career appointment.~~

13 ~~(h) SEMICONDUCTOR INCENTIVES.—~~

14 ~~(1) IN GENERAL.—The Secretary shall carry~~  
15 ~~out the program established under section 9902 of~~  
16 ~~the William M. (Mac) Thornberry National Defense~~  
17 ~~Authorization Act for Fiscal Year 2021 (Public Law~~  
18 ~~116–283) as part of the program.~~

19 ~~(2) TECHNICAL AND CONFORMING AMEND-~~  
20 ~~MENT.—Section 9902(a)(1) of the William M. (Mac)~~  
21 ~~Thornberry National Defense Authorization Act for~~  
22 ~~Fiscal Year 2021 (Public Law 116–283) is amended~~  
23 ~~by striking “in the Department of Commerce” and~~  
24 ~~inserting “as part of the program established under~~  
25 ~~section 6 of the Endless Frontier Act”.~~

1       (i) **REPORT TO CONGRESS.**—Concurrent with the an-  
2 nual submission by the President of a budget under sec-  
3 tion 1105 of title 31, United States Code, the Secretary  
4 shall submit to the relevant committees of Congress a re-  
5 port that contains a summary of all activities carried out  
6 under this section for the year covered by the report.

7       (j) **COORDINATION.**—The Secretary of Commerce  
8 shall, as appropriate, coordinate with the heads of other  
9 Federal departments and agencies, including the Sec-  
10 retary of State and the United States Trade Representa-  
11 tive, in the implementation of this program.

12       (k) **RULE OF CONSTRUCTION REGARDING PRIVATE**  
13 **ENTITIES.**—Nothing in this section shall be construed to  
14 require any private entity—

15             (1) to request assistance from the Secretary; or

16             (2) that requested such assistance from the  
17 Secretary to implement any measure or rec-  
18 ommendation suggested by the Secretary.

19       (l) **FUNDING.**—

20             (1) **IN GENERAL.**—There are authorized to be  
21 appropriated to the Secretary such sums as may be  
22 necessary to carry out this section, which shall re-  
23 main available until expended.

24             (2) **INSPECTOR GENERAL FUNDING.**—Of the  
25 amounts made available in a fiscal year to carry out

1 this section, not more than 2 percent of those  
 2 amounts shall be available to the Inspector General  
 3 of the Department of Commerce to conduct over-  
 4 sight activities with respect to the program.

5 (3) TRANSFERS.—Of the amounts made avail-  
 6 able in a fiscal year to carry out this section, the  
 7 Secretary may transfer not more than 5 percent of  
 8 those amounts to the account under the heading  
 9 “Department of Commerce—Salaries and Expenses”  
 10 to provide for administration and oversight activities  
 11 relating to the program.

12 **SEC. 7. REGIONAL TECHNOLOGY HUB PROGRAM.**

13 (a) IN GENERAL.—The Stevenson-Wydler Tech-  
 14 nology Innovation Act of 1980 (Public Law 96-480; 15  
 15 U.S.C. 3701 et seq.) is amended—

16 (1) by redesignating section 28 as section 30;  
 17 and

18 (2) by inserting after section 27 the following:

19 **“SEC. 28. REGIONAL TECHNOLOGY HUB PROGRAM.**

20 **“(a) DEFINITIONS.—**In this section:

21 **“(1) APPROPRIATE COMMITTEES OF CON-**  
 22 **GRESS.—**The term ‘appropriate committees of Con-  
 23 gress’ means—

24 **“(A) the Committee on Commerce,**  
 25 **Science, and Transportation; the Committee on**

1 Environment and Public Works, and the Com-  
2 mittee on Appropriations of the Senate; and

3 “(B) the Committee on Science, Space,  
4 and Technology, the Committee on Transpor-  
5 tation and Infrastructure, and the Committee  
6 on Appropriations of the House of Representa-  
7 tives.

8 “(2) COOPERATIVE EXTENSION.—The term ‘co-  
9 operative extension’ has the meaning given the term  
10 ‘extension’ in section 1404 of the Food and Agri-  
11 culture Act of 1977 (7 U.S.C. 3103).

12 “(3) KEY TECHNOLOGY FOCUS AREAS.—The  
13 term ‘key technology focus areas’ means the areas  
14 included on the most recent list under section  
15 8A(d)(2) of the National Science Foundation Act of  
16 1950.

17 “(4) LABOR ORGANIZATION.—The term ‘labor  
18 organization’ has the meaning given such term in  
19 section 8A(a) of the National Science Foundation  
20 Act of 1950.

21 “(5) LARGE METROPOLITAN COMMUNITIES.—  
22 The term ‘large metropolitan community’ means a  
23 metropolitan statistical area with a population of  
24 more than 500,000.

1           “(6) MANUFACTURING EXTENSION CENTER.—

2           The term ‘manufacturing extension center’ has the  
3           meaning given the term ‘Center’ in section 25(a) of  
4           the National Institute of Standards and Technology  
5           Act (15 U.S.C. 278k(a)).

6           “(7) MANUFACTURING USA INSTITUTE.—The

7           term ‘Manufacturing USA institute’ means a Manu-  
8           facturing USA institute described in section 34(d) of  
9           the National Institute of Standards and Technology  
10          Act (15 U.S.C. 278s(d)).

11          “(8) MID-SIZED METROPOLITAN COMMU-

12          NITIES.—The term ‘mid-sized metropolitan commu-  
13          nity’ means a metropolitan statistical area with a  
14          population of more than 200,000 and not more than  
15          500,000.

16          “(9) OTHER TECHNOLOGY AND INNOVATION

17          SECTORS CRITICAL TO NATIONAL AND ECONOMIC SE-

18          CURITY.—The term ‘other technology and innovation

19          sectors critical to national and economic security’

20          means other technology and innovation sectors that

21          the Secretary determines are critical to national and

22          economic security.

23          “(10) SMALL AND RURAL COMMUNITIES.—The

24          term ‘small and rural community’ means a noncore

25          area, a micropolitan area, or a small metropolitan

1 statistical area with a population of not more than  
2 200,000.

3 “(11) VENTURE DEVELOPMENT ORGANIZA-  
4 TION.—The term ‘venture development organization’  
5 means a State or nonprofit organization focused pri-  
6 marily toward strengthening regional economic de-  
7 velopment through innovation by—

8 “(A) accelerating the commercialization of  
9 research and technology;

10 “(B) strengthening the competitive posi-  
11 tion of startups and industry through the devel-  
12 opment, commercial adoption, or deployment of  
13 technology;

14 “(C) providing financial grants, loans, or  
15 direct investment to commercialize technology;

16 “(D) pairing direct financial assistance  
17 under subparagraph (C) with entrepreneurship,  
18 technological, or business assistance to maxi-  
19 mize the likelihood of success for a venture and  
20 increased employment growth for the region or  
21 a sector; and

22 “(E) returning any proceeds gained from  
23 direct financial assistance made using organiza-  
24 tion funds to the organization for future reim-

1 investment, entrepreneurial assistance, and sup-  
2 port of operations.

3 “(b) REGIONAL TECHNOLOGY HUB PROGRAM.—

4 “(1) IN GENERAL.—The Secretary shall carry  
5 out a program—

6 “(A) to designate eligible consortia as re-  
7 gional technology hubs that create the condi-  
8 tions, within a region, to facilitate activities  
9 that—

10 “(i) enable United States leadership  
11 in a key technology focus area, comple-  
12 menting the Federal research and develop-  
13 ment investments under section 8A of the  
14 National Science Foundation Act of 1950,  
15 or other technology and innovation sectors  
16 critical to national and economic security;

17 “(ii) support regional economic devel-  
18 opment that diffuses innovation around the  
19 United States, enabling better broad-based  
20 growth and competitiveness in key tech-  
21 nology focus areas;

22 “(iii) support domestic job creation;  
23 and

24 “(iv) otherwise support the purposes  
25 set forth under paragraph (2);

1           ~~“(B) to support regional technology hubs~~  
2           ~~designated under subparagraph (A); and~~

3           ~~“(C) to conduct ongoing research, evalua-~~  
4           ~~tion, analysis, and dissemination of best prac-~~  
5           ~~tices for regional development and competitive-~~  
6           ~~ness in technology and innovation.~~

7           ~~“(2) PURPOSES.—The purposes of the program~~  
8           ~~carried out under paragraph (1) are as follows:~~

9           ~~“(A) To designate eligible consortia as re-~~  
10          ~~gional technology hubs throughout the United~~  
11          ~~States that create the conditions within a re-~~  
12          ~~gion to facilitate activities that establish the~~  
13          ~~global competitive edge of the United States in~~  
14          ~~the 21st century across a range of technology~~  
15          ~~and innovation sectors critical to national and~~  
16          ~~economic security, including to encourage lower-~~  
17          ~~cost but economically viable technology hubs in~~  
18          ~~the United States to reduce technology~~  
19          ~~offshoring.~~

20          ~~“(B) To encourage new and constructive~~  
21          ~~collaboration among local, State, and Federal~~  
22          ~~Government entities, academia, private indus-~~  
23          ~~try, and labor organizations to mobilize invest-~~  
24          ~~ment, talent, entrepreneurship, and innovation~~  
25          ~~for research, development, deployment, and~~



1 manufacturing in a range of technology and in-  
2 novation sectors critical to national and eco-  
3 nomic security.

4 “(C) To assist regions across the United  
5 States, including small cities and rural areas—

6 “(i) to develop and implement strate-  
7 gies through technology-based economic  
8 development practices, including infra-  
9 structure and workforce development, en-  
10 trepreneurship and commercialization sup-  
11 port, increasing access to capital, and  
12 building networks and systems to help  
13 bring ideas and businesses to market, and  
14 other relevant activities;

15 “(ii) to improve domestic supply  
16 chains in technology and innovation sec-  
17 tors; and

18 “(iii) to enable broad-based economic  
19 growth, job creation and competitiveness in  
20 the United States.

21 “(3) ADMINISTRATION.—The Secretary shall  
22 carry out this section through the Assistant Sec-  
23 retary of Commerce for Economic Development, in  
24 coordination with the Under Secretary of Commerce  
25 for Standards and Technology.

1       “(e) ELIGIBLE CONSORTIA.—For purposes of this  
2 section, an eligible consortium is a consortium that—

3               “(1) includes 1 or more—

4                       “(A) institutions of higher education;

5                       “(B) local or Tribal governments or other  
6 political subdivisions of a State;

7                       “(C) State governments represented by an  
8 agency designated by the governor of the State  
9 or States that is representative of the geo-  
10 graphic area served by the consortia;

11                      “(D) economic development organizations  
12 or similar entities that are focused primarily on  
13 improving science, technology, innovation, or  
14 entrepreneurship;

15                      “(E) industry or firms in relevant tech-  
16 nology or innovation sectors;

17                      “(F) labor organizations; and

18                      “(G) workforce training organizations, in-  
19 cluding State and local workforce development  
20 boards as established under section 101 of the  
21 Workforce Investment and Opportunity Act (29  
22 U.S.C. 3111); and

23               “(2) may include 1 or more—

24                      “(A) nonprofit economic development enti-  
25 ties with relevant expertise, including a district

1 organization (as defined in section 300.3 of title  
2 13, Code of Federal Regulations, or successor  
3 regulation);

4 “(B) for-profit entities with relevant exper-  
5 tise;

6 “(C) venture development organizations;

7 “(D) financial institutions and investment  
8 funds;

9 “(E) primary and secondary educational  
10 institutions, including career and technical edu-  
11 cation schools;

12 “(F) industry and industry associations;

13 “(G) National Laboratories (as defined in  
14 section 2 of the Energy Policy Act of 2005 (42  
15 U.S.C. 15801));

16 “(H) Federal laboratories;

17 “(I) manufacturing extension centers;

18 “(J) Manufacturing USA institutes;

19 “(K) institutions receiving an award under  
20 paragraph (6) or (7) of section 8A(d) of the  
21 National Science Foundation Act of 1950; and

22 “(L) a cooperative extension.

23 “(d) DESIGNATION OF REGIONAL TECHNOLOGY  
24 HUBS.—

1           “(1) IN GENERAL.—The Secretary shall use a  
2 competitive process for the designation of regional  
3 technology hubs under subsection (b)(1)(A).

4           “(2) NUMBER OF REGIONAL TECHNOLOGY  
5 HUBS.—During the 5-year period beginning on the  
6 date of the enactment of the Endless Frontier Act,  
7 the Secretary shall designate not fewer than 10 and  
8 not more than 15 eligible consortia as regional tech-  
9 nology hubs under subsection (b)(1)(A), if the Sec-  
10 retary has received a sufficient number of qualified  
11 applications and appropriations to carry out this sec-  
12 tion.

13           “(3) GEOGRAPHIC DISTRIBUTION.—In con-  
14 ducting the competitive process under paragraph  
15 (1), the Secretary shall ensure geographic distribu-  
16 tion in the designation of regional technology hubs  
17 by—

18           “(A) aiming to designate regional tech-  
19 nology hubs in as many regions of the United  
20 States as possible; and

21           “(B) focusing on localities that have clear  
22 potential and relevant assets for developing a  
23 self-sustaining competitive position in a tech-  
24 nology or innovation sector but have not yet be-  
25 come leading technology centers.

1           “(4) ELIGIBLE CONSORTIA THAT SERVE SMALL  
2           AND RURAL COMMUNITIES.—Under subsection  
3           (b)(1)(A), the Secretary shall designate at least 3 el-  
4           igible consortia that—

5                   “(A) serve small and rural communities;

6                   and

7                   “(B) have received a grant under section

8                   29.

9           “(5) EPSCoR.—The Secretary shall ensure  
10           that, of the eligible consortia designated as regional  
11           technology hubs under subsection (b)(1)(A), not  
12           fewer than 5 of such consortia include at least 1  
13           State that is eligible to receive funding from the Es-  
14           tablished Program to Stimulate Competitive Re-  
15           search of the National Science Foundation.

16           “(6) RELATION TO CERTAIN GRANT AWARDS.—

17           The Secretary may not require an eligible Consor-  
18           tium to receive a grant under section 29 in order to  
19           be designated as a regional technology hub under  
20           subsection (b)(1)(A) of this section.

21           “(e) GRANTS AND COOPERATIVE AGREEMENTS.—

22                   “(1) IN GENERAL.—The Secretary shall carry  
23           out subparagraph (B) of subsection (b)(1) through  
24           the award of grants or cooperative agreements to eli-

1 eligible consortia designated under subparagraph (A)  
2 of such subsection.

3 “(2) TERM.—

4 “(A) IN GENERAL.—The term of a grant  
5 or cooperative agreement awarded under para-  
6 graph (1) shall be for such period as the Sec-  
7 retary considers appropriate.

8 “(B) RENEWAL.—The Secretary may  
9 renew a grant or cooperative agreement award-  
10 ed to an eligible consortia under paragraph (1)  
11 as the Secretary considers appropriate if the  
12 Secretary determines pursuant to subsection (i)  
13 that the performance of the eligible consortia is  
14 satisfactory.

15 “(3) MATCHING REQUIRED.—

16 “(A) IN GENERAL.—Except in the case of  
17 an eligible consortium described in subpara-  
18 graph (B), the total Federal financial assistance  
19 awarded in a given year to an eligible consor-  
20 tium in support of the eligible consortium’s op-  
21 eration as a regional technology hub under this  
22 section shall not exceed amounts as follows:

23 “(i) In first year of the grant or coop-  
24 erative agreement, 90 percent of the total

1 operating and maintenance costs of the re-  
2 gional technology hub in that fiscal year.

3 “(ii) In second year of the grant or  
4 cooperative agreement, 85 percent of the  
5 total operating and maintenance costs of  
6 the regional technology hub in that fiscal  
7 year.

8 “(iii) In third year of the grant or co-  
9 operative agreement, 80 percent of the  
10 total operating and maintenance costs of  
11 the regional technology hub in that fiscal  
12 year.

13 “(iv) In fourth year of the grant or  
14 cooperative agreement and each year there-  
15 after, 75 percent of the total operating and  
16 maintenance costs of the regional tech-  
17 nology hub in that fiscal year.

18 “(B) SMALL AND RURAL COMMUNITIES  
19 AND INDIAN TRIBES.—

20 “(i) IN GENERAL.—The total Federal  
21 financial assistance awarded in a given  
22 year to an eligible consortium in support of  
23 the eligible consortium’s operation as a re-  
24 gional technology hub under this section  
25 shall not exceed amounts as follows:

1           “(I) In the case of an eligible  
2           consortium that represents a small  
3           and rural community, in a fiscal year,  
4           90 percent of the total funding of the  
5           regional technology hub in that fiscal  
6           year.

7           “(II) In the case of an eligible  
8           consortium that is led by a Tribal  
9           government, in a fiscal year, 100 per-  
10          cent of the total funding of the re-  
11          gional technology hub in that fiscal  
12          year.

13          “(ii) MINIMUM THRESHOLD OR RURAL  
14          REPRESENTATION.—The Secretary shall  
15          establish a minimum threshold of rural  
16          representation for purposes of clause (i)(I).

17          “(C) IN-KIND CONTRIBUTIONS.—For pur-  
18          poses of this paragraph, in-kind contributions  
19          may be used for part of the non-Federal share  
20          of the total funding of a regional technology  
21          hub in a fiscal year.

22          “(4) USE OF GRANT AND COOPERATIVE AGREE-  
23          MENT FUNDS.—The recipient of a grant or coopera-  
24          tive agreement awarded under paragraph (1) shall  
25          use the grant or cooperative agreement for multiple



1 activities determined appropriate by the Secretary,  
2 including—

3 “(A) the permissible activities set forth  
4 under section 27(c)(2); and

5 “(B) activities in support of key technology  
6 focus areas and other technology and innova-  
7 tion sectors critical to national and economic se-  
8 curity—

9 “(i) to develop regional strategies for  
10 infrastructure and site development in sup-  
11 port of the regional technology hub’s plans  
12 and programs;

13 “(ii) to support business activity that  
14 makes domestic supply chain more resilient  
15 and encourages the growth of coordinated  
16 multiparty systems in the United States  
17 and creation and growth of business enti-  
18 ties;

19 “(iii) to attract new private, public,  
20 and philanthropic investment in the region  
21 for developing innovation capacity, includ-  
22 ing establishing regional venture and loan  
23 funds, including through venture develop-  
24 ment organizations, for financing tech-

1 nology commercialization, new business  
2 formation, and business expansions;

3 “(iv) to further the development, de-  
4 ployment, and domestic manufacturing of  
5 technologies in the key technology focus  
6 areas and other technology and innovation  
7 sectors critical to national and economic  
8 security, including innovations derived  
9 from research conducted at institutions of  
10 higher education or other research entities,  
11 including research conducted by federally  
12 funded research and development centers,  
13 National Laboratories, Federal labora-  
14 tories, Manufacturing USA institutes, uni-  
15 versity technology centers established  
16 under paragraph (6) of section 8A(d) of  
17 the National Science Foundation Act of  
18 1950, the program established under para-  
19 graph (7) of such section 8A(d), test beds  
20 established and operated under paragraph  
21 (8) of such section 8A(d), or other Federal  
22 research entities, through activities that  
23 may include—

24 “(I) proof-of-concept development  
25 and prototyping;

1           “(II) technology transfer and  
2           commercialization, including patenting  
3           and licensing;

4           “(III) public-private partnerships  
5           in order to reduce the cost, time, and  
6           risk of commercializing new tech-  
7           nologies;

8           “(IV) creating and funding com-  
9           petitions to allow entrepreneurial  
10          ideas to illustrate their commercializa-  
11          tion and domestic job creation poten-  
12          tial;

13          “(V) facilitating relationships be-  
14          tween local and national business  
15          leaders and potential entrepreneurs to  
16          encourage successful commercializa-  
17          tion;

18          “(VI) creating and funding not-  
19          for-profit entities that could enable re-  
20          searchers at institutions of higher  
21          education and other research entities  
22          to further develop new technology,  
23          through patient funding, advice, staff  
24          support, or other means;

1           “(VII) providing facilities for  
2           start-up companies where technology  
3           maturation could occur; and

4           “(VIII) commercialization, de-  
5           ployment, and adoption of the tech-  
6           nologies that lead to domestic manu-  
7           facturing of such technologies;

8           “(v) to develop the region’s skilled  
9           workforce through the training and re-  
10          training of workers; partnerships with  
11          labor organizations; and skills-based edu-  
12          cation, including the alignment of career  
13          technical training and educational pro-  
14          grams in the region’s elementary and sec-  
15          ondary schools and institutions of higher  
16          education; and

17          “(vi) to carry out such other activities  
18          as the Secretary considers appropriate to  
19          improve United States competitiveness and  
20          regional economic development to support  
21          a key technology focus area and that would  
22          further the purposes of this section.

23          “(5) GRANTS FOR INFRASTRUCTURE.—Any  
24          grant or cooperative agreement awarded under para-  
25          graph (1) to support the construction of physical in-

1        frastructure shall be awarded pursuant to section  
2        201 of the Public Works and Economic Development  
3        Act of 1965 (42 U.S.C. 3141) and subject to the  
4        provisions of such Act, except that subsection (b) of  
5        such section and sections 204 and 301 of such Act  
6        (42 U.S.C. 3144, 3161) shall not apply.

7        “(f) APPLICATIONS.—An eligible consortium seeking  
8        designation as a regional technology hub under subpara-  
9        graph (A) of subsection (b)(1) and support under subpara-  
10       graph (B) of such subsection shall submit to the Secretary  
11       an application therefor at such time, in such manner, and  
12       containing such information as the Secretary may specify.

13       “(g) CONSIDERATIONS FOR DESIGNATION AND  
14       AWARD OF GRANTS AND COOPERATIVE AGREEMENTS.—

15                “(1) IN GENERAL.—In selecting an eligible con-  
16       sortium that submitted an application under sub-  
17       section (f) for designation and support under sub-  
18       section (b)(1), the Secretary shall consider, at a  
19       minimum, the following:

20                        “(A) The potential of the eligible consor-  
21       tium to advance the research, development, de-  
22       ployment, and domestic manufacturing of tech-  
23       nologies in a key technology focus area or other  
24       technology or innovation sector critical to na-  
25       tional and economic security.

1           “(B) The likelihood of positive regional  
2           economic effect, including increasing the num-  
3           ber of high wage domestic jobs, and creating  
4           new economic opportunities for economically  
5           disadvantaged and underrepresented popu-  
6           lations.

7           “(C) How the eligible consortium plans to  
8           integrate with and leverage the resources of 1  
9           or more federally funded research and develop-  
10          ment centers, National Laboratories, Federal  
11          laboratories, Manufacturing USA institutes,  
12          Hollings Manufacturing Extension Partnership  
13          centers, university technology centers estab-  
14          lished under paragraph (6) of section 8A(d) of  
15          the National Science Foundation Act of 1950,  
16          the program established under paragraph (7) of  
17          such section 8A(d), test beds established and  
18          operated under paragraph (8) of such section  
19          8A(d), or other Federal research entities.

20          “(D) How the eligible consortium will en-  
21          gage with the private sector, including small-  
22          and medium-sized businesses to commercialize  
23          new technologies and improve the resiliency of  
24          domestic supply chains in a key technology  
25          focus area or other technology or innovation

1 sector critical to national and economic secu-  
2 rity.

3 “(E) How the eligible consortium will  
4 carry out workforce development and skills ac-  
5 quisition programming, including through part-  
6 nerships with entities that include State and  
7 local workforce development boards, institutions  
8 of higher education, including community col-  
9 leges, historically Black colleges and univer-  
10 sities, Tribal colleges and universities, and mi-  
11 nority serving institutions, labor organizations,  
12 and workforce development programs, and other  
13 related activities authorized by the Secretary, to  
14 support the development of a key technology  
15 focus area or other technology or innovation  
16 sector critical to national and economic secu-  
17 rity.

18 “(F) How the eligible consortium will im-  
19 prove science, technology, engineering, and  
20 mathematics education programs in the identi-  
21 fied region in elementary and secondary school  
22 and higher education institutions located in the  
23 identified region to support the development of  
24 a key technology focus area or other technology

1 or innovation sector critical to national and eco-  
2 nomic security.

3 “(G) How the eligible consortium plans to  
4 develop partnerships with venture development  
5 organizations and sources of private investment  
6 in support of private sector activity, including  
7 launching new or expanding existing companies,  
8 in a key technology focus area or other tech-  
9 nology or innovation sector critical to national  
10 and economic security.

11 “(H) How the eligible consortium plans to  
12 organize the activities of regional partners  
13 across sectors in support of the proposed re-  
14 gional technology hub, including the develop-  
15 ment of necessary infrastructure improvements  
16 and site preparation.

17 “(I) How the eligible consortium will en-  
18 sure that growth in technology and innovation  
19 sectors produces broadly shared opportunity  
20 across the identified region, including for eco-  
21 nomic disadvantaged and underrepresented pop-  
22 ulations and rural areas.

23 “(J) The likelihood that the region served  
24 by the eligible consortium will be able to become



1 a self-sustaining globally leading technology hub  
2 once Federal support ends.

3 “(2) FINDINGS BASED ON COMPREHENSIVE RE-  
4 GIONAL TECHNOLOGY STRATEGIES.—The Secretary  
5 may use a comprehensive regional technology strat-  
6 egy supported by a grant under section 29 as the  
7 basis for making findings under paragraph (1) of  
8 this subsection.

9 “(h) COORDINATION AND COLLABORATION.—

10 “(1) COORDINATION WITH NATIONAL INSTI-  
11 TUTE OF STANDARDS AND TECHNOLOGY PRO-  
12 GRAMS.—

13 “(A) COORDINATION REQUIRED.—The  
14 Secretary shall coordinate the activities of re-  
15 gional technology hubs designated under this  
16 title, the Hollings Manufacturing Extension  
17 Partnership, and the Manufacturing USA Pro-  
18 gram with each other to the degree that doing  
19 so does not diminish the effectiveness of the on-  
20 going activities of a manufacturing extension  
21 center or a Manufacturing USA institute.

22 “(B) ELEMENTS.—Coordination by the  
23 Secretary under subparagraph (A) may include  
24 the following:

1           “(i) The alignment of activities of the  
2           Hollings Manufacturing Extension Part-  
3           nership with the activities of regional tech-  
4           nology hubs designated under this sub-  
5           section, if applicable.

6           “(ii) The alignment of activities of the  
7           Manufacturing USA Program and the  
8           Manufacturing USA institutes with the ac-  
9           tivities of regional technology hubs des-  
10          ignated under this subsection, if applicable.

11          “(2) COORDINATION WITH DEPARTMENT OF  
12          ENERGY PROGRAMS.—The Secretary shall, in coordi-  
13          nation with the Secretary of Energy, coordinate the  
14          activities and selection of regional technology hubs  
15          designated under subsection (b)(1)(A) with activities  
16          at the Department of Energy and the National Lab-  
17          oratories that were in effect on the day before the  
18          date of the enactment of the Endless Frontier Act,  
19          to the degree that doing so does not diminish the ef-  
20          fectiveness of the ongoing activities or mission of the  
21          Department of Energy and the National Labora-  
22          tories.

23          “(3) INTERAGENCY COLLABORATION.—

1           “(A) IN GENERAL.—In selecting and as-  
2           sisting regional technology hubs designated  
3           under subsection (b)(1)(A), the Secretary—

4           “(i) shall collaborate, to the extent  
5           possible, with the interagency advisory  
6           committee established under subparagraph  
7           (B);

8           “(ii) shall collaborate with Federal de-  
9           partments and agencies whose missions  
10          contribute to the goals of the regional tech-  
11          nology hub; and

12          “(iii) may accept funds from other  
13          Federal agencies to support grants and ac-  
14          tivities under this title.

15          “(B) INTERAGENCY COORDINATING COUN-  
16          CIL.—

17          “(i) ESTABLISHMENT.—The Secretary  
18          shall establish an interagency coordinating  
19          council to coordinate with the Secretary in  
20          the designation of regional technology hubs  
21          under subparagraph (A) of subsection  
22          (b)(1) and in the selection of eligible con-  
23          sortia to receive support under subpara-  
24          graph (B) of such subsection.

1           “(ii) COMPOSITION.—The interagency  
2           coordinating council established under  
3           clause (i) shall be composed of the fol-  
4           lowing (or their designees):

5                   “(I) The Secretary of Commerce.

6                   “(II) The Secretary of Edu-  
7                   cation.

8                   “(III) The Administrator of the  
9                   Small Business Administration.

10                  “(IV) The Deputy Secretary for  
11                  Housing and Urban Development.

12                  “(V) The Director of the Com-  
13                  munity Development Financial Insti-  
14                  tution Fund.

15                  “(VI) The Director of the Na-  
16                  tional Science Foundation.

17                  “(VII) The Director of the Na-  
18                  tional Institute of Standards and  
19                  Technology.

20                  “(VIII) The Director of the Na-  
21                  tional Economic Council.

22                  “(IX) The Assistant Secretary of  
23                  Commerce for Economic Development.

24                  “(X) The Assistant Secretary for  
25                  Employment and Training.

1           “(XI) The Director of the Office  
2 of Science and Technology Policy.

3           “(XII) The Under Secretary of  
4 Defense for Research and Engineer-  
5 ing.

6           “(XIII) The Under Secretary of  
7 Defense for Acquisition and  
8 Sustainment.

9           “(XIV) The Under Secretary for  
10 Science of the Department of Energy.

11           “(XV) The Director of the Na-  
12 tional Institutes of Health.

13           “(XVI) The Under Secretary for  
14 Science and Technology of the De-  
15 partment of Homeland Security.

16           “(XVII) The Administrator of  
17 the National Aeronautics and Space  
18 Administration.

19           “(XVIII) The Director of the Of-  
20 fice of Management and Budget.

21           “(XIX) Such other Federal offi-  
22 cials as the Secretary of Commerce  
23 considers appropriate.

24           “(iii) CHAIRPERSON.—The Secretary  
25 shall be the chairperson of the interagency

1 coordinating council established under  
2 clause (i).

3 ~~“(4) SETTING GOALS FOR FEDERALLY FUNDED~~  
4 ~~REGIONS SERVED BY RESEARCH IN REGIONAL TECH-~~  
5 ~~NOLOGY HUBS.—~~

6 ~~“(A) IN GENERAL.—The Director of the~~  
7 ~~Office of Science and Technology Policy and the~~  
8 ~~Director of the Office of Management and~~  
9 ~~Budget shall coordinate with the each head of~~  
10 ~~a Federal agency that conducts research to set~~  
11 ~~goals for at least doubling the amount of feder-~~  
12 ~~ally funded research awarded, as in effect on~~  
13 ~~the day before the date of the enactment of the~~  
14 ~~Endless Frontier Act, to regions served by re-~~  
15 ~~gional technology hubs designated under sub-~~  
16 ~~section (b)(1)(A).~~

17 ~~“(B) ANNUAL REPORTS.—Not less fre-~~  
18 ~~quently than once each year, the Director of the~~  
19 ~~Office of Science and Technology Policy and the~~  
20 ~~Director of the Office of Management and~~  
21 ~~Budget shall submit to the appropriate commit-~~  
22 ~~tees of Congress an annual report on progress~~  
23 ~~made relating to the goals set under subpara-~~  
24 ~~graph (A).~~

1       “(i) PERFORMANCE MEASUREMENT, TRANS-  
2 PARENCY, AND ACCOUNTABILITY.—

3               “(1) METRICS, STANDARDS, AND ASSESS-  
4 MENT.—For each grant and cooperative agreement  
5 awarded under subsection (c)(1) for a regional tech-  
6 nology hub, the Secretary shall—

7                       “(A) develop metrics to assess the effec-  
8 tiveness of the activities funded in making  
9 progress toward the purposes set forth under  
10 subsection (b)(2), which may include—

11                               “(i) research supported in a key tech-  
12 nology focus area;

13                               “(ii) commercialization activities un-  
14 dertaken by each regional technology hub  
15 that is designated and supported under  
16 subsection (b)(1);

17                               “(iii) educational and workforce devel-  
18 opment improvements undertaken by each  
19 regional technology hub that is designated  
20 and supported under subsection (b)(1);

21                               “(iv) sources of matching funds for  
22 each regional technology hub that is des-  
23 ignated and supported under subsection  
24 (b)(1); and

1           “(v) domestic job creation, patent  
2           awards, and business formation and expan-  
3           sion relating to the activities of the re-  
4           gional technology hub that is designated  
5           and supported under subsection (b)(1);

6           “(B) establish standards for the perform-  
7           ance of the regional technology hub that are  
8           based on the metrics developed under subpara-  
9           graph (A); and

10           “(C) 4 years after the initial award under  
11           subsection (e)(1) and every 2 years thereafter  
12           until Federal financial assistance under this  
13           section for the regional technology hub is dis-  
14           continued, conduct an assessment of the re-  
15           gional technology hub to confirm whether the  
16           performance of the regional technology hub is  
17           meeting the standards for performance estab-  
18           lished under subparagraph (B) of this para-  
19           graph.

20           “(2) FINAL REPORTS BY RECIPIENTS OF AS-  
21           SISTANCE.—

22           “(A) IN GENERAL.—The Secretary shall  
23           require each eligible consortium that receives a  
24           grant or cooperative agreement under sub-  
25           section (e)(1) for support of a regional tech-



1 nology hub, as a condition of receipt of such  
2 grant or cooperative agreement, submit to the  
3 Secretary, not later than 90 days after the last  
4 day of the term of the grant or cooperative  
5 agreement, a report on the activities of the re-  
6 gional technology hub supported by the grant or  
7 cooperative agreement.

8 “(B) CONTENTS OF REPORT.—Each report  
9 submitted by an eligible consortium under sub-  
10 paragraph (A) shall include the following:

11 “(i) A detailed description of the ac-  
12 tivities carried out by the eligible consor-  
13 tium using the assistance described in sub-  
14 paragraph (A), including the following:

15 “(I) A description of each project  
16 the eligible consortium completed  
17 using such assistance.

18 “(II) An explanation of how each  
19 project described in subclause (I)  
20 achieves a specific goal under this sec-  
21 tion in the region of the regional tech-  
22 nology hub of the eligible consortium  
23 with respect to—

24 “(aa) the resiliency of a sup-  
25 ply chain;

1                   “(bb) research, development,  
2                   and deployment of a critical tech-  
3                   nology;

4                   “(cc) workforce training and  
5                   development;

6                   “(dd) domestic job creation;

7                   or

8                   “(ee) entrepreneurship.

9                   “(ii) A discussion of any obstacles en-  
10                  countered by the eligible consortium in the  
11                  implementation of the regional technology  
12                  hub and how the eligible entity overcame  
13                  those obstacles.

14                  “(iii) An evaluation of the success of  
15                  the projects supported by the eligible con-  
16                  sortium to implement the regional tech-  
17                  nology hub using the performance stand-  
18                  ards and measures established under para-  
19                  graph (1), including an evaluation of the  
20                  planning process and how the project con-  
21                  tributes to carrying out the comprehensive  
22                  strategy for the regional technology hub if  
23                  the regional technology hub has such a  
24                  strategy.

1           “(iv) The effectiveness of the eligible  
2           consortium in ensuring that, in the region  
3           of the eligible consortium’s regional tech-  
4           nology hub, growth in technology and inno-  
5           vation sectors produces broadly shared op-  
6           portunity across the region, including for  
7           economic disadvantaged and underrep-  
8           resented populations and rural areas.

9           “(v) Information regarding such other  
10          matters as the Secretary may require.

11          “(3) INTERIM REPORTS BY RECIPIENTS OF AS-  
12          SISTANCE.—In addition to requiring submittal of  
13          final reports under paragraph (2)(A), the Secretary  
14          may require an eligible consortium described in such  
15          paragraph to submit to the Secretary such interim  
16          reports as the Secretary considers appropriate.

17          “(4) ANNUAL REPORTS TO CONGRESS.—Not  
18          less frequently than once each year, the Secretary  
19          shall submit to the appropriate committees of Con-  
20          gress an annual report on the results of the assess-  
21          ments conducted by the Secretary under paragraph  
22          (1)(C) during the period covered by the report.

23          “(j) AUTHORIZATION OF APPROPRIATIONS.—There  
24          is authorized to be appropriated to the Secretary to carry

1 out this section \$9,425,000,000 for the period of fiscal  
 2 years 2022 through 2026.”.

3 (b) INITIAL DESIGNATIONS AND AWARDS.—

4 (1) COMPETITION REQUIRED.—Not later than  
 5 180 days after the date of the enactment of this Act,  
 6 the Secretary of Commerce shall commence a com-  
 7 petition under subsection (d)(1) of section 28 of the  
 8 Stevenson-Wydler Technology Innovation Act of  
 9 1980 (Public Law 96–480), as added by subsection  
 10 (a).

11 (2) DESIGNATION AND AWARD.—Not later than  
 12 1 year after the date of the enactment of this Act,  
 13 if the Secretary has received at least 1 application  
 14 under subsection (f) of such section from an eligible  
 15 consortium whom the Secretary considers suitable  
 16 for designation under subsection (b)(1)(A) of such  
 17 section, the Secretary shall—

18 (A) designate at least 1 regional tech-  
 19 nology hub under subsection (b)(1)(A) of such  
 20 section; and

21 (B) award a grant or cooperative agree-  
 22 ment under subsection (e)(1) of such section to  
 23 each regional technology hub designated pursu-  
 24 ant to subparagraph (A) of this paragraph.

1 **SEC. 8. COMPREHENSIVE REGIONAL TECHNOLOGY STRAT-**  
 2 **EGY GRANT PROGRAM.**

3 The Stevenson-Wydler Technology Innovation Act of  
 4 1980 (Public Law 96-480; 15 U.S.C. 3701 et seq.), as  
 5 amended by section 7, is further amended, by inserting  
 6 after section 28, as added by such section, the following:

7 **“SEC. 29. COMPREHENSIVE REGIONAL TECHNOLOGY**  
 8 **STRATEGY GRANT PROGRAM.**

9 “(a) **DEFINITIONS.**—In this section:

10 “(1) **LABOR ORGANIZATION.**—The term ‘labor  
 11 organization’ has the meaning given such term in  
 12 section 8A(a) of the National Science Foundation  
 13 Act of 1950.

14 “(2) **REGIONAL TECHNOLOGY HUB.**—The term  
 15 ‘regional technology hub’ means a consortium des-  
 16 ignated as a regional technology hub under section  
 17 28(b)(1)(A).

18 “(3) **SMALL AND RURAL COMMUNITIES; MID-**  
 19 **SIZED METROPOLITAN COMMUNITIES; LARGE MET-**  
 20 **ROPOLITAN COMMUNITIES.**—The terms ‘small and  
 21 rural communities’, ‘mid-sized metropolitan commu-  
 22 nities’, and ‘large metropolitan communities’ have  
 23 the meanings given such terms in section 28(a).

24 “(4) **TECHNOLOGY AND INNOVATION SECTORS**  
 25 **CRITICAL TO NATIONAL AND ECONOMIC SECURITY.**—  
 26 The term ‘technology and innovation sectors critical

1 to national and economic security' means technology  
2 and innovation sectors that the Secretary determines  
3 are critical to national and economic security.

4 “(b) GRANT PROGRAM REQUIRED.—The Secretary  
5 shall establish a program to award grants to eligible con-  
6 sortia to carry out projects—

7 “(1) to coordinate locally defined planning proc-  
8 esses, across jurisdictions and agencies, relating to  
9 developing a comprehensive regional technology  
10 strategy;

11 “(2) to identify regional partnerships for devel-  
12 oping and implementing a comprehensive regional  
13 technology strategy;

14 “(3) to conduct or update assessments to deter-  
15 mine regional needs and promote economic and com-  
16 munity development related to the resiliency of a do-  
17 mestic supply chains, competitiveness of the region,  
18 and domestic job creation in technology and innova-  
19 tion sectors critical to national and economic secu-  
20 rity;

21 “(4) to develop or update goals and strategies  
22 to implement an existing comprehensive regional  
23 plan related to enhancing the resiliency of domestic  
24 supply chains, competitiveness of the region, and do-

1       mestic job creation in technology and innovation sec-  
 2       tors critical to national and economic security; and  
 3       “~~(5)~~ to identify local zoning and other code  
 4       changes necessary to implement a comprehensive re-  
 5       gional technology strategy, including promoting sus-  
 6       tainable development within the identified region.

7       “~~(c)~~ ELIGIBLE CONSORTIA.—For purposes of this  
 8       section, an eligible consortium is any consortium described  
 9       by section 28(c).

10       “~~(d)~~ GRANTS.—

11       “~~(1)~~ DIVERSITY OF RECIPIENTS.—In awarding  
 12       grants under this section, the Secretary shall ensure  
 13       geographic diversity among, and adequate represen-  
 14       tation from, each of the following:

15               “~~(A)~~ Small and rural communities.

16               “~~(B)~~ Mid-sized metropolitan communities.

17               “~~(C)~~ Large metropolitan communities.

18       “~~(2)~~ AWARDS TO SMALL AND RURAL COMMU-  
 19       NITIES.—

20               “~~(A)~~ IN GENERAL.—Except as provided in  
 21       subparagraph ~~(B)~~, the Secretary shall—

22                       “~~(i)~~ award not less than 25 percent of  
 23       the funds under this section to eligible con-  
 24       sortia that represent all or part of a small  
 25       and rural community; and

1           “(ii) ensure diversity among the geo-  
2           graphic regions and the size of the popu-  
3           lation of the communities served by recipi-  
4           ents of grants that are eligible consortia  
5           that represent all or part of a small and  
6           rural community.

7           “(B) INSUFFICIENT APPLICATIONS.—If  
8           the Secretary determines that an insufficient  
9           number of sufficient quality applications for  
10          grants under this section have been submitted  
11          by eligible consortia that represent all or part  
12          of a small and rural community, the Secretary  
13          may reduce the percentage threshold set forth  
14          in subparagraph (A)(i).

15          “(3) FEDERAL SHARE.—

16                 “(A) IN GENERAL.—Except as provided in  
17                 subparagraph (B), the Federal share of the cost  
18                 of a project carried out using a grant awarded  
19                 under this section may not exceed 80 percent.

20                 “(B) EXCEPTIONS.—

21                         “(i) SMALL AND RURAL COMMU-  
22                         NITIES.—In the case of an eligible Consor-  
23                         tium that represents all or part of a small  
24                         and rural community, the Federal share of  
25                         the cost of a project carried out using a



1 grant awarded under this section may be  
2 up to 90 percent of the total cost of the  
3 project.

4 “(ii) INDIAN TRIBES.—In the case of  
5 an eligible consortium that is led by a  
6 Tribal government, the Federal share of  
7 the cost of a project carried out using a  
8 grant under the grant awarded under this  
9 section may be up to 100 percent of the  
10 total cost of the project.

11 “(C) NON-FEDERAL SHARE.—

12 “(i) IN-KIND CONTRIBUTIONS.—For  
13 the purposes of this paragraph, in-kind  
14 contributions may be used for all or part  
15 of the non-Federal share of the cost of a  
16 project carried out using a grant awarded  
17 under this section.

18 “(ii) OTHER FEDERAL FUNDING.—  
19 Federal funding from sources other than a  
20 grant awarded under this section may not  
21 be used for the non-Federal share of the  
22 cost of a project carried out using a grant  
23 under this section.

24 “(4) AVAILABILITY AND OBLIGATION OF GRANT  
25 AMOUNTS.—

1           “(A) IN GENERAL.—An eligible consortium  
2 that receives a grant under this section shall, as  
3 a condition on receipt of grant amounts—

4           “(i) obligate any grant amounts re-  
5 ceived under this section not later than 1  
6 year after the date on which the eligible  
7 consortium enters into an agreement under  
8 subsection (g); and

9           “(ii) expend any grant amounts re-  
10 ceived under this section not later than 2  
11 years after the date on which the eligible  
12 consortium enters into an agreement under  
13 subsection (g).

14           “(B) UNOBLIGATED AMOUNTS.—After the  
15 date described in subparagraph (A)(i), any  
16 amounts awarded to an eligible consortium  
17 under this section that remain unobligated by  
18 the eligible consortium shall be returned to the  
19 Secretary and made available to the Secretary  
20 for the award of grants to other eligible con-  
21 sortia under this section.

22           “(c) APPLICATION.—

23           “(1) IN GENERAL.—An eligible consortium  
24 seeking a grant under this section shall submit to

1 the Secretary an application therefor at such time  
2 and in such manner as the Secretary shall prescribe.

3 “(2) CONTENTS.—Each application submitted  
4 under paragraph (1) shall include the following:

5 “(A) A description of the boundaries of the  
6 region served by the eligible consortium.

7 “(B) A description of the research, tech-  
8 nology development, or manufacturing con-  
9 centration of the eligible consortium.

10 “(C) A general assessment of the local in-  
11 dustrial ecosystem of the region described in  
12 subparagraph (A); which may include assess-  
13 ment of workforce and training, including part-  
14 nerships with labor organizations, supplier net-  
15 work, research and innovation, infrastructure  
16 and site development, trade and international  
17 investment, operational improvements, and cap-  
18 ital access components needed for manufac-  
19 turing activities in such region.

20 “(D) A description of how a grant under  
21 this section may assist in developing compo-  
22 nents of such local industrial ecosystem (se-  
23 lected by the consortium), including descrip-  
24 tions of—

1           “(i) investments to address gaps in  
2           such ecosystem; and

3           “(ii) how to make the research, tech-  
4           nology development, and manufacturing of  
5           the region of the consortium uniquely com-  
6           petitive.

7           “(E) A description of the process by which  
8           a comprehensive regional technology strategy  
9           will be developed by the eligible consortium to  
10          address gaps in such local industrial ecosystem  
11          and to strengthen the resiliency of supply  
12          chains, competitiveness of the identified region,  
13          and domestic job creation in technology and in-  
14          novation sectors critical to national and eco-  
15          nomic security.

16          “(F) A budget for the projects that the eli-  
17          gible consortium plans to carry out using grant  
18          amounts awarded under this section, including  
19          the anticipated Federal share of the cost of  
20          each project and a description of the sources of  
21          the non-Federal share.

22          “(G) The designation of a lead agency or  
23          organization, which may be the eligible consor-  
24          tium, to receive and manage any funds received  
25          by the eligible consortium under this section.

1           “(H) A signed copy of a memorandum of  
2 understanding among members of the eligible  
3 consortium that demonstrates—

4           “(i) the creation of an eligible consor-  
5 tium;

6           “(ii) a description of the nature and  
7 extent of planned collaboration between  
8 members of the eligible consortium; and

9           “(iii) a commitment to develop a com-  
10 prehensive regional technology strategy.

11           “(I) Such other matters as the Secretary  
12 considers appropriate.

13           “(3) EVALUATION OF APPLICATIONS.—The  
14 Secretary shall evaluate each application received  
15 under paragraph (1) to determine whether the appli-  
16 cant demonstrates—

17           “(A) a significant level of regional coopera-  
18 tion in their proposal;

19           “(B) a focus on building a regional eco-  
20 system to attract and build upon research in-  
21 vestment to develop, deploy, and manufacture  
22 domestically critical technologies that improve  
23 the resiliency of supply chains, competitiveness  
24 of the identified region, and the creation of  
25 quality jobs;

1           “(C) the extent to which the consortium  
2 has developed partnerships throughout an en-  
3 tire region, including, as appropriate, partner-  
4 ships with federally funded research and devel-  
5 opment centers, National Laboratories, Federal  
6 laboratories, Manufacturing USA institutes de-  
7 scribed in section 34(d) of the National Insti-  
8 tute of Standards and Technology Act (15  
9 U.S.C. 278s(d)); university technology centers  
10 established under paragraph (6) of section  
11 8A(d) of the National Science Foundation Act  
12 of 1950; the program established under para-  
13 graph (7) of such section 8A(d); test beds es-  
14 tablished and operated under paragraph (8) of  
15 such section 8A(d); or other Federal research  
16 entities;

17           “(D) integration with local efforts in inclu-  
18 sive economic development and job creation;

19           “(E) a plan for implementing a com-  
20 prehensive regional technology strategy through  
21 regional infrastructure, workforce, and supply  
22 chain investment plans and local land use plans;

23           “(F) diversity among the geographic re-  
24 gions and the size of the population of the com-

1 communities served by recipients of grants under  
2 this section;

3 “(G) a commitment to seeking substantial  
4 public input during the planning process and  
5 public participation in the development of the  
6 comprehensive regional plan;

7 “(H) a plan to support the creation and  
8 growth of new companies; and

9 “(I) such other qualities as the Secretary  
10 considers appropriate.

11 “(f) USE OF GRANT FUNDS.—An eligible consortium  
12 that receives a grant under this section shall use the  
13 amount of such grant to carry out a project that includes  
14 1 or more of the following activities:

15 “(1) Coordinating locally defined planning pro-  
16 cesses across jurisdictions and agencies.

17 “(2) Identifying potential regional partnerships  
18 for developing and implementing a comprehensive  
19 regional technology strategy.

20 “(3) Conducting or updating assessments to de-  
21 termine regional needs, which may include—

22 “(A) workforce development;

23 “(B) supply chain development;

24 “(C) increasing innovation readiness, in-  
25 cluding expanding research and technology de-

1           velopment facilities and developing the local  
2           science, technology, engineering, and mathe-  
3           matics workforce;

4                   “(D) site preparation;

5                   “(E) community and economic develop-  
6           ment to start new companies and to attract and  
7           support workers and firms; and

8                   “(F) and other such needs as determined  
9           by the consortium.

10          “(4) Developing or updating—

11                   “(A) a comprehensive regional plan; or

12                   “(B) goals and strategies to implement an  
13           existing comprehensive regional plan for the  
14           purposes of strengthening domestic supply  
15           chain resiliency, competitiveness, and job ere-  
16           ation in critical technology and innovation sec-  
17           tors for national and economic security.

18          “(5) Implementing local zoning and other code  
19           changes necessary to implement a comprehensive re-  
20           gional plan and promote sustainable development.

21          “(g) GRANT AGREEMENT.—Each eligible consortium  
22           that receives a grant under this section shall, as a condi-  
23           tion on receipt of grant amounts, agree to establish, in  
24           coordination with the Secretary, performance measures,  
25           reporting requirements, and such other requirements as



1 the Secretary determines are necessary, that must be met  
2 at the end of each year in which the eligible consortium  
3 receives funds under this section.

4 “(h) REPORTS BY RECIPIENTS OF GRANTS.—

5 “(1) FINAL REPORTS.—Not later than 90 days  
6 after the date on which a grant agreement into  
7 which an eligible consortium entered under sub-  
8 section (g) expires, the eligible consortium shall sub-  
9 mit to the Secretary a final report on the project the  
10 eligible consortium carried out under subsection (f)  
11 using the amounts of the grant awarded to the eligi-  
12 ble consortium under this section.

13 “(2) CONTENTS.—Each report submitted under  
14 paragraph (1) shall include the following:

15 “(A) A detailed explanation of the activi-  
16 ties undertaken using the grant, including an  
17 explanation of how the comprehensive regional  
18 technology strategy of the eligible consortium  
19 may achieve specific improvements in domestic  
20 supply chain resiliency, research, development,  
21 and deployment of critical technologies, work-  
22 force development, domestic job creation, and  
23 entrepreneurship goals within the region served  
24 by the eligible consortium.

1           “(B) A discussion of any obstacles encoun-  
2           tered in the planning process of the eligible con-  
3           sortium and how the eligible consortium over-  
4           came the obstacles.

5           “(C) An evaluation of the success of the  
6           project using the performance standards and  
7           measures established under subsection (g), in-  
8           cluding an evaluation of the planning process  
9           and how the project contributes to carrying out  
10          the comprehensive regional technology strategy.

11          “(D) The progress of the region identified  
12          by the consortium toward becoming a regional  
13          technology hub.

14          “(E) The effectiveness of the region identi-  
15          fied by the consortium in ensuring that growth  
16          in innovation sectors produces broadly shared  
17          opportunity in the region.

18          “(F) Such other information as the Sec-  
19          retary may require.

20          “(3) INTERIM REPORTS.—The Secretary may  
21          require, as a condition on receipt of a grant under  
22          this section, an eligible consortium to submit an in-  
23          terim report, before the date on which a project for  
24          which a grant is awarded under this section is com-  
25          pleted.

1       “(i) TECHNICAL ASSISTANCE FOR GRANT RECIPI-  
2 ENTS AND APPLICANTS.—The Secretary may—

3               “(1) coordinate with other Federal agencies to  
4 establish interagency and multidisciplinary teams to  
5 provide technical assistance to recipients of, and pro-  
6 spective applicants for, grants under this section;

7               “(2) by Federal interagency agreement, trans-  
8 fer funds to another Federal agency to facilitate and  
9 support the provision of such technical assistance;  
10 and

11              “(3) enter into contracts with third parties to  
12 provide technical assistance to grant recipients and  
13 prospective applicants for grants under this section.

14       “(j) AUTHORIZATION OF APPROPRIATIONS.—

15              “(1) AUTHORIZATION.—There are authorized to  
16 be appropriated to the Secretary for the award of  
17 grants under this section, to remain available until  
18 expended, amounts as follows:

19                      “(A) \$100,000,000 for each of fiscal years  
20                      2022 and 2023.

21                      “(B) \$125,000,000 for each of fiscal years  
22                      2024 through 2026.

23              “(2) TECHNICAL ASSISTANCE.—The Secretary  
24 may use not more than 5 percent of the amounts

1 made available under this subsection for a fiscal  
2 year for technical assistance under subsection (i).”.

3 **SEC. 9. MANUFACTURING USA PROGRAM.**

4 (a) DEFINITIONS.—In this section:

5 (1) HISTORICALLY BLACK COLLEGE OR UNI-  
6 VERSITY.—The term “historically Black college or  
7 university” has the meaning given the term “part B  
8 institution” in section 322 of the Higher Education  
9 Act of 1965 (20 U.S.C. 1061).

10 (2) LABOR ORGANIZATION.—The term “labor  
11 organization” has the meaning given such term in  
12 section 8A(a) of the National Science Foundation  
13 Act of 1950.

14 (3) MANUFACTURING USA CENTER.—The term  
15 “Manufacturing USA center” means an institute de-  
16 scribed in section 34(d)(3)(B) of the National Insti-  
17 tute of Standards and Technology Act (15 U.S.C.  
18 278s(d)(3)(B)) and recognized by the Secretary  
19 under such section for purposes of participation in  
20 the Manufacturing USA Network.

21 (4) MANUFACTURING USA INSTITUTE.—The  
22 term “Manufacturing USA institute” means an in-  
23 stitute described in section 34(d) of the National In-  
24 stitute of Standards and Technology Act (15 U.S.C.  
25 278s(d)) that is not a Manufacturing USA center.

1           (5) MANUFACTURING USA NETWORK.—The  
2 term “Manufacturing USA Network” means the  
3 network established under section 34(e) of the Na-  
4 tional Institute of Standards and Technology Act  
5 (15 U.S.C. 278s(e)).

6           (6) MANUFACTURING USA PROGRAM.—The  
7 term “Manufacturing USA Program” means the  
8 program established under section 34(b)(1) of the  
9 National Institute of Standards and Technology Act  
10 (15 U.S.C. 278s(b)(1)).

11          (7) MINORITY-SERVING INSTITUTION.—The  
12 term “minority-serving institution” means an eligi-  
13 ble institution described in section 371(a) of the  
14 Higher Education Act of 1965 (20 U.S.C.  
15 1067q(a)).

16          (8) NATIONAL PROGRAM OFFICE.—The term  
17 “National Program Office” means the National Pro-  
18 gram Office established under section 34(h)(1) of  
19 the National Institute of Standards and Technology  
20 Act (15 U.S.C. 278s(h)(1)).

21          (9) TRIBAL COLLEGE OR UNIVERSITY.—The  
22 term “Tribal college or university” has the meaning  
23 given the term in section 316(b)(3) of the Higher  
24 Education Act of 1965 (20 U.S.C. 1059e(b)(3)).

1 (b) AUTHORIZATION OF APPROPRIATIONS TO EN-  
2 HANCE AND EXPAND MANUFACTURING USA PROGRAM  
3 AND SUPPORT INNOVATION AND GROWTH IN DOMESTIC  
4 MANUFACTURING.—

5 (1) IN GENERAL.—There is authorized to be  
6 appropriated \$2,410,000,000 for the period of fiscal  
7 years 2022 through 2026 for the Secretary of Com-  
8 merce, acting through the Director of the National  
9 Institute of Standards and Technology and in co-  
10 ordination with the Secretary of Energy, the Sec-  
11 retary of Defense, and the heads of such other Fed-  
12 eral agencies as the Secretary of Commerce con-  
13 siders relevant, to carry out the Manufacturing USA  
14 Program and to expand such program to support in-  
15 novation and growth in domestic manufacturing.

16 (2) MANUFACTURING USA INSTITUTES.—

17 (A) IN GENERAL.—Of the amounts appro-  
18 priated pursuant to the authorization of appro-  
19 priations in paragraph (1), \$1,190,000,000  
20 shall be available to support the establishment  
21 of new Manufacturing USA institutes during  
22 the period described in such paragraph.

23 (B) FINANCIAL ASSISTANCE.—The Sec-  
24 retary shall support the establishment of Manu-  
25 facturing USA institutes under subparagraph

1 (A) through the award of financial assistance  
2 under section 34(e) of the National Institute of  
3 Standards and Technology Act (15 U.S.C.  
4 278s(e)).

5 (C) ASSIGNMENT OF MANUFACTURING USA  
6 INSTITUTES TO FEDERAL AGENCY SPONSORS.—

7 Following an open topic competition organized  
8 by the Director of the National Institute of  
9 Standards and Technology, the Secretary of  
10 Commerce, in consultation with the Secretary of  
11 Energy, the Secretary of Defense, and other  
12 relevant Federal agencies, may select an alter-  
13 native Federal agency to sponsor a selected  
14 Manufacturing USA institute based on its tech-  
15 nology and may transfer the appropriate funds  
16 to that alternative Federal agency for operation  
17 and programming of the selected Manufac-  
18 turing USA institute.

19 (D) COORDINATION WITH EXISTING MANU-  
20 FACTURING USA INSTITUTES.—

21 (i) COORDINATION REQUIRED.—In es-  
22 tablishing new Manufacturing USA insti-  
23 tutes under subparagraph (A), the Sec-  
24 retary of Commerce shall coordinate with  
25 the Secretary of Energy and the Secretary

1 of Defense to ensure there is no duplica-  
2 tion of effort or technology focus between  
3 new Manufacturing USA institutes and  
4 Manufacturing USA institutes that were in  
5 effect before the establishment of the new  
6 Manufacturing USA institutes.

7 (ii) CONSULTATION WITH EXISTING  
8 MANUFACTURING USA INSTITUTES AU-  
9 THORIZED.—In carrying out coordination  
10 under clause (i), the Secretary of Com-  
11 merce may consult with Manufacturing  
12 USA institutes that were in effect before  
13 the establishment of new Manufacturing  
14 USA institutes under subparagraph (A) to  
15 inform the Department of Commerce of  
16 additional new Manufacturing USA insti-  
17 tutes necessary to fill gaps in the support  
18 of innovation and growth in domestic man-  
19 ufacturing.

20 (iii) INVOLVEMENT OF EXISTING MAN-  
21 UFACTURING USA INSTITUTES AUTHOR-  
22 IZED.—In coordination with the Secretary  
23 of Energy and the Secretary of Defense,  
24 the Secretary of Commerce may involve  
25 Manufacturing USA institutes that were in



1 effect before the establishment of new  
2 Manufacturing USA institutes under sub-  
3 paragraph (A) in the planning and execu-  
4 tion of the new Manufacturing USA insti-  
5 tutes.

6 ~~(3) MANUFACTURING USA CENTERS AND PUB-~~  
7 ~~LIC SERVICE GRANTS.—~~Of the amounts appropriated  
8 pursuant to the authorization of appropriations in  
9 paragraph (1), \$375,000,000 shall be available for  
10 the period described in such paragraph—

11 (A) for the Secretary, acting through the  
12 Director and in consultation with the Secretary  
13 of Energy, the Secretary of Defense, and the  
14 heads of such other Federal agencies as the  
15 Secretary of Commerce considers relevant, to  
16 recognize additional institutes as Manufacturing  
17 USA institutes under section 34(d)(3)(B) of the  
18 National Institute of Standards and Technology  
19 Act (15 U.S.C. 278s(d)(3)(B)), giving par-  
20 ticular consideration to partnerships and coordi-  
21 nation with the Manufacturing USA institutes  
22 that were already in effect, when practicable;  
23 and

24 (B) to support the activities of Manufac-  
25 turing USA institutes and Manufacturing USA

1           centers through the award of grants under sec-  
2           tion 34(f) of the National Institute of Stand-  
3           ards and Technology Act (15 U.S.C. 278s(f)).

4           (4) ~~COMMERCIALIZATION, WORKFORCE TRAIN-~~  
5           ~~ING, AND SUPPLY CHAIN INVESTMENT.~~—Of the  
6           amounts appropriated pursuant to the authorization  
7           of appropriations in paragraph (1), \$100,000,000  
8           shall be available for the period described in such  
9           paragraph to support such programming for com-  
10          mercialization, workforce training, and supply chain  
11          activities across the Manufacturing USA Network as  
12          the Secretary considers appropriate in consultation  
13          with the Secretary of Energy, the Secretary of De-  
14          fense, and the heads of such other Federal agencies  
15          as the Secretary of Commerce considers relevant.

16          (5) ~~ONGOING SUPPORT FOR EXISTING MANU-~~  
17          ~~FACTURING USA INSTITUTES.~~—

18                (A) ~~IN GENERAL.~~—Of the amounts appro-  
19                priated pursuant to the authorization of appro-  
20                priations in paragraph (1), \$725,000,000 shall  
21                be available for the period described in such  
22                paragraph to support Manufacturing USA in-  
23                stitutes that were in effect on the day before  
24                the date of the enactment of this Act, of which  
25                \$5,000,000 shall be available (without cost

1 share) to each such Manufacturing USA insti-  
2 tute each year for such period for ongoing oper-  
3 ation of the institutes, including operational  
4 overhead, workforce training, and supply chain  
5 activities.

6 (B) ADDITIONAL SUPPORT.—

7 (i) IN GENERAL.—Of the amounts  
8 specified in subparagraph (A), amounts  
9 shall be available for financial assistance  
10 awards to conduct projects as follows:

11 (I) \$100,000,000 shall be avail-  
12 able for Manufacturing USA insti-  
13 tutes that were established under sec-  
14 tion 34(e) of the National Institute of  
15 Standards and Technology Act (15  
16 U.S.C. 278s(e)) and that were in ef-  
17 fect on the day before the date of the  
18 enactment of this Act.

19 (II) \$10,000,000 shall be avail-  
20 able each year for the period described  
21 in such paragraph for each Manufac-  
22 turing USA institute that is not re-  
23 ceiving Manufacturing USA Program  
24 funding from any other Federal agen-  
25 cy.

1           (ii) ~~FEDERAL FUNDS MATCHING RE-~~  
2           ~~QUIREMENT.~~—A recipient of financial as-  
3           sistance for a project under clause (i) shall  
4           agree to make available to carry out the  
5           project an amount of non-Federal funds  
6           that is equal to or greater than 20 percent  
7           of the total cost of the project.

8           (C) ~~RENEWAL REQUIREMENTS.~~—Receipt  
9           of ongoing support under subparagraph (A)  
10          shall be subject to the requirements of section  
11          34(e)(2)(B) of the National Institute of Stand-  
12          ards and Technology Act (15 U.S.C.  
13          278s(e)(2)(B)).

14          (D) ~~NO COST SHARE REQUIREMENT.~~—The  
15          Secretary shall not impose any cost share or  
16          matching requirement on receipt of ongoing  
17          support under subparagraph (A).

18          (6) ~~MANAGEMENT OF INTERAGENCY SOLICITA-~~  
19          ~~TIONS AND ONGOING MANAGEMENT.~~—Of the  
20          amounts appropriated pursuant to the authorization  
21          of appropriations in paragraph (1), \$20,000,000  
22          shall be available annually for the period described  
23          in such paragraph for the National Program Office  
24          to coordinate the activities of the Manufacturing  
25          USA Network and manage interagency solicitations.

1           (e) COORDINATION BETWEEN MANUFACTURING  
2 USA PROGRAM AND HOLLINGS MANUFACTURING EXTEN-  
3 SION PARTNERSHIP.—The Secretary shall coordinate the  
4 activities of the Manufacturing USA Program and the ac-  
5 tivities of Hollings Manufacturing Extension Partnership  
6 with each other to the degree that doing so does not dimin-  
7 ish the effectiveness of the ongoing activities of a Manu-  
8 facturing USA institute or a Center (as the term is de-  
9 fined in section 25(a) of the National Institute of Stand-  
10 ards and Technology Act (15 U.S.C. 278k(a))), including  
11 Manufacturing USA institutes entering into agreements  
12 with a Center (as so defined) that the Secretary considers  
13 appropriate to provide services relating to the mission of  
14 the Hollings Manufacturing Extension Partnership, in-  
15 cluding outreach, technical assistance, workforce develop-  
16 ment, and technology transfer and adoption assistance to  
17 small- and medium-sized manufacturers.

18           (d) WORKER ADVISORY COUNCIL FOR MANUFAC-  
19 TURING USA PROGRAM.—

20                   (1) ESTABLISHMENT.—

21                           (A) IN GENERAL.—The Secretary of Com-  
22 merce shall, in coordination with the Secretary  
23 of Labor, the Secretary of Defense, the Sec-  
24 retary of Energy, and the Secretary of Edu-  
25 cation, establish an advisory council for the

1 Manufacturing USA Program on the develop-  
2 ment and dissemination of techniques, policies,  
3 and investments for high-road labor practices,  
4 worker adaptation and success with techno-  
5 logical change, and increased worker participa-  
6 tion across the Manufacturing USA Network.

7 (B) MEMBERSHIP.—The council estab-  
8 lished under subparagraph (A) shall be com-  
9 posed of not fewer than 15 members appointed  
10 by the Secretary of Commerce, of whom—

11 (i) four shall be from labor organiza-  
12 tions;

13 (ii) four shall be from educational in-  
14 stitutions;

15 (iii) four shall be from labor-manage-  
16 ment training, workforce development, and  
17 nonprofit organizations, including those  
18 that focus on workforce diversity and in-  
19 clusion; and

20 (iv) three shall be from industry orga-  
21 nizations or manufacturing firms, includ-  
22 ing small- and medium-sized manufactur-  
23 ers.

24 (C) PERIOD OF APPOINTMENT; VACAN-  
25 CES.—

1 (i) IN GENERAL.—Each member of  
2 the council established under subparagraph  
3 (A) shall be appointed for a term of 3  
4 years with the ability to renew the appoint-  
5 ment for no more than 2 terms.

6 (ii) VACANCIES.—Any member ap-  
7 pointed to fill a vacancy occurring before  
8 the expiration of the term for which the  
9 member's predecessor was appointed shall  
10 be appointed only for the remainder of that  
11 term. A member may serve after the expi-  
12 ration of that term until a successor has  
13 been appointed.

14 (D) MEETINGS.—

15 (i) INITIAL MEETING.—Not later than  
16 180 days after the date of enactment of  
17 this Act, the council established under sub-  
18 paragraph (A) shall hold the first meeting.

19 (ii) ADDITIONAL MEETINGS.—After  
20 the first meeting of the council, the council  
21 shall meet upon the call of the Secretary,  
22 and at least once every 180 days there-  
23 after.

24 (iii) QUORUM.—A majority of the  
25 members of the council shall constitute a

1           quorum, but a lesser number of members  
2           may hold hearings.

3           ~~(E) CHAIRPERSON AND VICE CHAIR-~~  
4           ~~PERSON.—~~The Secretary shall elect 1 member  
5           of the council established under subparagraph  
6           ~~(A)~~ to serve as the chairperson of the council  
7           and 1 member of the council to serve as the  
8           vice chairperson of the council.

9           ~~(2) DUTIES OF THE COUNCIL.—~~The council es-  
10          tablished under paragraph ~~(1)(A)~~ shall provide ad-  
11          vice and recommendations to the Secretary of Com-  
12          merce on matters concerning investment in and sup-  
13          port of the manufacturing workforce relating to the  
14          following:

15                 ~~(A) Worker participation, including~~  
16                 ~~through labor organizations, in the planning~~  
17                 ~~and deployment of new technologies across an~~  
18                 ~~industry and within workplaces.~~

19                 ~~(B) Policies to help workers adapt to tech-~~  
20                 ~~nological change, including training and edu-~~  
21                 ~~cation priorities for the Federal Government~~  
22                 ~~and for employer investments in workers.~~

23                 ~~(C) Assessments of impact on workers of~~  
24                 ~~development of new technologies and processes~~  
25                 ~~by the Manufacturing USA institutes.~~



1           (D) Management practices that prioritize  
2 job quality, worker protection, worker participa-  
3 tion and power in decision making, and invest-  
4 ment in worker career success.

5           (E) Policies and procedures to prioritize  
6 diversity and inclusion in the manufacturing  
7 and technology workforce by expanding access  
8 to job, career advancement, and management  
9 opportunities for underrepresented populations.

10          (F) Assessments of technology improve-  
11 ments achieved by the Manufacturing USA in-  
12 stitutes and the degree of domestic deployment  
13 of each new technology.

14          (G) Such other matters as the Secretary  
15 considers appropriate.

16       (3) REPORT.—

17           (A) APPROPRIATE COMMITTEES OF CON-  
18 GRESS DEFINED.—In this paragraph, the term  
19 “appropriate committees of Congress” means—

20           (i) the Committee on Health, Edu-  
21 cation, Labor, and Pensions, the Com-  
22 mittee on Commerce, Science, and Trans-  
23 portation, the Committee on Energy and  
24 Natural Resources, the Committee on

1 Armed Services, and the Committee on Ap-  
2 propriations of the Senate; and

3 (ii) the Committee on Education and  
4 Labor, the Committee on Science, Space,  
5 and Technology, the Committee on Energy  
6 and Commerce, the Committee on Armed  
7 Services, and the Committee on Appropria-  
8 tions of the House of Representatives.

9 (B) REPORT REQUIRED.—Not later than  
10 180 days after the date on which the council es-  
11 tablished under paragraph (1)(A) holds its ini-  
12 tial meeting under paragraph (1)(D)(i) and an-  
13 nually thereafter, the council shall submit to  
14 the appropriate committees of Congress a re-  
15 port containing a detailed statement of the ad-  
16 vice and recommendations of the council pursu-  
17 ant to paragraph (2).

18 (4) COMPENSATION.—

19 (A) PROHIBITION OF COMPENSATION.—  
20 Members of the Council may not receive addi-  
21 tional pay, allowances, or benefits by reason of  
22 their service on the Council.

23 (B) TRAVEL EXPENSES.—Each member  
24 shall receive travel expenses, including per diem  
25 in lieu of subsistence, in accordance with appli-

1 cable provisions under subchapter I of chapter  
2 57 of title 5, United States Code.

3 ~~(5) FACA APPLICABILITY.—~~

4 ~~(A) IN GENERAL.—~~In discharging its du-  
5 ties under this subsection, the council estab-  
6 lished under paragraph ~~(1)(A)~~ shall function  
7 solely in an advisory capacity, in accordance  
8 with the Federal Advisory Committee Act (~~5~~  
9 U.S.C. App.).

10 ~~(B) EXCEPTION.—~~Section 14 of the Fed-  
11 eral Advisory Committee Act shall not apply to  
12 the Council.

13 ~~(c) PARTICIPATION OF MINORITY-SERVING INSTITU-~~  
14 ~~TIONS, HISTORICALLY BLACK COLLEGES AND UNIVER-~~  
15 ~~SITIES, AND TRIBAL COLLEGES AND UNIVERSITIES.—~~

16 ~~(1) IN GENERAL.—~~The Secretary of Commerce,  
17 in coordination with the Secretary of Energy, the  
18 Secretary of Defense, and the heads of such other  
19 Federal agencies as the Secretary of Commerce con-  
20 siders relevant, shall coordinate with existing and  
21 new Manufacturing USA institutes to integrate cov-  
22 ered entities as active members of the Manufac-  
23 turing USA institutes, including through the devel-  
24 opment of preference criteria for proposals to create  
25 new Manufacturing USA institutes or renew existing

1 Manufacturing USA institutes that include meaning-  
 2 ful participation from a covered entity or that are  
 3 led by a covered entity.

4 (2) COVERED ENTITIES.—For purposes of this  
 5 subsection, a covered entity is—

6 (A) a minority-serving institution;

7 (B) an historically Black college or univer-  
 8 sity; or

9 (C) a Tribal college or university.

10 (f) DEPARTMENT OF COMMERCE POLICIES TO PRO-  
 11 MOTE DOMESTIC PRODUCTION OF TECHNOLOGIES DE-  
 12 VELOPED UNDER MANUFACTURING USA PROGRAM.—

13 (1) DEFINITION OF DOMESTIC.—In this sub-  
 14 section, the term “domestic”, with respect to devel-  
 15 opment or production means development or produc-  
 16 tion by, or with respect to source means the source  
 17 is, a person incorporated or formed in the United  
 18 States—

19 (A) that is not under foreign ownership,  
 20 control, or influence (FOCI) as defined in sec-  
 21 tion 847 of the National Defense Authorization  
 22 Act for Fiscal Year 2020 (Public Law 116–92);

23 (B) whose beneficial owners, as defined in  
 24 section 847 of the National Defense Authoriza-

1 tion Act for Fiscal Year 2020 (Public Law  
2 116–92), are United States persons;

3 (C) whose management are United States  
4 citizens;

5 (D) whose principal place of business is in  
6 the United States; and

7 (E) who is not—

8 (i) a foreign incorporated entity that  
9 is an inverted domestic corporation or any  
10 subsidiary of such entity; or

11 (ii) any joint venture if more than 10  
12 percent of the joint venture (by vote or  
13 value) is held by a foreign incorporated en-  
14 tity that is an inverted domestic corpora-  
15 tion or any subsidiary of such entity.

16 (2) POLICIES.—

17 (A) IN GENERAL.—The Secretary of Com-  
18 merce, in consultation with the Secretary of En-  
19 ergy, the Secretary of Defense, and the heads  
20 of such other Federal agencies as the Secretary  
21 of Commerce considers relevant, shall establish  
22 policies to promote the domestic production of  
23 technologies developed by the Manufacturing  
24 USA Network.

1           (B) ELEMENTS.—The policies developed  
2 under subparagraph (A) shall include the fol-  
3 lowing:

4           (i) Measures to partner domestic de-  
5 velopers of goods, services, or technologies  
6 by Manufacturing USA Network activities  
7 with domestic manufacturers and sources  
8 of financing.

9           (ii) Measures to develop and provide  
10 incentives to promote transfer of intellec-  
11 tual property and goods, services, or tech-  
12 nologies developed by Manufacturing USA  
13 Network activities to domestic manufactur-  
14 ers.

15           (iii) Measures to assist with supplier  
16 scouting and other supply chain develop-  
17 ment, including the use of the Hollings  
18 Manufacturing Extension Partnership to  
19 carry out such measures.

20           (iv) A process to review and approve  
21 or deny membership in a Manufacturing  
22 USA institute by foreign-owned companies,  
23 especially from countries of concern, in-  
24 cluding the People's Republic of China.

1           (v) Measures to prioritize Federal pro-  
2           curement of goods, services, or technologies  
3           developed by the Manufacturing USA Net-  
4           work activities from domestic sources, as  
5           appropriate.

6           (C) PROCESSES FOR WAIVERS.—The poli-  
7           cies established under this paragraph shall in-  
8           clude processes to permit waivers, on a case by  
9           case basis, for policies that promote domestic  
10          production based on cost, availability, severity  
11          of technical and mission requirements, emer-  
12          gency requirements, operational needs, other  
13          legal or international treaty obligations, or  
14          other factors deemed important to the success  
15          of the Manufacturing USA Program.

16          (3) PROHIBITION.—

17               (A) COMPANY DEFINED.—In this para-  
18               graph, the term “company” has the meaning  
19               given such term in section 847(a) of the Na-  
20               tional Defense Authorization Act for Fiscal  
21               Year 2020 (Public Law 116–92; 10 U.S.C.  
22               2509 note).

23               (B) IN GENERAL.—A company of the Peo-  
24               ple’s Republic of China may not participate in  
25               the Manufacturing USA Program or the Manu-

1 facturing USA Network without a waiver, as  
2 described in paragraph (2)(C).

3 **SEC. 10. TECHNOLOGY COMMERCIALIZATION REVIEW.**

4 (a) **KEY TECHNOLOGY FOCUS AREAS DEFINED.**—In  
5 this section, the term “key technology focus areas” means  
6 the areas included on the most recent list under section  
7 8A(d)(2) of the National Science Foundation Act of 1950.

8 (b) **REVIEW AND RECOMMENDATIONS REQUIRED.**—  
9 Not later than 180 days after the date of the enactment  
10 of this Act, the Director of the Office of Science and Tech-  
11 nology Policy, in consultation with the Director of the Na-  
12 tional Science Foundation and the Director of the Na-  
13 tional Institute of Standards and Technology, shall—

14 (1) review—

15 (A) the structure of current technology re-  
16 search and commercialization arrangements  
17 with regard to public-private partnerships; and

18 (B) the extent to which intellectual prop-  
19 erty developed with Federal funding—

20 (i) has been used by foreign business  
21 entities;

22 (ii) is being used to manufacture in  
23 the United States rather than in other  
24 countries; and



1                   (iii) is being used by foreign business  
2                   entities domiciled or by foreign business  
3                   entities affiliated with or subsidiary to for-  
4                   eign business entities in the People's Re-  
5                   public of China;

6                   ~~(2)~~ develop recommendations for such legisla-  
7                   tive or administrative action as may be necessary—

8                   (A) to further incentivize industry partici-  
9                   pation in public-private partnerships for the  
10                  purposes of accelerating technology research  
11                  and commercialization, including alternate ways  
12                  of accounting for in-kind contributions and  
13                  value of partially manufactured products;

14                  (B) to ensure that intellectual property de-  
15                  veloped with Federal funding is commercialized  
16                  in the United States; and

17                  (C) to ensure that intellectual property de-  
18                  veloped with Federal funding is not being used  
19                  by foreign business entities or by foreign busi-  
20                  ness entities affiliated with or subsidiary to for-  
21                  eign business entities domiciled in the People's  
22                  Republic of China; and

23                  ~~(3)~~ submit to the Secretary of Commerce and  
24                  Congress—

1           (A) the findings of the Director of the Of-  
 2           fice of Science and Technology Policy with re-  
 3           spect to the reviews conducted under paragraph  
 4           (1); and

5           (B) the recommendations developed under  
 6           paragraph (2).

7 **SEC. 11. STUDY ON EMERGING SCIENCE AND TECHNOLOGY**  
 8           **CHALLENGES FACED BY THE UNITED STATES**  
 9           **AND RECOMMENDATIONS TO ADDRESS**  
 10          **THEM.**

11          (a) **SHORT TITLE.**—This section may be cited as the  
 12          “National Strategy to Ensure American Leadership Act  
 13          of 2021” or the “National SEAL Act of 2021”.

14          (b) **STUDY.**—

15               (1) **IN GENERAL.**—The Secretary of Commerce  
 16               (referred to in this section as the “Secretary”) shall  
 17               seek to enter into an agreement with the National  
 18               Academies of Sciences, Engineering, and Medicine to  
 19               conduct a study—

20                       (A) to identify the 10 most critical emerg-  
 21                       ing science and technology challenges facing the  
 22                       United States; and

23                       (B) to develop recommendations for legis-  
 24                       lative or administrative action to ensure United

1 States leadership in matters relating to such  
2 challenges.

3 ~~(2) ELEMENTS.—~~The study conducted under  
4 paragraph ~~(1)~~ shall include identification, review,  
5 and evaluation of the following:

6 (A) Matters pertinent to identification of  
7 the challenges described in paragraph ~~(1)(A)~~.

8 (B) Matters relating to the recommenda-  
9 tions developed under paragraph ~~(1)(B)~~, includ-  
10 ing with respect to education and workforce de-  
11 velopment necessary to address each of the  
12 challenges identified under paragraph ~~(1)(A)~~.

13 (C) Matters related to the review of key  
14 technology areas by the Directorate for Tech-  
15 nology and Innovation of the National Science  
16 Foundation under section 8A(d) of the National  
17 Science Foundation Act of 1950.

18 (D) An assessment of the current relative  
19 balance in leadership in addressing the chal-  
20 lenges identified in paragraph ~~(1)(A)~~ between  
21 the United States, allies or key partners of the  
22 United States, and the People's Republic of  
23 China.

24 ~~(3) TIMEFRAME.—~~

1           (A) AGREEMENT.—The Secretary shall  
2 seek to enter into the agreement required by  
3 paragraph (1) on or before the date that is 60  
4 days after the date of enactment of this Act.

5           (B) FINDINGS.—Under an agreement en-  
6 tered into under paragraph (1), the National  
7 Academies of Sciences, Engineering, and Medi-  
8 cine shall, not later than 1 year after the date  
9 on which the Secretary and the National Acad-  
10 emies enter into such agreement, transmit to  
11 the Secretary the findings of the National  
12 Academies with respect to the study conducted  
13 pursuant to such agreement.

14       (e) REPORT.—

15           (1) IN GENERAL.—Not later than 30 days after  
16 the date on which the Secretary receives the findings  
17 of the National Academies of Sciences, Engineering,  
18 and Medicine with respect to the study conducted  
19 under subsection (b), the Secretary shall submit to  
20 Congress a “Strategy to Ensure American Leader-  
21 ship” report on such study.

22           (2) CONTENTS.—The report submitted under  
23 paragraph (1) shall include the following:

24           (A) The findings of the National Acad-  
25 emies of Sciences, Engineering, and Medicine

1 with respect to the study conducted under sub-  
2 section (b).

3 (B) The conclusions of the Secretary with  
4 respect to such findings.

5 (C) The recommendations developed under  
6 subsection (b)(1)(B).

7 (D) Such other recommendations for legis-  
8 lative or administrative action as the Secretary  
9 may have with respect to such findings and con-  
10 elusions.

11 (3) CLASSIFIED ANNEX.—The report submitted  
12 under paragraph (1) shall be submitted in unclassi-  
13 fied form, but may include a classified annex if the  
14 Secretary determines appropriate.

15 (d) INFORMATION FROM FEDERAL AGENCIES.—

16 (1) IN GENERAL.—The National Academies of  
17 Sciences, Engineering, and Medicine may secure di-  
18 rectly from a Federal department or agency such in-  
19 formation as the National Academies of Sciences,  
20 Engineering, and Medicine consider necessary to  
21 carry out the study under subsection (b).

22 (2) FURNISHING INFORMATION.—On request of  
23 the National Academies of Sciences, Engineering,  
24 and Medicine for information, the head of the de-  
25 partment or agency shall furnish such information to

1 the National Academies of Sciences, Engineering,  
2 and Medicine.

3 (e) CONSULTATION.—The Secretary of Defense and  
4 the Director of National Intelligence shall provide support  
5 upon request from the Secretary of Commerce or the Na-  
6 tional Academies to carry out this section.

7 (f) NON-DUPLICATION OF EFFORT.—In carrying out  
8 subsection (b), the Secretary shall, to the degree prac-  
9 ticable, coordinate with the steering committee established  
10 under section 236(a) of the William M. (Mac) Thornberry  
11 National Defense Authorization Act for Fiscal Year 2021  
12 (Public Law 116–283).

13 **SEC. 12. COORDINATION OF ACTIVITIES.**

14 The Director of the Office of Science and Technology  
15 Policy, the Director of the National Economic Council, the  
16 Director of the Office of Management and Budget, the Di-  
17 rector of the National Science Foundation, the Secretary  
18 of Commerce, and the Secretary of Energy shall, as appli-  
19 cable, coordinate with respect to activities of—

20 (1) the university technology centers established  
21 under section 8A(d)(6) of the National Science  
22 Foundation Act of 1950;

23 (2) the regional technology hubs under section  
24 28 of the Stevenson-Wydler Technology Innovation  
25 Act of 1980, as added by section 7;

1           (3) the Manufacturing USA Program estab-  
 2           lished under section 34(b)(1) of the National Insti-  
 3           tute of Standards and Technology Act (15 U.S.C.  
 4           278s(b)(1));

5           (4) federally funded research and development  
 6           centers;

7           (5) National Laboratories, as defined in section  
 8           2 of the Energy Policy Act of 2005 (42 U.S.C.  
 9           15801); and

10          (6) Federal laboratories, as defined in section 4  
 11          of the Stevenson-Wydler Technology Innovation Act  
 12          of 1980 (15 U.S.C. 3703).

13 **SEC. 13. PERSON OR ENTITY OF CONCERN PROHIBITION.**

14          No person published on the list under section 1237(b)  
 15          of the Strom Thurmond National Defense Authorization  
 16          Act for Fiscal Year 1999 (Public Law 105-261; 50 U.S.C.  
 17          1701 note) or entity identified under section 1260H of  
 18          the William M. (Mac) Thornberry National Defense Au-  
 19          thorization Act for Fiscal Year 2021 (Public Law 116-  
 20          283) may receive or participate in any grant, award, pro-  
 21          gram, support, or other activity under—

22               (1) section 8A of the National Science Founda-  
 23               tion Act of 1950 (Public Law 81-507), as added by  
 24               section 3;

25               (2) the Endless Frontier Fund under section 4;

1           ~~(3) the supply chain resiliency program under~~  
2           ~~section 6;~~

3           ~~(4) section 28(b)(1) of the Stevenson-Wydler~~  
4           ~~Technology Innovation Act of 1980 (Public Law 96-~~  
5           ~~480), as added by section 7(a);~~

6           ~~(5) section 29 of the Stevenson-Wydler Tech-~~  
7           ~~nology Innovation Act of 1980 (Public Law 96-~~  
8           ~~480), as added by section 8; or~~

9           ~~(6) the Manufacturing USA Program, as im-~~  
10          ~~proved and expanded under section 9.~~

11 **SECTION 1. SHORT TITLE; TABLE OF CONTENTS.**

12          (a) *SHORT TITLE.*—*This Act may be cited as the*  
13 *“Endless Frontier Act”.*

14          (b) *TABLE OF CONTENTS.*—*The table of contents of this*  
15 *Act is as follows:*

*Sec. 1. Short title; table of contents.*

*Sec. 2. Definitions.*

*Sec. 3. Sense of Congress.*

*Sec. 4. Interagency working group.*

*Sec. 5. Key technology focus areas.*

**TITLE I—NSF TECHNOLOGY AND INNOVATION**

*Sec. 101. Definitions.*

*Sec. 102. Directorate establishment and purpose.*

*Sec. 103. Personnel management.*

*Sec. 104. Innovation centers.*

*Sec. 105. Transition of NSF programs.*

*Sec. 106. Providing scholarships, fellowships, and other student support.*

*Sec. 107. Research and development.*

*Sec. 108. Test beds.*

*Sec. 109. Academic technology transfer.*

*Sec. 110. Capacity-building program for developing universities.*

*Sec. 111. Technical assistance.*

*Sec. 112. Coordination of activities.*

*Sec. 113. Reporting requirements.*

*Sec. 114. Hands-on learning program.*

*Sec. 115. Intellectual property protection.*



- Sec. 116. Authorization of appropriations for the Foundation.*  
*Sec. 117. Authorization of appropriations for the Department of Energy.*

*TITLE II—NSF RESEARCH, STEM, AND GEOGRAPHIC DIVERSITY  
INITIATIVES*

- Sec. 201. Chief Diversity Officer of the NSF.*  
*Sec. 202. Programs to address the STEM workforce.*  
*Sec. 203. Emerging research institution pilot program.*  
*Sec. 204. Personnel management authorities for the Foundation.*  
*Sec. 205. Advanced Technological Manufacturing Act.*  
*Sec. 206. Intramural emerging institutions pilot program.*  
*Sec. 207. Public-private partnerships.*  
*Sec. 208. AI Scholarship-for-Service Act.*  
*Sec. 209. Geographic diversity.*  
*Sec. 210. Rural STEM Education Act.*  
*Sec. 211. Quantum Network Infrastructure and Workforce Development Act.*  
*Sec. 212. Supporting Early-Career Researchers Act.*  
*Sec. 213. Advancing Precision Agriculture Capabilities Act.*  
*Sec. 214. Critical minerals mining research.*  
*Sec. 215. Caregiver policies.*  
*Sec. 216. Presidential awards.*  
*Sec. 217. Bioeconomy Research and Development Act of 2021.*  
*Sec. 218. Microgravity Utilization Policy.*

*TITLE III—RESEARCH SECURITY*

- Sec. 301. National science foundation research security.*  
*Sec. 302. Research security and integrity information sharing analysis organization.*  
*Sec. 303. Foreign government talent recruitment program prohibition.*  
*Sec. 304. Additional requirements for directorate research security.*  
*Sec. 305. Protecting research from cyber theft.*  
*Sec. 306. International standards development.*  
*Sec. 307. Research funds accounting.*  
*Sec. 308. Plan with respect to sensitive or controlled information and background screening.*

*TITLE IV—REGIONAL INNOVATION CAPACITY*

- Sec. 401. Regional technology hubs.*  
*Sec. 402. Manufacturing USA Program.*  
*Sec. 403. Establishment of expansion awards program in Hollings Manufacturing Extension Partnership and authorization of appropriations for the Partnership.*  
*Sec. 404. National Manufacturing Advisory Council.*

*TITLE V—MISCELLANEOUS*

- Sec. 501. Strategy and report on economic security, science, research, and innovation to support the national security strategy.*  
*Sec. 502. Person or entity of concern prohibition.*  
*Sec. 503. Study on emerging science and technology challenges faced by the United States and recommendations to address them.*  
*Sec. 504. Report on global semiconductor shortage.*  
*Sec. 505. Supply chain resiliency program.*  
*Sec. 506. Semiconductor incentives.*

- Sec. 507. Research investment to spark the Economy Act.*  
*Sec. 508. Office of manufacturing and industrial innovation policy.*  
*Sec. 509. Telecommunications Workforce Training Grant Program.*  
*Sec. 510. Country Of Origin Labeling Online Act.*  
*Sec. 511. Country of origin labeling for king crab and tanner crab.*  
*Sec. 512. Internet exchanges and submarine cables.*  
*Sec. 513. Study of sister city partnerships operating within the United States involving foreign communities in countries with significant public sector corruption.*  
*Sec. 514. Prohibition on transfer, assignment, or disposition of construction permits and station licenses to entities subject to undue influence by the Chinese Communist Party or the Government of the People's Republic of China.*  
*Sec. 515. Limitation on nuclear cooperation with the People's Republic of China.*  
*Sec. 516. Certification.*  
*Sec. 517. Fairness and due process in standards-setting bodies.*  
*Sec. 518. Shark fin sales elimination.*  
*Sec. 519. Sense of Congress on forced labor.*  
*Sec. 520. Open network architecture.*  
*Sec. 521. Combatting Sexual Harassment in Science.*

#### TITLE VI—SPACE MATTERS

##### Subtitle A—SPACE Act

- Sec. 601. Short title.*  
*Sec. 602. Sense of Congress.*  
*Sec. 603. Definitions.*  
*Sec. 604. Space situational awareness data, information, and services: provision to non-United States Government entities.*  
*Sec. 605. Centers of Excellence for Space Situational Awareness.*

##### Subtitle B—National Aeronautics and Space Administration Authorization Act

- Sec. 611. Short title.*  
*Sec. 612. Definitions.*

#### PART I—AUTHORIZATION OF APPROPRIATIONS

- Sec. 613. Authorization of appropriations.*

#### PART II—HUMAN SPACEFLIGHT AND EXPLORATION

- Sec. 614. Competitiveness within the human landing system program.*  
*Sec. 615. Space launch system configurations.*  
*Sec. 616. Advanced spacesuits.*  
*Sec. 617. Acquisition of domestic space transportation and logistics resupply services.*  
*Sec. 618. Rocket engine test infrastructure.*  
*Sec. 619. Pearl River maintenance.*  
*Sec. 620. Value of International Space Station and capabilities in low-Earth orbit.*  
*Sec. 621. Extension and modification relating to International Space Station.*  
*Sec. 622. Department of Defense activities on International Space Station.*  
*Sec. 623. Commercial development in low-Earth orbit.*  
*Sec. 624. Maintaining a national laboratory in space.*

- Sec. 625. International Space Station national laboratory; property rights in inventions.*
- Sec. 626. Data first produced during non-NASA scientific use of the ISS national laboratory.*
- Sec. 627. Payments received for commercial space-enabled production on the ISS.*
- Sec. 628. Stepping stone approach to exploration.*
- Sec. 629. Technical amendments relating to Artemis missions.*

*PART III—SCIENCE*

- Sec. 631. Science priorities.*
- Sec. 632. Lunar discovery program.*
- Sec. 633. Search for life.*
- Sec. 634. James Webb Space Telescope.*
- Sec. 635. Wide-Field Infrared Survey Telescope.*
- Sec. 636. Study on satellite servicing for science missions.*
- Sec. 637. Earth science missions and programs.*
- Sec. 638. Life science and physical science research.*
- Sec. 639. Science missions to Mars.*
- Sec. 640. Planetary Defense Coordination Office.*
- Sec. 641. Suborbital science flights.*
- Sec. 642. Earth science data and observations.*
- Sec. 643. Sense of Congress on small satellite science.*
- Sec. 644. Sense of Congress on commercial space services.*
- Sec. 645. Procedures for identifying and addressing alleged violations of scientific integrity policy.*

*PART IV—AERONAUTICS*

- Sec. 646. Short title.*
- Sec. 647. Definitions.*
- Sec. 648. Experimental aircraft projects.*
- Sec. 649. Unmanned aircraft systems.*
- Sec. 650. 21st Century Aeronautics Capabilities Initiative.*
- Sec. 651. Sense of Congress on on-demand air transportation.*
- Sec. 652. Sense of Congress on hypersonic technology research.*

*PART V—SPACE TECHNOLOGY*

- Sec. 653. Space Technology Mission Directorate.*
- Sec. 654. Flight opportunities program.*
- Sec. 655. Small Spacecraft Technology Program.*
- Sec. 656. Nuclear propulsion technology.*
- Sec. 657. Mars-forward technologies.*
- Sec. 658. Prioritization of low-enriched uranium technology.*
- Sec. 659. Sense of Congress on next-generation communications technology.*
- Sec. 660. Lunar surface technologies.*

*PART VI—STEM ENGAGEMENT*

- Sec. 661. Sense of Congress.*
- Sec. 662. STEM education engagement activities.*
- Sec. 663. Skilled technical education outreach program.*
- Sec. 664. National space grant college and fellowship program.*

## PART VII—WORKFORCE AND INDUSTRIAL BASE

- Sec. 665. *Appointment and compensation pilot program.*  
 Sec. 666. *Establishment of multi-institution consortia.*  
 Sec. 667. *Expedited access to technical talent and expertise.*  
 Sec. 668. *Report on industrial base for civil space missions and operations.*  
 Sec. 669. *Separations and retirement incentives.*  
 Sec. 670. *Confidentiality of medical quality assurance records.*

## PART VIII—MISCELLANEOUS PROVISIONS

- Sec. 671. *Contracting authority.*  
 Sec. 672. *Authority for transaction prototype projects and follow-on production contracts.*  
 Sec. 673. *Protection of data and information from public disclosure.*  
 Sec. 674. *Physical security modernization.*  
 Sec. 675. *Lease of non-excess property.*  
 Sec. 676. *Cybersecurity.*  
 Sec. 677. *Limitation on cooperation with the People's Republic of China.*  
 Sec. 678. *Consideration of issues related to contracting with entities receiving assistance from or affiliated with the People's Republic of China.*  
 Sec. 679. *Small satellite launch services program.*  
 Sec. 680. *21st century space launch infrastructure.*  
 Sec. 681. *Missions of national need.*  
 Sec. 682. *Drinking water well replacement for Chincoteague, Virginia.*  
 Sec. 683. *Passenger carrier use.*  
 Sec. 684. *Use of commercial near-space balloons.*  
 Sec. 685. *President's Space Advisory Board.*  
 Sec. 686. *Initiative on technologies for noise and emissions reductions.*  
 Sec. 687. *Remediation of sites contaminated with trichloroethylene.*  
 Sec. 688. *Review on preference for domestic suppliers.*  
 Sec. 689. *Report on use of commercial spaceports licensed by the Federal Aviation Administration.*  
 Sec. 690. *Active orbital debris mitigation.*  
 Sec. 691. *Study on commercial communications services.*

1 **SEC. 2. DEFINITIONS.**

2 *Unless otherwise specified, in this Act:*

- 3 (1) *APPRENTICESHIP.*—*The term “apprentice-*  
 4 *ship” means an apprenticeship registered under the*  
 5 *Act of August 16, 1937 (commonly known as the “Na-*  
 6 *tional Apprenticeship Act”;* 50 Stat. 664, chapter  
 7 *663; 29 U.S.C. 50 et seq.) that meets the standards*  
 8 *of subpart A of part 29 and part 30 of title 29, Code*  
 9 *of Federal Regulations.*

1           (2) *DIRECTOR.*—*The term “Director” means the*  
2           *Director of the National Science Foundation.*

3           (3) *DIRECTORATE.*—*The term “Directorate”*  
4           *means the Directorate for Technology and Innovation*  
5           *established under section 102.*

6           (4) *EMERGING RESEARCH INSTITUTION.*—*The*  
7           *term “emerging research institution” means an insti-*  
8           *tution of higher education with an established under-*  
9           *graduate or graduate program that has, on average*  
10          *for the 3 years prior to an application for an award*  
11          *under this Act, received less than \$50,000,000 in Fed-*  
12          *eral research funding.*

13          (5) *EPSCoR.*—*The term “EPSCoR” means the*  
14          *Established Program to Stimulate Competitive Re-*  
15          *search under section 113 of the National Science*  
16          *Foundation Authorization Act of 1988 (42 U.S.C.*  
17          *1862g).*

18          (6) *FOUNDATION.*—*The term “Foundation”*  
19          *means the National Science Foundation.*

20          (7) *HISTORICALLY BLACK COLLEGE OR UNIVER-*  
21          *SITY.*—*The term “historically Black college or univer-*  
22          *sity” has the meaning given the term “part B institu-*  
23          *tion” in section 322 of the Higher Education Act of*  
24          *1965 (20 U.S.C. 1061).*

1           (8) *INSTITUTION OF HIGHER EDUCATION.*—*The*  
2           *term “institution of higher education” has the mean-*  
3           *ing given the term in section 101 of the Higher Edu-*  
4           *cation Act of 1965 (20 U.S.C. 1001).*

5           (9) *KEY TECHNOLOGY FOCUS AREAS.*—*The term*  
6           *“key technology focus areas” means the areas included*  
7           *on the most recent list under section 5.*

8           (10) *MINORITY-SERVING INSTITUTION.*—*The*  
9           *term “minority-serving institution” means an insti-*  
10          *tution described in section 371(a) of the Higher Edu-*  
11          *cation Act of 1965 (20 U.S.C. 1067q(a)).*

12          (11) *STEM.*—*The term “STEM” means the aca-*  
13          *demie and professional disciplines of science, tech-*  
14          *nology, engineering, and mathematics, including com-*  
15          *puter science.*

16 **SEC. 3. SENSE OF CONGRESS.**

17          *It is the sense of Congress that—*

18               (1) *the National Science Foundation, the De-*  
19               *partment of Energy and its National Laboratories (as*  
20               *defined in section 2 of the Energy Policy Act of 2005*  
21               *(42 U.S.C. 15801)), and other key Federal agencies*  
22               *have carried out vital work supporting basic and ap-*  
23               *plied research to create knowledge that is a key driver*  
24               *of the economy of the United States and a critical*  
25               *component of national security;*

1           (2) *openness to diverse perspectives and a focus*  
2           *on freedom from censorship and political bias will*  
3           *continue to make educational and research institu-*  
4           *tions in the United States beacons to thousands of*  
5           *students from across the world;*

6           (3) *increasing research and technology transfer*  
7           *investments, building regional capacity and reducing*  
8           *geographic disparity, strengthening supply chains,*  
9           *and increasing capabilities in key technology focus*  
10          *areas will enhance the competitive advantage and*  
11          *leadership of the United States in the global economy;*

12          (4) *the Federal Government must utilize the full*  
13          *talent and potential of the entire Nation by avoiding*  
14          *undue geographic concentration of research and edu-*  
15          *cation funding, encouraging broader participation of*  
16          *populations underrepresented in STEM, and collabo-*  
17          *rating with non-government partners to ensure the*  
18          *leadership of the United States in technological inno-*  
19          *vation; and*

20          (5) *authorization and funding for investments in*  
21          *research, education, technology transfer, intellectual*  
22          *property, manufacturing, and other core strengths of*  
23          *the United States innovation ecosystem, including at*  
24          *the National Science Foundation and the Department*  
25          *of Energy, should be done on a bipartisan basis.*

1 **SEC. 4. INTERAGENCY WORKING GROUP.**

2 (a) *ESTABLISHMENT.*—*The Director of the Office of*  
3 *Science and Technology Policy, acting through the National*  
4 *Science and Technology Council, shall establish or designate*  
5 *an interagency working group to coordinate the activities*  
6 *specified in subsection (c).*

7 (b) *COMPOSITION.*—*The interagency working group*  
8 *shall be composed of the following members (or their des-*  
9 *ignees), who may be organized into subcommittees, as ap-*  
10 *propriate:*

11 (1) *The Secretary of Commerce.*

12 (2) *The Director of the National Science Foun-*  
13 *dation.*

14 (3) *The Secretary of Energy.*

15 (4) *The Secretary of Defense.*

16 (5) *The Director of the National Economic*  
17 *Council.*

18 (6) *The Director of the Office of Management*  
19 *and Budget.*

20 (7) *The Secretary of Health and Human Serv-*  
21 *ices.*

22 (8) *The Administrator of the National Aero-*  
23 *nautics and Space Administration.*

24 (9) *The Secretary of Agriculture.*

25 (10) *The Director of National Intelligence.*



1           (11) *The Director of the Federal Bureau of In-*  
2           *vestigation.*

3           (12) *Such other Federal officials as the Director*  
4           *of the Office of Science and Technology Policy con-*  
5           *siders appropriate, including members of the National*  
6           *Science and Technology Council Committee on Tech-*  
7           *nology.*

8           (c) *COORDINATION.*—*The interagency working group*  
9           *shall ensure that the activities of different Federal agencies*  
10          *enhance and complement, but, as appropriate, do not dupli-*  
11          *cate, efforts being carried out by another Federal agency,*  
12          *with a focus on—*

13                 (1) *the activities of the National Science Foun-*  
14                 *dition Technology and Innovation Directorate in the*  
15                 *key technology focus areas, such as within the innova-*  
16                 *tion centers under section 104 and test beds under*  
17                 *section 108 under this Act;*

18                 (2) *the activities of the Department of Commerce*  
19                 *under this Act, including regional technology hubs*  
20                 *under section 28 of the Stevenson-Wydler Act of 1980*  
21                 *(15 U.S.C. 13701 et seq.), the Manufacturing USA*  
22                 *Program established under section 34(b)(1) of the Na-*  
23                 *tional Institute of Standards and Technology Act (15*  
24                 *U.S.C. 278s(b)(1)), and the Hollings Manufacturing*  
25                 *Extension Partnership;*

1           (3) *the activities of the Department of Energy in*  
2 *the key technology focus areas, including at the na-*  
3 *tional laboratories, as defined in section 2 of the En-*  
4 *ergy Policy Act of 2005 (42 U.S.C. 15801), and at*  
5 *Federal laboratories, as defined in section 4 of the*  
6 *Stevenson-Wydler Technology Innovation Act of 1980*  
7 *(15 U.S.C. 3703), and facilities and user facilities op-*  
8 *erated in partnership with such national laboratories*  
9 *or the Department of Energy; and*

10           (4) *any other program that the Director of the*  
11 *Office of Science and Technology Policy determines*  
12 *involves research and development with respect to the*  
13 *key technology focus areas.*

14           (d) *REPORT.—The interagency working group shall—*

15           (1) *by not later than 180 days after the date of*  
16 *enactment of this Act—*

17           (A) *conduct an initial review of Federal*  
18 *programs and resources with respect to the key*  
19 *technology focus areas identified pursuant to sec-*  
20 *tion 5(a), in order to—*

21           (i) *assess current level of efforts and*  
22 *characterize existing research infrastructure,*  
23 *as of the date of the review;*

1                   (ii) identify potential areas of overlap  
2                   or duplication with respect to the key tech-  
3                   nology focus areas; and

4                   (iii) identify potential cross-agency  
5                   collaborations and joint funding opportuni-  
6                   ties; and

7                   (B) review whether Federal investments in  
8                   the key technology focus areas have resulted in  
9                   new domestic manufacturing capacity and job  
10                  creation;

11                  (C) submit a report regarding the review  
12                  described in subparagraph (A) to Congress; and

13                  (D) seek stakeholder input and rec-  
14                  ommendations in the course of such review;

15                  (2) shall carry out the annual reviews and up-  
16                  dates required under section 5.

17                  (e) *DETAILED DESCRIPTION.*—*The National Science*  
18                  *Foundation and the Department of Energy shall, in coordi-*  
19                  *nation with the Office of Management and Budget, submit*  
20                  *as part of their annual budget requests to Congress, a de-*  
21                  *tailed description of the activities to be funded under this*  
22                  *Act, including an explanation of how the requested funding*  
23                  *is complementary and not redundant of programs, efforts,*  
24                  *and infrastructure undertaken or supported by other rel-*  
25                  *evant Federal agencies.*

1           (f) *CONFLICTS.*—*If any conflicts between Federal agen-*  
2 *cies arise while carrying out the activities under this sec-*  
3 *tion, the President shall make the final decision regarding*  
4 *resolution of the conflict.*

5 **SEC. 5. KEY TECHNOLOGY FOCUS AREAS.**

6           (a) *IN GENERAL.*—

7               (1) *INITIAL LIST.*—*The initial key technology*  
8 *focus areas are:*

9                       (A) *Artificial intelligence, machine learn-*  
10 *ing, autonomy, and related advances.*

11                      (B) *High performance computing, semi-*  
12 *conductors, and advanced computer hardware*  
13 *and software.*

14                      (C) *Quantum information science and tech-*  
15 *nology.*

16                      (D) *Robotics, automation, and advanced*  
17 *manufacturing.*

18                      (E) *Natural and anthropogenic disaster*  
19 *prevention or mitigation.*

20                      (F) *Advanced communications technology*  
21 *and immersive technology.*

22                      (G) *Biotechnology, medical technology,*  
23 *genomics, and synthetic biology.*

1           (H) *Data storage, data management, dis-*  
2           *tributed ledger technologies, and cybersecurity,*  
3           *including biometrics.*

4           (I) *Advanced energy, batteries, and indus-*  
5           *trial efficiency, including advanced nuclear tech-*  
6           *nologies for the purposes of electric generation*  
7           *(consistent with section 15 of the National*  
8           *Science Foundation Act of 1950 (42 U.S.C.*  
9           *1874).*

10          (J) *Advanced materials science, including*  
11          *composites and 2D materials.*

12          (2) *REVIEW AND UPDATES.—The Director and*  
13          *the Secretary of Energy, in coordination with the*  
14          *interagency working group established under section 4*  
15          *and in consultation with the Director of National In-*  
16          *telligence and the Director of the Federal Bureau of*  
17          *Investigation, shall annually review, and update as*  
18          *required, the list of key technology focus areas for*  
19          *purposes of this Act.*

20          (b) *ANNUAL REVIEW.—In annually reviewing and up-*  
21          *dating (as necessary) the list of key technology focus areas,*  
22          *the Director of the National Science Foundation and the*  
23          *Secretary of Energy, in coordination with the interagency*  
24          *working group established under section 4—*

25                 (1) *shall consider input from relevant industries;*

1           (2) *may consider the challenges and rec-*  
2 *ommendations identified in the report required by*  
3 *section 503 and in other relevant reports, such as*  
4 *technology and global trend reports from the defense*  
5 *and intelligence communities;*

6           (3) *shall consider the potential impact of the key*  
7 *technology focus areas on addressing national chal-*  
8 *lenges, including competitive and security threats to*  
9 *the United States and to United States industries, in-*  
10 *cluding agriculture; and*

11           (4) *subject to the limitation under subsection (c),*  
12 *may add or delete key technology focus areas in light*  
13 *of shifting national needs or competitive threats to the*  
14 *United States (including for reasons of the United*  
15 *States or other countries having advanced or fallen*  
16 *behind in a technological area).*

17           (c) *LIMIT ON KEY TECHNOLOGY FOCUS AREAS.—Not*  
18 *more than 10 key technology focus areas shall be included*  
19 *on the list of key technology focus areas at any time. Engi-*  
20 *neering and exploration relevant to the other key technology*  
21 *focus areas described in this section shall be considered part*  
22 *of the relevant key technology focus area.*

23           (d) *REPORTING.—The Director and the Secretary of*  
24 *Energy shall annually deliver a report to Congress detail-*  
25 *ing—*



1 (IV) the United Kingdom;

2 (V) the State of Israel;

3 (VI) Taiwan; and

4 (VII) any other country that has

5 been approved and designated in writ-

6 ing by the President for purposes of

7 this Act, after providing—

8 (aa) not less than 30 days of

9 advance notification and expla-

10 nation to the relevant congres-

11 sional committees before the des-

12 ignation; and

13 (bb) in-person briefings to

14 such committees, if requested dur-

15 ing the 30-day advance notifica-

16 tion period described in item (aa);

17 and

18 (ii) excludes any country that takes ac-

19 tions to boycott, divest from, or sanction

20 Israel.

21 (B) ACTIONS TO BOYCOTT, DIVEST FROM,

22 OR SANCTION ISRAEL.—For purposes of subpara-

23 graph (A)(ii), the term “actions to boycott, divest

24 from, or sanction Israel” has the meaning given

25 such term in section 102(b)(20)(B) of the Bipar-



1            *tisan Congressional Trade Priorities and Ac-*  
2            *countability Act of 2015 (19 U.S.C.*  
3            *4201(b)(20)(B)).*

4            (2) *LABOR ORGANIZATION.*—*The term “labor or-*  
5            *ganization” has the meaning given the term in sec-*  
6            *tion 2(5) of the National Labor Relations Act (29*  
7            *U.S.C. 152(5)), except that such term shall also in-*  
8            *clude—*

9                    (A) *any organization composed of labor or-*  
10                  *ganizations, such as a labor union federation or*  
11                  *a State or municipal labor body; and*

12                    (B) *any organization which would be in-*  
13                  *cluded in the definition for such term under such*  
14                  *section 2(5) but for the fact that the organization*  
15                  *represents—*

16                            (i) *individuals employed by the United*  
17                            *States, any wholly owned Government cor-*  
18                            *poration, any Federal Reserve Bank, or any*  
19                            *State or political subdivision thereof;*

20                            (ii) *individuals employed by persons*  
21                            *subject to the Railway Labor Act (45 U.S.C.*  
22                            *151 et seq.); or*

23                            (iii) *individuals employed as agricul-*  
24                            *tural laborers.*

1           (3) *NATIONAL LABORATORY.*—*The term “Na-*  
2           *tional Laboratory” has the meaning given the term in*  
3           *section 3 of the Energy Policy Act of 2005 (42 U.S.C.*  
4           *15801).*

5           (4) *TRIBAL COLLEGE OR UNIVERSITY.*—*The term*  
6           *“Tribal College or University” has the meaning given*  
7           *the term in section 316(b)(3) of the Higher Education*  
8           *Act of 1965 (20 U.S.C. 1059c(b)(3)).*

9   **SEC. 102. DIRECTORATE ESTABLISHMENT AND PURPOSE.**

10          (a) *ESTABLISHMENT OF DIRECTORATE FOR TECH-*  
11          *NOLOGY AND INNOVATION.*—*Subject to the availability of*  
12          *appropriations and not later than 180 days after the date*  
13          *of enactment of this Act, the Director shall establish a Di-*  
14          *rectorate for Technology and Innovation in the Foundation.*

15          (b) *PURPOSES.*—*The Directorate shall further the fol-*  
16          *lowing purposes:*

17               (1) *Strengthening the leadership of the United*  
18               *States in critical technologies, including as relevant*  
19               *to the critical national needs described in section*  
20               *7018 of the America COMPETES Act (42 U.S.C.*  
21               *18620–5).*

22               (2) *Addressing and mitigating technology chal-*  
23               *lenges integral to the geostrategic position of the*  
24               *United States through the activities authorized by*  
25               *this title.*

1           (3) *Enhancing the competitiveness of the United*  
2           *States by improving education in the key technology*  
3           *focus areas and attracting more students to such*  
4           *areas at all levels of education.*

5           (4) *Accelerating the translation and development*  
6           *of scientific advances in the key technology focus*  
7           *areas into processes and products in the United*  
8           *States.*

9           (5) *Utilizing the full potential of the United*  
10          *States workforce by avoiding undue geographic con-*  
11          *centration of research and development and education*  
12          *funding across the United States, and encouraging*  
13          *broader participation in the key technology focus*  
14          *areas by populations underrepresented in STEM.*

15          (6) *Ensuring the programmatic work of the Di-*  
16          *rectorate and Foundation incorporates a workforce*  
17          *perspective from labor organizations and workforce*  
18          *training organizations.*

19          (c) *ACTIVITIES.—The Directorate—*

20                 (1) *shall support basic and applied research, and*  
21                 *technology development of such research, including*  
22                 *through awards to individual researchers, entities, or*  
23                 *consortia and through diverse funding mechanisms*  
24                 *and models;*

1           (2) shall identify and develop opportunities to  
2           coordinate and collaborate on research, development,  
3           and commercialization—

4                   (A) with other directorates and offices of the  
5           Foundation;

6                   (B) with stakeholders in academia, the pri-  
7           vate sector, and nonprofit entities; and

8                   (C) with other Federal research agencies, as  
9           well as State and local governments;

10          (3) shall provide awards for research and devel-  
11          opment projects designed to achieve specific tech-  
12          nology metrics or objectives;

13          (4) may support research and technology devel-  
14          opment infrastructure, including testbeds, to advance  
15          the development, operation, integration, and deploy-  
16          ment of innovation;

17          (5) shall identify and develop opportunities to  
18          reduce barriers for technology transfer, including in-  
19          tellectual property frameworks between academia and  
20          industry, nonprofit entities, and the venture capital  
21          communities;

22          (6) shall build capacity for research at institu-  
23          tions of higher education across the United States;

1           (7) shall partner with other directorates and of-  
2       fices of the Foundation for projects or research, in-  
3       cluding—

4                   (A) to pursue basic questions about natural,  
5       human, and physical phenomena that could en-  
6       able advances in the key technology focus areas;

7                   (B) to study questions that could affect the  
8       design (including human interfaces), safety, se-  
9       curity, operation, deployment, or the social and  
10      ethical consequences of technologies in the key  
11      technology focus areas, including the development  
12      of technologies that complement or enhance the  
13      abilities of workers and impact of specific inno-  
14      vations on domestic jobs and equitable oppor-  
15      tunity; and

16                  (C) to further the creation of a domestic  
17      workforce capable of advancing, using, and  
18      adapting to key technology focus areas and un-  
19      derstanding and improving the impact of key  
20      technology focus areas on STEM teaching and  
21      learning by advancing the key technology focus  
22      areas, including engaging relevant partners in  
23      research and innovation programs;

1           (8) *may make awards under the SBIR and*  
2 *STTR programs (as defined in section 9(e) of the*  
3 *Small Business Act (15 U.S.C. 638(e)); and*

4           (9) *may enter into and perform such contracts,*  
5 *make such financial assistance awards, carry out*  
6 *such other transactions, or make such other arrange-*  
7 *ments, or modifications thereof, as may be necessary*  
8 *in the conduct of the work of the Directorate and on*  
9 *such terms as the Director considers appropriate, in*  
10 *furtherance of the purposes of this title.*

11       (d) *ASSISTANT DIRECTOR.—*

12           (1) *APPOINTMENT.—The Director shall appoint*  
13 *an Assistant Director for the Directorate, in the same*  
14 *manner as other Assistant Directors of the Founda-*  
15 *tion are appointed.*

16           (2) *QUALIFICATIONS.—Each Assistant Director*  
17 *for the Directorate shall be an individual, who by rea-*  
18 *son of professional background and experience, is spe-*  
19 *cially qualified to advise the Foundation on all mat-*  
20 *ters pertaining to research, development, and commer-*  
21 *cialization at the Foundation, including partnerships*  
22 *with the private sector and other users of Foundation*  
23 *funded research.*

24           (e) *CONSIDERATIONS.—After completion of the studies*  
25 *regarding emerging technologies conducted by the Secretary*

1 *of Commerce under title XV of division FF of the Consoli-*  
2 *dated Appropriations Act, 2021 (Public Law 116-260), the*  
3 *Director shall consider the results of such studies in car-*  
4 *rying out the activities of the Directorate.*

5 **SEC. 103. PERSONNEL MANAGEMENT.**

6 (a) *PERSONNEL.*—*The Director shall establish and*  
7 *maintain within the Directorate a staff with sufficient*  
8 *qualifications and expertise to enable the Directorate to*  
9 *carry out its responsibilities under this title.*

10 (b) *PROGRAM DIRECTORS.*—

11 (1) *DESIGNATION.*—*The Director may designate*  
12 *employees to serve as program directors for the pro-*  
13 *grams established within the Directorate pursuant to*  
14 *the responsibilities established under paragraph (2).*

15 *The Director shall ensure that program directors—*

16 (A) *have expertise in the key technology*  
17 *focus areas; and*

18 (B) *come from a variety of backgrounds, in-*  
19 *cluding industry, and from a variety of institu-*  
20 *tions of higher education.*

21 (2) *RESPONSIBILITIES.*—*A program director of a*  
22 *program of the Directorate shall be responsible for—*

23 (A) *establishing research and development*  
24 *goals for the program, including through the con-*  
25 *vening of workshops and conferring with outside*

1 *experts and by publicizing the goals of the pro-*  
2 *gram to the public and private sectors;*

3 *(B) soliciting proposals from entities to con-*  
4 *duct research in areas of particular promise*  
5 *within key technology focus areas, especially*  
6 *areas that the private sector or the Federal Gov-*  
7 *ernment are not likely to undertake alone;*

8 *(C) identifying areas for research and devel-*  
9 *opment;*

10 *(D) building research collaborations for car-*  
11 *rying out the program;*

12 *(E) reviewing applications for projects to be*  
13 *supported under the program, and considering—*

14 *(i) the novelty and scientific and tech-*  
15 *anical merit of the proposed projects;*

16 *(ii) broader impacts criteria under sec-*  
17 *tion 526 of the National Science Founda-*  
18 *tion Authorization Act of 2010 (42 U.S.C.*  
19 *1862p-14);*

20 *(iii) the demonstrated capabilities of*  
21 *the applicants to successfully carry out the*  
22 *proposed project;*

23 *(iv) the consideration by the applicant*  
24 *of future commercial applications of the*  
25 *project, including the feasibility of*



1           *partnering with 1 or more commercial enti-*  
2           *ties; and*

3                   *(v) such other criteria as are estab-*  
4           *lished by the Director; and*

5                   *(F) monitoring the progress of projects sup-*  
6           *ported under the program and recommending*  
7           *program restructure or termination, as needed.*

8           (3) *TERMS.—Program directors of the Direc-*  
9           *torate may be appointed by the Director for a limited*  
10          *term, renewable at the discretion of the Director.*

11          (c) *SELECTION CRITERIA AND REPORT.—*

12                   (1) *PEER REVIEW.—The Directorate may use a*  
13          *peer review process to inform the selection of award*  
14          *recipients.*

15                   (2) *REPORT.—Not later than 18 months after the*  
16          *establishment of the Directorate, the Director shall*  
17          *prepare and submit a report to Congress regarding*  
18          *the use of alternative methods for the selection of*  
19          *award recipients and the distribution of funding to*  
20          *recipients, as compared to the traditional peer review*  
21          *process.*

22                   (d) *RULE OF CONSTRUCTION.—Nothing in this section*  
23          *shall be construed to modify the authority of the Director*  
24          *or the National Science Board with respect to the selection*  
25          *of recipients for funding from the Foundation.*

1 **SEC. 104. INNOVATION CENTERS.**

2 (a) *UNIVERSITY TECHNOLOGY CENTER PROGRAM.*—

3 (1) *IN GENERAL.*—*From amounts made avail-*  
4 *able to the Directorate, the Director shall establish a*  
5 *program in the Directorate to make awards, through*  
6 *a competitive selection process, to eligible entities to*  
7 *establish university technology centers.*

8 (2) *PURPOSE.*—*The purpose of the university*  
9 *technology centers shall be to—*

10 (A) *conduct multi-disciplinary, collabo-*  
11 *rative basic and applied research, relevant to at*  
12 *least one of the key technology focus areas;*

13 (B) *leverage the expertise of multi-discipli-*  
14 *nary and multi-sector partners, including part-*  
15 *ners from private industry;*

16 (C) *further the development, deployment,*  
17 *and commercialization of innovations, including*  
18 *inventions, in the key technology focus areas, in-*  
19 *cluding those derived from the activities of the*  
20 *university technology center; and*

21 (D) *support the development of scientific,*  
22 *innovation, entrepreneurial, and educational ca-*  
23 *pacitv within the region of the university tech-*  
24 *nology center.*

1           (3) *USE OF FUNDS.*—*University technology cen-*  
2           *ters established under this subsection may use support*  
3           *provided—*

4                   (A) *to carry out research to advance inno-*  
5                   *vation in the key technology focus areas;*

6                   (B) *for technology development activities*  
7                   *such as proof-of-concept development, proto-*  
8                   *typing, design modification, experimental devel-*  
9                   *opment, and other actions to reduce the cost,*  
10                  *time, and risk of commercializing new tech-*  
11                  *nologies;*

12                  (C) *for the costs of equipment and*  
13                  *cyberinfrastructure;*

14                  (D) *for the costs associated with technology*  
15                  *transfer and commercialization, including pat-*  
16                  *enting and licensing; or*

17                  (E) *for operations and staff.*

18           (4) *SELECTION PROCESS.*—*In selecting recipi-*  
19           *ents under this subsection, the Director shall consider,*  
20           *in addition to the scientific and technical merit of the*  
21           *proposal—*

22                   (A) *maximizing regional and geographic di-*  
23                   *versity of the university technology centers, in-*  
24                   *cluding by considering rural-serving institutions*  
25                   *of higher education (as defined in section 861(b))*

1           *of the Higher Education Act of 1965 (20 U.S.C.*  
2           *1161a(b));*

3                   *(B) the extent to which the applicant's pro-*  
4           *posal would broaden participation by popu-*  
5           *lations underrepresented in STEM;*

6                   *(C) the capacity of the applicant to engage*  
7           *industry, labor, and other appropriate organiza-*  
8           *tions and, where applicable, contribute to growth*  
9           *in domestic manufacturing capacity and job cre-*  
10          *ation;*

11                   *(D) in the case of a consortium, the extent*  
12          *to which the proposal includes institutions listed*  
13          *in paragraph (7)(C)(ii);*

14                   *(E) the amount of funds from industry or-*  
15          *ganizations described in paragraph (5)(A)(ii)*  
16          *the applicant would use towards establishing the*  
17          *university technology center;*

18                   *(F) the plan and capability of the applicant*  
19          *to take measures to prevent the inappropriate*  
20          *use of the research and technology of the center,*  
21          *including research results, data, and intellectual*  
22          *property, as appropriate and consistent with the*  
23          *requirements of the relevant award; and*

24                   *(G) the plan and capability of the appli-*  
25          *cant to support proof-of-concept development and*

1           *prototyping as well as technology transfer and*  
2           *commercialization activities.*

3           (5) *REQUIREMENTS.*—

4                 (A) *IN GENERAL.*—*The Director shall en-*  
5                 *sure that any eligible entity receiving an award*  
6                 *under this subsection has—*

7                         (i) *the capacity or the ability to ac-*  
8                         *quire the capacity to advance the purposes*  
9                         *described in section 102(b); and*

10                        (ii) *secured contributions for estab-*  
11                        *lishing the university technology center*  
12                        *under this subsection from industry or other*  
13                        *non-Federal organizations in an amount*  
14                        *not less than 10 percent of the total amount*  
15                        *of the award the eligible entity would re-*  
16                        *ceive under this subsection.*

17                 (B) *CONSORTIUM ELIGIBILITY.*—*To be eligi-*  
18                 *ble to receive an award for the establishment and*  
19                 *operation of a university technology center, a*  
20                 *consortium shall be composed of not fewer than*  
21                 *2 entities as described in paragraph (7)(C) and*  
22                 *operate subject to a binding agreement, entered*  
23                 *into by each member of the consortium, that doc-*  
24                 *uments—*

1                   (i) the proposed partnership agree-  
 2                   ment, including the governance and man-  
 3                   agement structure of the university tech-  
 4                   nology center;

5                   (ii) measures the consortium will un-  
 6                   dertake to enable cost-effective implementa-  
 7                   tion of activities under paragraph (3);

8                   (iii) a proposed budget, including fi-  
 9                   nancial contributions from non-Federal  
 10                  sources; and

11                  (iv) the plan for ownership and use of  
 12                  any intellectual property developed by the  
 13                  center.

14                  (6) *SUPPORT OF REGIONAL TECHNOLOGY*  
 15                  *HUBS.*—Each university technology center established  
 16                  under this subsection may support and participate  
 17                  in, as appropriate, the activities of any regional tech-  
 18                  nology hub designated under section 28 of the Steven-  
 19                  son-Wydler Technology Innovation Act of 1980 (15  
 20                  U.S.C. 3701 *et seq.*), as amended by section 401 of  
 21                  this Act.

22                  (7) *ELIGIBLE ENTITY.*—In this subsection, the  
 23                  term “eligible entity” means—

24                         (A) an individual institution of higher edu-  
 25                         cation;

1                   (B) a nonprofit entity; or

2                   (C) a consortium that—

3                         (i) shall include and be led by an in-  
4                         stitution of higher education or by a non-  
5                         profit entity, designed to support technology  
6                         development;

7                         (ii) shall include 1 or more institution  
8                         that is—

9                                 (I) a historically Black college or  
10                                university;

11                               (II) a Tribal College or Univer-  
12                               sity;

13                               (III) a minority-serving institu-  
14                               tion (or an institution of higher edu-  
15                               cation with an established STEM ca-  
16                               pacity building program focused on  
17                               traditionally underrepresented popu-  
18                               lations in STEM, including Native  
19                               Hawaiians, Alaska Natives, and other  
20                               Indians);

21                               (IV) an institution that partici-  
22                               pates in the Established Program to  
23                               Stimulate Competitive Research under  
24                               section 113 of the National Science

1 *Foundation Authorization Act of 1988*

2 *(42 U.S.C. 1862g);*

3 *(V) an emerging research institu-*  
4 *tion; or*

5 *(VI) a community college; and*

6 *(iii) may include 1 or more—*

7 *(I) additional entities described in*  
8 *subparagraph (A) or (B);*

9 *(II) industry entities, including*  
10 *startups, small businesses, and public-*  
11 *private partnerships;*

12 *(III) economic development orga-*  
13 *nizations or venture development orga-*  
14 *nizations, as such terms are defined in*  
15 *section 28(a) of the Stevenson-Wydler*  
16 *Technology Innovation Act of 1980 (15*  
17 *U.S.C. 13701 et seq.), as amended by*  
18 *section 401 of this Act;*

19 *(IV) National Laboratories;*

20 *(V) Federal laboratories, as de-*  
21 *defined in section 4 of the Stevenson-*  
22 *Wydler Technology Innovation Act of*  
23 *1980 (15 U.S.C. 3703);*

24 *(VI) Federal research facilities;*

25 *(VII) labor organizations;*



1                   (VIII) entities described in sub-  
2                   paragraph (A) or (B) from allied or  
3                   partner countries;

4                   (IX) other entities if determined  
5                   by the Director to be vital to the suc-  
6                   cess of the program; and

7                   (X) binational research and devel-  
8                   opment foundations and funds, exclud-  
9                   ing foreign entities of concern, as de-  
10                  fined in section 307.

11               (b) *INNOVATION INSTITUTE.*—

12                   (1) *IN GENERAL.*—*The Director shall establish*  
13                   *innovation institutes to further the research, develop-*  
14                   *ment, and commercialization of innovation in the key*  
15                   *technology focus areas.*

16                   (2) *PARTNERSHIPS.*—

17                   (A) *IN GENERAL.*—*Each innovation insti-*  
18                   *tute shall be comprised of a partnership includ-*  
19                   *ing 2 or more of the following entities:*

20                           (i) *An institution of higher education.*

21                           (ii) *A for-profit company.*

22                           (iii) *A nonprofit organization.*

23                           (iv) *A Federal agency.*

1                   (v) *Another entity, if that entity is de-*  
 2                   *termined by the Director to be vital to the*  
 3                   *success of the program.*

4                   (B) *CO-EQUAL.—Each entity comprising*  
 5                   *the institute shall, to the extent practicable, work*  
 6                   *as co-equal partners in terms of funding and re-*  
 7                   *search efforts in support of the institute.*

8                   (C) *INSTITUTIONAL OR ORGANIZATIONAL*  
 9                   *LEVEL.—The Director shall work to ensure that*  
 10                   *such partnerships exist at the institutional or or-*  
 11                   *ganization level, rather than solely at the prin-*  
 12                   *cipal investigator level.*

13                   (3) *COST SHARE.—To the extent practicable, not*  
 14                   *less than half of the funding for an institute shall be*  
 15                   *provided by non-Federal entities.*

16                   (c) *NUMBER OF CENTERS AND INSTITUTES ESTAB-*  
 17                   *LISHED.—The Director shall endeavor to establish a balance*  
 18                   *in the number of university technology centers and innova-*  
 19                   *tion institutes.*

20 **SEC. 105. TRANSITION OF NSF PROGRAMS.**

21                   *The Director may transition the management of exist-*  
 22                   *ing programs of the National Science Foundation that con-*  
 23                   *duct activities in addition to basic research to the Direc-*  
 24                   *torate, including—*

25                   (1) *Convergence Accelerator;*

1           (2) *Industry-University Cooperative Research*  
2           *Centers;*

3           (3) *National AI Research Institutes;*

4           (4) *Innovation Corps (I-Corps), as described in*  
5           *section 601 of the American Innovation and Competi-*  
6           *tiveness Act (42 U.S.C. 1862s-8); and*

7           (5) *any other programs that the Director con-*  
8           *siders appropriate.*

9   **SEC. 106. PROVIDING SCHOLARSHIPS, FELLOWSHIPS, AND**  
10           **OTHER STUDENT SUPPORT.**

11           (a) *IN GENERAL.*—*The Director, acting through the*  
12           *Directorate, shall fund undergraduate scholarships (includ-*  
13           *ing at community colleges), graduate fellowships and*  
14           *traineeships, and postdoctoral awards in the key technology*  
15           *focus areas.*

16           (b) *IMPLEMENTATION.*—*The Director may carry out*  
17           *subsection (a) by making awards—*

18                   (1) *directly to students; and*

19                   (2) *to institutions of higher education or con-*  
20                   *sortia of institutions of higher education, including*  
21                   *those institutions or consortia involved in operating*  
22                   *university technology centers established under section*  
23                   *104(a).*

24           (c) *BROADENING PARTICIPATION.*—*In carrying out*  
25           *this section, the Director shall take steps to increase the par-*

1 *ticipation of populations that are underrepresented in*  
2 *STEM, which may include—*

3           (1) *establishing or augmenting programs tar-*  
4 *geted at populations that are underrepresented in*  
5 *STEM;*

6           (2) *supporting traineeships or other relevant*  
7 *programs at minority-serving institutions (or institu-*  
8 *tions of higher education with an established STEM*  
9 *capacity building program focused on traditionally*  
10 *underrepresented populations in STEM, including*  
11 *Native Hawaiians, Alaska Natives, and other Indi-*  
12 *ans);*

13           (3) *addressing current and expected gaps in the*  
14 *availability or skills of the STEM workforce, or ad-*  
15 *dressing needs of the STEM workforce, including by*  
16 *increasing educational capacity at institutions and*  
17 *by prioritizing awards to United States citizens, per-*  
18 *manent residents, and individuals that will grow the*  
19 *domestic workforce; and*

20           (4) *addressing geographic diversity in the STEM*  
21 *workforce.*

22           (d) *INNOVATION.—In carrying out this section, the Di-*  
23 *rector shall encourage innovation in graduate education,*  
24 *including through encouraging institutions of higher edu-*  
25 *cation to offer graduate students opportunities to gain expe-*

1 rience in industry or Government as part of their graduate  
2 training, and through support for students in professional  
3 masters programs related to the key technology focus areas.

4 (e) *AREAS OF FUNDING SUPPORT.*—Subject to the  
5 availability of funds to carry out this section, the Director  
6 shall—

7 (1) *issue—*

8 (A) *postdoctoral awards,*

9 (B) *graduate fellowships and traineeships,*  
10 *inclusive of the NSF Research Traineeships and*  
11 *fellowships awarded under the Graduate Re-*  
12 *search Fellowship Program; and*

13 (C) *scholarships, including undergraduate*  
14 *scholarships, research experiences, and intern-*  
15 *ships, including—*

16 (i) *scholarships to attend community*  
17 *colleges; and*

18 (ii) *research experiences and intern-*  
19 *ships under sections 513, 514, and 515 of*  
20 *the America COMPETES Reauthorization*  
21 *Act of 2010 (42 U.S.C. 1862p–5; 1862p–6;*  
22 *1862p–7);*

23 (2) *ensure that not less than 10 percent of the*  
24 *funds made available to carry out this section are*  
25 *used to support additional awards that focus on com-*

1        *munity college training, education, and teaching pro-*  
2        *grams that increase the participation of populations*  
3        *that are underrepresented in STEM, including tech-*  
4        *nical programs through programs such as the Ad-*  
5        *vanced Technological Education program;*

6            *(3) ensure that not less than 20 percent of the*  
7        *funds made available to carry out this section are*  
8        *used to support institutions of higher education, and*  
9        *other institutions, located in jurisdictions that par-*  
10       *ticipate in the program under section 113 of the Na-*  
11       *tional Science Foundation Authorization Act of 1988*  
12       *(42 U.S.C. 1862g); and*

13           *(4) if funds remain after carrying out para-*  
14       *graphs (1), (2), and (3), make awards to institutions*  
15       *of higher education to enable the institutions to fund*  
16       *the development and establishment of new or special-*  
17       *ized programs of study for graduate, undergraduate,*  
18       *or technical college students and the evaluation of the*  
19       *effectiveness of those programs of study.*

20        *(f) EXISTING PROGRAMS.—The Director may use or*  
21       *augment existing STEM education programs of the Foun-*  
22       *dation and leverage education or entrepreneurial partners*  
23       *to carry out this section.*

1 **SEC. 107. RESEARCH AND DEVELOPMENT.**

2 (a) *IN GENERAL.*—From amounts made available for  
3 the Directorate, the Director shall make awards, on a com-  
4 petitive basis, for research and technology development  
5 within the key technology focus areas.

6 (b) *PURPOSE.*—The purpose of the awards under this  
7 section shall be to demonstrate revolutionary technological  
8 advances in the key technology focus areas, including ad-  
9 vances that expedite short-term technology deployment.

10 (c) *RECIPIENTS.*—Recipients of funds under this sec-  
11 tion may include institutions of higher education, research  
12 institutions, nonprofit entities, private sector entities, con-  
13 sortia, or other entities as defined by the Director.

14 (d) *METRICS.*—The Director may set metrics, includ-  
15 ing goals and deadlines, for development of such technology  
16 as determined in the terms of the award, and may use such  
17 metrics to determine whether an award recipient shall be  
18 eligible for continued or follow-on funding. The Director  
19 shall ensure that the length of the grants for applicants seek-  
20 ing to demonstrate revolutionary technological advances to  
21 expedite short-term technology deployment last no longer  
22 than 24 months.

23 (e) *SELECTION CRITERIA.*—In selecting recipients for  
24 an award under this section, the Director shall consider,  
25 at a minimum—

1           (1) *the relevance of the project to the key tech-*  
2           *nology focus areas;*

3           (2) *the current status of the technology, the lim-*  
4           *its of current practice, and the likelihood of the pri-*  
5           *vate sector to independently demonstrate a similar*  
6           *technological advance;*

7           (3) *the potential of the project to generate a revo-*  
8           *lutionary technological advance, including advances*  
9           *that can expedite short-term technology deployment;*

10          (4) *the potential impact of the project on the eco-*  
11          *nomie security, national security, or technological*  
12          *competitiveness of the United States;*

13          (5) *the likelihood of the project's success;*

14          (6) *the cost and time associated with the project;*

15          (7) *the appropriateness of quantitative goals and*  
16          *metrics for evaluating the project and a plan for eval-*  
17          *uating those metrics; and*

18          (8) *the path for developing and, as appropriate*  
19          *commercializing, the technology.*

20 **SEC. 108. TEST BEDS.**

21          (a) *PROGRAM AUTHORIZED.—*

22               (1) *IN GENERAL.—From amounts made avail-*  
23               *able for the Directorate, the Director, in coordination*  
24               *with the Director of the National Institute of Stand-*  
25               *ards and Technology and other Federal agencies, as*



1        *determined appropriate by the Director, shall estab-*  
2        *lish a program in the Directorate to make awards, on*  
3        *a competitive basis, to institutions of higher edu-*  
4        *cation, nonprofit organizations, or consortia (as de-*  
5        *finied in section 104(a)(7)(C)) to establish and operate*  
6        *test beds, which may include fabrication facilities and*  
7        *cyberinfrastructure, to advance the development, oper-*  
8        *ation, integration, deployment, and, as appropriate,*  
9        *demonstration of new, innovative technologies in the*  
10       *key technology focus areas, which may include hard-*  
11       *ware or software.*

12            (2) *COORDINATION.*—*In establishing new test*  
13        *beds under this section, the Director shall ensure co-*  
14        *ordination with other test beds supported by the*  
15        *Foundation or other Federal agencies to avoid dupli-*  
16        *cation and maximize the use of Federal resources.*

17            (b) *PROPOSALS.*—*An applicant for an award under*  
18        *this section shall submit a proposal to the Director, at such*  
19        *time, in such manner, and containing such information as*  
20        *the Director may reasonably require. The proposal shall,*  
21        *at a minimum, describe—*

22            (1)(A) *the technology or technologies that will be*  
23        *the focus of the test bed; and*

24            (B) *the goals of the work to be done at the test*  
25        *bed;*

1           (2) *how the applicant will assemble a workforce*  
2           *with the skills needed to operate the test bed;*

3           (3) *how the applicant will ensure broad access to*  
4           *the test bed;*

5           (4) *how the applicant will collaborate with firms*  
6           *in the key technology focus areas, including through*  
7           *coordinated research and development and funding, to*  
8           *ensure that work in the test bed will contribute to the*  
9           *commercial viability of any technologies and will in-*  
10          *clude collaboration from industry and labor organiza-*  
11          *tions;*

12          (5) *how the applicant will encourage the partici-*  
13          *ipation of inventors and entrepreneurs and the devel-*  
14          *opment of new businesses;*

15          (6) *how the applicant will increase participation*  
16          *by populations that are underrepresented in STEM;*

17          (7) *how the applicant will demonstrate that the*  
18          *commercial viability of any new technologies will*  
19          *support the creation of high-quality domestic jobs;*

20          (8) *how the test bed will operate after Federal*  
21          *funding has ended;*

22          (9) *how the test bed will disseminate lessons and*  
23          *other technical information to United States entities*  
24          *or allied or partner country entities in the United*  
25          *States; and*

1           (10) *how the applicant plans to take measures to*  
2           *prevent the inappropriate use of research results,*  
3           *data, and intellectual property, as applicable and*  
4           *consistent with the requirements of the award.*

5           (c) *AUTHORIZED USE OF FUNDS.—A recipient of an*  
6           *award under this section may, in order to achieve the pur-*  
7           *poses described in subsection (a), use the award for the pur-*  
8           *chase of equipment and for the support of students, faculty*  
9           *and staff, and postdoctoral researchers.*

10          (d) *PRIORITY.—In selecting award recipients under*  
11          *this section, the Director shall give priority to applicants*  
12          *with proposals that maximize the geographic diversity of*  
13          *test beds.*

14          (e) *INTERAGENCY ANNUAL MEETINGS.—The Director,*  
15          *the Secretary of Commerce, and the heads of other Federal*  
16          *departments and agencies, or their designees, with test bed*  
17          *related equities shall hold an annual meeting to coordinate*  
18          *their respective test bed related investments, future plans,*  
19          *and other appropriate matters, to avoid conflicts and dupli-*  
20          *cation of efforts. Upon request by Congress, Congress shall*  
21          *be briefed on the results of the meetings.*

22          **SEC. 109. ACADEMIC TECHNOLOGY TRANSFER.**

23          (a) *IN GENERAL.—From amounts made available to*  
24          *the Directorate, the Director, in coordination with the Di-*  
25          *rector of the National Institute of Standards and Tech-*

1 *nology and other Federal agencies as determined appro-*  
2 *priate by the Director, shall make awards, on a competitive*  
3 *basis, to eligible entities to advance the development and*  
4 *commercialization of technologies, particularly those in the*  
5 *key technology focus areas.*

6 (b) *ELIGIBLE ENTITIES.—To be eligible to receive an*  
7 *award under this section, an entity shall be—*

8 (1) *an institution of higher education, which*  
9 *may be a community college;*

10 (2) *a nonprofit entity that is either affiliated*  
11 *with an institution of higher education or designed to*  
12 *support technology development or entrepreneurship;*

13 *or*

14 (3) *a consortium that includes—*

15 (A) *an entity described in paragraph (1) or*  
16 *(2) as the lead award recipient; and*

17 (B) *one or more additional individuals or*  
18 *entities, which shall be—*

19 (i) *an economic development organiza-*  
20 *tion or similar entity that is focused pri-*  
21 *marily on improving science, technology,*  
22 *innovation, or entrepreneurship;*

23 (ii) *an industry organization or firm*  
24 *in a relevant technology or innovation sec-*  
25 *tor;*

1                   (iii) *an industry-experienced executive*  
2                   *with entrepreneurship experience that is fo-*  
3                   *cused primarily on de-risking technologies*  
4                   *from both a scientific and a business per-*  
5                   *spective; or*

6                   (iv) *an individual or entity with*  
7                   *industry- and startup- experienced business*  
8                   *expertise, including a mentor network,*  
9                   *across relevant technology or innovation sec-*  
10                  *tors.*

11               (c) *PROPOSALS.—An eligible entity desiring an award*  
12 *under this section shall submit a proposal to the Director*  
13 *at such time, in such manner, and containing such infor-*  
14 *mation as the Director may require. The proposal shall in-*  
15 *clude, at a minimum, a description of—*

16               (1) *the steps the applicant will take to enable*  
17 *technology transfer and to reduce the risks for com-*  
18 *mercialization for new technologies and why such*  
19 *steps are likely to be effective;*

20               (2) *how the applicant will encourage the train-*  
21 *ing and participation of students and potential entre-*  
22 *preneurs and the transition of research results to*  
23 *practice, including the development of new businesses;*

24               (3) *as relevant, potential steps to drive economic*  
25 *growth in a particular region, by collaborating with*

1 *industry, venture capital entities, nonprofit entities,*  
2 *and State and local governments within that region;*  
3 *and*

4 *(4) background information that the Director de-*  
5 *termines is relevant to demonstrate the success of the*  
6 *innovation and entrepreneurship support models pro-*  
7 *posed by the applicant to commercialize technologies.*

8 *(d) ACADEMIC TECHNOLOGY TRANSFER ENHANCE-*  
9 *MENT PROGRAM.—*

10 *(1) IN GENERAL.—The Director, in coordination*  
11 *with the Director of the National Institute of Stand-*  
12 *ards and Technology, shall make awards, on a com-*  
13 *petitive basis, to support eligible entities in building*  
14 *sustainable technology transfer capacity.*

15 *(2) USE OF FUNDS.—An eligible entity that re-*  
16 *ceives an award under this subsection shall use award*  
17 *funds to carry out one or more of the following:*

18 *(A) Identifying academic research with the*  
19 *potential for technology transfer and commer-*  
20 *cialization, particularly as relevant to the key*  
21 *technology focus areas.*

22 *(B) Providing training and support to sci-*  
23 *entists, engineers, and inventors on technology*  
24 *transfer, commercialization, and research protec-*  
25 *tion.*

1           (C) *Offsetting the costs of patenting and li-*  
2           *ensing research products, both domestically and*  
3           *internationally.*

4           (D) *Revising institution policies, including*  
5           *policies related to intellectual property and fac-*  
6           *ulty entrepreneurship, and taking other nec-*  
7           *essary steps to implement relevant best practices*  
8           *for academic technology transfer.*

9           (E) *Ensuring the availability of staff, in-*  
10          *cluding technology transfer professionals, entre-*  
11          *preneurs in residence, and other mentors as re-*  
12          *quired to accomplish the purpose of this sub-*  
13          *section.*

14          (F) *Identifying and facilitating relation-*  
15          *ships among local and national business leaders,*  
16          *including investors, and potential entrepreneurs*  
17          *to encourage successful commercialization.*

18          (G) *Creating and funding competitions to*  
19          *allow entrepreneurial ideas to illustrate their*  
20          *commercialization potential, including through*  
21          *venture funds of institutions of higher education.*

22          (H) *Creating or supporting entities that*  
23          *could enable researchers to further develop new*  
24          *technology, through capital investment, advice,*  
25          *staff support, or other means.*

1                   (I) *Building technology transfer capacity at*  
2                   *institutions of higher education.*

3                   (3) *LIMITATIONS ON FUNDING.—In awarding*  
4                   *funding under this subsection, the Director shall—*

5                   (A) *award not more than \$1,000,000 per*  
6                   *fiscal year to an eligible entity;*

7                   (B) *in determining the duration of funding,*  
8                   *endeavor to ensure the creation of sustainable*  
9                   *technology transfer practices at the eligible enti-*  
10                  *ty; and*

11                  (C) *ensure that grants under this subsection*  
12                  *shall not support the development or operation of*  
13                  *capital investment funds.*

14                  (e) *COLLABORATIVE INNOVATION RESOURCE CENTER*  
15                  *PROGRAM.—*

16                  (1) *IN GENERAL.—The Director shall make*  
17                  *awards under this subsection to eligible entities to es-*  
18                  *tablish collaborative innovation resource centers that*  
19                  *promote regional technology transfer and technology*  
20                  *development activities available to more than one in-*  
21                  *stitution of higher education and to other entities in*  
22                  *a region.*

23                  (2) *COLLABORATION PRIORITY.—In making*  
24                  *awards under this subsection, the Director shall give*  
25                  *priority to eligible entities that are consortia de-*



1       scribed in subsection (b)(3) and that have a cost  
2       share, which may include an in-kind cost share, from  
3       members of a consortium, at levels as required by the  
4       Director.

5               (3) *USE OF FUNDS.*—An eligible entity that re-  
6       ceives an award under this subsection shall use award  
7       funds to carry out one or more of the following activi-  
8       ties, to the benefit of the region in which the center  
9       is located:

10               (A) *Providing start-ups and small business*  
11       *concerns (as defined in section 3 of the Small*  
12       *Business Act (15 U.S.C. 632)) within the region*  
13       *with access to facilities, scientific infrastructure,*  
14       *personnel, and other assets as required for tech-*  
15       *nology maturation.*

16               (B) *Supporting entrepreneurial training for*  
17       *start-up and small business personnel.*

18               (C) *Providing engineering and entrepre-*  
19       *neurial experiences and hands-on training for*  
20       *students enrolled in participating institutions of*  
21       *higher education.*

22       (f) *REPORTING ON COMMERCIALIZATION BASED ON*  
23       *METRICS.*—The Director shall establish—

24               (1) *metrics related to commercialization for an*  
25       *award under this section; and*

1           (2) *a reporting schedule for recipients of such*  
 2           *awards that takes into account both short- and long-*  
 3           *term goals of the programs under this section.*

4           (g) *GEOGRAPHIC DIVERSITY.*—*The Director shall en-*  
 5           *sure regional and geographic diversity in issuing awards*  
 6           *under this section.*

7           (h) *SUPPLEMENT NOT SUPPLANT.*—*The Director shall*  
 8           *ensure that funds made available under this section shall*  
 9           *be used to create additional support for technology transfer*  
 10           *activities at eligible entities. For the duration of the*  
 11           *awards, recipients shall be required to maintain funding*  
 12           *for such activities at similar levels as the funding for those*  
 13           *activities for the 2 fiscal years preceding the award.*

14   **SEC. 110. CAPACITY-BUILDING PROGRAM FOR DEVELOPING**  
 15                                   **UNIVERSITIES.**

16           (a) *IN GENERAL.*—*The Director shall establish a pro-*  
 17           *gram in the Directorate to make awards, on a competitive*  
 18           *basis, to eligible institutions described in subsection (b) to*  
 19           *support the mission of the Directorate and to build institu-*  
 20           *tional research capacity at eligible institutions.*

21           (b) *ELIGIBLE INSTITUTION.*—

22                   (1) *IN GENERAL.*—*To be eligible to receive an*  
 23           *award under this section, an institution—*

24                                   (A) *shall be—*

1                   (i) a historically Black college or uni-  
2                   versity;

3                   (ii) a minority-serving institution; or

4                   (iii) an institution of higher education  
5                   with an established STEM capacity build-  
6                   ing program focused on traditionally under-  
7                   represented populations in STEM, includ-  
8                   ing Native Hawaiians, Alaska Natives, and  
9                   other Indians; and

10                  (B) shall have not more than \$50,000,000  
11                  in annual federally-financed research and devel-  
12                  opment expenditures for science and engineering  
13                  as reported through the National Science Foun-  
14                  dation Higher Education Research and Develop-  
15                  ment Survey.

16                  (2) PARTNERSHIPS.—An eligible institution re-  
17                  ceiving a grant under this section may carry out the  
18                  activities of the grant through a partnership with  
19                  other entities, including other eligible institutions.

20                  (c) PROPOSALS.—To receive an award under this sec-  
21                  tion, an eligible institution shall submit an application to  
22                  the Director at such time, in such manner, and containing  
23                  such information as the Director may require, including  
24                  a plan that describes how the eligible institution will estab-

1 *lish or expand research office capacity and how such award*  
2 *would be used to—*

3           (1) *conduct an assessment of capacity-building*  
4 *and research infrastructure needs of an eligible insti-*  
5 *tution;*

6           (2) *enhance institutional resources to provide ad-*  
7 *ministrative research development support to faculty*  
8 *at an eligible institution;*

9           (3) *bolster the institutional research competitive-*  
10 *ness of an eligible institution to support grants*  
11 *awarded by the Directorate;*

12           (4) *support the acquisition of instrumentation*  
13 *necessary to build research capacity at an eligible in-*  
14 *stitution in research areas directly associated with the*  
15 *Directorate;*

16           (5) *increase capability of an eligible institution*  
17 *to move technology into the marketplace;*

18           (6) *increase engagement with industry to execute*  
19 *research through the SBIR and STTR programs (as*  
20 *defined in section 9(e) of the Small Business Act (15*  
21 *U.S.C. 638(e)) and direct contracts at an eligible in-*  
22 *stitution;*

23           (7) *provide student engagement and research*  
24 *training opportunities at the undergraduate, grad-*  
25 *uate, and postdoctoral levels at an eligible institution;*

1           (8) *further faculty development initiatives and*  
2           *strengthen institutional research training infrastruc-*  
3           *ture, capacity, and competitiveness of an eligible in-*  
4           *stitution; or*

5           (9) *address plans and prospects for long-term*  
6           *sustainability of institutional enhancements at an eli-*  
7           *gible institution resulting from the award including,*  
8           *if applicable, how the award may be leveraged by an*  
9           *eligible institution to build a broader base of support.*

10          (d) *AWARDS.—Awards made under this section shall*  
11          *be for periods of 3 years, and may be extended for periods*  
12          *of not more than 5 years.*

13          (e) *FUNDING.—From the amounts made available to*  
14          *carry out section 104 under section 116 for each of fiscal*  
15          *years 2022 through 2026, the Director shall use*  
16          *\$150,000,000 for each such fiscal year to carry out this sec-*  
17          *tion.*

18          **SEC. 111. TECHNICAL ASSISTANCE.**

19          *The Director may—*

20                 (1) *coordinate with other Federal agencies to es-*  
21                 *tablish interagency and multidisciplinary teams to*  
22                 *provide technical assistance to recipients of, and pro-*  
23                 *spective applicants for, awards under this title;*

24                 (2) *by Federal interagency agreement and not-*  
25                 *withstanding any other provision of law, transfer*

1        *funds available to carry out this title to the head of*  
2        *another Federal agency to facilitate and support the*  
3        *provision of such technical assistance; and*

4            (3) *enter into contracts with third parties to pro-*  
5        *vide such technical assistance.*

6        **SEC. 112. COORDINATION OF ACTIVITIES.**

7            (a) *IN GENERAL.*—*In carrying out the activities of the*  
8        *Directorate, the Director and the heads of other Federal re-*  
9        *search agencies, as appropriate, shall work cooperatively to*  
10       *further the goals of this title in the key technology focus*  
11       *areas.*

12           (b) *COORDINATION WITH NIST AND DEPARTMENT OF*  
13       *ENERGY.*—*The Director shall, as appropriate, work in co-*  
14       *ordination with the Director of the National Institute of*  
15       *Standards and Technology and the Secretary of Energy.*

16           (c) *AVOID DUPLICATION.*—*The Director shall ensure,*  
17       *to the greatest extent appropriate, that activities carried out*  
18       *by the Directorate are not duplicative of activities sup-*  
19       *ported by other parts of the Foundation or other relevant*  
20       *Federal agencies. In carrying out the activities prescribed*  
21       *by this Act, the Director and heads of other Federal research*  
22       *agencies shall cooperate to avoid duplication of effort and*  
23       *to ensure the responsible stewardship of funds.*

24           (d) *COMPTROLLER GENERAL REPORT.*—*Not later than*  
25       *3 years after the date of enactment of this Act, the Comp-*

1 *troller General of the United States shall prepare and sub-*  
2 *mit a report to Congress, and shall simultaneously submit*  
3 *the report to the Director and the Director of the Office of*  
4 *Science and Technology Policy, describing the interagency*  
5 *cooperation that occurred during the preceding years pursu-*  
6 *ant to this section, including a list of—*

7           (1) *any funds provided from the Directorate to*  
8           *other directorates and offices of the Foundation; and*

9           (2) *any instances in which unnecessary duplica-*  
10          *tion of effort may have occurred.*

11 **SEC. 113. REPORTING REQUIREMENTS.**

12          (a) *REPORTS.*—*Not later than 1 year after the date*  
13 *of enactment of this Act and annually thereafter, the Direc-*  
14 *tor, in coordination with the heads of relevant Federal agen-*  
15 *cies, shall prepare and submit to Congress—*

16           (1) *a strategic vision and spending plan for the*  
17 *next 5 years for the Directorate, including a descrip-*  
18 *tion of how the Foundation will increase funding for*  
19 *research and education for populations underrep-*  
20 *resented in STEM and geographic areas;*

21           (2) *in coordination with the Secretary of State,*  
22 *a description of any funds the Foundation may plan*  
23 *to receive from—*

24                   (A) *entities other than institutions of higher*  
25                   *education; and*

1                   (B) *certain designated countries; and*  
2                   (3) *a description of the planned activities of the*  
3                   *Directorate to secure federally funded science and*  
4                   *technology pursuant to section 1746 of the National*  
5                   *Defense Authorization Act for Fiscal Year 2020 (Pub-*  
6                   *lic Law 116–92; 42 U.S.C. 6601 note) and section*  
7                   *223 of William M. (Mac) Thornberry National De-*  
8                   *fense Authorization Act for Fiscal Year 2021 (Public*  
9                   *Law 116–283) and the requirements under title III.*

10           (b) *ANNUAL BRIEFING.—Each year, the Director shall*  
11 *formally request a briefing from the Secretary of Defense,*  
12 *the Secretary of Commerce, the Director of the Federal Bu-*  
13 *reau of Investigation, the Director of National Intelligence,*  
14 *and as appropriate the heads of other Federal agencies re-*  
15 *garding their efforts to preserve the United States’ advan-*  
16 *tages generated by the activity of the Directorate.*

17           (c) *PROVIDING AUTHORITY TO DISSEMINATE INFOR-*  
18 *MATION.—Section 11 of the National Science Foundation*  
19 *Act of 1950 (42 U.S.C. 1870) is amended—*

20                   (1) *in subsection (j), by striking “and” after the*  
21 *semicolon;*

22                   (2) *in subsection (k), by striking the period at*  
23 *the end and inserting “; and”; and*

24                   (3) *by adding at the end the following:*



1           “(l) to provide for the widest practicable and ap-  
2           propriate dissemination of information within the  
3           United States concerning the Foundation’s activities  
4           and the results of those activities.”.

5 **SEC. 114. HANDS-ON LEARNING PROGRAM.**

6           (a) *FINDINGS.*—Congress finds the following:

7           (1) *Developing a robust, talented, and home-*  
8           *grown workforce, particularly in the fields of STEM,*  
9           *is critical to the success of the United States innova-*  
10          *tion economy.*

11          (2) *The United States educational system is not*  
12          *producing a sufficient number of workers with the*  
13          *necessary STEM expertise to meet the needs of the*  
14          *United States industry in STEM fields.*

15          (3) *Hands-on and experiential learning opportu-*  
16          *nities outside of the classroom are critical for student*  
17          *success in STEM subjects and careers, stimulating*  
18          *students’ interest, increasing confidence, and creating*  
19          *motivation to pursue a related career.*

20          (4) *Hands-on and experiential learning opportu-*  
21          *nities can be particularly successful in inspiring in-*  
22          *terest in students who traditionally have been under-*  
23          *represented in STEM fields, including girls, students*  
24          *of color, and students from disadvantaged back-*  
25          *grounds.*

1           (5) *An expansion of hands-on and experiential*  
2 *learning programs across the United States would ex-*  
3 *pend the STEM workforce pipeline, developing and*  
4 *training students for careers in STEM fields.*

5           (b) *DEFINITIONS.—*

6           (1) *ESEA TERMS.—The terms “elementary*  
7 *school”, “high school”, “secondary school”, and*  
8 *“State” have the meanings given the terms in section*  
9 *8101 of the Elementary and Secondary Education*  
10 *Act of 1965 (20 U.S.C. 7801).*

11           (2) *ELIGIBLE NONPROFIT PROGRAM.—The term*  
12 *“eligible nonprofit program”—*

13                   (A) *means a nonprofit program serving pre-*  
14 *kindergarten, elementary school, or secondary*  
15 *school students; and*

16                   (B) *includes a program described in sub-*  
17 *paragraph (A) that covers the continuum of edu-*  
18 *cation from prekindergarten through high school*  
19 *and is available in every State.*

20           (c) *PURPOSES.—The purposes of this section are to—*

21           (1) *provide effective, compelling, and engaging*  
22 *means for teaching and reinforcing fundamental*  
23 *STEM concepts and inspiring the youth of the United*  
24 *States to pursue careers in STEM-related fields;*

1           (2) *expand the STEM workforce pipeline by de-*  
2 *veloping and training students for careers in United*  
3 *States STEM fields; and*

4           (3) *broaden participation in the STEM work-*  
5 *force by underrepresented population groups.*

6           (d) *PROGRAM AUTHORIZED.—*

7           (1) *IN GENERAL.—Subject to the availability of*  
8 *appropriations for such purposes, the Director shall—*

9           (A) *provide grants to eligible nonprofit pro-*  
10 *grams for supporting hands-on learning oppor-*  
11 *tunities in STEM education, including via after-*  
12 *school activities and innovative learning oppor-*  
13 *tunities such as robotics competitions; and*

14           (B) *evaluate the impact of such hands-on*  
15 *learning opportunities on STEM learning and*  
16 *disseminate the results of that evaluation.*

17           (2) *PRIORITY.—In awarding grants under the*  
18 *program, the Director shall give priority to eligible*  
19 *nonprofit programs serving students that attend ele-*  
20 *mentary, secondary, or high schools that—*

21           (A) *are implementing comprehensive sup-*  
22 *port and improvement activities or targeted sup-*  
23 *port and improvement activities under para-*  
24 *graph (1) or (2) of section 1111(d) of the Ele-*

1           *mentary and Secondary Education Act of 1965*  
2           *(20 U.S.C. 6311(d)); or*

3                   *(B) serve high percentages of students who*  
4           *are eligible for a free or reduced price lunch*  
5           *under the Richard B. Russell National School*  
6           *Lunch Act (42 U.S.C. 1751 et seq.) (which, in*  
7           *the case of a high school, may be calculated using*  
8           *comparable data from the schools that feed into*  
9           *the high school).*

10          *(e) AUTHORIZATION OF APPROPRIATIONS.—From the*  
11        *amounts made available to carry out section 106 under sec-*  
12        *tion 116 for each of fiscal years 2022 through 2026, the*  
13        *Director shall use \$25,000,000 for each such fiscal year to*  
14        *carry out this section.*

15        **SEC. 115. INTELLECTUAL PROPERTY PROTECTION.**

16            *Consistent with the requirements for the award, all in-*  
17        *tellectual property that is developed through the Founda-*  
18        *tion, or any program that has received funding through this*  
19        *Act (or an amendment made by this Act), shall not be*  
20        *transferred to—*

21                    *(1) any foreign entity of concern, as defined in*  
22        *section 307(a);*

23                    *(2) any United States subsidiary, division, or*  
24        *chapter of such a foreign entity of concern; or*

1           (3) *any for-profit, or nonprofit, partnership that*  
2           *includes such a foreign entity of concern in the part-*  
3           *nership.*

4 **SEC. 116. AUTHORIZATION OF APPROPRIATIONS FOR THE**  
5           **FOUNDATION.**

6           (a) *FISCAL YEAR 2022.*—

7           (1) *FOUNDATION.*—*There is authorized to be ap-*  
8           *propriated to the Foundation \$10,800,000,000 for fis-*  
9           *cal year 2022.*

10          (2) *SPECIFIC NSF ALLOCATIONS.*—*Of the amount*  
11          *authorized under paragraph (1)—*

12                 (A) *\$9,000,000,000 shall be made available*  
13                 *to carry out the activities of the Foundation out-*  
14                 *side of the Directorate, of which \$800,000,000*  
15                 *shall be for STEM education and related activi-*  
16                 *ties, including workforce activities under section*  
17                 *202; and*

18                 (B) *\$1,800,000,000 shall be made available*  
19                 *to the Directorate, of which—*

20                         (i) *\$594,000,000 shall be for the inno-*  
21                         *vation centers under section 104;*

22                         (ii) *\$324,000,000 shall be for scholar-*  
23                         *ships, fellowships, and other activities under*  
24                         *section 106;*

1                   (iii) \$252,000,000 shall be for aca-  
2                   demic technology transfer under section 109;

3                   (iv) \$180,000,000 shall be for test beds  
4                   under section 108;

5                   (v) \$270,000,000 shall be for research  
6                   and development activities under section  
7                   107; and

8                   (vi) an amount equal to 10 percent of  
9                   the total made available to the Directorate  
10                  under this subparagraph shall be trans-  
11                  ferred to the Foundation for collaboration  
12                  with directorates and offices of the Founda-  
13                  tion outside of the Directorate as described  
14                  under section 102(c)(7).

15               (b) FISCAL YEAR 2023.—

16                   (1) FOUNDATION.—There is authorized to be ap-  
17                   propriated to the Foundation \$12,800,000,000 for fis-  
18                   cal year 2023.

19                   (2) SPECIFIC NSF ALLOCATIONS.—Of the amount  
20                   authorized under paragraph (1)—

21                           (A) \$9,600,000,000 shall be made available  
22                           to carry out the activities of the Foundation out-  
23                           side of the Directorate, of which \$1,190,000,000  
24                           shall be for STEM education and related activi-

1            *ties, including workforce activities under section*  
2            *202; and*

3            *(B) \$3,200,000,000 shall be made available*  
4            *to the Directorate, of which—*

5                    *(i) \$1,056,000,000 shall be for the in-*  
6                    *novation centers under section 104;*

7                    *(ii) \$576,000,000 shall be for scholar-*  
8                    *ships, fellowships, and other activities under*  
9                    *section 106;*

10                   *(iii) \$448,000,000 shall be for aca-*  
11                   *demic technology transfer under section 109;*

12                   *(iv) \$320,000,000 shall be for test beds*  
13                   *under section 108;*

14                   *(v) \$480,000,000 shall be for research*  
15                   *and development activities under section*  
16                   *107; and*

17                   *(vi) an amount equal to 10 percent of*  
18                   *the total made available to the Directorate*  
19                   *under this subparagraph shall be trans-*  
20                   *ferred to the Foundation for collaboration*  
21                   *with directorates and offices of the Founda-*  
22                   *tion outside of the Directorate as described*  
23                   *under section 102(c)(7).*

24            *(c) FISCAL YEAR 2024.—*

1           (1) *FOUNDATION.*—*There is authorized to be ap-*  
2           *propriated to the Foundation \$16,600,000,000 for fis-*  
3           *cal year 2024.*

4           (2) *SPECIFIC NSF ALLOCATIONS.*—*Of the amount*  
5           *authorized under paragraph (1)—*

6                   (A) *\$10,300,000,000 shall be made available*  
7                   *to carry out the activities of the Foundation out-*  
8                   *side of the Directorate, of which \$1,600,000,000*  
9                   *shall be for STEM education and related activi-*  
10                   *ties, including workforce activities under section*  
11                   *202; and*

12                   (B) *\$6,300,000,000 shall be made available*  
13                   *to the Directorate, of which—*

14                           (i) *\$2,079,000,000 shall be for the in-*  
15                           *novation centers under section 104;*

16                           (ii) *\$1,134,000,000 shall be for scholar-*  
17                           *ships, fellowships, and other activities under*  
18                           *section 106;*

19                           (iii) *\$882,000,000 shall be for aca-*  
20                           *demie technology transfer under section 109;*

21                           (iv) *\$630,000,000 shall be for test beds*  
22                           *under section 108;*

23                           (v) *\$945,000,000 shall be for research*  
24                           *and development activities under section*  
25                           *107; and*



1                   (vi) an amount equal to 10 percent of  
2                   the total made available to the Directorate  
3                   under this subparagraph shall be trans-  
4                   ferred to the Foundation for collaboration  
5                   with directorates and offices of the Founda-  
6                   tion outside of the Directorate as described  
7                   under section 102(c)(7).

8           (d) FISCAL YEAR 2025.—

9                   (1) FOUNDATION.—There is authorized to be ap-  
10                  propriated to the Foundation \$19,500,000,000 for fis-  
11                  cal year 2025.

12                  (2) SPECIFIC NSF ALLOCATIONS.—Of the amount  
13                  authorized under paragraph (1)—

14                       (A) \$11,100,000,000 shall be made available  
15                       to carry out the activities of the Foundation out-  
16                       side of the Directorate, of which \$2,100,000,000  
17                       shall be for STEM education and related activi-  
18                       ties, including workforce activities under section  
19                       202; and

20                       (B) \$8,400,000,000 shall be made available  
21                       to the Directorate, of which—

22                               (i) \$2,772,000,000 shall be for the in-  
23                               novation centers under section 104;

1                   (ii) \$1,512,000,000 shall be for scholar-  
2                   ships, fellowships, and other activities under  
3                   section 106;

4                   (iii) \$1,176,000,000 shall be for aca-  
5                   demic technology transfer under section 109;

6                   (iv) \$840,000,000 shall be for test beds  
7                   under section 108;

8                   (v) \$1,260,000,000 shall be for research  
9                   and development activities under section  
10                  107; and

11                  (vi) an amount equal to 10 percent of  
12                  the total made available to the Directorate  
13                  under this subparagraph shall be trans-  
14                  ferred to the Foundation for collaboration  
15                  with directorates and offices of the Founda-  
16                  tion outside of the Directorate as described  
17                  under section 102(c)(7).

18                  (e) FISCAL YEAR 2026.—

19                   (1) FOUNDATION.—There is authorized to be ap-  
20                   propriated to the Foundation \$21,300,000,000 for fis-  
21                   cal year 2026.

22                   (2) SPECIFIC NSF ALLOCATIONS.—Of the amount  
23                   authorized under paragraph (1)—

24                           (A) \$12,000,000,000 shall be made available  
25                           to carry out the activities of the Foundation out-

1           *side of the Directorate, of which \$2,540,000,000*  
2           *shall be for STEM education and related activi-*  
3           *ties, including workforce activities under section*  
4           *202; and*

5                   *(B) \$9,300,000,000 shall be made available*  
6           *to the Directorate, of which—*

7                           *(i) \$3,069,000,000 shall be for the in-*  
8                           *novation centers under section 104;*

9                           *(ii) \$1,674,000,000 shall be for scholar-*  
10                          *ships, fellowships, and other activities under*  
11                          *section 106;*

12                          *(iii) \$1,302,000,000 shall be for aca-*  
13                          *demie technology transfer under section 109;*

14                          *(iv) \$930,000,000 shall be for test beds*  
15                          *under section 108;*

16                          *(v) \$1,395,000,000 shall be for research*  
17                          *and development activities under section*  
18                          *107; and*

19                          *(vi) an amount equal to 10 percent of*  
20                          *the total made available to the Directorate*  
21                          *under this subparagraph shall be trans-*  
22                          *ferred to the Foundation for collaboration*  
23                          *with directorates and offices of the Founda-*  
24                          *tion outside of the Directorate as described*  
25                          *under section 102(c)(7).*

1       (f) *ALLOCATION AND LIMITATIONS.*—

2               (1) *ALLOCATION FOR THE OFFICE OF INSPECTOR*  
3       *GENERAL.*—*From any amounts appropriated for the*  
4       *Foundation for a fiscal year, the Director shall allo-*  
5       *cate for necessary expenses of the Office of Inspector*  
6       *General of the Foundation an amount of not less than*  
7       *\$33,000,000 in any fiscal year for oversight of the*  
8       *programs and activities funded under this section in*  
9       *accordance with the Inspector General Act of 1978 (5*  
10       *U.S.C. App.).*

11              (2) *SUPPLEMENT AND NOT SUPPLANT.*—*The*  
12       *amounts authorized to be appropriated under this sec-*  
13       *tion shall supplement, and not supplant, any other*  
14       *amounts previously appropriated to the Office of the*  
15       *Inspector General of the Foundation.*

16              (3) *NO NEW AWARDS.*—*The Director shall not*  
17       *make any new awards for the activities under the Di-*  
18       *rectorate for any fiscal year in which the total*  
19       *amount appropriated to the Foundation (not includ-*  
20       *ing amounts appropriated for the Directorate) is less*  
21       *than the total amount appropriated to the Founda-*  
22       *tion (not including such amounts), adjusted by the*  
23       *rate of inflation, for the previous fiscal year.*

1           (4) *NO FUNDS FOR CONSTRUCTION.*—*No funds*  
2           *provided to the Directorate under this section shall be*  
3           *used for construction.*

4 **SEC. 117. AUTHORIZATION OF APPROPRIATIONS FOR THE**  
5           **DEPARTMENT OF ENERGY.**

6           (a) *AUTHORIZATION OF APPROPRIATIONS.*—

7           (1) *FISCAL YEAR 2022.*—*There is authorized to be*  
8           *appropriated to the Department of Energy*  
9           *\$1,000,000,000 for fiscal year 2022 to carry out re-*  
10          *search and development in the key technology focus*  
11          *areas.*

12          (2) *FISCAL YEAR 2023.*—*There is authorized to be*  
13          *appropriated to the Department of Energy*  
14          *\$1,800,000,000 for fiscal year 2023 to carry out re-*  
15          *search and development in the key technology focus*  
16          *areas.*

17          (3) *FISCAL YEAR 2024.*—*There is authorized to be*  
18          *appropriated to the Department of Energy*  
19          *\$3,700,000,000 for fiscal year 2024 to carry out re-*  
20          *search and development in the key technology focus*  
21          *areas.*

22          (4) *FISCAL YEAR 2025.*—*There is authorized to be*  
23          *appropriated to the Department of Energy*  
24          *\$4,900,000,000 for fiscal year 2025 to carry out re-*

1       *search and development in the key technology focus*  
 2       *areas.*

3               (5) *FISCAL YEAR 2026.*—*There is authorized to be*  
 4       *appropriated to the Department of Energy*  
 5       *\$5,500,000,000 for fiscal year 2026 to carry out re-*  
 6       *search and development in the key technology focus*  
 7       *areas.*

8               (b) *SUPPLEMENT AND NOT SUPPLANT.*—*The amounts*  
 9       *authorized to be appropriated under this section shall sup-*  
 10       *plement, and not supplant, any other amounts previously*  
 11       *authorized to be appropriated to the Department of Energy.*

12              (c) *NO FUNDS FOR CONSTRUCTION.*—*No funds pro-*  
 13       *vided to the Department of Energy under this section shall*  
 14       *be used for construction.*

15       ***TITLE II—NSF RESEARCH, STEM,***  
 16       ***AND GEOGRAPHIC DIVERSITY***  
 17       ***INITIATIVES***

18       ***SEC. 201. CHIEF DIVERSITY OFFICER OF THE NSF.***

19              (a) *CHIEF DIVERSITY OFFICER.*—

20                      (1) *APPOINTMENT.*—*The President shall appoint,*  
 21       *by and with the consent of the Senate, a Chief Diver-*  
 22       *sity Officer of the Foundation.*

23                      (2) *QUALIFICATIONS.*—*The Chief Diversity Offi-*  
 24       *cer shall have significant experience, within the Fed-*

1 *eral Government and the science community, with*  
 2 *diversity- and inclusion-related matters, including—*

3 *(A) civil rights compliance;*

4 *(B) harassment policy, reviews, and inves-*  
 5 *tigations;*

6 *(C) equal employment opportunity; and*

7 *(D) disability policy.*

8 *(3) OVERSIGHT.—The Chief Diversity Officer*  
 9 *shall direct the Office of Diversity and Inclusion of*  
 10 *the Foundation and report directly to the Director in*  
 11 *the performance of the duties of the Chief Diversity*  
 12 *Officer under this section.*

13 *(b) DUTIES.—The Chief Diversity Officer is respon-*  
 14 *sible for providing advice on policy, oversight, guidance,*  
 15 *and coordination with respect to matters of the Foundation*  
 16 *related to diversity and inclusion, including ensuring the*  
 17 *geographic diversity of the Foundation programs. Other du-*  
 18 *ties may include—*

19 *(1) establishing and maintaining a strategic*  
 20 *plan that publicly states a diversity definition, vi-*  
 21 *sion, and goals for the Foundation;*

22 *(2) defining a set of strategic metrics that are—*

23 *(A) directly linked to key organizational*  
 24 *priorities and goals;*

25 *(B) actionable; and*

1                   (C) actively used to implement the strategic  
2                   plan under paragraph (1);

3                   (3) advising in the establishment of a strategic  
4                   plan for diverse participation by individuals and in-  
5                   stitutions of higher education, including community  
6                   colleges, historically Black colleges and universities,  
7                   Tribal colleges or universities, minority-serving insti-  
8                   tutions, institutions of higher education with an es-  
9                   tablished STEM capacity building program focused  
10                  on traditionally underrepresented populations in  
11                  STEM, including Native Hawaiians, Alaska Natives,  
12                  and other Indians, and institutions from jurisdictions  
13                  eligible to participate under section 113 of the Na-  
14                  tional Science Foundation Authorization Act of 1988  
15                  (42 U.S.C. 1862g);

16                  (4) advising in the establishment of a strategic  
17                  plan for outreach to, and recruiting from, untapped  
18                  locations and underrepresented populations;

19                  (5) advising on the application of the Founda-  
20                  tion's broader impacts review criterion; and

21                  (6) performing such additional duties and exer-  
22                  cise such powers as the Director may prescribe.

23                  (c) FUNDING.—From any amounts appropriated for  
24                  the Foundation for each of fiscal years 2022 through 2026,



1 *the Director shall allocate \$5,000,000 to carry out this sec-*  
2 *tion for each such year.*

3 **SEC. 202. PROGRAMS TO ADDRESS THE STEM WORKFORCE.**

4 (a) *IN GENERAL.*—*The Director shall issue under-*  
5 *graduate scholarships, including at community colleges,*  
6 *graduate fellowships and traineeships, postdoctoral awards,*  
7 *and, as appropriate, other awards.*

8 (b) *IMPLEMENTATION.*—*The Director may carry out*  
9 *subsection (a) by making awards—*

10 (1) *directly to students; or*

11 (2) *to institutions of higher education or con-*  
12 *sortia of institutions of higher education, including*  
13 *those institutions or consortia involved in operating*  
14 *university technology centers established under section*  
15 *104(a).*

16 (c) *BROADENING PARTICIPATION.*—*In carrying out*  
17 *this section, the Director shall take steps to increase the par-*  
18 *ticipation of populations that are underrepresented in*  
19 *STEM, which may include—*

20 (1) *establishing or augmenting programs tar-*  
21 *geted at populations that are underrepresented in*  
22 *STEM;*

23 (2) *supporting traineeships or other relevant*  
24 *programs at minority-serving institutions (or institu-*  
25 *tions of higher education with an established STEM*

1 *capacity building program focused on traditionally*  
2 *underrepresented populations in STEM, including*  
3 *Native Hawaiians, Alaska Natives, and other Indi-*  
4 *ans);*

5 *(3) addressing current and expected gaps in the*  
6 *availability and skills of the STEM workforce, or ad-*  
7 *dressing the needs of the STEM workforce, including*  
8 *by prioritizing awards to United States citizens, per-*  
9 *manent residents, and individuals that will grow the*  
10 *domestic workforce;*

11 *(4) addressing geographic diversity in the STEM*  
12 *workforce; and*

13 *(5) awarding grants to institutions of higher*  
14 *education to address STEM workforce gaps, including*  
15 *for programs that recruit, retain, and progress stu-*  
16 *dents to a bachelor's degree in a STEM discipline*  
17 *concurrent with a secondary school diploma, such as*  
18 *through existing and new partnerships with State*  
19 *educational agencies.*

20 *(d) INNOVATION.—*

21 *(1) GRADUATE EDUCATION.—In carrying out*  
22 *this section, the Director shall encourage innovation*  
23 *in graduate education, and studying the impacts of*  
24 *such innovations, including through encouraging in-*  
25 *stitutions of higher education to offer graduate stu-*

1        *dents opportunities to gain experience in industry or*  
 2        *government as part of their graduate training, and*  
 3        *through support for students in professional masters*  
 4        *programs related to the key technology focus areas.*

5            (2) *POSTDOCTORAL PROFESSIONAL DEVELOP-*  
 6        *MENT.—In carrying out this section, the Director*  
 7        *shall encourage innovation in postdoctoral profes-*  
 8        *sional development, support the development and di-*  
 9        *versity of the STEM workforce, and study the impacts*  
 10       *of such innovation and support. To do so, the Direc-*  
 11       *tor may use postdoctoral awards established under*  
 12       *subsection (a) or leveraged under subsection (e)(1) for*  
 13       *fellowships or other temporary rotational postings of*  
 14       *not more than 2 years. Such fellowships or temporary*  
 15       *rotational postings shall be awarded—*

16            (A) *to qualified individuals who have a doc-*  
 17        *toral degree and received such degree not earlier*  
 18        *than 5 years before the date that the fellowship*  
 19        *or temporary rotational posting begins; and*

20            (B) *to carry out research in the key tech-*  
 21        *nology focus areas at Federal, State, local, and*  
 22        *Tribal government research facilities.*

23            (3) *DIRECT HIRE AUTHORITY.—*

24            (A) *IN GENERAL.—During fiscal year 2021*  
 25        *and any fiscal year thereafter, the head of any*

1        *Federal agency may appoint, without regard to*  
2        *the provisions of subchapter I of chapter 33 of*  
3        *title 5, United States Code, other than sections*  
4        *3303 and 3328 of that title, a qualified can-*  
5        *didate described in subparagraph (B) directly to*  
6        *a position in the competitive service with the*  
7        *Federal agency for which the candidate meets Of-*  
8        *fice of Personnel Management qualification*  
9        *standards.*

10            *(B) FELLOWSHIP OR TEMPORARY ROTA-*  
11            *TIONAL POSTING.—Subparagraph (A) applies*  
12            *with respect to a former recipient of an award*  
13            *under this subsection who—*

14                    *(i) earned a doctoral degree in a*  
15                    *STEM field from an institution of higher*  
16                    *education; and*

17                    *(ii) successfully fulfilled the require-*  
18                    *ments of the fellowship or temporary rota-*  
19                    *tional posting within a Federal agency.*

20            *(C) LIMITATION.—The direct hire authority*  
21            *under this paragraph shall be exercised with re-*  
22            *spect to a specific qualified candidate not later*  
23            *than 2 years after the date that the candidate*  
24            *completed the requirements related to the fellow-*

1           *ship or temporary rotational posting described*  
2           *under this subsection.*

3           (e) *EXISTING PROGRAMS.*—*In carrying out this sec-*  
4 *tion, the Director may leverage existing programs, includ-*  
5 *ing programs that issue—*

6           (1) *postdoctoral awards;*

7           (2) *graduate fellowships and traineeships, inclu-*  
8 *sive of the NSF Research Traineeships and fellow-*  
9 *ships awarded under the Graduate Research Fellow-*  
10 *ship Program; and*

11          (3) *scholarships, research experiences, and in-*  
12 *ternships, including—*

13           (A) *scholarships to attend community col-*  
14 *leges; and*

15           (B) *research experiences and internships*  
16 *under sections 513, 514, and 515 of the America*  
17 *COMPETES Reauthorization Act of 2010 (42*  
18 *U.S.C. 1862p-5; 1862p-6; 42 U.S.C. 1862p-7);*  
19 *and*

20          (4) *awards to institutions of higher education to*  
21 *enable the institutions to fund innovation in under-*  
22 *graduate and graduate education, increased edu-*  
23 *cational capacity, and the development and establish-*  
24 *ment of new or specialized programs of study for*  
25 *graduate, undergraduate, or technical college students,*



1 of each emerging research institution included in the eligi-  
2 ble partnership.

3 (c) *ACTIVITIES.*—An eligible partnership receiving a  
4 grant under this section may use the funds awarded through  
5 such grant for increasing research, education, and innova-  
6 tion capacity, including for—

7 (1) faculty training and resources, including  
8 joint resources;

9 (2) research experiences for undergraduate and  
10 graduate students; and

11 (3) maintenance and repair of research equip-  
12 ment and instrumentation.

13 (d) *DEFINITION OF ELIGIBLE PARTNERSHIP.*—In this  
14 section, the term “eligible partnership” means a partner-  
15 ship of—

16 (1) at least 1 emerging research institution; and

17 (2) at least 1 institution that, on average for the  
18 3 years prior to an application for an award under  
19 this section, received more than \$100,000,000 in Fed-  
20 eral research funding.

21 **SEC. 204. PERSONNEL MANAGEMENT AUTHORITIES FOR**  
22 **THE FOUNDATION.**

23 (a) *EXPERTS IN SCIENCE AND ENGINEERING.*—

24 (1) *PROGRAM AUTHORIZED.*—The Foundation  
25 may carry out a program of personnel management

1 *authority provided under paragraph (2) in order to*  
2 *facilitate recruitment of eminent experts in science or*  
3 *engineering for research and development projects and*  
4 *to enhance the administration and management of the*  
5 *Foundation.*

6 (2) *PERSONNEL MANAGEMENT AUTHORITY.—*  
7 *Under the program under paragraph (1), the Foun-*  
8 *dation may—*

9 (A) *without regard to any provision of title*  
10 *5, United States Code, governing the appoint-*  
11 *ment of employees in the civil service, appoint*  
12 *individuals to a total of not more than 140 posi-*  
13 *tions in the Foundation, of which not more than*  
14 *5 such positions may be positions of administra-*  
15 *tion or management of the Foundation;*

16 (B) *notwithstanding any provision of title*  
17 *5, United States Code, governing the rates of pay*  
18 *or classification of employees in the executive*  
19 *branch, prescribe the rates of basic pay for posi-*  
20 *tions to which employees are appointed under*  
21 *subparagraph (A)—*

22 (i) *in the case of employees appointed*  
23 *pursuant to subparagraph (A) to any of 5*  
24 *positions designated by the Foundation for*  
25 *purposes of this clause, at rates not in ex-*



1           *cess of a rate equal to 150 percent of the*  
2           *maximum rate of basic pay authorized for*  
3           *positions at level I of the Executive Sched-*  
4           *ule under section 5312 of title 5, United*  
5           *States Code; and*

6           *(ii) in the case of any other employee*  
7           *appointed pursuant to subparagraph (A),*  
8           *at rates not in excess of the maximum rate*  
9           *of basic pay authorized for senior-level posi-*  
10          *tions under section 5376 of title 5, United*  
11          *States Code; and*

12          *(C) pay any employee appointed under sub-*  
13          *paragraph (A), other than an employee ap-*  
14          *pointed to a position designated as described in*  
15          *subparagraph (B)(i), payments in addition to*  
16          *basic pay within the limit applicable to the em-*  
17          *ployee under paragraph (4).*

18          (3) *LIMITATION ON TERM OF APPOINTMENT.—*

19                 *(A) IN GENERAL.—Except as provided in*  
20                 *subparagraph (B), the service of an employee*  
21                 *under an appointment under paragraph (2)(A)*  
22                 *may not exceed 4 years.*

23                 *(B) EXTENSION.—The Director may, in the*  
24                 *case of a particular employee under the program*  
25                 *under paragraph (1), extend the period to which*

1           *service is limited under subparagraph (A) by up*  
2           *to 2 years if the Director determines that such*  
3           *action is necessary to promote the efficiency of*  
4           *the Foundation, as applicable.*

5           (4) *MAXIMUM AMOUNT OF ADDITIONAL PAY-*  
6           *MENTS PAYABLE.—Notwithstanding any other provi-*  
7           *sion of this subsection or section 5307 of title 5,*  
8           *United States Code, no additional payments may be*  
9           *paid to an employee under paragraph (2)(C) in any*  
10          *calendar year if, or to the extent that, the employee’s*  
11          *total annual compensation in such calendar year will*  
12          *exceed the maximum amount of total annual com-*  
13          *penetration payable at the salary set in accordance*  
14          *with section 104 of title 3, United States Code.*

15          (b) *HIGHLY QUALIFIED EXPERTS IN NEEDED OCCU-*  
16          *PATIONS.—*

17               (1) *IN GENERAL.—The Foundation may carry*  
18               *out a program using the authority provided in para-*  
19               *graph (2) in order to attract highly qualified experts*  
20               *in needed occupations, as determined by the Founda-*  
21               *tion. Individuals hired by the Director through such*  
22               *authority may include individuals with expertise in*  
23               *business creativity, innovation management, design*  
24               *thinking, entrepreneurship, venture capital, and re-*  
25               *lated fields.*

1           (2) *AUTHORITY.*—Under the program, the Foun-  
2           *ation may—*

3                   (A) *appoint personnel from outside the civil*  
4                   *service and uniformed services (as such terms are*  
5                   *defined in section 2101 of title 5, United States*  
6                   *Code) to positions in the Foundation without re-*  
7                   *gard to any provision of title 5, United States*  
8                   *Code, governing the appointment of employees to*  
9                   *positions in the Foundation;*

10                   (B) *prescribe the rates of basic pay for posi-*  
11                   *tions to which employees are appointed under*  
12                   *subparagraph (A) at rates not in excess of the*  
13                   *maximum rate of basic pay authorized for sen-*  
14                   *ior-level positions under section 5376 of title 5,*  
15                   *United States Code, as increased by locality-*  
16                   *based comparability payments under section*  
17                   *5304 of such title, notwithstanding any provi-*  
18                   *sion of such title governing the rates of pay or*  
19                   *classification of employees in the executive*  
20                   *branch; and*

21                   (C) *pay any employee appointed under sub-*  
22                   *paragraph (A) payments in addition to basic*  
23                   *pay within the limits applicable to the employee*  
24                   *under paragraph (4).*

25           (3) *LIMITATION ON TERM OF APPOINTMENT.*—

1           (A) *IN GENERAL.*—*Except as provided in*  
2 *subparagraph (B), the service of an employee*  
3 *under an appointment made pursuant to this*  
4 *subsection may not exceed 5 years.*

5           (B) *EXTENSION.*—*The Foundation may, in*  
6 *the case of a particular employee, extend the pe-*  
7 *riod to which service is limited under subpara-*  
8 *graph (A) by up to 1 additional year if the*  
9 *Foundation determines that such action is nec-*  
10 *essary to promote the Foundation’s national se-*  
11 *curity missions.*

12       (4) *LIMITATIONS ON ADDITIONAL PAYMENTS.*—

13           (A) *TOTAL AMOUNT.*—

14           (i) *IN GENERAL.*—*The total amount of*  
15 *the additional payments paid to an em-*  
16 *ployee under this subsection for any 12-*  
17 *month period may not exceed the lesser of*  
18 *the following amounts:*

19                   (I) *\$50,000 in fiscal year 2021,*  
20 *which may be adjusted annually there-*  
21 *after by the Foundation, with a per-*  
22 *centage increase equal to one-half of 1*  
23 *percentage point less than the percent-*  
24 *age by which the Employment Cost*  
25 *Index, published quarterly by the Bu-*

1           reau of Labor Statistics, for the base  
2           quarter of the year before the preceding  
3           calendar year exceeds the Employment  
4           Cost Index for the base quarter of the  
5           second year before the preceding cal-  
6           endar year.

7                   (ii) The amount equal to 50 per-  
8                   cent of the employee's annual rate of  
9                   basic pay.

10                   (ii) DEFINITION OF BASE QUARTER.—  
11                   For purposes of this subparagraph, the term  
12                   “base quarter” has the meaning given such  
13                   term by section 5302(3) of title 5, United  
14                   States Code.

15                   (B) ELIGIBILITY FOR PAYMENTS.—An em-  
16                   ployee appointed under this subsection is not eli-  
17                   gible for any bonus, monetary award, or other  
18                   monetary incentive for service, except for pay-  
19                   ments authorized under this subsection.

20                   (C) ADDITIONAL LIMITATION.—Notwith-  
21                   standing any other provision of this paragraph  
22                   or of section 5307 of title 5, United States Code,  
23                   no additional payments may be paid to an em-  
24                   ployee under this subsection in any calendar  
25                   year if, or to the extent that, the employee's total

1           *annual compensation will exceed the maximum*  
2           *amount of total annual compensation payable at*  
3           *the salary set in accordance with section 104 of*  
4           *title 3, United States Code.*

5           (5) *LIMITATION ON NUMBER OF HIGHLY QUALI-*  
6           *FIED EXPERTS.—The number of highly qualified ex-*  
7           *perts appointed and retained by the Foundation*  
8           *under paragraph (2)(A) shall not exceed 140 at any*  
9           *time.*

10          (6) *SAVINGS PROVISIONS.—In the event that the*  
11          *Foundation terminates the program under this sub-*  
12          *section, in the case of an employee who, on the day*  
13          *before the termination of the program, is serving in*  
14          *a position pursuant to an appointment under this*  
15          *subsection—*

16                 (A) *the termination of the program does not*  
17                 *terminate the employee's employment in that po-*  
18                 *sition before the expiration of the lesser of—*

19                         (i) *the period for which the employee*  
20                         *was appointed; or*

21                         (ii) *the period to which the employee's*  
22                         *service is limited under paragraph (3), in-*  
23                         *cluding any extension made under this sub-*  
24                         *section before the termination of the pro-*  
25                         *gram; and*

1           (B) the rate of basic pay prescribed for the  
2           position under this subsection may not be re-  
3           duced as long as the employee continues to serve  
4           in the position without a break in service.

5           (c) *ADDITIONAL HIRING AUTHORITY.*—To the extent  
6           needed to carry out the duties under subsection (a)(1), the  
7           Director is authorized to utilize hiring authorities under  
8           section 3372 of title 5, United States Code, to staff the  
9           Foundation with employees from other Federal agencies,  
10          State and local governments, Indian Tribes and Tribal or-  
11          ganizations, institutions of higher education, and other or-  
12          ganizations, as described in that section, in the same man-  
13          ner and subject to the same conditions, that apply to such  
14          individuals utilized to accomplish other missions of the  
15          Foundation.

16          (d) *NATIONAL ACADEMY OF PUBLIC ADMINISTRA-*  
17          *TION.*—

18               (1) *STUDY.*—Not later than 30 days after the  
19               date of enactment of this Act, the Director shall con-  
20               tract with the National Academy of Public Adminis-  
21               tration to conduct a study on the organizational and  
22               management structure of the Foundation, to—

23                       (A) evaluate and make recommendations to  
24                       efficiently and effectively implement the Direc-  
25                       torate for Technology and Innovation;





1           “science, technology, engineering, and mathe-  
2           matics or *STEM*”;

3           (B) in paragraph (4), by inserting “edu-  
4           cated” and before “trained”; and

5           (C) in paragraph (5), by striking “scientific  
6           and technical education and training” and in-  
7           serting “*STEM* education and training”; and

8           (2) in subsection (b)—

9           (A) in paragraph (2), by striking “mathe-  
10           matics and science” and inserting “*STEM*  
11           fields”; and

12           (B) in paragraph (4), by striking “mathe-  
13           matics and science instruction” and inserting  
14           “*STEM* instruction”.

15           (b) *MODERNIZING REFERENCES TO STEM*.—Section  
16           3 of the Scientific and Advanced-Technology Act of 1992  
17           (42 U.S.C. 1862i) is amended—

18           (1) in the section heading, by striking “**SCI-**  
19           **ENTIFIC AND TECHNICAL EDUCATION** ” and in-  
20           serting “**STEM EDUCATION**”;

21           (2) in subsection (a)—

22           (A) in the subsection heading, by striking  
23           “**SCIENTIFIC AND TECHNICAL EDUCATION** ” and  
24           inserting “**STEM EDUCATION**”;

1           (B) *in the matter preceding paragraph*

2           (1)—

3                 (i) *by inserting “and education to pre-*  
4                 *pare the skilled technical workforce to meet*  
5                 *workforce demands” before “, and to im-*  
6                 *prove”;*

7                 (ii) *by striking “core education courses*  
8                 *in science and mathematics” and inserting*  
9                 *“core education courses in STEM fields”;*

10                (iii) *by inserting “veterans and indi-*  
11                *viduals engaged in” before “work in the*  
12                *home”;* and

13                (iv) *by inserting “and on building a*  
14                *pathway from secondary schools, to asso-*  
15                *ciate-degree-granting institutions, to careers*  
16                *that require technical training” before “,*  
17                *and shall be designed”;*

18           (C) *in paragraph (1)—*

19                 (i) *by inserting “and study” after “de-*  
20                 *velopment”;* and

21                 (ii) *by striking “core science and*  
22                 *mathematics courses” and inserting “core*  
23                 *STEM courses”;*

24           (D) *in paragraph (2), by striking “science,*  
25            *mathematics, and advanced-technology fields”*

1           *and inserting “STEM and advanced-technology*  
2           *fields”;*

3           *(E) in paragraph (3)(A), by inserting “to*  
4           *support the advanced-technology industries that*  
5           *drive the competitiveness of the United States in*  
6           *the global economy” before the semicolon at the*  
7           *end;*

8           *(F) in paragraph (4), by striking “scientific*  
9           *and advanced-technology fields” and inserting*  
10           *“STEM and advanced-technology fields”; and*

11           *(G) in paragraph (5), by striking “ad-*  
12           *vanced scientific and technical education” and*  
13           *inserting “advanced STEM and advanced-tech-*  
14           *nology”;*

15           *(3) in subsection (b)—*

16           *(A) by striking the subsection heading and*  
17           *inserting the following: “CENTERS OF SCI-*  
18           *ENTIFIC AND TECHNICAL EDUCATION.—”;*

19           *(B) in the matter preceding paragraph (1),*  
20           *by striking “not to exceed 12 in number” and*  
21           *inserting “in advanced-technology fields”;*

22           *(C) in paragraph (2), by striking “edu-*  
23           *cation in mathematics and science” and insert-*  
24           *ing “STEM education”; and*

1                   (D) in the flush matter following paragraph  
2                   (2), by striking “in the geographic region served  
3                   by the center”;

4                   (4) in subsection (c)—

5                   (A) in paragraph (1)—

6                   (i) in subparagraph (A)—

7                   (I) in the matter preceding clause  
8                   (i), by striking “to encourage” and all  
9                   that follows through “such means as—  
10                   ” and inserting “to encourage the de-  
11                   velopment of career and educational  
12                   pathways with multiple entry and exit  
13                   points leading to credentials and de-  
14                   grees, and to assist students pursuing  
15                   pathways in STEM fields to transition  
16                   from associate-degree-granting colleges  
17                   to bachelor-degree-granting institu-  
18                   tions, through such means as—”;

19                   (II) in clause (i), by striking “to  
20                   ensure” and inserting “to develop ar-  
21                   ticulation agreements that ensure”;  
22                   and

23                   (III) in clause (ii), by striking  
24                   “courses at the bachelor-degree-grant-  
25                   ing institution” and inserting “the ca-

- 1 *reer and educational pathways sup-*  
2 *ported by the articulation agreements”;*  
3 *(ii) in subparagraph (B)—*  
4 *(I) in clause (i), by inserting*  
5 *“veterans and individuals engaged in”*  
6 *before “work in the home”;*  
7 *(II) in clause (iii)—*  
8 *(aa) by striking “bachelor’s-*  
9 *degree-granting institutions” and*  
10 *inserting “institutions or work*  
11 *sites”;* and  
12 *(bb) by inserting “or indus-*  
13 *try internships” after “summer*  
14 *programs”;* and  
15 *(III) by striking the flush text fol-*  
16 *lowing clause (iv); and*  
17 *(iii) by striking subparagraph (C);*  
18 *(B) in paragraph (2)—*  
19 *(i) by striking “mathematics and*  
20 *science programs” and inserting “STEM*  
21 *programs”;*  
22 *(ii) by inserting “and, as appropriate,*  
23 *elementary schools,” after “with secondary*  
24 *schools”;*

1                   (iii) by striking “mathematics and  
2 science education” and inserting “STEM  
3 education”;

4                   (iv) by striking “secondary school stu-  
5 dents” and inserting “students at these  
6 schools”;

7                   (v) by striking “science and advanced-  
8 technology fields” and inserting “STEM  
9 and advanced-technology fields”; and

10                  (vi) by striking “agreements with local  
11 educational agencies” and inserting “ar-  
12 ticipation agreements or dual credit courses  
13 with local secondary schools, or other means  
14 as the Director determines appropriate,”;  
15 and

16                  (C) in paragraph (3)—

17                   (i) by striking subparagraph (B);

18                   (ii) by striking “shall—”and all that  
19 follows through “establish a” and inserting  
20 “shall establish a”;

21                   (iii) by striking “the fields of science,  
22 technology, engineering, and mathematics”  
23 and inserting “STEM fields”; and

1                   (iv) by striking “; and” and inserting  
2                   “, including jobs at Federal and academic  
3                   laboratories.”;

4                   (5) in subsection (d)(2)—

5                   (A) in subparagraph (D), by striking “and”  
6                   after the semicolon;

7                   (B) in subparagraph (E), by striking the  
8                   period at the end and inserting a semicolon; and

9                   (C) by adding at the end the following:

10                   “(F) as appropriate, applications that  
11                   apply the best practices for STEM education and  
12                   technical skills education through distance learn-  
13                   ing or in a simulated work environment, as de-  
14                   termined by research described in subsection (f);  
15                   and”;

16                   (6) in subsection (g), by striking the second sen-  
17                   tence;

18                   (7) in subsection (h)(1)—

19                   (A) in subparagraph (A), by striking  
20                   “2022” and inserting “2026”;

21                   (B) in subparagraph (B), by striking  
22                   “2022” and inserting “2026”; and

23                   (C) in subparagraph (C)—

24                   (i) by striking “up to \$2,500,000” and  
25                   inserting “not less than \$3,000,000”; and

1                   (ii) by striking “2022” and inserting  
2                   “2026”;

3                   (8) in subsection (i)—

4                   (A) by striking paragraph (3); and

5                   (B) by redesignating paragraphs (4) and  
6                   (5) as paragraphs (3) and (4), respectively; and  
7                   (9) in subsection (j)—

8                   (A) by striking paragraph (1) and inserting  
9                   the following:

10                  “(1) the term *advanced-technology* includes *tech-*  
11                  *nological fields such as advanced manufacturing, ag-*  
12                  *ricultural-, biological- and chemical-technologies, en-*  
13                  *ergy and environmental technologies, engineering*  
14                  *technologies, information technologies, micro and*  
15                  *nano-technologies, cybersecurity technologies,*  
16                  *geospatial technologies, and new, emerging technology*  
17                  *areas;”;*

18                  (B) in paragraph (4), by striking “*separate*  
19                  *bachelor-degree-granting institutions*” and in-  
20                  serting “*other entities*”;

21                  (C) by striking paragraph (7);

22                  (D) by redesignating paragraphs (8) and  
23                  (9) as paragraphs (7) and (8), respectively;



1           (E) in paragraph (7), as redesignated by  
2           subparagraph (D), by striking “and” after the  
3           semicolon;

4           (F) in paragraph (8), as redesignated by  
5           subparagraph (D)—

6                 (i) by striking “mathematics, science,  
7                 engineering, or technology” and inserting  
8                 “science, technology, engineering, or mathe-  
9                 matics”; and

10                (ii) by striking the period at the end  
11                and inserting “; and”; and

12           (G) by adding at the end the following:

13                “(9) the term skilled technical workforce means  
14                workers—

15                       “(A) in occupations that use significant lev-  
16                       els of science and engineering expertise and tech-  
17                       nical knowledge; and

18                       “(B) whose level of educational attainment  
19                       is less than a bachelor degree.”.

20           (c) *AUTHORIZATION OF APPROPRIATIONS.*—Section 5  
21           of the Scientific and Advanced-Technology Act of 1992 (42  
22           U.S.C. 1862j) is amended to read as follows:

23           **“SEC. 5. AUTHORIZATION OF APPROPRIATIONS.**

24                “*There are authorized to be appropriated to the Direc-*  
25                *tor (from sums otherwise authorized to be appropriated for*

1 *the Foundation) for carrying out sections 2 through 4,*  
2 *\$150,000,000 for fiscal years 2022 through 2026.”.*

3 **SEC. 206. INTRAMURAL EMERGING INSTITUTIONS PILOT**  
4 **PROGRAM.**

5 (a) *ESTABLISHMENT.*—*The Director shall conduct*  
6 *multiple pilot programs within the Foundation to expand*  
7 *the number of institutions of higher education (including*  
8 *such institutions that are community colleges), and other*  
9 *eligible entities that the Director determines appropriate,*  
10 *that are able to successfully compete for Foundation grants.*

11 (b) *COMPONENTS.*—*Each pilot program described in*  
12 *subsection (a) shall include at least 1 of the following ele-*  
13 *ments:*

14 (1) *A mentorship program.*

15 (2) *Grant writing technical assistance.*

16 (3) *Targeted outreach, including to a minority-*  
17 *serving institution (including a historically Black col-*  
18 *lege or university, a Tribal college or university, or*  
19 *a Hispanic-serving institution or an institution of*  
20 *higher education with an established STEM capacity*  
21 *building program focused on traditionally underrep-*  
22 *resented populations in STEM, including Native Ha-*  
23 *waiians, Alaska Natives, and other Indians).*

1           (4) *Programmatic support or solutions for insti-*  
2           *tutions or entities that do not have an experienced*  
3           *grant management office.*

4           (5) *An increase in the number of grant reviewers*  
5           *from institutions of higher education that have not*  
6           *traditionally received funds from the Foundation.*

7           (6) *An increase of the term and funding, for a*  
8           *period of 3 years or less, as appropriate, to a prin-*  
9           *cipal investigator that is a first-time grant awardee,*  
10          *when paired with regular mentoring on the adminis-*  
11          *trative aspects of grant management.*

12          (c) *LIMITATION.—As appropriate, each pilot program*  
13          *described in subsection (a) shall work to reduce administra-*  
14          *tive burdens.*

15          (d) *AGENCY-WIDE PROGRAMS.—Not later than 5 years*  
16          *after the date of enactment of this Act, the Director shall—*

17                 (1) *review the results of the pilot programs de-*  
18                 *scribed in subsection (a); and*

19                 (2) *develop agency-wide best practices from the*  
20                 *pilot programs for implementation across the Foun-*  
21                 *dition, in order to fulfill the requirement under sec-*  
22                 *tion 3(e) of the National Science Foundation Act of*  
23                 *1950 (42 U.S.C. 1862(e)).*

1 **SEC. 207. PUBLIC-PRIVATE PARTNERSHIPS.**

2 (a) *IN GENERAL.*—*The Director shall pursue partner-*  
 3 *ships with private industry, private foundations, or other*  
 4 *appropriate private entities to—*

5 (1) *enhance the impact of the Foundation’s in-*  
 6 *vestments and contributions to the United States eco-*  
 7 *nomics competitiveness and security; and*

8 (2) *make available infrastructure, expertise, and*  
 9 *financial resources to the United States scientific and*  
 10 *engineering research and education enterprise.*

11 (b) *MERIT REVIEW.*—*Nothing in this section shall be*  
 12 *construed as altering any intellectual or broader impacts*  
 13 *criteria at the Foundation for evaluating grant applica-*  
 14 *tions.*

15 **SEC. 208. AI SCHOLARSHIP-FOR-SERVICE ACT.**

16 (a) *DEFINITIONS.*—*In this section:*

17 (1) *ARTIFICIAL INTELLIGENCE.*—*The term “arti-*  
 18 *ficial intelligence” or “AI” has the meaning given the*  
 19 *term “artificial intelligence” in section 238(g) of the*  
 20 *John S. McCain National Defense Authorization Act*  
 21 *for Fiscal Year 2019 (10 U.S.C. 2358 note).*

22 (2) *EXECUTIVE AGENCY.*—*The term “executive*  
 23 *agency” has the meaning given the term “Executive*  
 24 *agency” in section 105 of title 5, United States Code.*

25 (3) *REGISTERED INTERNSHIP.*—*The term “reg-*  
 26 *istered internship” means a Federal Registered In-*

1        *ternship Program coordinated through the Depart-*  
2        *ment of Labor.*

3        (b) *IN GENERAL.*—*The Director, in coordination with*  
4        *the Director of the Office of Personnel Management, the Di-*  
5        *rector of the National Institute of Standards and Tech-*  
6        *nology, and the heads of other agencies with appropriate*  
7        *scientific knowledge, shall establish a Federal artificial in-*  
8        *telligence scholarship-for-service program (referred to in*  
9        *this section as the Federal AI Scholarship-for-Service Pro-*  
10       *gram) to recruit and train artificial intelligence profes-*  
11       *sionals to lead and support the application of artificial in-*  
12       *telligence to the missions of Federal, State, local, and Tribal*  
13       *governments.*

14       (c) *QUALIFIED INSTITUTION OF HIGHER EDU-*  
15       *CATION.*—*The Director, in coordination with the heads of*  
16       *other agencies with appropriate scientific knowledge, shall*  
17       *establish criteria to designate qualified institutions of high-*  
18       *er education that shall be eligible to participate in the Fed-*  
19       *eral AI Scholarship-for-Service program. Such criteria*  
20       *shall include—*

21                (1) *measures of the institution’s demonstrated*  
22                *excellence in the education of students in the field of*  
23                *artificial intelligence; and*

24                (2) *measures of the institution’s ability to at-*  
25                *tract and retain a diverse and non-traditional stu-*

1        *dent population in the fields of science, technology,*  
2        *engineering, and mathematics, which may include the*  
3        *ability to attract women, minorities, and individuals*  
4        *with disabilities.*

5        *(d) PROGRAM DESCRIPTION AND COMPONENTS.—The*  
6        *Federal AI Scholarship-for-Service Program shall—*

7                *(1) provide scholarships through qualified insti-*  
8                *tutions of higher education to students who are en-*  
9                *rolled in programs of study at institutions of higher*  
10               *education leading to degrees or concentrations in or*  
11               *related to the artificial intelligence field;*

12               *(2) provide the scholarship recipients with sum-*  
13               *mer internship opportunities, registered internships,*  
14               *or other meaningful temporary appointments in the*  
15               *Federal workforce focusing on AI projects or research;*

16               *(3) prioritize the employment placement of schol-*  
17               *arship recipients in executive agencies;*

18               *(4) identify opportunities to promote multi-dis-*  
19               *ciplinary programs of study that integrate basic or*  
20               *advanced AI training with other fields of study, in-*  
21               *cluding those that address the social, economic, legal,*  
22               *and ethical implications of human interaction with*  
23               *AI systems; and*

24               *(5) support capacity-building education research*  
25               *programs that will enable postsecondary educational*

1        *institutions to expand their ability to train the next-*  
2        *generation AI workforce, including AI researchers and*  
3        *practitioners.*

4        *(e) SCHOLARSHIP AMOUNTS.—Each scholarship under*  
5        *subsection (d) shall be in an amount that covers the stu-*  
6        *dent’s tuition and fees at the institution for not more than*  
7        *3 years and provides the student with an additional sti-*  
8        *pend.*

9        *(f) POST-AWARD EMPLOYMENT OBLIGATIONS.—Each*  
10       *scholarship recipient, as a condition of receiving a scholar-*  
11       *ship under the program, shall enter into an agreement*  
12       *under which the recipient agrees to work for a period equal*  
13       *to the length of the scholarship, following receipt of the stu-*  
14       *dent’s degree, in the AI mission of—*

15                *(1) an executive agency;*

16                *(2) Congress, including any agency, entity, of-*  
17        *fice, or commission established in the legislative*  
18        *branch;*

19                *(3) an interstate agency;*

20                *(4) a State, local, or Tribal government, which*  
21        *may include instruction in AI-related skill sets in a*  
22        *public school system; or*

23                *(5) a State, local, or Tribal government-affiliated*  
24        *nonprofit entity that is considered to be critical infra-*

1 *structure (as defined in section 1016(e) of the USA*  
2 *Patriot Act (42 U.S.C. 5195c(e))).*

3 *(g) HIRING AUTHORITY.—*

4 *(1) APPOINTMENT IN EXCEPTED SERVICE.—Not-*  
5 *withstanding any provision of chapter 33 of title 5,*  
6 *United States Code, governing appointments in the*  
7 *competitive service, an executive agency may appoint*  
8 *an individual who has completed the eligible degree*  
9 *program for which a scholarship was awarded to a*  
10 *position in the excepted service in the executive agen-*  
11 *cy.*

12 *(2) NONCOMPETITIVE CONVERSION.—Except as*  
13 *provided in paragraph (4), upon fulfillment of the*  
14 *service term, an employee appointed under paragraph*  
15 *(1) may be converted noncompetitively to term, ca-*  
16 *reer-conditional, or career appointment.*

17 *(3) TIMING OF CONVERSION.—An executive agen-*  
18 *cy may noncompetitively convert a term employee ap-*  
19 *pointed under paragraph (2) to a career-conditional*  
20 *or career appointment before the term appointment*  
21 *expires.*

22 *(4) AUTHORITY TO DECLINE CONVERSION.—An*  
23 *executive agency may decline to make the noncompeti-*  
24 *tive conversion or appointment under paragraph (2)*  
25 *for cause.*



1       (h) *ELIGIBILITY.*—*To be eligible to receive a scholar-*  
2 *ship under this section, an individual shall—*

3           (1) *be a citizen or lawful permanent resident of*  
4 *the United States;*

5           (2) *demonstrate a commitment to a career in ad-*  
6 *vancing the field of AI;*

7           (3) *be—*

8               (A) *a full-time student in an eligible degree*  
9 *program at a qualified institution of higher edu-*  
10 *cation, as determined by the Director;*

11               (B) *a student pursuing a degree on a less*  
12 *than full-time basis, but not less than half-time*  
13 *basis; or*

14               (C) *an AI faculty member on sabbatical to*  
15 *advance knowledge in the field; and*

16           (4) *accept the terms of a scholarship under this*  
17 *section.*

18       (i) *CONDITIONS OF SUPPORT.*—

19           (1) *IN GENERAL.*—*As a condition of receiving a*  
20 *scholarship under this section, a recipient shall agree*  
21 *to provide the qualified institution of higher edu-*  
22 *cation with annual verifiable documentation of post-*  
23 *award employment and up-to-date contact informa-*  
24 *tion.*

1           (2) *TERMS.*—*A scholarship recipient under this*  
2 *section shall be liable to the United States as provided*  
3 *in subsection (k) if the individual—*

4                   (A) *fails to maintain an acceptable level of*  
5 *academic standing at the applicable institution*  
6 *of higher education, as determined by the Direc-*  
7 *tor;*

8                   (B) *is dismissed from the applicable institu-*  
9 *tion of higher education for disciplinary reasons;*

10                  (C) *withdraws from the eligible degree pro-*  
11 *gram before completing the program;*

12                  (D) *declares that the individual does not in-*  
13 *tend to fulfill the post-award employment obliga-*  
14 *tion under this section; or*

15                  (E) *fails to fulfill the post-award employ-*  
16 *ment obligation of the individual under this sec-*  
17 *tion.*

18           (j) *MONITORING COMPLIANCE.*—*As a condition of par-*  
19 *ticipating in the program, a qualified institution of higher*  
20 *education shall—*

21                   (1) *enter into an agreement with the Director to*  
22 *monitor the compliance of scholarship recipients with*  
23 *respect to their post-award employment obligations;*  
24 *and*

1           (2) *provide to the Director, on an annual basis,*  
2 *the post-award employment documentation required*  
3 *under subsection (i) for scholarship recipients through*  
4 *the completion of their post-award employment obli-*  
5 *gations.*

6           (k) *AMOUNT OF REPAYMENT.—*

7           (1) *LESS THAN 1 YEAR OF SERVICE.—If a cir-*  
8 *cumstance described in subsection (i)(2) occurs before*  
9 *the completion of 1 year of a post-award employment*  
10 *obligation under this section, the total amount of*  
11 *scholarship awards received by the individual under*  
12 *this section shall—*

13                   (A) *be repaid; or*

14                   (B) *be treated as a loan to be repaid in ac-*  
15 *cordance with subsection (l).*

16           (2) *1 OR MORE YEARS OF SERVICE.—If a cir-*  
17 *cumstance described in subparagraph (D) or (E) of*  
18 *subsection (i)(2) occurs after the completion of 1 or*  
19 *more years of a post-award employment obligation*  
20 *under this section, the total amount of scholarship*  
21 *awards received by the individual under this section,*  
22 *reduced by the ratio of the number of years of service*  
23 *completed divided by the number of years of service*  
24 *required, shall—*

25                   (A) *be repaid; or*

1                   (B) be treated as a loan to be repaid in ac-  
2                   cordance with subsection (l).

3           (l) *REPAYMENTS.*—A loan described in subsection (k)  
4 shall—

5                   (1) be treated as a Federal Direct Unsubsidized  
6                   Stafford Loan under part D of title IV of the Higher  
7                   Education Act of 1965 (20 U.S.C. 1087a et seq.); and

8                   (2) be subject to repayment, together with inter-  
9                   est thereon accruing from the date of the scholarship  
10                  award, in accordance with terms and conditions spec-  
11                  ified by the Director (in consultation with the Sec-  
12                  retary of Education).

13           (m) *COLLECTION OF REPAYMENT.*—

14                   (1) *IN GENERAL.*—In the event that a scholar-  
15                   ship recipient is required to repay the scholarship  
16                   award under this section, the qualified institution of  
17                   higher education providing the scholarship shall—

18                           (A) determine the repayment amounts and  
19                           notify the recipient and the Director of the  
20                           amounts owed; and

21                           (B) collect the repayment amounts within a  
22                           period of time as determined by the Director, or  
23                           the repayment amounts shall be treated as a loan  
24                           in accordance with subsection (l).

1           (2) *RETURNED TO TREASURY.*—*Except as pro-*  
2 *vided in paragraph (3), any repayment under this*  
3 *subsection shall be returned to the Treasury of the*  
4 *United States.*

5           (3) *RETAIN PERCENTAGE.*—*A qualified institu-*  
6 *tion of higher education may retain a percentage of*  
7 *any repayment the institution collects under this sub-*  
8 *section to defray administrative costs associated with*  
9 *the collection. The Director shall establish a fixed per-*  
10 *centage that will apply to all eligible entities, and*  
11 *may update this percentage as needed, in the deter-*  
12 *mination of the Director.*

13          (n) *EXCEPTIONS.*—*The Director may provide for the*  
14 *partial or total waiver or suspension of any service or pay-*  
15 *ment obligation by an individual under this section when-*  
16 *ever compliance by the individual with the obligation is im-*  
17 *possible or would involve extreme hardship to the indi-*  
18 *vidual, or if enforcement of such obligation with respect to*  
19 *the individual would be unconscionable.*

20          (o) *PUBLIC INFORMATION.*—

21           (1) *EVALUATION.*—*The Director, in coordination*  
22 *with the Director of the Office of Personnel Manage-*  
23 *ment, shall annually evaluate and make public, in a*  
24 *manner that protects the personally identifiable infor-*  
25 *mation of scholarship recipients, information on the*

1 *success of recruiting individuals for scholarships*  
2 *under this section and on hiring and retaining those*  
3 *individuals in the public sector AI workforce, includ-*  
4 *ing information on—*

5 *(A) placement rates;*

6 *(B) where students are placed, including job*  
7 *titles and descriptions;*

8 *(C) salary ranges for students not released*  
9 *from obligations under this section;*

10 *(D) how long after graduation students are*  
11 *placed;*

12 *(E) how long students stay in the positions*  
13 *they enter upon graduation;*

14 *(F) how many students are released from*  
15 *obligations; and*

16 *(G) what, if any, remedial training is re-*  
17 *quired.*

18 *(2) REPORTS.—The Director, in coordination*  
19 *with the Office of Personnel Management, shall sub-*  
20 *mit, not less frequently than once every 3 years, to the*  
21 *Committee on Homeland Security and Governmental*  
22 *Affairs of the Senate, the Committee on Commerce,*  
23 *Science, and Transportation of the Senate, the Com-*  
24 *mittee on Science, Space, and Technology of the*  
25 *House of Representatives, and the Committee on*

1        *Oversight and Reform of the House of Representatives*  
2        *a report, including the results of the evaluation under*  
3        *paragraph (1) and any recent statistics regarding the*  
4        *size, composition, and educational requirements of the*  
5        *Federal AI workforce.*

6                (3) *RESOURCES.—The Director, in coordination*  
7        *with the Director of the Office of Personnel Manage-*  
8        *ment, shall provide consolidated and user-friendly on-*  
9        *line resources for prospective scholarship recipients,*  
10        *including, to the extent practicable—*

11                    (A) *searchable, up-to-date, and accurate in-*  
12                    *formation about participating institutions of*  
13                    *higher education and job opportunities related to*  
14                    *the AI field; and*

15                    (B) *a modernized description of AI careers.*

16                (p) *REFRESH.—Not less than once every 2 years, the*  
17        *Director, in coordination with the Director of the Office of*  
18        *Personnel Management, shall review and update the Fed-*  
19        *eral AI Scholarship-for-Service Program to reflect advances*  
20        *in technology.*

21        **SEC. 209. GEOGRAPHIC DIVERSITY.**

22                (a) *DIRECTORATE.—The Director shall use not less*  
23        *than 20 percent of the funds provided to the Directorate,*  
24        *for each fiscal year, to carry out the program under section*  
25        *113 of the National Science Foundation Authorization Act*

1 of 1988 (42 U.S.C. 1862g) for the purposes of carrying out  
2 sections 104, 106, 107, 108, and 109 of this Act.

3 (b) NATIONAL SCIENCE FOUNDATION.—The Director  
4 shall use not less than 20 percent of the funds provided to  
5 the Foundation, for each fiscal year, to carry out the pro-  
6 gram under section 113 of the National Science Foundation  
7 Authorization Act of 1988 (42 U.S.C. 1862g).

8 (c) DEPARTMENT OF ENERGY.—The Secretary of En-  
9 ergy shall use not less than 20 percent of the funds provided  
10 to the Department of Energy under section 117 for each  
11 fiscal year to carry out the program under section  
12 2203(b)(3) of the Energy Policy Act of 1992 (42 U.S.C.  
13 13503(b)(3)).

14 (d) CONSORTIA.—In the case of an award to a consor-  
15 tium under this Act, the Director may count the entire  
16 award toward meeting the funding requirements of this sec-  
17 tion if the lead entity of the consortium is located in a juris-  
18 diction that is eligible to participate in the program under  
19 section 113 of the National Science Foundation Authoriza-  
20 tion Act of 1988 (42 U.S.C. 1862g). In the case of an award  
21 to a consortium under this Act, the Secretary may count  
22 the entire award toward meeting the funding requirements  
23 of this section if the lead entity of the consortium is located  
24 in a jurisdiction that is eligible to participate in the pro-



1 gram under section 2203(b)(3) of the Energy Policy Act of  
2 1992 (42 U.S.C. 13503(b)(3)).

3 **SEC. 210. RURAL STEM EDUCATION ACT.**

4 (a) *DEFINITIONS.*—*In this section:*

5 (1) *FEDERAL LABORATORY.*—*The term “Federal*  
6 *laboratory” has the meaning given such term in sec-*  
7 *tion 4 of the Stevenson-Wydler Technology Innovation*  
8 *Act of 1980 (15 U.S.C. 3703).*

9 (2) *INSTITUTION OF HIGHER EDUCATION.*—*The*  
10 *term “institution of higher education” has the mean-*  
11 *ing given such term in section 101(a) of the Higher*  
12 *Education Act of 1965 (20 U.S.C. 1001(a)).*

13 (3) *STEM.*—*The term “STEM” has the meaning*  
14 *given the term in section 2 of the America COM-*  
15 *PETES Reauthorization Act of 2010 (42 U.S.C. 6621*  
16 *note).*

17 (4) *STEM EDUCATION.*—*The term “STEM edu-*  
18 *cation” has the meaning given the term in section 2*  
19 *of the STEM Education Act of 2015 (42 U.S.C. 6621*  
20 *note).*

21 (b) *NATIONAL SCIENCE FOUNDATION RURAL STEM*  
22 *ACTIVITIES.*—

23 (1) *PREPARING RURAL STEM EDUCATORS.*—

24 (A) *IN GENERAL.*—*The Director shall pro-*  
25 *vide grants on a merit-reviewed, competitive*

1           *basis to institutions of higher education or non-*  
2           *profit organizations (or a consortium thereof) for*  
3           *research and development to advance innovative*  
4           *approaches to support and sustain high-quality*  
5           *STEM teaching in rural schools.*

6                   *(B) USE OF FUNDS.—*

7                           *(i) IN GENERAL.—Grants awarded*  
8                           *under this paragraph shall be used for the*  
9                           *research and development activities referred*  
10                           *to in subparagraph (A), which may in-*  
11                           *clude—*

12                                   *(I) engaging rural educators of*  
13                                   *students in prekindergarten through*  
14                                   *grade 12 in professional learning op-*  
15                                   *portunities to enhance STEM knowl-*  
16                                   *edge, including computer science, and*  
17                                   *develop best practices;*

18                                   *(II) supporting research on effec-*  
19                                   *tive STEM teaching practices in rural*  
20                                   *settings, including the use of rubrics*  
21                                   *and mastery-based grading practices to*  
22                                   *assess student performance when em-*  
23                                   *ploying the transdisciplinary teaching*  
24                                   *approach for STEM disciplines;*

1           (III) *designing and developing*  
2           *pre-service and in-service training re-*  
3           *sources to assist such rural educators*  
4           *in adopting transdisciplinary teaching*  
5           *practices across STEM courses;*

6           (IV) *coordinating with local part-*  
7           *ners to adapt STEM teaching practices*  
8           *to leverage local, natural, and commu-*  
9           *nity assets in order to support in-place*  
10          *learning in rural areas;*

11          (V) *providing hands-on training*  
12          *and research opportunities for rural*  
13          *educators described in subclause (I) at*  
14          *Federal laboratories or institutions of*  
15          *higher education, or in industry;*

16          (VI) *developing training and best*  
17          *practices for educators who teach mul-*  
18          *tiple grade levels within a STEM dis-*  
19          *cipline;*

20          (VII) *designing and implementing*  
21          *professional development courses and*  
22          *experiences, including mentoring, for*  
23          *rural educators described in subclause*  
24          *(I) that combine face-to-face and online*  
25          *experiences; and*

1                   (VIII) any other activity the Di-  
2                   rector determines will accomplish the  
3                   goals of this paragraph.

4                   (ii) *RURAL STEM COLLABORATIVE.*—  
5                   *The Director shall establish a pilot program*  
6                   *of regional cohorts in rural areas that will*  
7                   *provide peer support, mentoring, and*  
8                   *hands-on research experiences for rural*  
9                   *STEM educators of students in prekind-*  
10                   *ergarten through grade 12, in order to build*  
11                   *an ecosystem of cooperation among edu-*  
12                   *cators, researchers, academia, and local in-*  
13                   *dustry.*

14                   (2) *BROADENING PARTICIPATION OF RURAL STU-*  
15                   *DENTS IN STEM.*—

16                   (A) *IN GENERAL.*—*The Director shall pro-*  
17                   *vide grants on a merit-reviewed, competitive*  
18                   *basis to institutions of higher education or non-*  
19                   *profit organizations (or a consortium thereof)*  
20                   *for—*

21                   (i) *research and development of pro-*  
22                   *gramming to identify the barriers rural stu-*  
23                   *dents face in accessing high-quality STEM*  
24                   *education; and*

1                   (ii) *development of innovative solutions*  
2                   *to improve the participation and advance-*  
3                   *ment of rural students in prekindergarten*  
4                   *through grade 12 in STEM studies.*

5                   (B) *USE OF FUNDS.—*

6                   (i) *IN GENERAL.—Grants awarded*  
7                   *under this paragraph shall be used for the*  
8                   *research and development activities referred*  
9                   *to in subparagraph (A), which may in-*  
10                   *clude—*

11                   (I) *developing partnerships with*  
12                   *community colleges to offer advanced*  
13                   *STEM course work, including com-*  
14                   *puter science, to rural high school stu-*  
15                   *dents;*

16                   (II) *supporting research on effec-*  
17                   *tive STEM practices in rural settings;*

18                   (III) *implementing a school-wide*  
19                   *STEM approach;*

20                   (IV) *improving the Foundation's*  
21                   *Advanced Technology Education pro-*  
22                   *gram's coordination and engagement*  
23                   *with rural communities;*

24                   (V) *collaborating with existing*  
25                   *community partners and networks,*

1           *such as the Cooperative Extension Sys-*  
2           *tem services and extramural research*  
3           *programs of the Department of Agri-*  
4           *culture and youth serving organiza-*  
5           *tions like 4–H, after school STEM pro-*  
6           *grams, and summer STEM programs,*  
7           *to leverage community resources and*  
8           *develop place-based programming;*

9                     *(VI) connecting rural school dis-*  
10            *tricts and institutions of higher edu-*  
11            *cation, to improve precollegiate STEM*  
12            *education and engagement;*

13                    *(VII) supporting partnerships*  
14            *that offer hands-on inquiry-based*  
15            *science activities, including coding,*  
16            *and access to lab resources for students*  
17            *studying STEM in prekindergarten*  
18            *through grade 12 in a rural area;*

19                    *(VIII) evaluating the role of*  
20            *broadband connectivity and its associ-*  
21            *ated impact on the STEM and tech-*  
22            *nology literacy of rural students;*

23                    *(IX) building capacity to support*  
24            *extracurricular STEM programs in*  
25            *rural schools, including mentor-led en-*

1                    *gagement programs, STEM programs*  
2                    *held during nonschool hours, STEM*  
3                    *networks, makerspaces, coding activi-*  
4                    *ties, and competitions; and*

5                    *(X) any other activity the Direc-*  
6                    *tor determines will accomplish the*  
7                    *goals of this paragraph.*

8                    *(3) APPLICATION.—An applicant seeking a grant*  
9                    *under paragraph (1) or (2) shall submit an applica-*  
10                   *tion at such time, in such manner, and containing*  
11                   *such information as the Director may require. The*  
12                   *application may include the following:*

13                   *(A) A description of the target population*  
14                   *to be served by the research activity or activities*  
15                   *for which such grant is sought.*

16                   *(B) A description of the process for recruit-*  
17                   *ment and selection of students, educators, or*  
18                   *schools from rural areas to participate in such*  
19                   *activity or activities.*

20                   *(C) A description of how such activity or*  
21                   *activities may inform efforts to promote the en-*  
22                   *gagement and achievement of rural students in*  
23                   *prekindergarten through grade 12 in STEM*  
24                   *studies.*

1           (D) *In the case of a proposal consisting of*  
2           *a partnership or partnerships with one or more*  
3           *rural schools and one or more researchers, a plan*  
4           *for establishing a sustained partnership that is*  
5           *jointly developed and managed, draws from the*  
6           *capacities of each partner, and is mutually bene-*  
7           *ficial.*

8           (4) *PARTNERSHIPS.—In awarding grants under*  
9           *paragraph (1) or (2), the Director shall—*

10           (A) *encourage applicants which, for the*  
11           *purpose of the activity or activities funded*  
12           *through the grant, include or partner with a*  
13           *nonprofit organization or an institution of high-*  
14           *er education (or a consortium thereof) that has*  
15           *extensive experience and expertise in increasing*  
16           *the participation of rural students in prekindergarten*  
17           *through grade 12 in STEM; and*

18           (B) *encourage applicants which, for the*  
19           *purpose of the activity or activities funded*  
20           *through the grant, include or partner with a con-*  
21           *sortium of rural schools or rural school districts.*

22           (5) *EVALUATIONS.—All proposals for grants*  
23           *under paragraphs (1) and (2) shall include an eval-*  
24           *uation plan that includes the use of outcome-oriented*  
25           *measures to assess the impact and efficacy of the*



1        *grant. Each recipient of a grant under this subsection*  
2        *shall include results from these evaluative activities in*  
3        *annual and final projects.*

4            (6) *ACCOUNTABILITY AND DISSEMINATION.—*

5            (A) *EVALUATION REQUIRED.—The Director*  
6        *shall evaluate the portfolio of grants awarded*  
7        *under paragraphs (1) and (2). Such evaluation*  
8        *shall—*

9            (i) *assess the results of research con-*  
10        *ducted under such grants and identify best*  
11        *practices; and*

12          (ii) *to the extent practicable, integrate*  
13        *the findings of research resulting from the*  
14        *activity or activities funded through such*  
15        *grants with the findings of other research on*  
16        *rural students' pursuit of degrees or careers*  
17        *in STEM.*

18          (B) *REPORT ON EVALUATIONS.—Not later*  
19        *than 180 days after the completion of the evalua-*  
20        *tion under subparagraph (A), the Director shall*  
21        *submit to Congress and make widely available to*  
22        *the public a report that includes—*

23            (i) *the results of the evaluation; and*

24            (ii) *any recommendations for adminis-*  
25        *trative and legislative action that could op-*

1                    *timize the effectiveness of the grants award-*  
2                    *ed under this subsection.*

3                    (7) *REPORT BY COMMITTEE ON EQUAL OPPORTU-*  
4                    *NITIES IN SCIENCE AND ENGINEERING.*—*As part of*  
5                    *the first report required by section 36(e) of the*  
6                    *Science and Engineering Equal Opportunities Act*  
7                    *(42 U.S.C. 1885c(e)) transmitted to Congress after the*  
8                    *date of enactment of this Act, the Committee on Equal*  
9                    *Opportunities in Science and Engineering shall in-*  
10                    *clude—*

11                    (A) *a description of past and present poli-*  
12                    *cies and activities of the Foundation to encour-*  
13                    *age full participation of students in rural com-*  
14                    *munities in science, mathematics, engineering,*  
15                    *and computer science fields; and*

16                    (B) *an assessment of the policies and activi-*  
17                    *ties of the Foundation, along with proposals for*  
18                    *new strategies or the broadening of existing suc-*  
19                    *cessful strategies towards facilitating the goal of*  
20                    *increasing participation of rural students in*  
21                    *prekindergarten through grade 12 in Foundation*  
22                    *activities.*

23                    (8) *COORDINATION.*—*In carrying out this sub-*  
24                    *section, the Director shall, for purposes of enhancing*  
25                    *program effectiveness and avoiding duplication of ac-*

1 *tivities, consult, cooperate, and coordinate with the*  
2 *programs and policies of other relevant Federal agen-*  
3 *cies.*

4 *(c) OPPORTUNITIES FOR ONLINE EDUCATION.—*

5 *(1) IN GENERAL.—The Director shall award*  
6 *competitive grants to institutions of higher education*  
7 *or nonprofit organizations (or a consortium thereof,*  
8 *which may include a private sector partner) to con-*  
9 *duct research on online STEM education courses for*  
10 *rural communities.*

11 *(2) RESEARCH AREAS.—The research areas eligi-*  
12 *ble for funding under this subsection shall include—*

13 *(A) evaluating the learning and achieve-*  
14 *ment of rural students in prekindergarten*  
15 *through grade 12 in STEM subjects;*

16 *(B) understanding how computer-based and*  
17 *online professional development courses and*  
18 *mentor experiences can be integrated to meet the*  
19 *needs of educators of rural students in prekind-*  
20 *ergarten through grade 12;*

21 *(C) combining computer-based and online*  
22 *STEM education and training with apprentice-*  
23 *ships, mentoring, or other applied learning ar-*  
24 *rangements;*

1           (D) leveraging online programs to supple-  
2           ment STEM studies for rural students that need  
3           physical and academic accommodation; and

4           (E) any other activity the Director deter-  
5           mines will accomplish the goals of this sub-  
6           section.

7           (3) *EVALUATIONS.*—All proposals for grants  
8           under this subsection shall include an evaluation plan  
9           that includes the use of outcome-oriented measures to  
10          assess the impact and efficacy of the grant. Each re-  
11          cipient of a grant under this subsection shall include  
12          results from these evaluative activities in annual and  
13          final projects.

14          (4) *ACCOUNTABILITY AND DISSEMINATION.*—

15           (A) *EVALUATION REQUIRED.*—The Director  
16           shall evaluate the portfolio of grants awarded  
17           under this subsection. Such evaluation shall—

18                   (i) use a common set of benchmarks  
19                   and tools to assess the results of research  
20                   conducted under such grants and identify  
21                   best practices; and

22                   (ii) to the extent practicable, integrate  
23                   findings from activities carried out pursu-  
24                   ant to research conducted under this sub-  
25                   section, with respect to the pursuit of ca-

1            *reers and degrees in STEM, with those ac-*  
2            *tivities carried out pursuant to other re-*  
3            *search on serving rural students and com-*  
4            *munities.*

5            *(B) REPORT ON EVALUATIONS.—Not later*  
6            *than 180 days after the completion of the evalua-*  
7            *tion under subparagraph (A), the Director shall*  
8            *submit to Congress and make widely available to*  
9            *the public a report that includes—*

10            *(i) the results of the evaluation; and*

11            *(ii) any recommendations for adminis-*  
12            *trative and legislative action that could op-*  
13            *timize the effectiveness of the grants award-*  
14            *ed under this subsection.*

15            *(5) COORDINATION.—In carrying out this sub-*  
16            *section, the Director shall, for purposes of enhancing*  
17            *program effectiveness and avoiding duplication of ac-*  
18            *tivities, consult, cooperate, and coordinate with the*  
19            *programs and policies of other relevant Federal agen-*  
20            *cies.*

21            *(d) NATIONAL ACADEMIES OF SCIENCES, ENGINEER-*  
22            *ING, AND MEDICINE EVALUATION.—*

23            *(1) STUDY.—Not later than 12 months after the*  
24            *date of enactment of this Act, the Director shall enter*  
25            *into an agreement with the National Academies of*

1       *Sciences, Engineering, and Medicine under which the*  
2       *National Academies agree to conduct an evaluation*  
3       *and assessment that—*

4                (A) *evaluates the quality and quantity of*  
5                *current Federal programming and research di-*  
6                *rected at examining STEM education for stu-*  
7                *dents in prekindergarten through grade 12 and*  
8                *workforce development in rural areas;*

9                (B) *in coordination with the Federal Com-*  
10                *munications Commission, assesses the impact*  
11                *that the scarcity of broadband connectivity in*  
12                *rural communities, and the affordability of*  
13                *broadband connectivity, have on STEM and*  
14                *technical literacy for students in prekindergarten*  
15                *through grade 12 in rural areas;*

16               (C) *assesses the core research and data need-*  
17                *ed to understand the challenges rural areas are*  
18                *facing in providing quality STEM education*  
19                *and workforce development;*

20               (D) *makes recommendations for action at*  
21                *the Federal, State, and local levels for improving*  
22                *STEM education, including online STEM edu-*  
23                *cation, for students in prekindergarten through*  
24                *grade 12 and workforce development in rural*  
25                *areas; and*

1           (E) makes recommendations to inform the  
2           implementation of programs in subsections (a),  
3           (b), and (c).

4           (2) *REPORT TO DIRECTOR.*—The agreement en-  
5           tered into under paragraph (1) shall require the Na-  
6           tional Academies of Sciences, Engineering, and Medi-  
7           cine, not later than 24 months after the date of enact-  
8           ment of this Act, to submit to the Director a report  
9           on the study conducted under such paragraph, includ-  
10          ing the National Academies’ findings and rec-  
11          ommendations.

12          (e) *GAO REVIEW.*—Not later than 3 years after the  
13          date of enactment of this Act, the Comptroller General of  
14          the United States shall conduct a study on the engagement  
15          of rural populations in Federal STEM programs and sub-  
16          mit to Congress a report that includes—

17               (1) an assessment of how Federal STEM edu-  
18               cation programs are serving rural populations;

19               (2) a description of initiatives carried out by  
20               Federal agencies that are targeted at supporting  
21               STEM education in rural areas;

22               (3) an assessment of what is known about the  
23               impact and effectiveness of Federal investments in  
24               STEM education programs that are targeted to rural  
25               areas; and

1           (4) *an assessment of challenges that State and*  
 2           *Federal STEM education programs face in reaching*  
 3           *rural population centers.*

4           (f) *CAPACITY BUILDING THROUGH EPSCoR.—Section*  
 5           *517(f)(2) of the America COMPETES Reauthorization Act*  
 6           *of 2010 (42 U.S.C. 1862p–9(f)(2)) is amended—*

7           (1) *in subparagraph (A), by striking “and” at*  
 8           *the end; and*

9           (2) *by adding at the end the following:*

10                   *“(C) to increase the capacity of rural com-*  
 11                   *munities to provide quality STEM education*  
 12                   *and STEM workforce development programming*  
 13                   *to students and teachers; and”.*

14           (g) *NIST ENGAGEMENT WITH RURAL COMMU-*  
 15           *NITIES.—*

16           (1) *MEP OUTREACH.—Section 25 of the Na-*  
 17           *tional Institute of Standards and Technology Act (15*  
 18           *U.S.C. 278k) is amended—*

19           (A) *in subsection (c)—*

20                   (i) *in paragraph (6), by striking “com-*  
 21                   *munity colleges and area career and tech-*  
 22                   *nical education schools” and inserting the*  
 23                   *following: “secondary schools (as defined in*  
 24                   *section 8101 of the Elementary and Sec-*  
 25                   *ondary Education Act of 1965 (20 U.S.C.*



1                   7801)), *community colleges, and area career*  
 2                   *and technical education schools, including*  
 3                   *those in underserved and rural commu-*  
 4                   *nities,”; and*

5                   (ii) *in paragraph (7)—*

6                   (I) *by striking “and local col-*  
 7                   *leges” and inserting the following:*  
 8                   *“local high schools and local colleges,*  
 9                   *including those in underserved and*  
 10                  *rural communities,”; and*

11                  (II) *by inserting “or other applied*  
 12                  *learning opportunities” after “appren-*  
 13                  *ticeships”; and*

14                  (B) *in subsection (d)(3), by striking “, com-*  
 15                  *munity colleges, and area career and technical*  
 16                  *education schools,” and inserting the following:*  
 17                  *“and local high schools, community colleges, and*  
 18                  *area career and technical education schools, in-*  
 19                  *cluding those in underserved and rural commu-*  
 20                  *nities,”.*

21                  (2) *RURAL CONNECTIVITY PRIZE COMPETI-*  
 22                  *TION.—*

23                  (A) *PRIZE COMPETITION.—Pursuant to sec-*  
 24                  *tion 24 of the Stevenson-Wydler Technology In-*  
 25                  *novation Act of 1980 (15 U.S.C. 3719), the Sec-*

1            *retary of Commerce shall carry out a program to*  
2            *award prizes competitively to stimulate research*  
3            *and development of creative technologies to sup-*  
4            *port the deployment of affordable and reliable*  
5            *broadband connectivity in rural communities,*  
6            *including unserved rural communities.*

7            *(B) PLAN FOR DEPLOYMENT IN RURAL COM-*  
8            *MUNITIES.—Each proposal submitted pursuant*  
9            *to subparagraph (A) shall include a proposed*  
10           *plan for deployment of the technology that is the*  
11           *subject of such proposal.*

12           *(C) PRIZE AMOUNT.—In carrying out the*  
13           *program under subparagraph (A), the Secretary*  
14           *may award not more than a total of \$5,000,000*  
15           *to one or more winners of the prize competition.*

16           *(D) REPORT.—Not later than 60 days after*  
17           *the date on which a prize is awarded under the*  
18           *prize competition, the Secretary shall submit to*  
19           *the relevant committees of Congress a report that*  
20           *describes the winning proposal of the prize com-*  
21           *petition.*

22           *(E) CONSULTATION.—In carrying out the*  
23           *program under this paragraph, the Secretary*  
24           *shall consult with the Federal Communications*

1           *Commission and the heads of relevant depart-*  
2           *ments and agencies of the Federal Government.*

3 **SEC. 211. QUANTUM NETWORK INFRASTRUCTURE AND**  
4           **WORKFORCE DEVELOPMENT ACT.**

5           *(a) DEFINITIONS.—In this section:*

6           *(1) ESEA DEFINITIONS.—The terms “elementary*  
7           *school”, “high school”, “local educational agency”,*  
8           *and “secondary school” have the meanings given those*  
9           *terms in section 8101 of the Elementary and Sec-*  
10           *ondary Education Act of 1965 (20 U.S.C. 7801).*

11           *(2) APPROPRIATE COMMITTEES OF CONGRESS.—*  
12           *The term “appropriate committees of Congress” has*  
13           *the meaning given such term in section 2 of the Na-*  
14           *tional Quantum Initiative Act (15 U.S.C. 8801).*

15           *(3) INTERAGENCY WORKING GROUP.—The term*  
16           *“Interagency Working Group” means the QIS Work-*  
17           *force Working Group under the Subcommittee on*  
18           *Quantum Information Science of the National*  
19           *Science and Technology Council.*

20           *(4) Q2WORK PROGRAM.—The term “Q2Work*  
21           *Program” means the Q2Work Program supported by*  
22           *the Foundation.*

23           *(5) QUANTUM INFORMATION SCIENCE.—The term*  
24           *“quantum information science” has the meaning*

1       *given such term in section 2 of the National Quantum*  
2       *Initiative Act (15 U.S.C. 8801).*

3               (6) *STEM.*—*The term “STEM” has the meaning*  
4       *given the term in section 2 of the America COM-*  
5       *PETES Reauthorization Act of 2010 (42 U.S.C. 6621*  
6       *note).*

7       (b) *QUANTUM NETWORKING WORKING GROUP REPORT*  
8       *ON QUANTUM NETWORKING AND COMMUNICATIONS.*—

9               (1) *REPORT.*—*Not later than 3 years after the*  
10       *date of the enactment of this Act, the Quantum Net-*  
11       *working Working Group within the Subcommittee on*  
12       *Quantum Information Science of the National*  
13       *Science and Technology Council shall submit to the*  
14       *appropriate committees of Congress a report detailing*  
15       *a plan for the advancement of quantum networking*  
16       *and communications technology in the United States,*  
17       *building on A Strategic Vision for America’s Quan-*  
18       *tum Networks and A Coordinated Approach for*  
19       *Quantum Networking Research.*

20               (2) *REQUIREMENTS.*—*The report under para-*  
21       *graph (1) shall include—*

22                       (A) *a framework for interagency collabora-*  
23       *tion on the advancement of quantum networking*  
24       *and communications research;*

1           (B) a plan for interagency collaboration on  
2           the development and drafting of international  
3           standards for quantum communications tech-  
4           nology, including standards relating to—

5                   (i) quantum cryptography and post-  
6                   quantum classical cryptography;

7                   (ii) network security;

8                   (iii) quantum network infrastructure;

9                   (iv) transmission of quantum informa-  
10                  tion through optical fiber networks; and

11                  (v) any other technologies considered  
12                  appropriate by the Working Group;

13           (C) a proposal for the protection of national  
14           security interests relating to the advancement of  
15           quantum networking and communications tech-  
16           nology;

17           (D) recommendations to Congress for legis-  
18           lative action relating to the framework, plan,  
19           and proposal set forth pursuant to subpara-  
20           graphs (A), (B), and (C), respectively; and

21           (E) such other matters as the Working  
22           Group considers necessary to advance the secu-  
23           rity of communications and network infrastruc-  
24           ture, remain at the forefront of scientific dis-  
25           covery in the quantum information science do-

1           *main, and transition quantum information*  
2           *science research into the emerging quantum tech-*  
3           *nology economy.*

4           *(c) QUANTUM NETWORKING AND COMMUNICATIONS*  
5           *RESEARCH.—*

6           *(1) RESEARCH.—The Under Secretary of Com-*  
7           *merce for Standards and Technology shall carry out*  
8           *research to facilitate the development and standard-*  
9           *ization of quantum networking and communications*  
10           *technologies and applications, including research on*  
11           *the following:*

12                   *(A) Quantum cryptography and post-quantum*  
13                   *classical cryptography.*

14                   *(B) Quantum repeater technology.*

15                   *(C) Quantum network traffic management.*

16                   *(D) Quantum transduction.*

17                   *(E) Long baseline entanglement and*  
18                   *teleportation.*

19                   *(F) Such other technologies, processes, or*  
20                   *applications as the Under Secretary considers*  
21                   *appropriate.*

22           *(2) IMPLEMENTATION.—The Under Secretary*  
23           *shall carry out the research required by paragraph*  
24           *(1) through such divisions, laboratories, offices and*  
25           *programs of the National Institute of Standards and*

1        *Technology as the Under Secretary considers appro-*  
2        *priate and actively engaged in activities relating to*  
3        *quantum information science.*

4            (3) *DEVELOPMENT OF STANDARDS.—For quan-*  
5        *tum technologies deemed by the Under Secretary to be*  
6        *at a readiness level sufficient for standardization, the*  
7        *Under Secretary shall provide technical review and*  
8        *assistance to such other Federal agencies as the Under*  
9        *Secretary considers appropriate for the development*  
10       *of quantum network infrastructure standards.*

11           (4) *AUTHORIZATION OF APPROPRIATIONS.—*

12            (A) *IN GENERAL.—There is authorized to be*  
13        *appropriated to the Scientific and Technical Re-*  
14        *search and Services account of the National In-*  
15        *stitute of Standards and Technology to carry out*  
16        *this subsection \$10,000,000 for each of fiscal*  
17        *years 2022 through 2026.*

18            (B) *SUPPLEMENT, NOT SUPPLANT.—The*  
19        *amounts authorized to be appropriated under*  
20        *subparagraph (A) shall supplement and not sup-*  
21        *plant amounts already appropriated to the ac-*  
22        *count described in such subparagraph.*

23           (d) *QUANTUM WORKFORCE EVALUATION AND ACCEL-*  
24        *ERATION.—*

1           (1) *IDENTIFICATION OF GAPS.*—*The Foundation*  
2           *shall enter into an agreement with the National Acad-*  
3           *emies of Sciences, Engineering, and Medicine to con-*  
4           *duct a study of ways to support the next generation*  
5           *of quantum leaders.*

6           (2) *SCOPE OF STUDY.*—*In carrying out the*  
7           *study described in paragraph (1), the National Acad-*  
8           *emies of Sciences, Engineering, and Medicine shall*  
9           *identify—*

10           (A) *education gaps, including foundational*  
11           *courses in STEM and areas in need of standard-*  
12           *ization, in elementary school, middle school, high*  
13           *school, and higher education curricula, that need*  
14           *to be rectified in order to prepare students to*  
15           *participate in the quantum workforce;*

16           (B) *the skills and workforce needs of indus-*  
17           *try, specifically identifying the cross-disciplinary*  
18           *academic degrees or academic courses nec-*  
19           *essary—*

20           (i) *to qualify students for multiple ca-*  
21           *reer pathways in quantum information*  
22           *sciences and related fields;*

23           (ii) *to ensure the United States is com-*  
24           *petitive in the field of quantum information*



1           *science while preserving national security;*  
2           *and*

3                     *(iii) to support the development of*  
4           *quantum applications; and*

5                     *(C) the resources and materials needed to*  
6           *train elementary, middle, and high school edu-*  
7           *cators to effectively teach curricula relevant to*  
8           *the development of a quantum workforce.*

9           (3) *REPORTS.—*

10                    *(A) EXECUTIVE SUMMARY.—Not later than*  
11           *2 years after the date of enactment of this Act,*  
12           *the National Academies of Science, Engineering,*  
13           *and Medicine shall prepare and submit to the*  
14           *Foundation, and programs or projects funded by*  
15           *the Foundation, an executive summary of*  
16           *progress regarding the study conducted under*  
17           *paragraph (1) that outlines the findings of the*  
18           *Academies as of such date.*

19                    *(B) REPORT.—Not later than 3 years after*  
20           *the date of enactment of this Act, the National*  
21           *Academies of Science, Engineering, and Medi-*  
22           *cine shall prepare and submit a report con-*  
23           *taining the results of the study conducted under*  
24           *paragraph (1) to Congress, the Foundation, and*  
25           *programs or projects funded by the Foundation*

1           that are relevant to the acceleration of a quan-  
2           tum workforce.

3           (e) *INCORPORATING QISE INTO STEM CUR-*  
4 *RICULUM.*—

5           (1) *IN GENERAL.*—*The Foundation shall,*  
6 *through programs carried out or supported by the*  
7 *Foundation, prioritize the better integration of quan-*  
8 *tum information science and engineering (referred to*  
9 *in this subsection as QISE) into the STEM cur-*  
10 *riculum for each grade level from kindergarten*  
11 *through grade 12, and community colleges.*

12           (2) *REQUIREMENTS.*—*The curriculum integra-*  
13 *tion under paragraph (1) shall include—*

14                   (A) *methods to conceptualize QISE for ele-*  
15 *mentary, middle, and high school curricula;*

16                   (B) *methods for strengthening foundational*  
17 *mathematics and science curricula;*

18                   (C) *age-appropriate materials that apply*  
19 *the principles of quantum information science in*  
20 *STEM fields;*

21                   (D) *recommendations for the standardiza-*  
22 *tion of key concepts, definitions, and curriculum*  
23 *criteria across government, academia, and in-*  
24 *dustry; and*

1           (E) materials that specifically address the  
2           findings and outcomes of the study conducted  
3           under subsection (d) and strategies to account for  
4           the skills and workforce needs identified through  
5           the study.

6           (3) COORDINATION.—In carrying out this sub-  
7           section, the Foundation, including the STEM Edu-  
8           cation Advisory Panel and the Advancing Informal  
9           STEM Learning program and through the Founda-  
10          tion’s role in the National Q–12 Education Partner-  
11          ship and the programs such as the Q2Work Program,  
12          shall coordinate with the Office of Science and Tech-  
13          nology Policy, EPSCoR eligible universities, and any  
14          Federal agencies or working groups determined nec-  
15          essary by the Foundation.

16          (4) REVIEW.—In implementing this subsection,  
17          the Foundation shall support the community expan-  
18          sion of the related report entitled *Key Concepts for*  
19          *Future QIS Learners (May 2020)*.

20          (f) QUANTUM EDUCATION PILOT PROGRAM.—

21               (1) IN GENERAL.—The Foundation, through the  
22          Foundation’s role in the National Q–12 Education  
23          Partnership and programs such as Q2Work Program,  
24          and in coordination with the Directorate for Edu-  
25          cation and Human Resources, shall carry out a pilot

1        *program, to be known as the Next Generation Quantum*  
2        *Leaders Pilot Program, to provide funding for*  
3        *the education and training of the next generation of*  
4        *students in the fundamental principles of quantum*  
5        *mechanics.*

6            (2) *REQUIREMENTS.—*

7            (A) *IN GENERAL.—In carrying out the pilot*  
8        *program required by paragraph (1), the Founda-*  
9        *tion shall—*

10            (i) *publish a call for applications*  
11        *through the National Q–12 Education Part-*  
12        *nership website (or similar website) for par-*  
13        *ticipation in the pilot program from ele-*  
14        *mentary schools, secondary schools, and*  
15        *State educational agencies as determined*  
16        *appropriate by the Foundation;*

17            (ii) *coordinate with educational service*  
18        *agencies, associations that support STEM*  
19        *educators or local educational agencies, and*  
20        *partnerships through the Q–12 Education*  
21        *Partnership, to encourage elementary*  
22        *schools, secondary schools, and State edu-*  
23        *cational agencies to participate in the pro-*  
24        *gram as determined appropriate by the*  
25        *Foundation;*

1                   (iii) accept applications in advance of  
2                   the academic year in which the program  
3                   shall begin; and

4                   (iv) select elementary schools, sec-  
5                   ondary schools, and State educational agen-  
6                   cies to participate in the program, as deter-  
7                   mined appropriate by the Foundation, in  
8                   accordance with qualifications determined  
9                   by the QIS Workforce Working Group, in  
10                  coordination with the National Q-12 Edu-  
11                  cation Partnership.

12                  (B) *PRIORITIZATION.*—In selecting program  
13                  participants under subparagraph (A)(iv), the  
14                  Director of the Foundation shall give priority to  
15                  elementary schools, secondary schools, and local  
16                  educational agencies located in jurisdictions eli-  
17                  gible to participate in the Established Program  
18                  to Stimulate Competitive Research (commonly  
19                  known as EPSCoR), including Tribal and rural  
20                  elementary, middle, and high schools in such ju-  
21                  risdictions.

22                  (3) *CONSULTATION.*—The Foundation shall  
23                  carry out this subsection in consultation with the QIS  
24                  Workforce Working Group and the Advancing Infor-  
25                  mal STEM Learning Program.

1 (4) *REPORTING.*—

2 (A) *REPORT AND SELECTED PARTICI-*  
3 *PANTS.*—Not later than 90 days following the  
4 closing of the application period under para-  
5 graph (2)(A)(iii), the Director of the Foundation  
6 shall submit to Congress a report on the edu-  
7 cational institutions selected to participate in  
8 the pilot program required under paragraph (1),  
9 specifying the percentage from nontraditional ge-  
10 ographies, including Tribal or rural school dis-  
11 tricts.

12 (B) *REPORT ON IMPLEMENTATION OF CUR-*  
13 *RICULUM.*—Not later than 2 years after the date  
14 of enactment of this Act, the Director of the  
15 Foundation shall submit to Congress a report on  
16 implementation of the curricula and materials  
17 under the pilot program, including the feasi-  
18 bility and advisability of expanding such pilot  
19 program to include additional educational insti-  
20 tutions beyond those originally selected to par-  
21 ticipate in the pilot program.

22 (5) *AUTHORIZATION OF APPROPRIATIONS.*—  
23 *There is authorized to be appropriated such funds as*  
24 *may be necessary to carry out this subsection.*

1           (6) *TERMINATION.*—*This subsection shall cease*  
2 *to have effect on the date that is 3 years after the date*  
3 *of the enactment of this Act.*

4           (g) *ENERGY SCIENCES NETWORK.*—

5           (1) *IN GENERAL.*—*The Secretary of Energy (re-*  
6 *ferred to in this subsection as the Secretary), in co-*  
7 *ordination with the National Science Foundation and*  
8 *the National Aeronautics and Space Administration,*  
9 *shall supplement the Energy Sciences Network User*  
10 *Facility (referred to in this subsection as the Net-*  
11 *work) with dedicated quantum network infrastructure*  
12 *to advance development of quantum networking and*  
13 *communications technology.*

14           (2) *PURPOSE.*—*The purpose of paragraph (1) is*  
15 *to utilize the Network to advance a broad range of*  
16 *testing and research, including relating to—*

17                   (A) *the establishment of stable, long-baseline*  
18 *quantum entanglement and teleportation;*

19                   (B) *quantum repeater technologies for long-*  
20 *baseline communication purposes;*

21                   (C) *quantum transduction;*

22                   (D) *the coexistence of quantum and classical*  
23 *information;*

1           (E) multiplexing, forward error correction,  
2           wavelength routing algorithms, and other quan-  
3           tum networking infrastructure; and

4           (F) any other technologies or applications  
5           determined necessary by the Secretary.

6           (3) *AUTHORIZATION OF APPROPRIATIONS.*—

7           *There are authorized to be appropriated to the Sec-*  
8           *retary to carry out this subsection, \$10,000,000 for*  
9           *each of fiscal years 2022 through 2026.*

10 **SEC. 212. SUPPORTING EARLY-CAREER RESEARCHERS ACT.**

11           (a) *SHORT TITLE.*—*This section may be cited as the*  
12           *“Supporting Early-Career Researchers Act”.*

13           (b) *IN GENERAL.*—*The Director may establish a 2-*  
14           *year pilot program to award grants to highly qualified*  
15           *early-career investigators to carry out an independent re-*  
16           *search program at the institution of higher education or*  
17           *participating Federal research facility chosen by such in-*  
18           *vestigator, to last for a period not greater than 2 years.*

19           (c) *PRIORITY FOR BROADENING PARTICIPATION.*—*In*  
20           *awarding grants under this section, the Director shall give*  
21           *priority to—*

22                   (1) *early-career investigators who are from*  
23                   *groups that are underrepresented in science, tech-*  
24                   *nology, engineering, and mathematics research;*



1           (2) *early-career investigators who choose to carry*  
2           *out independent research at a minority-serving insti-*  
3           *tution (or an institution of higher education with an*  
4           *established STEM capacity building program focused*  
5           *on traditionally underrepresented populations in*  
6           *STEM, including Native Hawaiians, Alaska Natives,*  
7           *and other Indians); and*

8           (3) *early-career investigators in a jurisdiction el-*  
9           *igible to participate under section 113 of the National*  
10          *Science Foundation Authorization Act of 1988 (42*  
11          *U.S.C. 1862g).*

12          (d) *REPORTS FROM GRANTEEES.—Not later than 180*  
13          *days after the end of the pilot program under this section,*  
14          *each early-career investigator who receives a grant under*  
15          *the pilot program shall submit a report to the Director that*  
16          *describes how the early-career investigator used the grant*  
17          *funds.*

18          (e) *REPORT TO CONGRESS.—Not later than 180 days*  
19          *after the deadline for the submission of the reports described*  
20          *in subsection (d), the Director shall submit a report to the*  
21          *Committee on Commerce, Science, and Transportation of*  
22          *the Senate and the Committee on Science, Space, and Tech-*  
23          *nology of the House of Representatives that contains a sum-*  
24          *mary of the uses of grant funds under this section and the*  
25          *impact of the pilot program under this section.*

1 **SEC. 213. ADVANCING PRECISION AGRICULTURE CAPABILI-**  
 2 **TIES ACT.**

3 (a) *SHORT TITLE.*—*This section may be cited as the*  
 4 *“Advancing IoT for Precision Agriculture Act of 2021”.*

5 (b) *PURPOSE.*—*It is the purpose of this section to pro-*  
 6 *mote scientific research and development opportunities for*  
 7 *connected technologies that advance precision agriculture*  
 8 *capabilities.*

9 (c) *FOUNDATION DIRECTIVE ON AGRICULTURAL SEN-*  
 10 *SOR RESEARCH.*—*In awarding grants under the sensor sys-*  
 11 *tems and networked systems programs of the Foundation,*  
 12 *the Director shall include in consideration of portfolio bal-*  
 13 *ance research and development on sensor connectivity in en-*  
 14 *vironments of intermittent connectivity and intermittent*  
 15 *computation—*

16 (1) *to improve the reliable use of advance sensing*  
 17 *systems in rural and agricultural areas; and*

18 (2) *that considers—*

19 (A) *direct gateway access for locally stored*  
 20 *data;*

21 (B) *attenuation of signal transmission;*

22 (C) *loss of signal transmission; and*

23 (D) *at-scale performance for wireless power.*

24 (d) *UPDATING CONSIDERATIONS FOR PRECISION AG-*  
 25 *RICULTURE TECHNOLOGY WITHIN THE NSF ADVANCED*  
 26 *TECHNICAL EDUCATION PROGRAM.*—*Section 3 of the Sci-*

1 *entific and Advanced-Technology Act of 1992 (42 U.S.C.*  
2 *1862i), as amended by section 205, is further amended—*

3 *(1) in subsection (d)(2), by adding at the end the*  
4 *following:*

5 *“(G) applications that incorporate distance*  
6 *learning tools and approaches.”; and*

7 *(2) in subsection (e)(3)—*

8 *(A) in subparagraph (C), by striking “and”*  
9 *after the semicolon;*

10 *(B) in subparagraph (D), by striking the*  
11 *period at the end and inserting “; and”; and*

12 *(C) by adding at the end the following:*

13 *“(E) applications that incorporate distance*  
14 *learning tools and approaches.”.*

15 *(e) GAO REVIEW.—Not later than 18 months after the*  
16 *date of enactment of this section, the Comptroller General*  
17 *of the United States shall provide—*

18 *(1) a technology assessment of precision agri-*  
19 *culture technologies, such as the existing use of—*

20 *(A) sensors, scanners, radio-frequency iden-*  
21 *tification, and related technologies that can mon-*  
22 *itor soil properties, irrigation conditions, and*  
23 *plant physiology;*

1           (B) sensors, scanners, radio-frequency iden-  
2           tification, and related technologies that can mon-  
3           itor livestock activity and health;

4           (C) network connectivity and wireless com-  
5           munications that can securely support digital  
6           agriculture technologies in rural and remote  
7           areas;

8           (D) aerial imagery generated by satellites  
9           or unmanned aerial vehicles;

10          (E) ground-based robotics;

11          (F) control systems design and connectivity,  
12          such as smart irrigation control systems; and

13          (G) data management software and ad-  
14          vanced analytics that can assist decision making  
15          and improve agricultural outcomes; and

16          (2) a review of Federal programs that provide  
17          support for precision agriculture research, develop-  
18          ment, adoption, education, or training, in existence  
19          on the date of enactment of this section.

20 **SEC. 214. CRITICAL MINERALS MINING RESEARCH.**

21          (a) **CRITICAL MINERALS MINING RESEARCH AND DE-**  
22 **VELOPMENT AT THE FOUNDATION.—**

23           (1) **IN GENERAL.**—In order to support supply  
24          chain resiliency, the Director shall issue awards, on  
25          a competitive basis, to institutions of higher edu-

1        *cation or nonprofit organizations (or consortia of*  
2        *such institutions or organizations) to support basic*  
3        *research that will accelerate innovation to advance*  
4        *critical minerals mining strategies and technologies*  
5        *for the purpose of making better use of domestic re-*  
6        *sources and eliminating national reliance on min-*  
7        *erals and mineral materials that are subject to supply*  
8        *disruptions.*

9            (2) *USE OF FUNDS.—Activities funded by an*  
10        *award under this section may include—*

11            (A) *advancing mining research and devel-*  
12        *opment activities to develop new mapping and*  
13        *mining technologies and techniques, including*  
14        *advanced critical mineral extraction and pro-*  
15        *duction, to improve existing or to develop new*  
16        *supply chains of critical minerals, and to yield*  
17        *more efficient, economical, and environmentally*  
18        *benign mining practices;*

19            (B) *advancing critical mineral processing*  
20        *research activities to improve separation,*  
21        *alloying, manufacturing, or recycling techniques*  
22        *and technologies that can decrease the energy in-*  
23        *tensity, waste, potential environmental impact,*  
24        *and costs of those activities;*

1           (C) *conducting long-term earth observation*  
2           *of reclaimed mine sites, including the study of*  
3           *the evolution of microbial diversity at such sites;*

4           (D) *examining the application of artificial*  
5           *intelligence for geological exploration of critical*  
6           *minerals, including what size and diversity of*  
7           *data sets would be required;*

8           (E) *examining the application of machine*  
9           *learning for detection and sorting of critical*  
10          *minerals, including what size and diversity of*  
11          *data sets would be required;*

12          (F) *conducting detailed isotope studies of*  
13          *critical minerals and the development of more*  
14          *refined geologic models; or*

15          (G) *providing training and research oppor-*  
16          *tunities to undergraduate and graduate students*  
17          *to prepare the next generation of mining engi-*  
18          *neers and researchers.*

19          (b) *CRITICAL MINERALS INTERAGENCY SUB-*  
20          *COMMITTEE.—*

21                 (1) *IN GENERAL.—In order to support supply*  
22                 *chain resiliency, the Critical Minerals Subcommittee*  
23                 *of the National Science and Technology Council (re-*  
24                 *ferred to in this subsection as the Subcommittee) shall*  
25                 *coordinate Federal science and technology efforts to*

1       *ensure secure and reliable supplies of critical min-*  
2       *erals to the United States.*

3               (2) *PURPOSES.*—*The purposes of the Sub-*  
4       *committee shall be—*

5                       (A) *to advise and assist the Committee on*  
6       *Homeland and National Security and the Na-*  
7       *tional Science and Technology Council on*  
8       *United States policies, procedures, and plans as*  
9       *it relates to critical minerals, including—*

10                               (i) *Federal research, development, and*  
11       *deployment efforts to optimize methods for*  
12       *extractions, concentration, separation, and*  
13       *purification of conventional, secondary, and*  
14       *unconventional sources of critical minerals;*

15                               (ii) *efficient use and reuse of critical*  
16       *minerals;*

17                               (iii) *the critical minerals workforce of*  
18       *the United States; and*

19                               (iv) *United States private industry in-*  
20       *vestments in innovation and technology*  
21       *transfer from federally funded science and*  
22       *technology;*

23                       (B) *to identify emerging opportunities,*  
24       *stimulate international cooperation, and foster*

1           *the development of secure and reliable supply*  
2           *chains of critical minerals;*

3           *(C) to ensure the transparency of informa-*  
4           *tion and data related to critical minerals; and*

5           *(D) to provide recommendations on coordi-*  
6           *nation and collaboration among the research, de-*  
7           *velopment, and deployment programs and activi-*  
8           *ties of Federal agencies to promote a secure and*  
9           *reliable supply of critical minerals necessary to*  
10          *maintain national security, economic well-being,*  
11          *and industrial production.*

12          (3) *RESPONSIBILITIES.*—*In carrying out para-*  
13          *graphs (1) and (2), the Subcommittee may, taking*  
14          *into account the findings and recommendations of rel-*  
15          *evant advisory committees—*

16                 *(A) provide recommendations on how Fed-*  
17                 *eral agencies may improve the topographic, geo-*  
18                 *logic, and geophysical mapping of the United*  
19                 *States and improve the discoverability, accessi-*  
20                 *bility, and usability of the resulting and existing*  
21                 *data, to the extent permitted by law and subject*  
22                 *to appropriate limitation for purposes of privacy*  
23                 *and security;*

24                 *(B) assess the progress toward developing*  
25                 *critical minerals recycling and reprocessing tech-*



1            *nologies, and technological alternatives to critical*  
2            *minerals;*

3            *(C) examine options for accessing and de-*  
4            *veloping critical minerals through investment*  
5            *and trade with allies and partners of the United*  
6            *States and provide recommendations;*

7            *(D) evaluate and provide recommendations*  
8            *to incentivize the development and use of ad-*  
9            *vances in science and technology in the private*  
10           *industry;*

11           *(E) assess the need for and make rec-*  
12           *ommendations to address the challenges the*  
13           *United States critical minerals supply chain*  
14           *workforce faces, including—*

15           *(i) aging and retiring personnel and*  
16           *faculty;*

17           *(ii) public perceptions about the nature*  
18           *of mining and mineral processing; and*

19           *(iii) foreign competition for United*  
20           *States talent;*

21           *(F) develop, and update as necessary, a*  
22           *strategic plan to guide Federal programs and ac-*  
23           *tivities to enhance—*

24           *(i) scientific and technical capabilities*  
25           *across critical mineral supply chains, in-*

1           cluding a roadmap that identifies key re-  
2           search and development needs and coordi-  
3           nates ongoing activities for source diver-  
4           sification, more efficient use, recycling, and  
5           substitution for critical minerals; and

6                   (ii) cross-cutting mining science, data  
7           science techniques, materials science, manu-  
8           facturing science and engineering, computa-  
9           tional modeling, and environmental health  
10          and safety research and development; and

11          (G) report to the appropriate committees of  
12          Congress on activities and findings under this  
13          subsection.

14          (4) *MANDATORY RESPONSIBILITIES.*—*In car-*  
15          *rying out paragraphs (1) and (2), the Subcommittee*  
16          *shall, taking into account the findings and rec-*  
17          *ommendations of the relevant advisory committees,*  
18          *identify and evaluate Federal policies and regulations*  
19          *that restrict the mining of critical minerals.*

20          (c) *GRANT PROGRAM FOR DEVELOPMENT OF CRITICAL*  
21          *MINERALS AND METALS.*—

22                  (1) *ESTABLISHMENT.*—*The Secretary of Com-*  
23          *merce, in consultation with the Director and the Sec-*  
24          *retary of the Interior, shall establish a grant program*

1        *to finance pilot projects for the development of critical*  
2        *minerals and metals in the United States.*

3            (2) *LIMITATION ON GRANT AWARDS.—A grant*  
4        *awarded under paragraph (1) may not exceed*  
5        *\$10,000,000.*

6            (3) *ECONOMIC VIABILITY.—In awarding grants*  
7        *under paragraph (1), the Secretary of Commerce shall*  
8        *give priority to projects that the Secretary of Com-*  
9        *merce determines are likely to be economically viable*  
10       *over the long term.*

11           (4) *SECONDARY RECOVERY.—In awarding grants*  
12       *under paragraph (1), the Secretary of Commerce shall*  
13       *seek to award not less than 30 percent of the total*  
14       *amount of grants awarded during the fiscal year for*  
15       *projects relating to secondary recovery of critical min-*  
16       *erals and metals.*

17           (5) *AUTHORIZATION OF APPROPRIATIONS.—*  
18       *There is authorized to be appropriated to the Sec-*  
19       *retary of Commerce \$100,000,000 for each of fiscal*  
20       *years 2021 through 2024 to carry out the grant pro-*  
21       *gram established under paragraph (1).*

22       (d) *DEFINITIONS.—In this section:*

23           (1) *CRITICAL MINERAL; CRITICAL MINERAL OR*  
24       *METAL.—The terms “critical mineral” and “critical*  
25       *mineral or metal” include any host mineral of a crit-*

1        *ical mineral (within the meaning of those terms in*  
2        *section 7002 of title VII of division Z of the Consoli-*  
3        *dated Appropriations Act, 2021 (Public Law 116-*  
4        *260)).*

5            (2) *SECONDARY RECOVERY.*—*The term “sec-*  
6        *ondary recovery” means the recovery of critical min-*  
7        *erals and metals from discarded end-use products or*  
8        *from waste products produced during the metal refin-*  
9        *ing and manufacturing process, including from mine*  
10       *waste piles, acid mine drainage sludge, or byproducts*  
11       *produced through legacy mining and metallurgy ac-*  
12       *tivities.*

13    **SEC. 215. CAREGIVER POLICIES.**

14        (a) *OSTP GUIDANCE.*—*Not later than 6 months after*  
15       *the date of enactment of this Act, the Director of the Office*  
16       *of Science and Technology Policy, in consultation with rel-*  
17       *evant agencies, shall provide guidance to each Federal*  
18       *science agency to establish policies that—*

19            (1) *apply to all—*

20                    (A) *research awards granted by such agen-*  
21                    *cy; and*

22                    (B) *principal investigators of such research*  
23                    *who have caregiving responsibilities, including*  
24                    *care for a newborn or newly adopted child and*

1           *care for an immediate family member with a se-*  
2           *rious health condition; and*

3           (2) *offer, to the extent feasible—*

4                 (A) *flexibility in timing for the initiation of*  
5                 *approved research awards granted by such agen-*  
6                 *cy;*

7                 (B) *no-cost extensions of such research*  
8                 *awards; and*

9                 (C) *grant supplements, as appropriate, to*  
10                *research awards to sustain research activities*  
11                *conducted under such awards.*

12           (b) *UNIFORMITY OF GUIDANCE.—In providing guid-*  
13           *ance under subsection (a), the Director of the Office of*  
14           *Science and Technology Policy shall encourage, to the extent*  
15           *practicable, uniformity and consistency in the policies es-*  
16           *tablished pursuant to such guidance across all Federal*  
17           *science agencies.*

18           (c) *ESTABLISHMENT OF POLICIES.—To the extent*  
19           *practicable and consistent with guidance issued under sub-*  
20           *section (a), Federal science agencies shall—*

21                 (1) *maintain or develop and implement policies*  
22                 *for individuals described in paragraph (1)(B) of such*  
23                 *subsection; and*

24                 (2) *broadly disseminate such policies to current*  
25                 *and potential awardees.*

1       (d) *DATA ON USAGE.*—*Federal science agencies shall*  
2 *consider—*

3           (1) *collecting data on the usage of the policies*  
4 *under subsection (c), at both institutions of higher*  
5 *education and Federal laboratories; and*

6           (2) *reporting such data on an annual basis to*  
7 *the Director of the Office of Science and Technology*  
8 *Policy in such form as required by the Director of the*  
9 *Office of Science and Technology Policy.*

10       (e) *SAVINGS.*—

11           (1) *PRIVACY.*—*This section shall be carried out*  
12 *in accordance with all relevant privacy laws.*

13           (2) *INSTITUTIONS.*—*This section shall not affect*  
14 *the grantee institution’s institutional policies.*

15       (f) *DEFINITION OF FEDERAL SCIENCE AGENCY.*—*In*  
16 *this section, the term “Federal science agency” means any*  
17 *Federal agency with an annual extramural research ex-*  
18 *penditure of over \$100,000,000.*

19 **SEC. 216. PRESIDENTIAL AWARDS.**

20       (a) *IN GENERAL.*—*The President is authorized to*  
21 *make Presidential Awards for Excellence in Technology and*  
22 *Science Research to researchers in underrepresented popu-*  
23 *lations, including women and underrepresented minorities,*  
24 *who have demonstrated outstanding achievements in tech-*  
25 *nology or science research.*



1           (2) *Engineering biology relies on a workforce*  
2 *with a diverse and unique set of skills combining the*  
3 *biological, physical, chemical, and information*  
4 *sciences and engineering.*

5           (3) *Long-term research and development is nec-*  
6 *essary to create breakthroughs in engineering biology.*  
7 *Such research and development requires government*  
8 *investment, as many of the benefits are too distant or*  
9 *uncertain for industry to support alone.*

10          (4) *Research is necessary to inform evidence-*  
11 *based governance of engineering biology and to sup-*  
12 *port the growth of the engineering biology industry.*

13          (5) *The Federal Government has an obligation to*  
14 *ensure that ethical, legal, environmental, safety, secu-*  
15 *rity, and societal implications of its science and tech-*  
16 *nology research and investment follows policies of re-*  
17 *sponsible innovation and fosters public transparency.*

18          (6) *The Federal Government can play an impor-*  
19 *tant role by facilitating the development of tools and*  
20 *technologies to further advance engineering biology,*  
21 *including user facilities, by facilitating public-private*  
22 *partnerships, by supporting risk research, and by fa-*  
23 *cilitating the commercial application in the United*  
24 *States of research funded by the Federal Government.*



1           (7) *The United States led the development of the*  
2           *science and engineering techniques that created the*  
3           *field of engineering biology, but due to increasing*  
4           *international competition, the United States is at risk*  
5           *of losing its competitive advantage if it does not stra-*  
6           *tegetically invest the necessary resources.*

7           (8) *A National Engineering Biology Initiative*  
8           *can serve to establish new research directions and*  
9           *technology goals, improve interagency coordination*  
10          *and planning processes, drive technology transfer to*  
11          *the private sector, and help ensure optimal returns on*  
12          *the Federal investment.*

13          (c) *DEFINITIONS.—In this section:*

14               (1) *BIOMANUFACTURING.—The term “biomanu-*  
15               *facturing” means the utilization of biological systems*  
16               *to develop new and advance existing products, tools,*  
17               *and processes at commercial scale.*

18               (2) *ENGINEERING BIOLOGY.—The term “engi-*  
19               *neering biology” means the application of engineering*  
20               *design principles and practices to biological systems,*  
21               *including molecular and cellular systems, to advance*  
22               *fundamental understanding of complex natural sys-*  
23               *tems and to enable novel or optimize functions and*  
24               *capabilities.*

1           (3) *INITIATIVE.*—*The term “Initiative” means*  
2           *the National Engineering Biology Research and De-*  
3           *velopment Initiative established under subsection (d).*

4           (4) *OMICS.*—*The term “omics” refers to the col-*  
5           *lective technologies used to explore the roles, relation-*  
6           *ships, and actions of the various types of molecules*  
7           *that make up the cells of an organism.*

8           (d) *NATIONAL ENGINEERING BIOLOGY RESEARCH AND*  
9           *DEVELOPMENT INITIATIVE.*—

10           (1) *IN GENERAL.*—*The President, acting through*  
11           *the Office of Science and Technology Policy, shall im-*  
12           *plement a National Engineering Biology Research*  
13           *and Development Initiative to advance societal well-*  
14           *being, national security, sustainability, and economic*  
15           *productivity and competitiveness through—*

16                   (A) *advancing areas of research at the*  
17                   *intersection of the biological, physical, chemical,*  
18                   *data, and computational sciences and engineer-*  
19                   *ing to accelerate scientific understanding and*  
20                   *technological innovation in engineering biology;*

21                   (B) *advancing areas of biomanufacturing*  
22                   *research to optimize, standardize, scale, and de-*  
23                   *liver new products and solutions;*

24                   (C) *supporting social and behavioral*  
25                   *sciences and economics research that advances*

1           *the field of engineering biology and contributes*  
2           *to the development and public understanding of*  
3           *new products, processes, and technologies;*

4           *(D) improving the understanding of engi-*  
5           *neering biology of the scientific and lay public*  
6           *and supporting greater evidence-based public*  
7           *discourse about its benefits and risks;*

8           *(E) supporting research relating to the risks*  
9           *and benefits of engineering biology, including*  
10          *under paragraph (4);*

11          *(F) supporting the development of novel*  
12          *tools and technologies to accelerate scientific un-*  
13          *derstanding and technological innovation in en-*  
14          *gineering biology;*

15          *(G) expanding the number of researchers,*  
16          *educators, and students and a retooled workforce*  
17          *with engineering biology training, including*  
18          *from traditionally underrepresented and under-*  
19          *served populations;*

20          *(H) accelerating the translation and com-*  
21          *mercialization of engineering biology research*  
22          *and development by the private sector; and*

23          *(I) improving the interagency planning and*  
24          *coordination of Federal Government activities*  
25          *related to engineering biology.*

1           (2) *INITIATIVE ACTIVITIES.*—*The activities of the*  
2 *Initiative shall include—*

3                   (A) *sustained support for engineering biol-*  
4 *ogy research and development through—*

5                           (i) *grants to fund the work of indi-*  
6 *vidual investigators and teams of investiga-*  
7 *tors, including interdisciplinary teams;*

8                           (ii) *projects funded under joint solici-*  
9 *tations by a collaboration of no fewer than*  
10 *two agencies participating in the Initiative;*  
11 *and*

12                           (iii) *interdisciplinary research centers*  
13 *that are organized to investigate basic re-*  
14 *search questions, carry out technology devel-*  
15 *opment and demonstration activities, and*  
16 *increase understanding of how to scale up*  
17 *engineering biology processes, including bio-*  
18 *manufacturing;*

19                   (B) *sustained support for databases and re-*  
20 *lated tools, including—*

21                           (i) *support for curated genomics,*  
22 *epigenomics, and other relevant omics data-*  
23 *bases, including plant and microbial data-*  
24 *bases, that are available to researchers to*  
25 *carry out engineering biology research in a*

1            *manner that does not compromise national*  
2            *security or the privacy or security of infor-*  
3            *mation within such databases;*

4            *(ii) development of standards for such*  
5            *databases, including for curation, interoper-*  
6            *ability, and protection of privacy and secu-*  
7            *rity;*

8            *(iii) support for the development of*  
9            *computational tools, including artificial in-*  
10           *telligence tools, that can accelerate research*  
11           *and innovation using such databases; and*

12           *(iv) an inventory and assessment of all*  
13           *Federal government omics databases to*  
14           *identify opportunities to improve the utility*  
15           *of such databases, as appropriate and in a*  
16           *manner that does not compromise national*  
17           *security or the privacy and security of in-*  
18           *formation within such databases, and in-*  
19           *form investment in such databases as crit-*  
20           *ical infrastructure for the engineering biol-*  
21           *ogy research enterprise;*

22           *(C) sustained support for the development,*  
23           *optimization, and validation of novel tools and*  
24           *technologies to enable the dynamic study of mo-*  
25           *lecular processes in situ, including through—*

1                   (i) research conducted at Federal lab-  
2                   oratories;

3                   (ii) grants to fund the work of inves-  
4                   tigators at institutions of higher education  
5                   and other nonprofit research institutions;

6                   (iii) incentivized development of re-  
7                   tooled industrial sites across the country  
8                   that foster a pivot to modernized engineer-  
9                   ing biology initiatives; and

10                  (iv) awards under the Small Business  
11                  Innovation Research Program and the  
12                  Small Business Technology Transfer Pro-  
13                  gram, as described in section 9 of the Small  
14                  Business Act (15 U.S.C. 638);

15                  (D) support for education and training of  
16                  undergraduate and graduate students in engi-  
17                  neering biology, biomanufacturing, bioprocess en-  
18                  gineering, and computational science applied to  
19                  engineering biology and in the related ethical,  
20                  legal, environmental, safety, security, and other  
21                  societal domains;

22                  (E) activities to develop robust mechanisms  
23                  for documenting and quantifying the outputs  
24                  and economic benefits of engineering biology;  
25                  and

1           (F) activities to accelerate the translation  
2           and commercialization of new products, proc-  
3           esses, and technologies by—

4                   (i) identifying precompetitive research  
5                   opportunities;

6                   (ii) facilitating public-private partner-  
7                   ships in engineering biology research and  
8                   development;

9                   (iii) connecting researchers, graduate  
10                  students, and postdoctoral fellows with en-  
11                  trepreneurship education and training op-  
12                  portunities; and

13                  (iv) supporting proof of concept activi-  
14                  ties and the formation of startup companies  
15                  including through programs such as the  
16                  Small Business Innovation Research Pro-  
17                  gram and the Small Business Technology  
18                  Transfer Program.

19           (3) *EXPANDING PARTICIPATION.*—*The Initiative*  
20           *shall include, to the maximum extent practicable, out-*  
21           *reach to primarily undergraduate and minority-serv-*  
22           *ing institutions (and institutions of higher education*  
23           *with an established STEM capacity building program*  
24           *focused on traditionally underrepresented populations*  
25           *in STEM, including Native Hawaiians, Alaska Na-*

1 *tives, and other Indians) about Initiative opportuni-*  
2 *ties, and shall encourage the development of research*  
3 *collaborations between research-intensive universities*  
4 *and primarily undergraduate and minority-serving*  
5 *institutions (and institutions of higher education*  
6 *with an established STEM capacity building program*  
7 *focused on traditionally underrepresented populations*  
8 *in STEM, including Native Hawaiians, Alaska Na-*  
9 *tives, and other Indians).*

10 (4) *ETHICAL, LEGAL, ENVIRONMENTAL, SAFETY,*  
11 *SECURITY, AND SOCIETAL ISSUES.—Initiative activi-*  
12 *ties shall take into account ethical, legal, environ-*  
13 *mental, safety, security, and other appropriate soci-*  
14 *etal issues by—*

15 (A) *supporting research, including in the*  
16 *social sciences, and other activities addressing*  
17 *ethical, legal, environmental, and other appro-*  
18 *priate societal issues related to engineering biol-*  
19 *ogy, including integrating research on such top-*  
20 *ics with the research and development in engi-*  
21 *neering biology, and encouraging the dissemina-*  
22 *tion of the results of such research, including*  
23 *through interdisciplinary engineering biology re-*  
24 *search centers described in paragraph (2)(A)(iii);*



1           (B) supporting research and other activities  
2 related to the safety and security implications of  
3 engineering biology, including outreach to in-  
4 crease awareness among Federal researchers and  
5 Federally-funded researchers at institutions of  
6 higher education about potential safety and secu-  
7 rity implications of engineering biology research,  
8 as appropriate;

9           (C) ensuring that input from Federal and  
10 non-Federal experts on the ethical, legal, envi-  
11 ronmental, safety, security, and other appro-  
12 priate societal issues related to engineering biol-  
13 ogy is integrated into the Initiative;

14           (D) ensuring, through the agencies and de-  
15 partments that participate in the Initiative, that  
16 public input and outreach are integrated into  
17 the Initiative by the convening of regular and  
18 ongoing public discussions through mechanisms  
19 such as workshops, consensus conferences, and  
20 educational events, as appropriate; and

21           (E) complying with all applicable provi-  
22 sions of Federal law.

23 (e) INITIATIVE COORDINATION.—

24           (1) INTERAGENCY COMMITTEE.—The President,  
25 acting through the Office of Science and Technology

1       *Policy, shall designate an interagency committee to*  
2       *coordinate activities of the Initiative as appropriate,*  
3       *which shall be co-chaired by the Office of Science and*  
4       *Technology Policy, and include representatives from*  
5       *the Foundation, the Department of Energy, the De-*  
6       *partment of Defense, the National Aeronautics and*  
7       *Space Administration, the National Oceanic and At-*  
8       *mospheric Administration, the National Institute of*  
9       *Standards and Technology, the Environmental Pro-*  
10      *tection Agency, the Department of Agriculture, the*  
11      *Department of Health and Human Services, the Bu-*  
12      *reau of Economic Analysis, and any other agency*  
13      *that the President considers appropriate (in this sec-*  
14      *tion referred to as the Interagency Committee). The*  
15      *Director of the Office of Science and Technology Pol-*  
16      *icy shall select an additional co-chairperson from*  
17      *among the members of the Interagency Committee.*  
18      *The Interagency Committee shall oversee the plan-*  
19      *ning, management, and coordination of the Initiative.*  
20      *The Interagency Committee shall—*

21                    (A) *provide for interagency coordination of*  
22                    *Federal engineering biology research, develop-*  
23                    *ment, and other activities undertaken pursuant*  
24                    *to the Initiative;*

1           (B) establish and periodically update goals  
2 and priorities for the Initiative;

3           (C) develop, not later than 12 months after  
4 the date of the enactment of this Act, and update  
5 every 3 years thereafter, a strategic plan sub-  
6 mitted to the Committee on Science, Space, and  
7 Technology and the Committee on Energy and  
8 Commerce of the House of Representatives and  
9 the Committee on Commerce, Science, and  
10 Transportation and the Committee on Health,  
11 Education, Labor, and Pensions of the Senate  
12 that—

13           (i) guides the activities of the Initia-  
14 tive for purposes of meeting the goals and  
15 priorities established under (and updated  
16 pursuant to) subparagraph (B); and

17           (ii) describes—

18           (I) the Initiative's support for  
19 long-term funding for interdisciplinary  
20 engineering biology research and devel-  
21 opment;

22           (II) the Initiative's support for  
23 education and public outreach activi-  
24 ties;

1                   (III) *the Initiative's support for*  
2                   *research and other activities on ethical,*  
3                   *legal, environmental, safety, security,*  
4                   *and other appropriate societal issues*  
5                   *related to engineering biology includ-*  
6                   *ing—*

7                                *(aa) an applied biorisk man-*  
8                                *agement research plan;*

9                                *(bb) recommendations for in-*  
10                                *tegrating security into biological*  
11                                *data access and international rec-*  
12                                *iprocity agreements;*

13                                *(cc) recommendations for*  
14                                *manufacturing restructuring to*  
15                                *support engineering biology re-*  
16                                *search, development, and scaling-*  
17                                *up initiatives; and*

18                                *(dd) an evaluation of exist-*  
19                                *ing biosecurity governance poli-*  
20                                *cies, guidance, and directives for*  
21                                *the purposes of creating an adapt-*  
22                                *able, evidence-based framework to*  
23                                *respond to emerging biosecurity*  
24                                *challenges created by advances in*  
25                                *engineering biology;*

1                    (IV) *how the Initiative will con-*  
2                    *tribute to moving results out of the lab-*  
3                    *oratory and into application for the*  
4                    *benefit of society and United States*  
5                    *competitiveness; and*

6                    (V) *how the Initiative will meas-*  
7                    *ure and track the contributions of engi-*  
8                    *neering biology to United States eco-*  
9                    *nomi c growth and other societal indi-*  
10                    *cators;*

11                   (D) *develop a national genomic sequencing*  
12                    *strategy to ensure engineering biology research*  
13                    *fully leverages plant, animal, and microbe bio-*  
14                    *diversity, as appropriate and in a manner that*  
15                    *does not compromise national security or the*  
16                    *privacy or security of human genetic informa-*  
17                    *tion, to enhance long-term innovation and com-*  
18                    *petitiveness in engineering biology in the United*  
19                    *States;*

20                   (E) *develop a plan to utilize Federal pro-*  
21                    *grams, such as the Small Business Innovation*  
22                    *Research Program and the Small Business Tech-*  
23                    *nology Transfer Program as described in section*  
24                    *9 of the Small Business Act (15 U.S.C. 638), in*

1 support of the activities described in subsection  
2 (d)(2)(C); and

3 (F) in carrying out this subsection, take  
4 into consideration the recommendations of the  
5 advisory committee established under subsection  
6 (f), the results of the workshop convened under  
7 subsection (d)(4)(D), existing reports on related  
8 topics, and the views of academic, State, indus-  
9 try, and other appropriate groups.

10 (2) *TRIENNIAL REPORT.*—Beginning with fiscal  
11 year 2022 and ending in fiscal year 2028, not later  
12 than 90 days after submission of the President’s an-  
13 nual budget request and every third fiscal year there-  
14 after, the Interagency Committee shall prepare and  
15 submit to the Committee on Science, Space, and Tech-  
16 nology of the House of Representatives and the Com-  
17 mittee on Commerce, Science, and Transportation of  
18 the Senate a report that includes—

19 (A) a summarized agency budget in support  
20 of the Initiative for the fiscal year to which such  
21 budget request applies, for the following 2 fiscal  
22 years, for the then current fiscal year, including  
23 a breakout of spending for each agency partici-  
24 pating in the Program, and for the development

1           *and acquisition of any research facilities and in-*  
2           *strumentation; and*

3           *(B) an assessment of how Federal agencies*  
4           *are implementing the plan described in para-*  
5           *graph (1)(C), including—*

6                   *(i) a description of the amount and*  
7                   *number of awards made under the Small*  
8                   *Business Innovation Research Program and*  
9                   *the Small Business Technology Transfer*  
10                  *Program (as described in section 9 of the*  
11                  *Small Business Act (15 U.S.C. 638)) in*  
12                  *support of the Initiative;*

13                  *(ii) a description of the amount and*  
14                  *number of projects funded under joint so-*  
15                  *licitations by a collaboration of no fewer*  
16                  *than 2 agencies participating in the Initia-*  
17                  *tive; and*

18                  *(iii) a description of the effect of the*  
19                  *newly funded projects by the Initiative.*

20           (3) *INITIATIVE OFFICE.—*

21                   *(A) IN GENERAL.—The President shall es-*  
22                   *tablish an Initiative Coordination Office, with a*  
23                   *Director and full-time staff, which shall—*

24                           *(i) provide technical and administra-*  
25                           *tive support to the interagency committee*

1           *and the advisory committee established*  
2           *under subsection (f);*

3           *(ii) serve as the point of contact on*  
4           *Federal engineering biology activities for*  
5           *government organizations, academia, indus-*  
6           *try, professional societies, State govern-*  
7           *ments, interested citizen groups, and others*  
8           *to exchange technical and programmatic in-*  
9           *formation;*

10           *(iii) oversee interagency coordination*  
11           *of the Initiative, including by encouraging*  
12           *and supporting joint agency solicitation*  
13           *and selection of applications for funding of*  
14           *activities under the Initiative, as appro-*  
15           *priate;*

16           *(iv) conduct public outreach, including*  
17           *dissemination of findings and recommenda-*  
18           *tions of the advisory committee established*  
19           *under subsection (f), as appropriate;*

20           *(v) serve as the coordinator of ethical,*  
21           *legal, environmental, safety, security, and*  
22           *other appropriate societal input; and*

23           *(vi) promote access to, and early appli-*  
24           *cation of, the technologies, innovations, and*  
25           *expertise derived from Initiative activities*



1           to agency missions and systems across the  
2           Federal Government, and to United States  
3           industry, including startup companies.

4           (B) *FUNDING.*—The Director of the Office of  
5           Science and Technology Policy, in coordination  
6           with each participating Federal department and  
7           agency, as appropriate, shall develop and annu-  
8           ally update an estimate of the funds necessary to  
9           carry out the activities of the Initiative Coordi-  
10          nation Office and submit such estimate with an  
11          agreed summary of contributions from each  
12          agency to Congress as part of the President’s an-  
13          nual budget request to Congress.

14          (C) *TERMINATION.*—The Initiative Coordi-  
15          nation Office established under this paragraph  
16          shall terminate on the date that is 10 years after  
17          the date of the enactment of this Act.

18          (4) *RULE OF CONSTRUCTION.*—Nothing in this  
19          subsection shall be construed to alter the policies,  
20          processes, or practices of individual Federal agencies  
21          in effect on the day before the date of the enactment  
22          of this Act relating to the conduct of biomedical re-  
23          search and advanced development, including the solici-  
24          tation and review of extramural research proposals.

25          (f) *ADVISORY COMMITTEE.*—

1           (1) *IN GENERAL.*—*The agency co-chair of the*  
2 *interagency committee established in subsection (e)*  
3 *shall, in consultation with the Office of Science and*  
4 *Technology Policy, designate or establish an advisory*  
5 *committee on engineering biology research and devel-*  
6 *opment (in this subsection referred to as the advisory*  
7 *committee) to be composed of not fewer than 12 mem-*  
8 *bers, including representatives of research and aca-*  
9 *demie institutions, industry, and nongovernmental*  
10 *entities, who are qualified to provide advice on the*  
11 *Initiative.*

12           (2) *ASSESSMENT.*—*The advisory committee shall*  
13 *assess—*

14                   (A) *the current state of United States com-*  
15 *petitiveness in engineering biology, including the*  
16 *scope and scale of United States investments in*  
17 *engineering biology research and development in*  
18 *the international context;*

19                   (B) *current market barriers to commer-*  
20 *cialization of engineering biology products, proc-*  
21 *esses, and tools in the United States;*

22                   (C) *progress made in implementing the Ini-*  
23 *tiative;*

24                   (D) *the need to revise the Initiative;*

1           (E) *the balance of activities and funding*  
2 *across the Initiative;*

3           (F) *whether the strategic plan developed or*  
4 *updated by the interagency committee established*  
5 *under subsection (e) is helping to maintain*  
6 *United States leadership in engineering biology;*

7           (G) *the management, coordination, imple-*  
8 *mentation, and activities of the Initiative; and*

9           (H) *whether ethical, legal, environmental,*  
10 *safety, security, and other appropriate societal*  
11 *issues are adequately addressed by the Initiative.*

12           (3) *REPORTS.—Beginning not later than 2 years*  
13 *after the date of enactment of this Act, and not less*  
14 *frequently than once every 3 years thereafter, the ad-*  
15 *visory committee shall submit to the President, the*  
16 *Committee on Science, Space, and Technology of the*  
17 *House of Representatives, and the Committee on Com-*  
18 *merce, Science, and Transportation of the Senate, a*  
19 *report on—*

20           (A) *the findings of the advisory committee’s*  
21 *assessment under paragraph (2); and*

22           (B) *the advisory committee’s recommenda-*  
23 *tions for ways to improve the Initiative.*

24           (4) *APPLICATION OF FEDERAL ADVISORY COM-*  
25 *MITTEE ACT.—Section 14 of the Federal Advisory*

1        *Committee Act (5 U.S.C. App.) shall not apply to the*  
2        *advisory committee.*

3            (5) *TERMINATION.*—*The advisory committee es-*  
4        *tablished under paragraph (1) shall terminate on the*  
5        *date that is 10 years after the date of the enactment*  
6        *of this Act.*

7        (g) *EXTERNAL REVIEW OF ETHICAL, LEGAL, ENVI-*  
8        *RONMENTAL, SAFETY, SECURITY, AND SOCIETAL ISSUES.*—

9            (1) *IN GENERAL.*—*Not later than 6 months after*  
10        *the date of enactment of this Act, the Director shall*  
11        *seek to enter into an agreement with the National*  
12        *Academies of Sciences, Engineering, and Medicine to*  
13        *conduct a review, and make recommendations with*  
14        *respect to, the ethical, legal, environmental, safety, se-*  
15        *curity, and other appropriate societal issues related to*  
16        *engineering biology research and development. The re-*  
17        *view shall include—*

18            (A) *an assessment of the current research on*  
19        *such issues;*

20            (B) *a description of the research gaps relat-*  
21        *ing to such issues;*

22            (C) *recommendations on how the Initiative*  
23        *can address the research needs identified pursu-*  
24        *ant to subparagraph (B); and*

1           (D) *recommendations on how researchers*  
2           *engaged in engineering biology can best incor-*  
3           *porate considerations of ethical, legal, environ-*  
4           *mental, safety, security, and other societal issues*  
5           *into the development of research proposals and*  
6           *the conduct of research.*

7           (2) *REPORT TO CONGRESS.—The agreement en-*  
8           *tered into under paragraph (1) shall require the Na-*  
9           *tional Academies of Sciences, Engineering, and Medi-*  
10          *cine to, not later than 2 years after the date of the*  
11          *enactment of this Act—*

12           (A) *submit to the Committee on Science,*  
13           *Space, and Technology of the House of Rep-*  
14           *resentatives and the Committee on Commerce,*  
15           *Science, and Transportation of the Senate a re-*  
16           *port containing the findings and recommenda-*  
17           *tions of the review conducted under paragraph*  
18           *(1); and*

19           (B) *make a copy of such report available on*  
20           *a publicly accessible website.*

21          (h) *AGENCY ACTIVITIES.—*

22           (1) *NATIONAL SCIENCE FOUNDATION.—As part*  
23           *of the Initiative, the Foundation shall—*

24           (A) *support basic research in engineering*  
25           *biology through individual grants, collaborative*

1 grants, and through interdisciplinary research  
2 centers;

3 (B) support research on the environmental,  
4 legal, ethical, and social implications of engi-  
5 neering biology;

6 (C) provide support for research instrumen-  
7 tation for engineering biology disciplines, includ-  
8 ing support for research, development, optimiza-  
9 tion and validation of novel technologies to en-  
10 able the dynamic study of molecular processes in  
11 situ;

12 (D) support curriculum development and  
13 research experiences for secondary, under-  
14 graduate, and graduate students in engineering  
15 biology and biomanufacturing; and

16 (E) award grants, on a competitive basis, to  
17 enable institutions to support graduate students  
18 and postdoctoral fellows who perform some of  
19 their engineering biology research in an industry  
20 setting.

21 (2) DEPARTMENT OF COMMERCE.—

22 (A) NATIONAL INSTITUTE OF STANDARDS  
23 AND TECHNOLOGY.—As part of the Initiative, the  
24 Director of the National Institute of Standards  
25 and Technology shall—

1           (i) *establish a bioscience research pro-*  
2           *gram to advance the development of stand-*  
3           *ard reference materials and measurements*  
4           *and to create new data tools, techniques,*  
5           *and processes necessary to advance engi-*  
6           *neering biology and biomanufacturing;*

7           (ii) *provide access to user facilities*  
8           *with advanced or unique equipment, serv-*  
9           *ices, materials, and other resources to in-*  
10          *dustry, institutions of higher education,*  
11          *nonprofit organizations, and government*  
12          *agencies to perform research and testing;*  
13          *and*

14          (iii) *provide technical expertise to in-*  
15          *form the potential development of guidelines*  
16          *or safeguards for new products, processes,*  
17          *and systems of engineering biology.*

18          (B) *NATIONAL OCEANIC AND ATMOSPHERIC*  
19          *ADMINISTRATION.—As part of the initiative, the*  
20          *Administrator of the National Oceanic and At-*  
21          *mospheric Administration shall—*

22               (i) *establish a program to conduct and*  
23               *support omics research and associated*  
24               *bioinformatic sciences to increase efficiency*  
25               *and promote a sustainable bioeconomy (blue*

1           *economy) to develop the next generation of*  
2           *tools and products to improve ecosystem*  
3           *stewardship, monitoring, management, as-*  
4           *sessments, and forecasts; and*

5                     *(ii) collaborate with other agencies to*  
6           *understand potential environmental threats*  
7           *and safeguards relating to engineering biol-*  
8           *ogy.*

9           (3) *DEPARTMENT OF ENERGY.—As part of the*  
10          *Initiative, the Secretary of Energy shall—*

11                     *(A) conduct and support research, develop-*  
12          *ment, demonstration, and commercial applica-*  
13          *tion activities in engineering biology, including*  
14          *in the areas of synthetic biology, advanced*  
15          *biofuel development, biobased materials, and en-*  
16          *vironmental remediation;*

17                     *(B) support the development, optimization*  
18          *and validation of novel, scalable tools and tech-*  
19          *nologies to enable the dynamic study of molec-*  
20          *ular processes in situ; and*

21                     *(C) provide access to user facilities with ad-*  
22          *vanced or unique equipment, services, materials,*  
23          *and other resources, including secure access to*  
24          *high-performance computing, as appropriate, to*  
25          *industry, institutions of higher education, non-*



1           *profit organizations, and government agencies to*  
2           *perform research and testing.*

3           (4) *DEPARTMENT OF DEFENSE.—As part of the*  
4           *Initiative, the Secretary of Defense shall—*

5                     (A) *conduct and support research and devel-*  
6                     *opment in engineering biology and associated*  
7                     *data and information sciences;*

8                     (B) *support curriculum development and*  
9                     *research experiences in engineering biology and*  
10                    *associated data and information sciences across*  
11                    *the military education system, to include service*  
12                    *academies, professional military education, and*  
13                    *military graduate education; and*

14                    (C) *assess risks of potential national secu-*  
15                    *rity and economic security threats relating to en-*  
16                    *gineering biology.*

17           (5) *NATIONAL AERONAUTICS AND SPACE ADMIN-*  
18            *ISTRATION.—As part of the Initiative, the National*  
19            *Aeronautics and Space Administration shall—*

20                    (A) *conduct and support basic and applied*  
21                    *research in engineering biology, including in*  
22                    *synthetic biology, and related to Earth and space*  
23                    *sciences, aeronautics, space technology, and space*  
24                    *exploration and experimentation, consistent with*

1           *the priorities established in the National Acad-*  
2           *emies' decadal surveys; and*

3                   *(B) award grants, on a competitive basis,*  
4           *that enable institutions to support graduate stu-*  
5           *dents and postdoctoral fellows who perform some*  
6           *of their engineering biology research in an in-*  
7           *dustry setting.*

8           *(6) DEPARTMENT OF AGRICULTURE.—As part of*  
9           *the Initiative, the Secretary of Agriculture shall—*

10                   *(A) support research and development in*  
11           *engineering biology, including in synthetic biol-*  
12           *ogy and biomaterials;*

13                   *(B) award grants through the National In-*  
14           *stitute of Food and Agriculture; and*

15                   *(C) support development conducted by the*  
16           *Agricultural Research Service.*

17           *(7) ENVIRONMENTAL PROTECTION AGENCY.—As*  
18           *part of the Initiative, the Environmental Protection*  
19           *Agency shall support research on how products, proc-*  
20           *esses, and systems of engineering biology will affect or*  
21           *can protect the environment.*

22           *(8) DEPARTMENT OF HEALTH AND HUMAN SERV-*  
23           *ICES.—As part of the Initiative, the Secretary of*  
24           *Health and Human Services, as appropriate and con-*  
25           *sistent with activities of the Department of Health*

1        *and Human Services in effect on the day before the*  
2        *date of the enactment of this Act, shall—*

3                *(A) support research and development to*  
4                *advance the understanding and application of*  
5                *engineering biology for human health;*

6                *(B) support relevant interdisciplinary re-*  
7                *search and coordination; and*

8                *(C) support activities necessary to facilitate*  
9                *oversight of relevant emerging biotechnologies.*

10        *(i) RULE OF CONSTRUCTION.—Nothing in this section*  
11        *shall be construed to require public disclosure of informa-*  
12        *tion that is exempt from mandatory disclosure under sec-*  
13        *tion 552 of title 5, United States Code.*

14        **SEC. 218. MICROGRAVITY UTILIZATION POLICY.**

15        *(a) SENSE OF CONGRESS.—It is the sense of Congress*  
16        *that space technology and the utilization of the micro-*  
17        *gravity environment for science, engineering, and tech-*  
18        *nology development is critical to long-term competitiveness*  
19        *with near-peer competitors, including China.*

20        *(b) POLICY.—To the greatest extent appropriate, the*  
21        *Foundation shall facilitate access to the microgravity envi-*  
22        *ronment for awardees of funding from the Foundation, in-*  
23        *cluding in private sector platforms, for the development of*  
24        *science, engineering, and technology.*

1       (c) *REPORT.*—Not later than 180 days after the date  
 2 of enactment of this Act, the Director shall provide to the  
 3 appropriate committees of Congress a report on the Foun-  
 4 dation’s plan for facilitating awardee access to the micro-  
 5 gravity environment.

6       ***TITLE III—RESEARCH SECURITY***

7       ***SEC. 301. NATIONAL SCIENCE FOUNDATION RESEARCH SE-***  
 8                                   ***CURITY.***

9       (a) *RESEARCH SECURITY AND POLICY OFFICE.*—The  
 10 Director shall establish and maintain a research security  
 11 and policy office within the Office of the Director. The func-  
 12 tions of the research security and policy office shall be to  
 13 coordinate all research security policy issues across the  
 14 Foundation, including by—

15               (1) *serving as a resource at the Foundation for*  
 16               *all policy issues related to the security and integrity*  
 17               *of the conduct of research supported by the Founda-*  
 18               *tion;*

19               (2) *conducting outreach and education activities*  
 20               *for awardees on research policies and potential secu-*  
 21               *rity risks;*

22               (3) *educating Foundation program managers*  
 23               *and other staff on evaluating Foundation awards and*  
 24               *awardees for potential security risks;*

1           (4) *communicating reporting and disclosure re-*  
2           *quirements to awardees and applicants for funding;*

3           (5) *consulting and coordinating with the Foun-*  
4           *ation Office of Inspector General and with other*  
5           *Federal science agencies, as appropriate, and through*  
6           *the National Science and Technology Council in ac-*  
7           *cordance with the authority provided under section*  
8           *1746 of the National Defense Authorization Act for*  
9           *Fiscal Year 2020 (Public Law 116–92; 42 U.S.C.*  
10          *6601 note), to identify and address potential security*  
11          *risks that threaten research integrity and other risks*  
12          *to the research enterprise and to develop research se-*  
13          *curity policy and best practices;*

14          (6) *performing risk assessments, in consultation,*  
15          *as appropriate, with other Federal agencies, of Foun-*  
16          *ation proposals and awards using analytical tools to*  
17          *assess nondisclosures of required information that*  
18          *could indicate breaches of research integrity or poten-*  
19          *tially fraudulent activity that would be referred to the*  
20          *Foundation Office of Inspector General;*

21          (7) *establishing policies and procedures for safe-*  
22          *guarding sensitive research information and tech-*  
23          *nology, working in consultation, as appropriate, with*  
24          *other Federal agencies, to ensure compliance with Na-*  
25          *tional Security Presidential Memorandum–33 (relat-*

1        *ing to strengthening protections of United States Gov-*  
2        *ernment-supported research and development against*  
3        *foreign government interference and exploitation) or a*  
4        *successor policy document; and*

5            *(8) in accordance with relevant policies of the*  
6        *agency, conducting due diligence with regard to ap-*  
7        *plicants for grant funding from the Foundation prior*  
8        *to awarding such funding.*

9        *(b) CHIEF OF RESEARCH SECURITY.—The Director*  
10       *shall appoint a senior agency official within the Office of*  
11       *the Director as a Chief of Research Security, whose primary*  
12       *responsibility is to manage the office established in sub-*  
13       *section (a).*

14       *(c) REPORT TO CONGRESS.—Not later than 180 days*  
15       *after the date of enactment of this Act, the Director shall*  
16       *provide a report on the resources and the number of full-*  
17       *time employees needed to carry out the functions of the of-*  
18       *fice established in subsection (a) to the Committee on Com-*  
19       *merce, Science, and Transportation of the Senate, the Com-*  
20       *mittee on Appropriations of the Senate, the Committee on*  
21       *Science, Space, and Technology of the House of Representa-*  
22       *tives, and the Committee on Appropriations of the House*  
23       *of Representatives.*

24       *(d) ONLINE RESOURCE.—The Director shall develop*  
25       *an online resource hosted on the Foundation’s publicly ac-*

1 *cessible website containing up-to-date information, tailored*  
2 *for institutions of higher education and individual re-*  
3 *searchers, including—*

4           (1) *an explanation of Foundation research secu-*  
5 *rity policies;*

6           (2) *unclassified guidance on potential security*  
7 *risks that threaten research integrity and other risks*  
8 *to the research enterprise;*

9           (3) *examples of beneficial international collabo-*  
10 *rations and how such collaborations differ from for-*  
11 *foreign government interference efforts that threaten re-*  
12 *search integrity;*

13           (4) *best practices for mitigating security risks*  
14 *that threaten research integrity; and*

15           (5) *additional reference materials, including*  
16 *tools that assist organizations seeking Foundation*  
17 *funding and awardees in information disclosure to*  
18 *the Foundation.*

19       (e) *RESEARCH GRANTS.—The Director shall continue*  
20 *to award grants, on a competitive basis, to institutions of*  
21 *higher education or nonprofit organizations (or consortia*  
22 *of such institutions or organizations) to support research*  
23 *on the conduct of research and the research environment,*  
24 *including research on research misconduct, breaches of re-*  
25 *search integrity, and detrimental research practices.*

1           (f) *RESPONSIBLE CONDUCT IN RESEARCH TRAIN-*  
2 *ING.*—Section 7009 of the America Creating Opportunities  
3 *to Meaningfully Promote Excellence in Technology, Edu-*  
4 *cation, and Science Act (42 U.S.C. 18620–1) is amended—*

5                   (1) *by striking “and postdoctoral researchers”*  
6 *and inserting “postdoctoral researchers, faculty, and*  
7 *other senior personnel”; and*

8                   (2) *by inserting before the period at the end the*  
9 *following: “, including training and mentorship to*  
10 *raise awareness of potential security threats and of*  
11 *Federal export control, disclosure, and reporting re-*  
12 *quirements”.*

13           (g) *FUNDING.*—*From any amounts appropriated for*  
14 *the Foundation for each of fiscal years 2022 through 2026,*  
15 *the Director shall allocate \$5,000,000 to carry out this sec-*  
16 *tion for each such year.*

17 **SEC. 302. RESEARCH SECURITY AND INTEGRITY INFORMA-**  
18 **TION SHARING ANALYSIS ORGANIZATION.**

19           (a) *ESTABLISHMENT.*—*The Director of the Office of*  
20 *Science and Technology Policy shall enter into an agree-*  
21 *ment with a qualified independent organization to establish*  
22 *a research security and integrity information sharing anal-*  
23 *ysis organization (referred to in this section as the RSI-*  
24 *ISAO), which shall include members described in subsection*  
25 *(d) and carry out the duties described in subsection (b).*



1       **(b) DUTIES.**—*The RSI-ISAO shall—*

2               (1) *serve as a clearinghouse for information to*  
3 *help enable the members and other entities in the re-*  
4 *search community to understand the context of their*  
5 *research and identify improper or illegal efforts by*  
6 *foreign entities to obtain research results, know how,*  
7 *materials, and intellectual property;*

8               (2) *develop a set of standard risk assessment*  
9 *frameworks and best practices, relevant to the re-*  
10 *search community, to assess research security risks in*  
11 *different contexts;*

12              (3) *share information concerning security threats*  
13 *and lessons learned from protection and response ef-*  
14 *forts through forums and other forms of communica-*  
15 *tion;*

16              (4) *provide timely reports on research security*  
17 *risks to provide situational awareness tailored to the*  
18 *research and education community;*

19              (5) *provide training and support, including*  
20 *through webinars, for relevant faculty and staff em-*  
21 *ployed by institutions of higher education on topics*  
22 *relevant to research security risks and response;*

23              (6) *enable standardized information gathering*  
24 *and data compilation, storage, and analysis for com-*  
25 *puted incident reports;*

1           (7) *support analysis of patterns of risk and iden-*  
2           *tification of bad actors and enhance the ability of*  
3           *members to prevent and respond to research security*  
4           *risks; and*

5           (8) *take other appropriate steps to enhance re-*  
6           *search security.*

7           (c) *FUNDING.—The Foundation may provide initial*  
8           *funds toward the RSI-ISAO, but shall seek to have the fees*  
9           *authorized in subsection (d)(2) cover the costs of operations*  
10          *at the earliest practicable time.*

11          (d) *MEMBERSHIP.—*

12           (1) *IN GENERAL.—The RSI-ISAO shall serve*  
13           *and include members representing institutions of*  
14           *higher education, nonprofit research institutions, and*  
15           *small and medium-sized businesses.*

16           (2) *FEEES.—As soon as practicable, members of*  
17           *the RS-ISAO shall be charged an annual rate to en-*  
18           *able the RSI-ISAO to cover its costs. Rates shall be*  
19           *set on a sliding scale based on research and develop-*  
20           *ment spent to ensure that membership is accessible to*  
21           *a diverse community of stakeholders and ensure broad*  
22           *participation. The RS-ISAO shall develop a plan to*  
23           *sustain the RS-ISAO without Federal funding, as*  
24           *practicable.*

1           (e) *BOARD OF DIRECTORS.*—*The RSI-ISAO may es-*  
2 *tablish a board of directors to provide guidance for policies,*  
3 *legal issues, and plans and strategies of the entity’s oper-*  
4 *ations. The board shall include a diverse group of stake-*  
5 *holders representing the research community, including*  
6 *academia, industry, and experienced research security ad-*  
7 *ministrators.*

8           (f) *DEFINITION OF INSTITUTION OF HIGHER EDU-*  
9 *CATION .*—*The term “institution of higher education” has*  
10 *the meaning given the term in section 101(a) of the Higher*  
11 *Education Act of 1965 (20 U.S.C. 1001(a)).*

12 **SEC. 303. FOREIGN GOVERNMENT TALENT RECRUITMENT**  
13 **PROGRAM PROHIBITION.**

14           (a) *GUIDANCE.*—*Not later than 180 days after the date*  
15 *of enactment of this Act, the Director of the Office of Science*  
16 *and Technology Policy shall, in coordination with the inter-*  
17 *agency working group established under section 1746 of the*  
18 *National Defense Authorization Act for Fiscal Year 2020*  
19 *(Public Law 116–92; 42 U.S.C. 6601 note), publish and*  
20 *widely distribute a uniform set of policy guidelines for Fed-*  
21 *eral science agencies regarding foreign government talent*  
22 *recruitment programs. These policy guidelines shall—*

23                   (1) *prohibit all personnel of each Federal science*  
24 *agency, including Federal employees, contract em-*  
25 *ployees, independent contractors, individuals serving*

1        *under the Intergovernmental Personnel Act of 1970*  
2        *(42 U.S.C. 4701 et seq.), Visiting Scientist Engineer*  
3        *and Educator appointments, and special government*  
4        *employees, from participating in a foreign govern-*  
5        *ment talent recruitment program;*

6            *(2) prohibit awards from being made for any*  
7        *proposal in which the principal investigator, any in-*  
8        *dividual listed on the application for the award with*  
9        *direct involvement in the proposal, or co-principal in-*  
10       *vestigator is participating in a foreign government*  
11       *talent recruitment program of the People's Republic*  
12       *of China, the Democratic People's Republic of Korea,*  
13       *the Russian Federation, or the Islamic Republic of*  
14       *Iran; and*

15           *(3) to the extent practicable, require institutions*  
16       *receiving funding to prohibit awards from being used*  
17       *by any individuals participating in a foreign govern-*  
18       *ment talent recruitment program of the People's Re-*  
19       *public of China, the Democratic People's Republic of*  
20       *Korea, the Russian Federation, or the Islamic Repub-*  
21       *lic of Iran.*

22        *(b) PROHIBITION.—Not later than 1 year after the date*  
23       *of enactment of this Act, each Federal science agency shall*  
24       *issue a policy, utilizing the policy guidelines developed*  
25       *under subsection (a).*

1       (c) *EXEMPTION.*—The policy developed under sub-  
2 section (b) may include an exemption for participation in  
3 international conferences or other international exchanges,  
4 partnerships, or programs, as sanctioned or approved by  
5 the Federal science agency. When such participation is au-  
6 thorized, the Federal science agency shall ensure training  
7 is provided to the participant on how to respond to over-  
8 tures from individuals associated with foreign government  
9 talent recruitment programs.

10       (d) *REPORT.*—Not later than 2 years after the date  
11 of enactment of this Act, each Federal science agency shall  
12 report to Congress on the steps it has taken to implement  
13 this section.

14       (e) *FOREIGN GOVERNMENT TALENT RECRUITMENT*  
15 *PROGRAMS.*—In addition to existing authorities for pre-  
16 venting waste, fraud, abuse, and mismanagement of Federal  
17 funds, each Federal science agency shall require, as a condi-  
18 tion of an award, that the senior personnel designated by  
19 the United States institution applying for Federal funding  
20 submit foreign government talent recruitment program con-  
21 tracts to the agency if the principal investigator or a co-  
22 principal investigator discloses membership in a foreign  
23 government talent recruitment program other than a pro-  
24 gram of the People’s Republic of China, the Democratic Peo-  
25 ple’s Republic of Korea, the Russian Federation, or the Is-

1 *Islamic Republic of Iran. The United States institution, as*  
2 *the award applicant, shall ensure, to the maximum extent*  
3 *practicable, that the contract conforms with the Federal*  
4 *science agency's guidance on conflicts of interest, including*  
5 *those contained in relevant contract proposal and award*  
6 *policies and procedures. Each Federal science agency shall*  
7 *review the contract and may prohibit funding to the award-*  
8 *ee if the obligations in the contract interfere with the capac-*  
9 *ity for activities receiving support to be carried out, or cre-*  
10 *ate duplication with Federally supported activities.*

11 *(f) CONSISTENCY.—The Director of the Office of*  
12 *Science and Technology Policy shall ensure that the policies*  
13 *issued by Federal science agencies under subsection (b) are*  
14 *consistent to the greatest extent practicable.*

15 *(g) DEFINITION.—For purposes of this section and sec-*  
16 *tion 304, the term “foreign government talent recruitment*  
17 *program” has the meaning given the term “foreign govern-*  
18 *ment-sponsored talent recruitment program” in National*  
19 *Security Presidential Memorandum–33 (relating to*  
20 *strengthening protections of United States Government-sup-*  
21 *ported research and development against foreign govern-*  
22 *ment interference and exploitation) or a successor policy*  
23 *document.*

1 **SEC. 304. ADDITIONAL REQUIREMENTS FOR DIRECTORATE**  
2 **RESEARCH SECURITY.**

3 (a) *INITIATIVE REQUIRED.*—*The Director shall, in*  
4 *consultation with other appropriate Federal agencies, estab-*  
5 *lish an initiative to work with institutions of higher edu-*  
6 *cation that perform research and technology development*  
7 *activities under the Directorate—*

8 (1) *to support protection of intellectual property,*  
9 *consistent with the controls relevant to the grant or*  
10 *award, key personnel, and information about critical*  
11 *technologies relevant to national security;*

12 (2) *to limit undue influence, including through*  
13 *foreign government talent recruitment programs, by*  
14 *countries to exploit United States technology within*  
15 *the Foundation research, science and technology, and*  
16 *innovation enterprise, including research funded by*  
17 *the Directorate; and*

18 (3) *to support efforts toward development of do-*  
19 *mestic talent in relevant scientific and engineering*  
20 *fields.*

21 (b) *COORDINATION.*—*The initiative established under*  
22 *subsection (a) shall be developed and executed to the max-*  
23 *imum extent practicable with academic research institu-*  
24 *tions and other educational and research organizations.*

25 (c) *REQUIREMENTS.*—*The initiative established under*  
26 *subsection (a) shall include development of the following:*

1           (1) *Training developed and delivered in con-*  
2           *sultation with institutions of higher education and*  
3           *appropriate Federal agencies, and other support to*  
4           *institutions of higher education, to promote security*  
5           *of controlled information, as appropriate, including*  
6           *best practices for protection of controlled information.*

7           (2) *The capacity of institutions of higher edu-*  
8           *cation to assess whether individuals affiliated with*  
9           *Directorate programs have participated in or are cur-*  
10          *rently participating in foreign government talent re-*  
11          *ruitment program programs.*

12          (3) *Opportunities to collaborate with Directorate*  
13          *awardees to promote protection of controlled informa-*  
14          *tion as appropriate and strengthen defense against*  
15          *foreign intelligence services.*

16          (4) *As appropriate, regulations and proce-*  
17          *dures—*

18                 (A) *for government and academic organiza-*  
19                 *tions and personnel to support the goals of the*  
20                 *initiative; and*

21                 (B) *that are consistent with policies that*  
22                 *protect open and scientific exchange in funda-*  
23                 *mental research.*

24          (5) *Policies to limit or prohibit funding provided*  
25          *by the Foundation for individual researchers who*



1 *knowingly violate regulations developed under the ini-*  
2 *tiative, including policies relating to foreign govern-*  
3 *ment talent recruitment programs.*

4 (6) *Policies to limit or prohibit funding provided*  
5 *by the Foundation for institutions that knowingly*  
6 *violate regulations developed under the initiative, in-*  
7 *cluding policies relating to foreign government talent*  
8 *recruitment programs.*

9 (d) *DEPARTMENT OF DEFENSE EFFORTS.—In car-*  
10 *rying out this section, the Foundation shall consider the*  
11 *efforts undertaken by the Department of Defense to secure*  
12 *defense research, including as provided under section 1286*  
13 *of the John S. McCain National Defense Authorization Act*  
14 *for Fiscal Year 2019 (10 U.S.C. 2358 note).*

15 (e) *ANNUAL REPORT.—*

16 (1) *IN GENERAL.—Not later than 1 year after*  
17 *date of enactment of this Act, and annually there-*  
18 *after, the Director, shall submit to Congress a report*  
19 *on the activities carried out under the initiative es-*  
20 *tablished under subsection (a).*

21 (2) *CONTENTS.—The report required by para-*  
22 *graph (1) shall include the following:*

23 (A) *A description of the activities conducted*  
24 *and the progress made under the initiative.*

1           (B) *The findings of the Director with re-*  
2           *spect to the initiative.*

3           (C) *Such recommendations as the Director*  
4           *may have for legislative or administrative action*  
5           *relating to the matters described in subsection*  
6           *(a).*

7           (D) *Identification and discussion of the*  
8           *gaps in legal authorities that need to be im-*  
9           *proved to enhance the security of research insti-*  
10          *tutions of higher education performing Direc-*  
11          *torate research.*

12          (E) *Information on Foundation Inspector*  
13          *General cases, as appropriate, relating to undue*  
14          *influence to security threats to academic research*  
15          *activities funded by the Foundation, including*  
16          *theft of property or intellectual property relating*  
17          *to a project funded by the Department at an in-*  
18          *stitution of higher education.*

19          (3) *FORM.—The report submitted under para-*  
20          *graph (1) shall be submitted in both unclassified and*  
21          *classified formats, as appropriate.*

22   **SEC. 305. PROTECTING RESEARCH FROM CYBER THEFT.**

23          (a) *IMPROVING CYBERSECURITY OF INSTITUTIONS OF*  
24          *HIGHER EDUCATION.—Section 2(e)(1)(A) of the National*

1 *Institute of Standards and Technology Act (15 U.S.C.*

2 *272(e)(1)(A)) is amended—*

3 *(1) in clause (viii), by striking “and” after the*  
4 *semicolon;*

5 *(2) by redesignating clause (ix) as clause (x);*  
6 *and*

7 *(3) by inserting after clause (viii) the following:*

8 *“(ix) consider institutions of higher*  
9 *education (as defined in section 101 of the*  
10 *Higher Education Act of 1965 (20 U.S.C.*  
11 *1001)); and”.*

12 *(b) DISSEMINATION OF RESOURCES FOR RESEARCH*  
13 *INSTITUTIONS.—*

14 *(1) IN GENERAL.—Not later than 90 days after*  
15 *the date of enactment of this Act, the Director shall,*  
16 *using the authorities of the Director under subsection*  
17 *(e)(1)(A)(ix) of section 2 of the National Institute of*  
18 *Standards and Technology Act (15 U.S.C. 272), as*  
19 *amended by subsection (a), disseminate and make*  
20 *publicly available resources to help research institu-*  
21 *tions and institutions of higher education identify,*  
22 *protect the institution involved from, detect, respond*  
23 *to, and recover to manage the cybersecurity risk of the*  
24 *institution involved related to conducting research.*

1           (2) *REQUIREMENTS.*—*The Director shall ensure*  
2 *that the resources disseminated pursuant to para-*  
3 *graph (1)—*

4                   (A) *are generally applicable and usable by*  
5 *a wide range of research institutions and insti-*  
6 *tutions of higher education;*

7                   (B) *vary with the nature and size of the im-*  
8 *plementing research institutions or institutions*  
9 *of higher education, and the nature and sensi-*  
10 *tivity of the data collected or stored on the infor-*  
11 *mation systems or devices of the implementing*  
12 *research institutions or institutions of higher*  
13 *education;*

14                   (C) *include elements that promote aware-*  
15 *ness of simple, basic controls, a workplace cyber-*  
16 *security culture, and third-party stakeholder re-*  
17 *lationships, to assist research institutions or in-*  
18 *stitutions of higher education in mitigating com-*  
19 *mon cybersecurity risks;*

20                   (D) *include case studies of practical appli-*  
21 *cation;*

22                   (E) *are technology-neutral and can be im-*  
23 *plemented using technologies that are commercial*  
24 *and off-the-shelf; and*

1                   (F) to the extent practicable, are based on  
2                   international standards.

3                   (3) NATIONAL CYBERSECURITY AWARENESS AND  
4                   EDUCATION PROGRAM.—The Director shall ensure  
5                   that the resources disseminated under paragraph (1)  
6                   are consistent with the efforts of the Director under  
7                   section 303 of the Cybersecurity Enhancement Act of  
8                   2014 (15 U.S.C. 7443).

9                   (4) UPDATES.—The Director shall review peri-  
10                  odically and update the resources under paragraph  
11                  (1) as the Director determines appropriate.

12                  (5) VOLUNTARY RESOURCES.—The use of the re-  
13                  sources disseminated under paragraph (1) shall be  
14                  considered voluntary.

15                  (6) OTHER FEDERAL CYBERSECURITY REQUIRE-  
16                  MENTS.—Nothing in this section may be construed to  
17                  supersede, alter, or otherwise affect any cybersecurity  
18                  requirements applicable to Federal agencies.

19                  (c) DEFINITIONS.—In this section:

20                  (1) DIRECTOR.—The term “Director” means the  
21                  Director of the National Institute of Standards and  
22                  Technology.

23                  (2) RESOURCES.—The term “resources” means  
24                  guidelines, tools, best practices, standards, methodolo-  
25                  gies, and other ways of providing information.

1           (3) *RESEARCH INSTITUTION*.—The term “re-  
2           search institution”—

3                   (A) means a nonprofit institution (as de-  
4           fined in section 4(3) of the Stevenson-Wydler  
5           Technology Innovation Act of 1980 (15 U.S.C.  
6           3703(3)); and

7                   (B) includes Federally funded research and  
8           development centers, as identified by the Na-  
9           tional Science Foundation in accordance with  
10          the Federal Acquisition Regulation issued in ac-  
11          cordance with section 1303(a)(1) of title 41 (or  
12          any successor regulation).

13 **SEC. 306. INTERNATIONAL STANDARDS DEVELOPMENT.**

14          (a) *FINDINGS*.—Congress finds the following:

15                   (1) Widespread use of standards facilitates tech-  
16          nology advancement by defining and establishing  
17          common foundations for interoperability, product dif-  
18          ferentiation, technological innovation, and other  
19          value-added services.

20                   (2) Standards also promote an expanded, more  
21          interoperable, and efficient marketplace.

22                   (3) Global cooperation and coordination on  
23          standards for emerging technologies will be critical for  
24          having a consistent set of approaches to enable market

1        *competition, preclude barriers to trade, and allow in-*  
2        *novation to flourish.*

3                *(4) The People’s Republic of China’s Standard-*  
4        *ization Reform Plan and Five-Year Plan for Stand-*  
5        *ardization highlight its high-level goals to establish*  
6        *China as a standards power by 2020, participate in*  
7        *at least half of all standards drafting and revision ef-*  
8        *forts in recognized international standards setting or-*  
9        *ganizations, and strengthen China’s participation in*  
10       *the governance of international standards setting or-*  
11       *ganizations.*

12               *(5) As emerging technologies develop for global*  
13       *deployment, it is critical that the United States and*  
14       *its allies continue to participate in the development*  
15       *of standards that underpin the technologies them-*  
16       *selves, and the future international governance of*  
17       *these technologies.*

18               *(6) The United States position on standardiza-*  
19       *tion in emerging technologies will be critical to*  
20       *United States economic competitiveness.*

21               *(7) The National Institute of Standards and*  
22       *Technology is in a unique position to strengthen*  
23       *United States leadership in standards development,*  
24       *particularly for emerging technologies, to ensure con-*

1 *tinuing United States economic competitiveness and*  
2 *national security.*

3 *(b) SENSE OF CONGRESS.—It is the sense of Congress*  
4 *that—*

5 *(1) the principles of openness, transparency, due*  
6 *process, and consensus in the development of inter-*  
7 *national standards are critical;*

8 *(2) voluntary consensus standards, developed*  
9 *through an industry-led process, serve as the corner-*  
10 *stone of the United States standardization system and*  
11 *have become the basis of a sound national economy*  
12 *and the key to global market access;*

13 *(3) strengthening the unique United States pub-*  
14 *lic-private partnerships approach to standards devel-*  
15 *opment is critical to United States economic competi-*  
16 *tiveness; and*

17 *(4) the United States Government should ensure*  
18 *cooperation and coordination across Federal agencies*  
19 *to partner with and support private sector stake-*  
20 *holders to continue to shape international dialogues*  
21 *in regard to standards development for emerging tech-*  
22 *nologies.*

23 *(c) ACTIVITIES AND ENGAGEMENT.—The Secretary of*  
24 *Commerce, acting through the Director, shall—*



1           (1) *build capacity and training opportunities to*  
2           *help create a pipeline of talent and leadership in key*  
3           *standards development positions;*

4           (2) *partner with private sector entities to sup-*  
5           *port strategic engagement and leadership in the devel-*  
6           *opment of international standards for digital econ-*  
7           *omy technologies, including partnering with industry*  
8           *to assist private sector partners to develop standards*  
9           *strategies and support engagement and participation*  
10          *in the relevant standards activities; and*

11          (3) *prioritize efforts on standards development*  
12          *for emerging technologies, identify an organization to*  
13          *develop these standards, identify leadership positions*  
14          *of interest to the United States, and identify key con-*  
15          *tributors for technical and leadership expertise in*  
16          *these areas.*

17 **SEC. 307. RESEARCH FUNDS ACCOUNTING.**

18          (a) *DEFINITIONS.—In this section:*

19               (1) *FOREIGN ENTITY OF CONCERN.—The term*  
20               *“foreign entity of concern” means a foreign entity*  
21               *that is—*

22                       (A) *designated as a foreign terrorist organi-*  
23                       *zation by the Secretary of State under section*  
24                       *219(a) of the Immigration and Nationality Act*  
25                       *(8 U.S.C. 1189(a));*

1           (B) included on the list of specially des-  
2           ignated nationals and blocked persons main-  
3           tained by the Office of Foreign Assets Control of  
4           the Department of the Treasury (commonly  
5           known as the SDN list);

6           (C) owned by, controlled by, or subject to  
7           the jurisdiction or direction of a government of  
8           a foreign country that is a covered nation (as de-  
9           fined in section 2533c(d) of title 10, United  
10          States Code);

11          (D) alleged by the Attorney General to have  
12          been involved in activities for which a conviction  
13          was obtained under—

14               (i) chapter 37 of title 18, United States  
15               Code (commonly known as the Espionage  
16               Act);

17               (ii) section 951 or 1030 of title 18,  
18               United States Code;

19               (iii) chapter 90 of title 18, United  
20               States Code (commonly known as the Eco-  
21               nomic Espionage Act of 1996);

22               (iv) the Arms Export Control Act (22  
23               U.S.C. 2751 et seq.);

1                   (v) section 224, 225, 226, 227, or 236  
2                   of the Atomic Energy Act of 1954 (42  
3                   U.S.C. 2274, 2275, 2276, 2277, and 2284);

4                   (vi) the Export Control Reform Act of  
5                   2018 (50 U.S.C. 4801 et seq.); or

6                   (vii) the International Emergency Eco-  
7                   nomic Powers Act (50 U.S.C. 1701 et seq.);  
8                   or

9                   (E) determined by the Secretary of Com-  
10                  merce, in consultation with the Secretary of De-  
11                  fense and the Director of National Intelligence,  
12                  to be engaged in unauthorized conduct that is  
13                  detrimental to the national security or foreign  
14                  policy of the United States.

15               (2) *STUDY PERIOD.*—The term “study period”  
16               means the 5-year period ending on the date of enact-  
17               ment of this Act.

18               (b) *STUDY.*—The Comptroller General of the United  
19               States shall conduct a study on Federal funding made  
20               available, to foreign entities of concern for research, during  
21               the study period.

22               (c) *MATTERS TO BE INCLUDED.*—The study conducted  
23               under subsection (b) shall include, to the extent practicable  
24               with respect to the study period, an assessment of—

1           (1) *the total amount of Federal funding made*  
2           *available to foreign entities of concern for research;*

3           (2) *the total number and types of foreign entities*  
4           *of concern to whom such funding was made available;*

5           (3) *the requirements relating to the awarding,*  
6           *tracking, and monitoring of such funding;*

7           (4) *any other data available with respect to Fed-*  
8           *eral funding made available to foreign entities of con-*  
9           *cern for research; and*

10          (5) *such other matters as the Comptroller Gen-*  
11          *eral determines appropriate.*

12          (d) *BRIEFING ON AVAILABLE DATA.—Not later than*  
13          *120 days after the date of the enactment of this Act, the*  
14          *Comptroller General shall brief the Committee on Com-*  
15          *merce, Science, and Transportation and the Committee on*  
16          *Foreign Relations of the Senate and the Committee on*  
17          *Science, Space, and Technology and the Committee on For-*  
18          *ign Affairs of the House of Representatives on the study*  
19          *conducted under subsection (b) and on the data that is*  
20          *available with respect to Federal funding made available*  
21          *to foreign entities of concern for research.*

22          (e) *REPORT.—The Comptroller General shall submit*  
23          *to the congressional committees specified in subsection (d),*  
24          *by a date agreed upon by the Comptroller General and the*

1 committees on the date of the briefing, a report on the find-  
 2 ings of the study conducted under subsection (b).

3 **SEC. 308. PLAN WITH RESPECT TO SENSITIVE OR CON-**  
 4 **TROLLED INFORMATION AND BACKGROUND**  
 5 **SCREENING.**

6 Not later than 180 days after the enactment of this  
 7 Act, the Director, in consultation with the Director of Na-  
 8 tional Intelligence and, as appropriate, other Federal agen-  
 9 cies, shall develop a plan to—

10 (1) identify research areas that may include sen-  
 11 sitive or controlled information, including in the key  
 12 technology focus areas; and

13 (2) provide for background screening, as appro-  
 14 priate, for individuals working in such research areas  
 15 who are employees of the Foundation or recipients of  
 16 funding from the Foundation.

17 **TITLE IV—REGIONAL**  
 18 **INNOVATION CAPACITY**

19 **SEC. 401. REGIONAL TECHNOLOGY HUBS.**

20 (a) *IN GENERAL.*—The Stevenson-Wydler Technology  
 21 Innovation Act of 1980 (Public Law 96–480; 15 U.S.C.  
 22 3701 et seq.) is amended—

23 (1) by redesignating section 28 as section 29;  
 24 and

25 (2) by inserting after section 27 the following:

1 **“SEC. 28. REGIONAL TECHNOLOGY HUB PROGRAM.**

2 “(a) *DEFINITIONS.*—*In this section:*

3 “(1) *APPROPRIATE COMMITTEES OF CON-*  
4 *GRESS.*—*The term ‘appropriate committees of Con-*  
5 *gress’ means—*

6 “(A) *the Committee on Commerce, Science,*  
7 *and Transportation, the Committee on Environ-*  
8 *ment and Public Works, and the Committee on*  
9 *Appropriations of the Senate; and*

10 “(B) *the Committee on Science, Space, and*  
11 *Technology, the Committee on Transportation*  
12 *and Infrastructure, and the Committee on Ap-*  
13 *propriations of the House of Representatives.*

14 “(2) *COOPERATIVE EXTENSION.*—*The term ‘coop-*  
15 *erative extension’ has the meaning given the term ‘ex-*  
16 *tension’ in section 1404 of the Food and Agriculture*  
17 *Act of 1977 (7 U.S.C. 3103).*

18 “(3) *KEY TECHNOLOGY FOCUS AREAS.*—*The term*  
19 *‘key technology focus areas’ means the areas included*  
20 *on the most recent list under section 5 of the Endless*  
21 *Frontier Act.*

22 “(4) *LABOR ORGANIZATION.*—*The term ‘labor or-*  
23 *ganization’ has the meaning given such term in sec-*  
24 *tion 101 of the Endless Frontier Act.*

25 “(5) *LOW POPULATION STATE.*—*The term ‘low*  
26 *population State’ means a State without an urban-*

1        *ized area with a population greater than 200,000 as*  
2        *reported in the 2010 decennial census.*

3                “(6) *MANUFACTURING EXTENSION CENTER.*—*The*  
4        *term ‘manufacturing extension center’ has the mean-*  
5        *ing given the term ‘Center’ in section 25(a) of the Na-*  
6        *tional Institute of Standards and Technology Act (15*  
7        *U.S.C. 278k(a)).*

8                “(7) *MANUFACTURING USA INSTITUTE.*—*The*  
9        *term ‘Manufacturing USA institute’ means an Manu-*  
10        *facturing USA institute described in section 34(d) of*  
11        *the National Institute of Standards and Technology*  
12        *Act (15 U.S.C. 278s(d)).*

13                “(8) *SITE CONNECTIVITY INFRASTRUCTURE.*—  
14        *The term ‘site connectivity infrastructure’ means lo-*  
15        *calized driveways and access roads to a facility as*  
16        *well as hookups to the new facility for drinking*  
17        *water, waste water, broadband, and other basic infra-*  
18        *structure services already present in the area.*

19                “(9) *SMALL AND RURAL COMMUNITIES.*—*The*  
20        *term ‘small and rural community’ means a noncore*  
21        *area, a micropolitan area, or a small metropolitan*  
22        *statistical area with a population of not more than*  
23        *200,000.*

24                “(10) *VENTURE DEVELOPMENT ORGANIZATION.*—  
25        *The term ‘venture development organization’ has the*

1        *meaning given such term in section 27(a) of the Ste-*  
2        *venson-Wydler Act of 1980 (15 U.S.C. 3722(a)).*

3        *“(b) REGIONAL TECHNOLOGY HUB PROGRAM.—*

4                *“(1) IN GENERAL.—Subject to the availability of*  
5        *appropriations, the Secretary shall carry out a pro-*  
6        *gram—*

7                *“(A) to encourage new and constructive col-*  
8        *laboration among local, State, and Federal gov-*  
9        *ernment entities, academia, the private sector,*  
10       *economic development organizations, and labor*  
11       *organizations;*

12               *“(B) to support eligible consortia in the cre-*  
13       *ation of regional innovation strategies;*

14               *“(C) to designate eligible consortia as re-*  
15       *gional technology hubs and facilitate activities*  
16       *by consortia designated as regional technology*  
17       *hubs in implementing their regional innovation*  
18       *strategies, in order—*

19               *“(i) to enable United States leadership*  
20       *in technology and innovation sectors crit-*  
21       *ical to national and economic security;*

22               *“(ii) to support regional economic de-*  
23       *velopment, including in small cities and*  
24       *rural areas, and diffuse innovation around*  
25       *the United States; and*



1                   “(iii) to support domestic job creation  
2                   and broad-based economic growth; and

3                   “(D) to ensure that the regional technology  
4                   hubs address the intersection of emerging tech-  
5                   nologies and either local and regional challenges  
6                   or national challenges; and

7                   “(E) to conduct ongoing research, evalua-  
8                   tion, analysis, and dissemination of best prac-  
9                   tices for regional development and competitive-  
10                  ness in technology and innovation.

11                  “(2) AWARDS.—The Secretary shall carry out  
12                  the program required by paragraph (1) through the  
13                  award of the following:

14                  “(A) Strategy development grants or cooper-  
15                  ative agreements to eligible consortia under sub-  
16                  section (e).

17                  “(B) Strategy implementation grants or co-  
18                  operative agreements to regional technology hubs  
19                  under subsection (f).

20                  “(3) ADMINISTRATION.—The Secretary shall  
21                  carry out this section through the Assistant Secretary  
22                  of Commerce for Economic Development in coordina-  
23                  tion with the Under Secretary of Commerce for  
24                  Standards and Technology.

1       “(c) *ELIGIBLE CONSORTIA.*—For purposes of this sec-  
2 *tion, an eligible consortium is a consortium that—*

3               “(1) *includes 1 or more—*

4                       “(A) *institutions of higher education;*

5                       “(B) *local or Tribal governments or other*  
6 *political subdivisions of a State;*

7                       “(C) *State governments represented by an*  
8 *agency designated by the governor of the State or*  
9 *States that is representative of the geographic*  
10 *area served by the consortia;*

11                      “(D) *economic development organizations or*  
12 *similar entities that are focused primarily on*  
13 *improving science, technology, innovation, or en-*  
14 *trepreneurship;*

15                      “(E) *industry or firms in relevant tech-*  
16 *nology or innovation sectors;*

17                      “(F) *labor organizations or workforce train-*  
18 *ing organizations, including State and local*  
19 *workforce development boards as established*  
20 *under section 101 and 107 of the Workforce In-*  
21 *vestment and Opportunity Act (29 U.S.C. 3111;*  
22 *3122); and*

23               “(2) *may include 1 or more—*

24                      “(A) *nonprofit economic development enti-*  
25 *ties with relevant expertise, including a district*

1           organization (as defined in section 300.3 of title  
2           13, Code of Federal Regulations, or successor reg-  
3           ulation);

4                   “(B) venture development organizations;

5                   “(C) financial institutions and investment  
6           funds;

7                   “(D) primary and secondary educational  
8           institutions, including career and technical edu-  
9           cation schools;

10                   “(E) National Laboratories (as defined in  
11           section 2 of the Energy Policy Act of 2005 (42  
12           U.S.C. 15801));

13                   “(F) Federal laboratories;

14                   “(G) Manufacturing extension centers;

15                   “(H) Manufacturing USA institutes;

16                   “(I) institutions receiving an award under  
17           section 104 of the Endless Frontier Act; and

18                   “(J) a cooperative extension.

19           “(d) DESIGNATION OF REGIONAL TECHNOLOGY  
20 HUBS.—

21                   “(1) IN GENERAL.—In carrying out subsection  
22           (b)(1)(C), the Secretary shall use a competitive proc-  
23           ess to designate eligible consortia as regional tech-  
24           nology hubs.

1           “(2) *GEOGRAPHIC DISTRIBUTION.*—*In con-*  
2           *ducting the competitive process under paragraph (1),*  
3           *the Secretary shall ensure geographic distribution in*  
4           *the designation of regional technology hubs by—*

5                   “(A) *seeking to designate at least three tech-*  
6                   *nology hubs in each region covered by a regional*  
7                   *office of the Economic Development Administra-*  
8                   *tion;*

9                   “(B) *focusing on localities that are not lead-*  
10                  *ing technology centers;*

11                  “(C) *ensuring that not fewer than one-third*  
12                  *of eligible consortia designated as regional tech-*  
13                  *nology hubs significantly benefit a small and*  
14                  *rural community, which may include a State de-*  
15                  *scribed in subparagraph (D);*

16                  “(D) *ensuring that not fewer than one-third*  
17                  *of eligible consortia designated as regional tech-*  
18                  *nology hubs include as a member of the eligible*  
19                  *consortia at least 1 member that is a State that*  
20                  *is eligible to receive funding from the Established*  
21                  *Program to Stimulate Competitive Research of*  
22                  *the National Science Foundation; and*

23                  “(E) *ensuring that at least one eligible con-*  
24                  *sortium designated as a regional technology hub*  
25                  *is headquartered in a low population State that*

1           *is eligible to receive funding from the Established*  
2           *Program to Stimulate Competitive Research of*  
3           *the National Science Foundation.*

4           “(3) *RELATION TO CERTAIN GRANT AWARDS.—*  
5           *The Secretary shall not require an eligible consortium*  
6           *to receive a grant or cooperative agreement under*  
7           *subsection (e) in order to be designated as a regional*  
8           *technology hub under paragraph (1) of this sub-*  
9           *section.*

10          “(e) *STRATEGY DEVELOPMENT GRANTS AND COOPER-*  
11 *ATIVE AGREEMENTS.—*

12           “(1) *IN GENERAL.—The Secretary shall use a*  
13           *competitive process to award grants or cooperative*  
14           *agreements to eligible consortia for the development of*  
15           *regional innovation strategies.*

16           “(2) *NUMBER OF RECIPIENTS.—The Secretary*  
17           *shall award a grant or cooperative agreement under*  
18           *paragraph (1) to not fewer than 20 eligible consortia.*

19           “(3) *GEOGRAPHIC DIVERSITY AND REPRESENTA-*  
20           *TION.—*

21           “(A) *IN GENERAL.—The Secretary shall*  
22           *carry out paragraph (1) in a manner that en-*  
23           *sure geographic diversity and representation*  
24           *from communities of differing populations.*

1           “(B) AWARDS TO SMALL AND RURAL COM-  
2           MUNITIES.—In carrying out paragraph (1), the  
3           Secretary shall—

4                   “(i) award not fewer than one-third of  
5                   the grants and cooperative agreements  
6                   under such paragraph to eligible consortia  
7                   that significantly benefit a small and rural  
8                   community, which may include a State de-  
9                   scribed in clause (ii); and

10                   “(ii) award not fewer than one-third of  
11                   the grants and cooperative agreements  
12                   under such paragraph to eligible consortia  
13                   that include as a member of the eligible con-  
14                   sortia at least 1 member that is a State that  
15                   is eligible to receive funding from the Estab-  
16                   lished Program to Stimulate Competitive  
17                   Research of the National Science Founda-  
18                   tion.

19           “(4) USE OF FUNDS.—The amount of a grant or  
20           cooperative agreement awarded under paragraph (1)  
21           shall be as follows:

22                   “(A) To coordinate locally defined planning  
23                   processes, across jurisdictions and agencies, re-  
24                   lating to developing a comprehensive regional  
25                   technology strategy.

1           “(B) To identify regional partnerships for  
2           developing and implementing a comprehensive  
3           regional technology strategy.

4           “(C) To conduct or update assessments to  
5           determine regional needs.

6           “(D) To develop or update goals and strate-  
7           gies to implement an existing comprehensive re-  
8           gional plan.

9           “(E) To identify or implement local zoning  
10          and other code changes necessary to implement a  
11          comprehensive regional technology strategy.

12          “(5) FEDERAL SHARE.—The Federal share of the  
13          cost of an effort carried out using a grant or coopera-  
14          tive agreement awarded under this subsection may  
15          not exceed 80 percent—

16                 “(A) where in-kind contributions may be  
17                 used for all or part of the non-Federal share, but  
18                 Federal funding from other Government sources  
19                 may not count towards the non-Federal share;

20                 “(B) except in the case of an eligible consor-  
21                 tium that represents all or part of a small and  
22                 rural community, the Federal share may be up  
23                 to 90 percent of the total cost, subject to subpara-  
24                 graph (A); and

1           “(C) *except in the case of an eligible consor-*  
2           *tium that is led by a Tribal government, the*  
3           *Federal share may be up to 100 percent of the*  
4           *total cost of the project.*

5           “(f) *STRATEGY IMPLEMENTATION GRANTS AND COOP-*  
6           *ERATIVE AGREEMENTS.—*

7           “(1) *IN GENERAL.—The Secretary shall use a*  
8           *competitive process to award grants or cooperative*  
9           *agreements to regional technology hubs for the imple-*  
10           *mentation of regional innovation strategies, including*  
11           *regional strategies for infrastructure and site develop-*  
12           *ment, in support of the regional technology hub’s*  
13           *plans and programs.*

14           “(2) *USE OF FUNDS.—The amount of a grant or*  
15           *cooperative agreement awarded under subparagraph*  
16           *(A) to a regional technology hub may be used by the*  
17           *regional technology hub to support any of the fol-*  
18           *lowing activities, consistent with the most current re-*  
19           *gional innovation strategy of the regional technology*  
20           *hub:*

21           “(A) *WORKFORCE DEVELOPMENT ACTIVI-*  
22           *TIES.—Workforce development activities, includ-*  
23           *ing activities relating to the following:*

24           “(i) *The creation of partnerships be-*  
25           *tween industry, workforce, and academic*



1           *groups, which may include community col-*  
2           *leges, to create and align technical training*  
3           *and educational programs.*

4           “(ii) *The design, development, and up-*  
5           *dating of educational and training cur-*  
6           *riculum.*

7           “(iii) *The procurement of facilities and*  
8           *equipment, as required to train a technical*  
9           *workforce.*

10          “(iv) *The development and execution of*  
11          *programs to rapidly award certificates or*  
12          *credentials recognized by regional industry*  
13          *groups.*

14          “(v) *The matching of regional employ-*  
15          *ers with a potential new entrant, under-*  
16          *employed, or incumbent workforce.*

17          “(vi) *The expansion of successful train-*  
18          *ing programs at a scale required by the re-*  
19          *gion served by the regional technology hub,*  
20          *including through the use of online edu-*  
21          *cation.*

22          “(B) *BUSINESS AND ENTREPRENEUR DE-*  
23          *VELOPMENT ACTIVITIES.—Business and entre-*  
24          *preneur development activities, including activi-*  
25          *ties relating to the following:*

1           “(i) *The development and growth of re-*  
2           *gional businesses and the training of entre-*  
3           *preneurs.*

4           “(ii) *The support of technology com-*  
5           *mercialization, including funding for ac-*  
6           *tivities relevant to the protection of intellec-*  
7           *tual property.*

8           “(iii) *The development of networks for*  
9           *business and entrepreneur mentorship.*

10          “(C) *TECHNOLOGY MATURATION ACTIVI-*  
11          *TIES.—Technology maturation activities, includ-*  
12          *ing activities relating to the following:*

13               “(i) *The development and deployment*  
14               *of technologies in sectors critical to the re-*  
15               *gion served by the regional technology hub*  
16               *or to national and economic security, in-*  
17               *cluding proof of concept, prototype develop-*  
18               *ment, and testing.*

19               “(ii) *The provision of facilities for*  
20               *technology maturation, including incuba-*  
21               *tors for collaborative development of tech-*  
22               *nologies by private sector, academic, and*  
23               *other entities.*

24               “(iii) *Activities to ensure access to cap-*  
25               *ital for new business formation and busi-*

1            *ness expansion, including by attracting new*  
2            *private, public, and philanthropic invest-*  
3            *ment and by establishing regional venture*  
4            *and loan funds.*

5            *“(iv) Activities determined appropriate*  
6            *by the Secretary under section 27(c)(2) of*  
7            *this Act.*

8            *“(D) INFRASTRUCTURE-RELATED ACTIVI-*  
9            *TIES.—The building of facilities and site*  
10           *connectivity infrastructure necessary to carry*  
11           *out activities described in subparagraphs (A),*  
12           *(B), and (C), including activities relating to the*  
13           *following:*

14           *“(i) Establishing a workforce training*  
15           *center with required tools and instrumenta-*  
16           *tion.*

17           *“(ii) Establishing a facility for tech-*  
18           *nology development, demonstration, and*  
19           *testing.*

20           *“(iii) Establishing collaborative incu-*  
21           *bators to support technology commercializa-*  
22           *tion and entrepreneur training.*

23           *“(3) LIMITATION ON AMOUNT OF AWARDS.—The*  
24           *Secretary shall ensure that no single regional tech-*  
25           *nology hub receives more than 10 percent of the aggre-*

1        *gate amount of the grants and cooperative agreements*  
2        *awarded under this subsection.*

3            “(4) *TERM.*—

4            “(A) *IN GENERAL.*—*The term of a grant or*  
5        *cooperative agreement awarded under this sub-*  
6        *section shall be for such period as the Secretary*  
7        *considers appropriate.*

8            “(B) *RENEWAL.*—*The Secretary may renew*  
9        *a grant or cooperative agreement awarded to a*  
10       *regional technology hub under this subsection as*  
11       *the Secretary considers appropriate if the Sec-*  
12       *retary determines that the performance of the re-*  
13       *gional technology hub is satisfactory.*

14           “(5) *MATCHING REQUIRED.*—

15           “(A) *IN GENERAL.*—*Except in the case of a*  
16       *regional technology hub described in subpara-*  
17       *graph (B), the total amount of all grants award-*  
18       *ed to a regional technology hub under this sub-*  
19       *section in a given year shall not exceed amounts*  
20       *as follows:*

21           “(i) *In the first year of the grant or co-*  
22       *operative agreement, 90 percent of the total*  
23       *operating costs of the regional technology*  
24       *hub in that year.*

1           “(ii) *In the second year of the grant or*  
2           *cooperative agreement, 85 percent of the*  
3           *total operating costs of the regional tech-*  
4           *nology hub in that year.*

5           “(iii) *In the third year of the grant or*  
6           *cooperative agreement, 80 percent of the*  
7           *total operating costs of the regional tech-*  
8           *nology hub in that year.*

9           “(iv) *In the fourth year of the grant or*  
10           *cooperative agreement and each year there-*  
11           *after, 75 percent of the total operating costs*  
12           *of the regional technology hub in that year.*

13           “(B) *SMALL AND RURAL COMMUNITIES AND*  
14           *INDIAN TRIBES.—*

15           “(i) *IN GENERAL.—The total Federal*  
16           *financial assistance awarded in a given*  
17           *year to a regional technology hub under this*  
18           *subsection shall not exceed amounts as fol-*  
19           *lows:*

20           “(I) *In the case of a regional tech-*  
21           *nology hub that represents a small and*  
22           *rural community, in a fiscal year, 90*  
23           *percent of the total funding of the re-*  
24           *gional technology hub in that fiscal*  
25           *year.*

1                   “(II) *In the case of an regional*  
2                   *technology hub that is led by a Tribal*  
3                   *government, in a fiscal year, 100 per-*  
4                   *cent of the total funding of the regional*  
5                   *technology hub in that fiscal year.*

6                   “(ii) *MINIMUM THRESHOLD OF RURAL*  
7                   *REPRESENTATION.—For purposes of clause*  
8                   *(i)(I), the Secretary shall establish a min-*  
9                   *imum threshold of rural representation in*  
10                  *the regional technology hub.*

11                  “(C) *IN-KIND CONTRIBUTIONS.—For pur-*  
12                  *poses of this paragraph, in-kind contributions*  
13                  *may be used for part of the non-Federal share of*  
14                  *the total funding of a regional technology hub in*  
15                  *a fiscal year.*

16                  “(6) *GRANTS FOR INFRASTRUCTURE.—Any*  
17                  *grant or cooperative agreement awarded under this*  
18                  *subsection to support the construction of facilities and*  
19                  *site connectivity infrastructure shall be awarded pur-*  
20                  *suant to section 201 of the Public Works and Eco-*  
21                  *nomie Development Act of 1965 (42 U.S.C. 3141) and*  
22                  *subject to the provisions of such Act, except that sub-*  
23                  *section (b) of such section and sections 204 and 301*  
24                  *of such Act (42 U.S.C. 3144, 3161) shall not apply.*

1           “(7) *RELATION TO CERTAIN GRANT AWARDS.*—  
2           *The Secretary shall not require a regional technology*  
3           *hub to receive a grant or cooperative agreement under*  
4           *subsection (e) in order to receive a grant or coopera-*  
5           *tive agreement under this subsection.*

6           “(g) *APPLICATIONS.*—*An eligible consortium seeking*  
7           *designation as a regional technology hub under subsection*  
8           *(d) or a grant or cooperative agreement under subsection*  
9           *(e) or (f) shall submit to the Secretary an application there-*  
10          *for at such time, in such manner, and containing such in-*  
11          *formation as the Secretary may specify.*

12          “(h) *CONSIDERATIONS FOR DESIGNATION AND AWARD*  
13          *OF STRATEGY DEVELOPMENT GRANTS AND COOPERATIVE*  
14          *AGREEMENTS.*—*In selecting an eligible consortium that*  
15          *submitted an application under subsection (g) for designa-*  
16          *tion under subsection (d) or for a grant or cooperative*  
17          *agreement under subsection (f), the Secretary shall consider,*  
18          *at a minimum, the following:*

19                 “(1) *The potential of the eligible consortium to*  
20                 *advance the research, development, deployment, and*  
21                 *domestic manufacturing of technologies in a key tech-*  
22                 *nology focus area or other technology or innovation*  
23                 *sector critical to national and economic security.*

24                 “(2) *The likelihood of positive regional economic*  
25                 *effect, including increasing the number of high wage*

1        *domestic jobs, and creating new economic opportuni-*  
2        *ties for economically disadvantaged and underrep-*  
3        *resented populations.*

4                *“(3) How the eligible consortium plans to inte-*  
5        *grate with and leverage the resources of 1 or more fed-*  
6        *erally funded research and development centers, Na-*  
7        *tional Laboratories, Federal laboratories, Manufac-*  
8        *turing USA institutes, Hollings Manufacturing Ex-*  
9        *tension Partnership centers, university technology*  
10        *centers established under section 104 of the Endless*  
11        *Frontier Act, the program established under section*  
12        *107 of the such Act, test beds established and operated*  
13        *under section 108 of such Act, or other Federal re-*  
14        *search entities.*

15                *“(4) How the eligible consortium will engage*  
16        *with the private sector, including small- and me-*  
17        *dium-sized businesses to commercialize new tech-*  
18        *nologies and improve the resiliency of domestic sup-*  
19        *ply chains in a key technology focus area or other*  
20        *technology or innovation sector critical to national*  
21        *and economic security.*

22                *“(5) How the eligible consortium will carry out*  
23        *workforce development and skills acquisition pro-*  
24        *gramming, including through partnerships with enti-*  
25        *ties that include State and local workforce develop-*



1        *ment boards, institutions of higher education, includ-*  
2        *ing community colleges, historically Black colleges*  
3        *and universities, Tribal colleges and universities, and*  
4        *minority serving institutions, labor organizations,*  
5        *and workforce development programs, and other re-*  
6        *lated activities authorized by the Secretary, to sup-*  
7        *port the development of a key technology focus area*  
8        *or other technology or innovation sector critical to na-*  
9        *tional and economic security.*

10            *“(6) How the eligible consortium will improve*  
11        *science, technology, engineering, and mathematics*  
12        *education programs in the identified region in ele-*  
13        *mentary and secondary school and higher education*  
14        *institutions located in the identified region to support*  
15        *the development of a key technology focus area or*  
16        *other technology or innovation sector critical to na-*  
17        *tional and economic security.*

18            *“(7) How the eligible consortium plans to de-*  
19        *velop partnerships with venture development organi-*  
20        *zations and sources of private investment in support*  
21        *of private sector activity, including launching new or*  
22        *expanding existing companies, in a key technology*  
23        *focus area or other technology or innovation sector*  
24        *critical to national and economic security.*

1           “(8) *How the eligible consortium plans to orga-*  
2           *nize the activities of regional partners across sectors*  
3           *in support of a regional technology hub.*

4           “(9) *How the eligible consortium will ensure that*  
5           *growth in technology and innovation sectors produces*  
6           *broadly shared opportunity across the identified re-*  
7           *gion, including for economic disadvantaged and*  
8           *underrepresented populations and rural areas.*

9           “(10) *The likelihood efforts served by the consor-*  
10           *tium will be sustained once Federal support ends.*

11           “(11) *How the eligible consortium will—*

12                   “(A) *enhance the economic, environmental,*  
13                   *and energy security of the United States by pro-*  
14                   *moting domestic development, manufacture, and*  
15                   *deployment of innovative clean technologies and*  
16                   *advanced manufacturing practices; and*

17                   “(B) *support translational research, tech-*  
18                   *nology development, manufacturing innovation,*  
19                   *and commercialization activities relating to*  
20                   *clean technology.*

21           “(i) *COORDINATION AND COLLABORATION.—*

22                   “(1) *COORDINATION WITH REGIONAL INNOVATION*  
23                   *PROGRAM.—The Secretary shall work to ensure the*  
24                   *activities under this section do not duplicate activi-*

1 *ties or efforts under section 27, as the Secretary con-*  
2 *siders appropriate.*

3 “(2) *COORDINATION WITH PROGRAMS OF THE*  
4 *NATIONAL INSTITUTE OF STANDARDS AND TECH-*  
5 *NOLOGY.—The Secretary shall coordinate the activi-*  
6 *ties of regional technology hubs designated under this*  
7 *section, the Hollings Manufacturing Extension Part-*  
8 *nership, and the Manufacturing USA Program, as*  
9 *the Secretary considers appropriate, to maintain the*  
10 *effectiveness of a manufacturing extension center or a*  
11 *Manufacturing USA institute.*

12 “(3) *COORDINATION WITH DEPARTMENT OF EN-*  
13 *ERGY PROGRAMS.—The Secretary shall, in collabora-*  
14 *tion with the Secretary of Energy, coordinate the ac-*  
15 *tivities and selection of regional technology hubs des-*  
16 *ignated under this section, as the Secretaries consider*  
17 *appropriate, to maintain the effectiveness of activities*  
18 *at the Department of Energy and the National Lab-*  
19 *oratories.*

20 “(4) *INTERAGENCY COLLABORATION.—In desig-*  
21 *nating regional technology hubs under subsection (d)*  
22 *and awarding grants or cooperative agreements under*  
23 *subsection (f), the Secretary—*

1           “(A) shall collaborate, to the extent possible,  
2           with the interagency working group established  
3           under section 4 of the Endless Frontier Act;

4           “(B) shall collaborate with Federal depart-  
5           ments and agencies whose missions contribute to  
6           the goals of the regional technology hub;

7           “(C) shall consult with the Director of the  
8           National Science Foundation for the purpose of  
9           ensuring that the regional technology hubs are  
10          aligned with relevant science, technology, and en-  
11          gineering expertise; and

12          “(D) may accept funds from other Federal  
13          agencies to support grants, cooperative agree-  
14          ments, and activities under this section.

15          “(j) *PERFORMANCE MEASUREMENT, TRANSPARENCY,*  
16          *AND ACCOUNTABILITY.—*

17                 “(1) *METRICS, STANDARDS, AND ASSESSMENT.—*  
18                 *For each grant and cooperative agreement awarded*  
19                 *under subsection (f) for a regional technology hub, the*  
20                 *Secretary shall—*

21                         “(A) develop metrics, which may include  
22                         metrics relating to domestic job creation, patent  
23                         awards, and business formation and expansion,  
24                         to assess the effectiveness of the activities funded

1           *in making progress toward the purposes set forth*  
2           *under subsection (b)(1);*

3           “(B) *establish standards for the perform-*  
4           *ance of the regional technology hub that are*  
5           *based on the metrics developed under subpara-*  
6           *graph (A); and*

7           “(C) *4 years after the initial award under*  
8           *subsection (f) and every 2 years thereafter until*  
9           *Federal financial assistance under this section*  
10          *for the regional technology hub is discontinued,*  
11          *conduct an assessment of the regional technology*  
12          *hub to confirm whether the performance of the*  
13          *regional technology hub is meeting the standards*  
14          *for performance established under subparagraph*  
15          *(B) of this paragraph.*

16          “(2) *FINAL REPORTS BY RECIPIENTS OF STRAT-*  
17          *EGY IMPLEMENTATION GRANTS AND COOPERATIVE*  
18          *AGREEMENTS.—*

19                 “(A) *IN GENERAL.—The Secretary shall re-*  
20                 *quire each eligible consortium that receives a*  
21                 *grant or cooperative agreement under subsection*  
22                 *(f) for activities of a regional technology hub, as*  
23                 *a condition of receipt of such grant or coopera-*  
24                 *tive agreement, to submit to the Secretary, not*  
25                 *later than 120 days after the last day of the term*

1           *of the grant or cooperative agreement, a report*  
2           *on the activities of the regional technology hub*  
3           *supported by the grant or cooperative agreement.*

4           “(B) *CONTENTS OF REPORT.*—*Each report*  
5           *submitted by an eligible consortium under sub-*  
6           *paragraph (A) shall include the following:*

7                   “(i) *A detailed description of the ac-*  
8                   *tivities carried out by the regional tech-*  
9                   *nology hub using the grant or cooperative*  
10                  *agreement described in subparagraph (A),*  
11                  *including the following:*

12                           “(I) *A description of each project*  
13                           *the regional technology hub completed*  
14                           *using such grant or cooperative agree-*  
15                           *ment.*

16                           “(II) *An explanation of how each*  
17                           *project described in subclause (I)*  
18                           *achieves a specific goal under this sec-*  
19                           *tion in the region of the regional tech-*  
20                           *nology hub with respect to—*

21                                   “(aa) *the resiliency of a sup-*  
22                                   *ply chain;*

23                                   “(bb) *research, development,*  
24                                   *and deployment of a critical tech-*  
25                                   *nology;*

1                   “(cc) workforce training and  
2                   development;

3                   “(dd) domestic job creation;  
4                   or

5                   “(ee) entrepreneurship.

6                   “(ii) A discussion of any obstacles en-  
7                   countered by the regional technology hub in  
8                   the implementation of the regional tech-  
9                   nology hub and how the regional technology  
10                  hub overcame those obstacles.

11                  “(iii) An evaluation of the success of  
12                  the projects of the regional technology hub  
13                  using the performance standards and meas-  
14                  ures established under paragraph (1), in-  
15                  cluding an evaluation of the planning proc-  
16                  ess and how the project contributes to car-  
17                  rying out the regional innovation strategy  
18                  of the regional technology hub.

19                  “(iv) The effectiveness of the regional  
20                  technology hub in ensuring that, in the re-  
21                  gion of the regional technology hub, growth  
22                  in technology and innovation sectors pro-  
23                  duces broadly shared opportunity across the  
24                  region, including for economic disadvan-

1           tagged and underrepresented populations  
2           and rural areas.

3                   “(v) Information regarding such other  
4           matters as the Secretary may require.

5                   “(3) INTERIM REPORTS BY RECIPIENTS OF  
6           GRANTS AND COOPERATIVE AGREEMENTS.—In addi-  
7           tion to requiring submittal of final reports under  
8           paragraph (2)(A), the Secretary may require a re-  
9           gional technology hub described in such paragraph to  
10          submit to the Secretary such interim reports as the  
11          Secretary considers appropriate.

12                   “(4) ANNUAL REPORTS TO CONGRESS.—Not less  
13          frequently than once each year, the Secretary shall  
14          submit to the appropriate committees of Congress an  
15          annual report on the results of the assessments con-  
16          ducted by the Secretary under paragraph (1)(C) dur-  
17          ing the period covered by the report.

18                   “(k) AUTHORIZATION OF APPROPRIATIONS.—There is  
19          authorized to be appropriated to the Secretary, for the pe-  
20          riod of fiscal years 2022 through 2026—

21                   “(1) \$7,540,000,000 to award grants and cooper-  
22          ative agreements under subsection (f); and

23                   “(2) \$460,000,000 to award grants and cooper-  
24          ative agreements under subsection (e).”.

25                   “(b) INITIAL DESIGNATIONS AND AWARDS.—



1           (1) *COMPETITION REQUIRED.*—Not later than  
 2           180 days after the date of the enactment of this Act,  
 3           the Secretary of Commerce shall commence a competi-  
 4           tion under subsection (d)(1) of section 28 of the Ste-  
 5           venson-Wydler Technology Innovation Act of 1980  
 6           (Public Law 96–480), as added by subsection (a).

7           (2) *DESIGNATION AND AWARD.*—Not later than 1  
 8           year after the date of the enactment of this Act, if the  
 9           Secretary has received at least 1 application under  
 10          subsection (g) of such section from an eligible consor-  
 11          tium whom the Secretary considers suitable for des-  
 12          ignation under subsection (d)(1) of such section, the  
 13          Secretary shall—

14                   (A) designate at least 1 regional technology  
 15                   hub under subsection (d)(1) of such section; and

16                   (B) award a grant or cooperative agreement  
 17                   under subsection (f)(1) of such section to each re-  
 18                   gional technology hub designated pursuant to  
 19                   subparagraph (A) of this paragraph.

20 **SEC. 402. MANUFACTURING USA PROGRAM.**

21           (a) *DEFINITIONS.*—In this section:

22           (1) *HISTORICALLY BLACK COLLEGE OR UNIVER-*  
 23           *SITY.*—The term “historically Black college or univer-  
 24           sity” has the meaning given the term “part B institu-

1        *tion” in section 322 of the Higher Education Act of*  
2        *1965 (20 U.S.C. 1061)).*

3            (2) *MANUFACTURING USA INSTITUTE.—The term*  
4        *“Manufacturing USA institute” means an institute*  
5        *described in section 34(d) of the National Institute of*  
6        *Standards and Technology Act (15 U.S.C. 278s(d)).*

7            (3) *MANUFACTURING USA NETWORK.—The term*  
8        *“Manufacturing USA Network” means the network*  
9        *established under section 34(c) of the National Insti-*  
10       *tute of Standards and Technology Act (15 U.S.C.*  
11       *278s(c)).*

12           (4) *MANUFACTURING USA PROGRAM.—The term*  
13        *“Manufacturing USA Program” means the program*  
14        *established under section 34(b)(1) of the National In-*  
15        *stitute of Standards and Technology Act (15 U.S.C.*  
16        *278s(b)(1)).*

17           (5) *MINORITY-SERVING INSTITUTION.—The term*  
18        *“minority-serving institution” means an eligible in-*  
19        *stitution described in section 371(a) of the Higher*  
20        *Education Act of 1965 (20 U.S.C. 1067q(a)).*

21           (6) *NATIONAL PROGRAM OFFICE.—The term*  
22        *“National Program Office” means the National Pro-*  
23        *gram Office established under section 34(h)(1) of the*  
24        *National Institute of Standards and Technology Act*  
25        *(15 U.S.C. 278s(h)(1)).*

1           (7) *TRIBAL COLLEGE OR UNIVERSITY.*—*The term*  
2           *“Tribal college or university” has the meaning given*  
3           *the term in section 316(b)(3) of the Higher Education*  
4           *Act of 1965 (20 U.S.C. 1059c(b)(3)).*

5           (b) *AUTHORIZATION OF APPROPRIATIONS TO EN-*  
6           *HANCE AND EXPAND MANUFACTURING USA PROGRAM AND*  
7           *SUPPORT INNOVATION AND GROWTH IN DOMESTIC MANU-*  
8           *FACTURING.*—*There is authorized to be appropriated*  
9           *\$1,200,000,000 for the period of fiscal years 2022 through*  
10          *2026 for the Secretary of Commerce, acting through the Di-*  
11          *rector of the National Institute of Standards and Tech-*  
12          *nology and in consultation with the Secretary of Energy,*  
13          *the Secretary of Defense, and the heads of such other Federal*  
14          *agencies as the Secretary of Commerce considers relevant—*

15                 (1) *to carry out the Manufacturing USA Pro-*  
16                 *gram, including by awarding financial assistance*  
17                 *under section 34(e) of the National Institute of Stand-*  
18                 *ards and Technology Act (15 U.S.C. 278s(e)) for*  
19                 *Manufacturing USA institutes that were in effect on*  
20                 *the day before the date of the enactment of this Act;*  
21                 *and*

22                 (2) *to expand such program to support innova-*  
23                 *tion and growth in domestic manufacturing.*

24           (c) *DIVERSITY PREFERENCES.*—*Section 34(e) of the*  
25          *National Institute of Standards and Technology Act (15*

1 *U.S.C. 278s(e)) is amended by adding at the end the fol-*  
2 *lowing:*

3           “(8) *DIVERSITY PREFERENCES.*—*In awarding fi-*  
4 *nancial assistance under paragraph (1) for planning*  
5 *or establishing a Manufacturing USA institute, an*  
6 *agency head shall prioritize Manufacturing USA in-*  
7 *stitutes that—*

8                   “(A) *contribute to the geographical diversity*  
9 *of the Manufacturing USA Program;*

10                   “(B) *are located in an area with a low per*  
11 *capita income; and*

12                   “(C) *are located in an area with a high*  
13 *proportion of socially disadvantaged residents.”.*

14           “(d) *COORDINATION BETWEEN MANUFACTURING USA*  
15 *PROGRAM AND HOLLINGS MANUFACTURING EXTENSION*  
16 *PARTNERSHIP.*—*The Secretary shall facilitate the coordina-*  
17 *tion of the activities of the Manufacturing USA Program*  
18 *and the activities of Hollings Manufacturing Extension*  
19 *Partnership with each other to the degree that doing so does*  
20 *not diminish the effectiveness of the ongoing activities of*  
21 *a Manufacturing USA institute or a Center (as the term*  
22 *is defined in section 25(a) of the National Institute of*  
23 *Standards and Technology Act (15 U.S.C. 278k(a)), includ-*  
24 *ing Manufacturing USA institutes entering into agreements*  
25 *with a Center (as so defined) that the Secretary considers*

1 *appropriate to provide services relating to the mission of*  
2 *the Hollings Manufacturing Extension Partnership, includ-*  
3 *ing outreach, technical assistance, workforce development,*  
4 *and technology transfer and adoption assistance to small-*  
5 *and medium-sized manufacturers.*

6       *(e) ADVICE FROM THE NATIONAL MANUFACTURING*  
7 *ADVISORY COUNCIL.—The Secretary shall seek advice from*  
8 *the National Manufacturing Advisory Council on matters*  
9 *concerning investment in and support of the manufacturing*  
10 *workforce within the Manufacturing USA Program, includ-*  
11 *ing those matters covered under section 404(d)(7).*

12       *(f) PARTICIPATION OF MINORITY-SERVING INSTITU-*  
13 *TIONS, HISTORICALLY BLACK COLLEGES AND UNIVER-*  
14 *SITIES, AND TRIBAL COLLEGES AND UNIVERSITIES.—*

15           *(1) IN GENERAL.—The Secretary of Commerce,*  
16 *in consultation with the Secretary of Energy, the Sec-*  
17 *retary of Defense, and the heads of such other Federal*  
18 *agencies as the Secretary of Commerce considers rel-*  
19 *evant, shall coordinate with existing and new Manu-*  
20 *facturing USA institutes to integrate covered entities*  
21 *as active members of the Manufacturing USA insti-*  
22 *tutes, including through the development of pref-*  
23 *erences in selection criteria for proposals to create*  
24 *new Manufacturing USA institutes or renew existing*

1 *Manufacturing USA institutes that are led by a cov-*  
 2 *ered entity.*

3 (2) *COVERED ENTITIES.—For purposes of this*  
 4 *subsection, a covered entity is—*

5 (A) *a minority-serving institution;*

6 (B) *an historically Black college or univer-*  
 7 *sity;*

8 (C) *a Tribal college or university; or*

9 (D) *a minority business enterprise (as de-*  
 10 *defined in section 1400.2 of title 15, Code of Fed-*  
 11 *eral Regulations, or successor regulation).*

12 (g) *DEPARTMENT OF COMMERCE POLICIES TO PRO-*  
 13 *MOTE DOMESTIC PRODUCTION OF TECHNOLOGIES DEVEL-*  
 14 *OPED UNDER MANUFACTURING USA PROGRAM.—*

15 (1) *POLICIES.—*

16 (A) *IN GENERAL.—Each agency head (as*  
 17 *defined in section 34(a) of the National Institute*  
 18 *of Standards and Technology Act (15 U.S.C.*  
 19 *278s(a))) and the Secretary of Defense shall, in*  
 20 *consultation with the Secretary of Commerce, es-*  
 21 *tablish policies to promote the domestic produc-*  
 22 *tion of technologies developed by the Manufac-*  
 23 *turing USA Network.*

1           (B) *ELEMENTS.*—*The policies developed*  
2 *under subparagraph (A) shall include the fol-*  
3 *lowing:*

4           (i) *Measures to partner domestic devel-*  
5 *opers of goods, services, or technologies by*  
6 *Manufacturing USA Network activities*  
7 *with domestic manufacturers and sources of*  
8 *financing.*

9           (ii) *Measures to develop and provide*  
10 *incentives to promote transfer of intellectual*  
11 *property and goods, services, or technologies*  
12 *developed by Manufacturing USA Network*  
13 *activities to domestic manufacturers.*

14           (iii) *Measures to assist with supplier*  
15 *scouting and other supply chain develop-*  
16 *ment, including the use of the Hollings*  
17 *Manufacturing Extension Partnership to*  
18 *carry out such measures.*

19           (iv) *A process to review and approve*  
20 *or deny membership in a Manufacturing*  
21 *USA institute by foreign-owned companies,*  
22 *especially from countries of concern, includ-*  
23 *ing the People’s Republic of China.*

24           (v) *Measures to prioritize Federal pro-*  
25 *curement of goods, services, or technologies*

1           *developed by the Manufacturing USA Net-*  
2           *work activities from domestic sources, as*  
3           *appropriate.*

4           (C) *PROCESSES FOR WAIVERS.*—*The poli-*  
5           *cies established under this paragraph shall in-*  
6           *clude processes to permit waivers, on a case by*  
7           *case basis, for policies that promote domestic*  
8           *production based on cost, availability, severity of*  
9           *technical and mission requirements, emergency*  
10           *requirements, operational needs, other legal or*  
11           *international treaty obligations, or other factors*  
12           *deemed important to the success of the Manufac-*  
13           *turing USA Program.*

14           (2) *PROHIBITION.*—

15           (A) *COMPANY DEFINED.*—*In this para-*  
16           *graph, the term “company” has the meaning*  
17           *given such term in section 847(a) of the National*  
18           *Defense Authorization Act for Fiscal Year 2020*  
19           *(Public Law 116–92; 10 U.S.C. 2509 note).*

20           (B) *IN GENERAL.*—*A company of the Peo-*  
21           *ple’s Republic of China may not participate in*  
22           *the Manufacturing USA Program or the Manu-*  
23           *facturing USA Network without a waiver, as de-*  
24           *scribed in paragraph (1)(C).*



1        *(h) COORDINATION OF MANUFACTURING USA INSTI-*  
2 *TUTES.—*

3            *(1) IN GENERAL.—Section 34(h) of the National*  
4 *Institute of Standards and Technology Act (15 U.S.C.*  
5 *278s(h)) is amended by adding at the end the fol-*  
6 *lowing:*

7            *“(7) COUNCIL FOR COORDINATION OF INSTI-*  
8 *TUTES.—*

9            *“(A) COUNCIL.—The National Program Of-*  
10 *fice shall establish or designate a council of heads*  
11 *of any Manufacturing USA institute receiving*  
12 *Federal funding at any given time to foster col-*  
13 *laboration between Manufacturing USA insti-*  
14 *tutes.*

15            *“(B) MEETINGS.—The council established*  
16 *or designated under subparagraph (A) shall meet*  
17 *not less frequently than twice each year.*

18            *“(C) DUTIES OF THE COUNCIL.—The coun-*  
19 *cil established under subparagraph (A) shall as-*  
20 *sist the National Program Office in carrying out*  
21 *the functions of the National Program Office*  
22 *under paragraph (2).”.*

23            *(2) REPORT REQUIRED.—Not later than 180*  
24 *days after the date on which the council is established*  
25 *under section 34(h)(7)(A) of the National Institute of*

1       *Standards and Technology Act, as added by para-*  
2       *graph (1), the council shall submit to the National*  
3       *Program Office a report containing recommendations*  
4       *for improving inter-network collaboration.*

5               (3) *SUBMITTAL TO CONGRESS.—Not later than*  
6       *30 days after the date on which the report required*  
7       *by paragraph (2) is submitted to the National Pro-*  
8       *gram Office, the Director of the National Institute of*  
9       *Standards and Technology shall submit such report to*  
10       *the Committee on Commerce, Science, and Transpor-*  
11       *tation of the Senate and the Committee on Science,*  
12       *Space, and Technology of the House of Representa-*  
13       *tives.*

14           (i) *REQUIREMENT FOR NATIONAL PROGRAM OFFICE*  
15 *TO DEVELOP STRATEGIES FOR RETAINING DOMESTIC PUB-*  
16 *LIC BENEFIT AFTER CEASE OF FEDERAL FUNDING.—Sec-*  
17 *tion 34(h)(2)(C) of the National Institute of Standards and*  
18 *Technology Act (15 U.S.C. 278s(h)(2)(C)) is amended by*  
19 *inserting “, including a strategy for retaining domestic*  
20 *public benefits from Manufacturing USA institutes once*  
21 *Federal funding has been discontinued” after “Program”.*

22           (j) *MODIFICATION OF FUNCTIONS OF NATIONAL PRO-*  
23 *GRAM OFFICE TO INCLUDE DEVELOPMENT OF INDUSTRY*  
24 *CREDENTIALS.—Section 34(h)(2)(J) of the National Insti-*  
25 *tute of Standards and Technology Act (15 U.S.C.*

1 278s(h)(2)(J)) is amended by inserting “, including the de-  
2 velopment of industry credentials” after “activities”.

3 **SEC. 403. ESTABLISHMENT OF EXPANSION AWARDS PRO-**  
4 **GRAM IN HOLLINGS MANUFACTURING EXTEN-**  
5 **SION PARTNERSHIP AND AUTHORIZATION OF**  
6 **APPROPRIATIONS FOR THE PARTNERSHIP.**

7 (a) *ESTABLISHMENT OF EXPANSION AWARDS PRO-*  
8 *GRAM.*—*The National Institute of Standards and Tech-*  
9 *nology Act (15 U.S.C. 271 et seq.) is amended by inserting*  
10 *after section 25A (15 U.S.C. 278k–1) the following:*

11 **“SEC. 25B. EXPANSION AWARDS PROGRAM.**

12 “(a) *DEFINITIONS.*—*The terms used in this section*  
13 *have the meanings given the terms in section 25.*

14 “(b) *ESTABLISHMENT.*—*The Director shall establish,*  
15 *subject to the availability of appropriations, within the*  
16 *Hollings Manufacturing Extension Partnership under sec-*  
17 *tions 25 and 26 a program of expansion awards among*  
18 *participants described in subsection (c) of this section for*  
19 *the purposes described in subsection (d) of this section.*

20 “(c) *PARTICIPANTS.*—*Participants receiving awards*  
21 *under this section shall be Centers, or a consortium of Cen-*  
22 *ters.*

23 “(d) *PURPOSE OF AWARDS.*—*An award under this sec-*  
24 *tion shall be made for one or more of the following purposes:*

1           “(1) To provide worker education, training, de-  
2           velopment, and entrepreneurship training and to con-  
3           nect individuals or business with such services offered  
4           in their community, which may include employee  
5           ownership and workforce training, connecting manu-  
6           facturers with career and technical education entities,  
7           institutions of higher education (including commu-  
8           nity colleges), workforce development boards, State  
9           government programs for advanced manufacturing,  
10          entities (such as public-private partnerships) or a col-  
11          lection of entities and individuals carrying out an  
12          advanced manufacturing forum that would serve edu-  
13          cationally underrepresented individuals (such as  
14          underrepresented racial and ethnic minorities), labor  
15          organizations, and nonprofit job training providers to  
16          develop and support training and job placement serv-  
17          ices, apprenticeship and online learning platforms,  
18          for new and incumbent workers, programming to pre-  
19          vent job losses when adopting new technologies and  
20          processes, and development of employee ownership  
21          practices.

22           “(2) To mitigate vulnerabilities to cyberattacks,  
23           including helping to offset the cost of cybersecurity  
24           projects for small manufacturers.

1           “(3) *To expand advanced technology services to*  
2 *small- and medium-sized manufacturers, which may*  
3 *include—*

4                   “(A) *developing technology demonstration*  
5 *laboratories;*

6                   “(B) *services for the adoption of advanced*  
7 *technologies, including smart manufacturing*  
8 *technologies and practices; and*

9                   “(C) *establishing partnerships, for the devel-*  
10 *opment, demonstration, and deployment of ad-*  
11 *vanced technologies, with—*

12                           “(i) *national laboratories (as defined*  
13 *in section 2 of the Energy Policy Act of*  
14 *2005 (42 U.S.C. 15801));*

15                           “(ii) *Federal laboratories;*

16                           “(iii) *Manufacturing USA institutes*  
17 *(as described in section 402); and*

18                           “(iv) *institutions of higher education.*

19           “(4) *To build capabilities across the Hollings*  
20 *Manufacturing Extension Partnership for domestic*  
21 *supply chain resiliency and optimization, includ-*  
22 *ing—*

23                   “(A) *assessment of domestic manufacturing*  
24 *capabilities, expanded capacity for researching*  
25 *and deploying information on supply chain risk,*

1           *hidden costs of reliance on offshore suppliers,*  
2           *and other relevant topics; and*

3           “(B) *expanded services to provide industry-*  
4           *wide support that assists United States manu-*  
5           *facturers with reshoring manufacturing to*  
6           *strengthen the resiliency of domestic supply*  
7           *chains, including in critical technology areas*  
8           *and foundational manufacturing capabilities*  
9           *that are key to domestic manufacturing competi-*  
10           *tiveness and resiliency, including forming, cast-*  
11           *ing, machining, joining, surface treatment, tool-*  
12           *ing, and metal or chemical refining.*

13           “(e) *REIMBURSEMENT.—The Director may reimburse*  
14           *Centers for costs incurred by the Centers under this section.*

15           “(f) *PROGRAM CONTRIBUTION.—Recipients of awards*  
16           *under this section shall not be required to provide a match-*  
17           *ing contribution.”.*

18           (b) *AUTHORIZATION OF APPROPRIATIONS.—*

19           (1) *IN GENERAL.—There is authorized to be ap-*  
20           *propriated to carry out the Hollings Manufacturing*  
21           *Extension Partnership program under sections 25,*  
22           *25A, and 26 of the National Institute of Standards*  
23           *and Technology Act (15 U.S.C. 278k, 278k-1, and*  
24           *278l), and section 25B of such Act, as added by sub-*

1 *section (a), \$480,000,000 for each of fiscal years 2022*  
2 *through fiscal year 2026.*

3 (2) *BASE FUNDING.—Of the amounts appro-*  
4 *propriated pursuant to the authorization in paragraph*  
5 *(1), \$216,000,000 shall be available in each fiscal*  
6 *year to carry out the Hollings Manufacturing Exten-*  
7 *sion Partnership under sections 25 and 25A of such*  
8 *Act (15 U.S.C. 278k and 278k-1), of which*  
9 *\$40,000,000 shall not be subject to cost share require-*  
10 *ments under subsection (e)(2) of such section: Pro-*  
11 *vided, That the authority made available pursuant to*  
12 *this section shall be elective for any Manufacturing*  
13 *Extension Partnership Center that also receives fund-*  
14 *ing from a State that is conditioned upon the appli-*  
15 *cation of a Federal cost sharing requirement.*

16 (3) *EXPANSION AWARD PROGRAM.—Of the*  
17 *amounts appropriated pursuant to the authorization*  
18 *in paragraph (1), \$264,000,000 shall be available*  
19 *each fiscal year to carry out section 25B of such Act,*  
20 *as added by subsection (a).*

21 **SEC. 404. NATIONAL MANUFACTURING ADVISORY COUNCIL.**

22 (a) *DEFINITIONS.—In this section:*

23 (1) *ADVISORY COUNCIL.—The term “Advisory*  
24 *Council” means the National Manufacturing Advi-*  
25 *sory Council established under subsection (b)(1).*

1           (2) *APPROPRIATE COMMITTEES OF CONGRESS.*—

2           *The term “appropriate committees of Congress”*  
3           *means—*

4                   (A) *the Committee on Health, Education,*  
5                   *Labor, and Pensions, the Committee on Com-*  
6                   *merce, Science, and Transportation, the Com-*  
7                   *mittee on Energy and Natural Resources, the*  
8                   *Committee on Armed Services, and the Com-*  
9                   *mittee on Appropriations of the Senate; and*

10                   (B) *the Committee on Education and*  
11                   *Labor, the Committee on Science, Space, and*  
12                   *Technology, the Committee on Energy and Com-*  
13                   *merce, the Committee on Armed Services, and*  
14                   *the Committee on Appropriations of the House of*  
15                   *Representatives.*

16           (3) *SECRETARY.*—*The term “Secretary” means*  
17           *the Secretary of Commerce.*

18           (b) *ESTABLISHMENT.*—

19                   (1) *IN GENERAL.*—*The Secretary, in consultation*  
20                   *with the Secretary of Labor, the Secretary of Defense,*  
21                   *the Secretary of Energy, and the Secretary of Edu-*  
22                   *cation, shall establish within the Department of Com-*  
23                   *merce the National Manufacturing Advisory Council.*

24                   (2) *PURPOSE.*—*The purpose of the Advisory*  
25                   *Council shall be to—*



1           (A) provide worker education, training, de-  
2           velopment, and entrepreneurship training;

3           (B) connect individuals and business with  
4           the services described in subparagraph (A) that  
5           are offered in the community of the individuals  
6           or businesses;

7           (C) coordinate services relating to employee  
8           engagement, including employee ownership and  
9           workforce training;

10          (D) connect manufacturers with career and  
11          technical education entities, institutions of high-  
12          er education, community colleges, workforce de-  
13          velopment boards, labor organizations, and non-  
14          profit job training providers to develop and sup-  
15          port training and job placement services and ap-  
16          prenticeship and online learning platforms for  
17          new and incumbent workers;

18          (E) develop programming to prevent job  
19          losses as entities adopt new technologies and  
20          processes; and

21          (F) develop best practices for employee own-  
22          ership.

23          (c) *MISSION.*—*The mission of the Advisory Council*  
24          *shall be to—*

1           (1) *ensure regular communication between the*  
2 *Federal Government and the manufacturing sector in*  
3 *the United States;*

4           (2) *advise the Federal Government regarding*  
5 *policies and programs of the Federal Government that*  
6 *affect manufacturing in the United States;*

7           (3) *provide a forum for discussing and proposing*  
8 *solutions to problems relating to the manufacturing*  
9 *industry in the United States; and*

10          (4) *ensure that the United States remains the*  
11 *preeminent destination throughout the world for in-*  
12 *vestment in manufacturing.*

13          (d) *DUTIES.—The duties of the Advisory Council shall*  
14 *include—*

15           (1) *meeting not less frequently than every 180*  
16 *days to provide independent advice and recommenda-*  
17 *tions to the Secretary regarding issues involving*  
18 *manufacturing in the United States;*

19           (2) *completing specific tasks requested by the*  
20 *Secretary;*

21           (3) *conveying input from key industry, labor,*  
22 *academic, defense, governmental, and other stake-*  
23 *holders to aid in the development of a national stra-*  
24 *tegic plan for manufacturing in the United States;*

1           (4) *monitoring the status of technological devel-*  
2           *opments, critical production capacity, skill avail-*  
3           *ability, investment patterns, emerging defense needs,*  
4           *and other key indicators of manufacturing competi-*  
5           *tiveness to provide foresight for periodic updates to*  
6           *the national strategic plan for manufacturing devel-*  
7           *oped under paragraph (3);*

8           (5) *soliciting input from the public and private*  
9           *sectors and academia relating to emerging trends in*  
10          *manufacturing, the responsiveness of Federal pro-*  
11          *gramming with respect to manufacturing, and sugges-*  
12          *tions for areas of increased Federal attention with re-*  
13          *spect to manufacturing;*

14          (6) *monitoring global manufacturing trends and*  
15          *global threats to manufacturing sectors in the United*  
16          *States;*

17          (7) *providing advice and recommendations to the*  
18          *Federal Government on matters relating to invest-*  
19          *ment in and support of the manufacturing workforce*  
20          *relating to—*

21                 (A) *worker participation, including through*  
22                 *labor organizations and through other methods*  
23                 *determined by the Advisory Council, in the plan-*  
24                 *ning for deployment of new technologies across*  
25                 *an industry and within workplaces;*

1           (B) training and education priorities for  
2           the Federal Government and for employers to as-  
3           sist workers in adapting the skills and experi-  
4           ences of those workers to fit the demands of the  
5           21st century economy;

6           (C) innovative suggestions from workers on  
7           the development of new technologies and proc-  
8           esses and, as appropriate, assessing the impact of  
9           those technologies and processes on the workforce  
10          and economy of the United States;

11          (D) management practices that lead to  
12          worker employment, job quality, worker protec-  
13          tion, worker participation and power in decision  
14          making, and investment in worker career success;

15          (E) policies and procedures to prioritize di-  
16          versity and inclusion in the manufacturing and  
17          technology workforce by expanding access to job,  
18          career advancement, and management opportu-  
19          nities for underrepresented populations; and

20          (F) advice on how to improve access to de-  
21          mand-driven education, training, and re-train-  
22          ing for workers, including community and tech-  
23          nical colleges, higher education, apprenticeships  
24          and work-based learning opportunities;

1           (8) *with respect to the manufacturing.gov*  
2 *website, or any successor thereto, providing input and*  
3 *improvements in order to—*

4           (A) *make that website more user-friendly to*  
5 *enhance the ability of that website to—*

6           (i) *provide information to manufactur-*  
7 *ers; and*

8           (ii) *receive feedback from manufactur-*  
9 *ers;*

10          (B) *assist that website in becoming the*  
11 *principal place of interaction between manufac-*  
12 *turers in the United States and Federal pro-*  
13 *grams relating to manufacturing; and*

14          (C) *enable that website to provide assistance*  
15 *to manufacturers relating to—*

16           (i) *international trade and investment*  
17 *matters;*

18           (ii) *research and technology develop-*  
19 *ment opportunities;*

20           (iii) *workforce development and train-*  
21 *ing programs and opportunities;*

22           (iv) *small and medium manufacturer*  
23 *needs; and*

24           (v) *industrial commons and supply*  
25 *chain needs.*

1       (e) *MEMBERSHIP.*—

2           (1) *IN GENERAL.*—*The Advisory Council shall—*

3               (A) *consist of individuals appointed by the*  
4               *Secretary with a balance of backgrounds, experi-*  
5               *ences, and viewpoints; and*

6               (B) *include an equal proportion of individ-*  
7               *uals with manufacturing experience who rep-*  
8               *resent private industry, academia, and labor or-*  
9               *ganizations.*

10          (2) *PUBLIC PARTICIPATION.*—*The Secretary*  
11          *shall, to the maximum extent practicable, accept rec-*  
12          *ommendations from the public regarding the appoint-*  
13          *ment of individuals under paragraph (1).*

14          (3) *PERIOD OF APPOINTMENT; VACANCIES.*—

15               (A) *IN GENERAL.*—*Each member of the Ad-*  
16               *visory Council shall be appointed by the Sec-*  
17               *retary for a term of 3 years.*

18               (B) *RENEWAL.*—*The Secretary may renew*  
19               *an appointment made under subparagraph (A)*  
20               *not more than 2 additional terms*

21               (C) *STAGGER TERMS.*—*The Secretary may*  
22               *stagger the terms of the members of the Advisory*  
23               *Council to ensure that the terms of the members*  
24               *expire during different years.*

1           (D) *VACANCIES.*—*Any member appointed to*  
2           *fill a vacancy on the Advisory Council occurring*  
3           *before the expiration of the term for which the*  
4           *member's predecessor was appointed shall be ap-*  
5           *pointed only for the remainder of that term. A*  
6           *member may serve after the expiration of that*  
7           *term until a successor has been appointed.*

8           (f) *TRANSFER OF FUNCTIONS.*—

9           (1) *IN GENERAL.*—*All functions of the United*  
10          *States Manufacturing Council of the International*  
11          *Trade Administration of the Department of Com-*  
12          *merce, including the personnel, assets, and obligations*  
13          *of the United States Manufacturing Council of the*  
14          *International Trade Administration of the Depart-*  
15          *ment of Commerce, as in existence on the day before*  
16          *the date of enactment of this Act, shall be transferred*  
17          *to the Advisory Council.*

18          (2) *DEEMING OF NAME.*—*Any reference in law,*  
19          *regulation, document, paper, or other record of the*  
20          *United States to the United States Manufacturing*  
21          *Council of the International Trade Administration of*  
22          *the Department of Commerce shall be deemed a ref-*  
23          *erence to the Advisory Council.*

24          (3) *UNEXPENDED BALANCES.*—*Unexpended bal-*  
25          *ances of appropriations, authorization, allocations, or*

1     *other funds related to the United States Manufac-*  
 2     *turing Council of the International Trade Adminis-*  
 3     *tration of the Department of Commerce shall be avail-*  
 4     *able for use by the Advisory Council for the purpose*  
 5     *for which the appropriations, authorizations, alloca-*  
 6     *tions, or other funds were originally made available.*

7     *(g) REPORT.—Not later than 180 days after the date*  
 8     *on which the Advisory Council holds the initial meeting of*  
 9     *the Advisory Council and annually thereafter, the Advisory*  
 10    *Council shall submit to the appropriate committees of Con-*  
 11    *gress a report containing a detailed statement of the advice*  
 12    *and recommendations of the Advisory Council required*  
 13    *under subsection (d)(7).*

## 14           **TITLE V—MISCELLANEOUS**

15    **SEC. 501. STRATEGY AND REPORT ON ECONOMIC SECURITY,**  
 16            **SCIENCE, RESEARCH, AND INNOVATION TO**  
 17            **SUPPORT THE NATIONAL SECURITY STRAT-**  
 18            **EGY.**

19     *(a) NATIONAL SECURITY STRATEGY DEFINED.—In*  
 20     *this section, the term “national security strategy” means*  
 21     *the national security strategy required by section 108 of the*  
 22     *National Security Act of 1947 (50 U.S.C. 3043).*

23     *(b) STRATEGY AND REPORT.—*

24            *(1) IN GENERAL.—Not later than 90 days after*  
 25     *the transmission of each national security strategy*



1        *under section 108(a) of the National Security Act of*  
2        *1947 (50 U.S.C. 3043(a)), the Director of the Office*  
3        *of Science and Technology Policy shall, in coordina-*  
4        *tion with the National Science and Technology Coun-*  
5        *cil, the Director of the National Economic Council,*  
6        *and the heads of such other relevant Federal agencies*  
7        *as the Director of the Office of Science and Tech-*  
8        *nology Policy considers appropriate and in consulta-*  
9        *tion with such nongovernmental partners as the Di-*  
10       *rector of the Office of Science and Technology Policy*  
11       *considers appropriate—*

12                *(A) review such strategy, programs, and re-*  
13                *sources as the Director of the Office of Science*  
14                *and Technology Policy determines pertain to*  
15                *United States national competitiveness in*  
16                *science, research, innovation, and technology*  
17                *transfer, including patenting and licensing, to*  
18                *support the national security strategy;*

19                *(B) develop or revise a national strategy to*  
20                *improve the national competitiveness of the*  
21                *United States in science, research, and innova-*  
22                *tion to support the national security strategy;*  
23                *and*

24                *(C) submit to Congress—*

1           (i) a report on the findings of the Di-  
2           rector with respect to the review conducted  
3           under subparagraph (A); and

4           (ii) the strategy developed or revised  
5           under subparagraph (B).

6           (2) *TERMINATION.*—The requirement of para-  
7           graph (1) shall terminate on the date that is 5 years  
8           after the date of the enactment of this Act.

9           (c) *ELEMENTS.*—

10           (1) *REPORT.*—Each report submitted under sub-  
11           section (b)(1)(C)(i) shall include the following:

12           (A) An assessment of public and private in-  
13           vestment in civilian and military science and  
14           technology and its implications for the  
15           geostrategic position of the United States.

16           (B) A description of the prioritized eco-  
17           nomic security interests and objectives, including  
18           domestic job creation, of the United States relat-  
19           ing to science, research, and innovation and an  
20           assessment of how investment in civilian and  
21           military science and technology can advance  
22           those objectives.

23           (C) An assessment of global trends in  
24           science and technology, including potential

1           *threats to the leadership of the United States in*  
2           *science and technology.*

3           *(D) An assessment of the national debt and*  
4           *its implications for the economic and national*  
5           *security of the United States.*

6           *(E) An assessment of how regional efforts*  
7           *are contributing and could contribute to the in-*  
8           *novation capacity of the United States, includ-*  
9           *ing programs run by State and local govern-*  
10          *ments.*

11          *(F) An assessment of—*  
12            *(i) workforce needs for competitiveness*  
13            *in key technology focus areas; and*

14            *(ii) any efforts needed—*  
15            *(I) to expand pathways into key*  
16            *technology focus areas; and*

17            *(II) to improve workforce develop-*  
18            *ment and employment systems, as well*  
19            *as programs and practices to upskill*  
20            *incumbent workers.*

21          *(G) An assessment of barriers to competi-*  
22          *tiveness and barriers to the development and evo-*  
23          *lution of start-ups, small and mid-sized business*  
24          *entities, and industries.*

1           (H) *An assessment of the effectiveness of the*  
2 *Federal Government, federally funded research*  
3 *and development centers, and national labs in*  
4 *supporting and promoting technology commer-*  
5 *cialization and technology transfer, including an*  
6 *assessment of the adequacy of Federal research*  
7 *and development funding in creating new domes-*  
8 *tic manufacturing growth and job creation*  
9 *across sectors and promoting competitiveness*  
10 *and the development of new technologies.*

11           (I) *An assessment of manufacturing capac-*  
12 *ity, logistics, and supply chain dynamics of*  
13 *major export sectors, including access to a skilled*  
14 *workforce, physical infrastructure, and*  
15 *broadband network infrastructure.*

16           (J) *An assessment of how the Federal Gov-*  
17 *ernment is increasing the participation of under-*  
18 *represented populations in science, research, in-*  
19 *novation, and manufacturing.*

20           (K) *An assessment of public-private part-*  
21 *nerships in technology commercialization, in-*  
22 *cluding—*

23                 (i) *the structure of current technology*  
24 *research and commercialization arrange-*

1                    *ments with regard to public-private part-*  
2                    *nerships; and*

3                    *(ii) the extent to which intellectual*  
4                    *property developed with Federal funding—*

5                    *(I) is being used to manufacture*  
6                    *in the United States rather than in*  
7                    *other countries; and*

8                    *(II) is being used by foreign busi-*  
9                    *ness entities that are majority owned*  
10                   *or controlled (as defined in section*  
11                   *800.208 of title 31, Code of Federal*  
12                   *Regulations, or a successor regulation),*  
13                   *or minority owned greater than 25*  
14                   *percent by—*

15                   *(aa) any governmental orga-*  
16                   *nization of the People's Republic*  
17                   *of China; or*

18                   *(bb) any other entity that*  
19                   *is—*

20                   *(AA) known to be owned*  
21                   *or controlled by any govern-*  
22                   *mental organization of the*  
23                   *People's Republic of China;*  
24                   *or*

1                                    *(BB) organized under,*  
2                                    *or otherwise subject to, the*  
3                                    *laws of the People's Republic*  
4                                    *of China.*

5                    *(2) STRATEGY.—Each strategy submitted under*  
6                    *subsection (b)(1)(C)(ii) shall include the following:*

7                                    *(A) A plan to utilize available tools to ad-*  
8                                    *dress or minimize the leading threats and chal-*  
9                                    *lenges and to take advantage of the leading op-*  
10                                   *portunities, particularly in regards to key tech-*  
11                                   *nology focus areas central to international com-*  
12                                   *petition, including the following:*

13                                   *(i) Specific objectives, tasks, metrics,*  
14                                   *and milestones for each relevant Federal*  
15                                   *agency.*

16                                   *(ii) Strategic objectives and priorities*  
17                                   *necessary to maintain the leadership of the*  
18                                   *United States in science and technology, in-*  
19                                   *cluding near-term, medium-term, and long-*  
20                                   *term research priorities.*

21                                   *(iii) Specific plans to safeguard re-*  
22                                   *search and technology funded, as appro-*  
23                                   *priate, in whole or in part, by the Federal*  
24                                   *Government, including in the key tech-*

1                    *nology focus areas, from theft or exfiltration*  
2                    *by foreign entities of concern.*

3                    *(iv) Specific plans to support public*  
4                    *and private sector investment in research,*  
5                    *technology development, education and*  
6                    *workforce development, and domestic manu-*  
7                    *facturing supportive of the national eco-*  
8                    *nomics competitiveness of the United States*  
9                    *and to foster the use of public-private part-*  
10                   *nerships.*

11                   *(v) Specific plans to promote sustain-*  
12                   *ability practices and strategies for increas-*  
13                   *ing jobs in the United States.*

14                   *(vi) A description of—*

15                   *(I) how the strategy submitted*  
16                   *under subsection (b)(1)(C)(ii) supports*  
17                   *the national security strategy; and*

18                   *(II) how the strategy submitted*  
19                   *under such subsection is integrated and*  
20                   *coordinated with the most recent na-*  
21                   *tional defense strategy under section*  
22                   *113(g) of title 10, United States Code.*

23                   *(vii) A plan to encourage the govern-*  
24                   *ments of countries that are allies or part-*  
25                   *ners of the United States to cooperate with*

1           *the execution of the strategy submitted*  
2           *under subsection (b)(1)(C)(ii), where appro-*  
3           *priate.*

4           *(viii) A plan for how the United States*  
5           *should develop local and regional capacity*  
6           *for building innovation ecosystems across*  
7           *the Nation by providing Federal support.*

8           *(ix) A plan for strengthening the in-*  
9           *dustrial base of the United States.*

10           *(x) A plan to remove or update overly*  
11           *burdensome or outdated Federal regulations*  
12           *as appropriate.*

13           *(xi) A plan—*

14           *(I) to further incentivize industry*  
15           *participation in public-private part-*  
16           *nerships for the purposes of accel-*  
17           *erating technology research and com-*  
18           *mercialization, including alternate*  
19           *ways of accounting for in-kind con-*  
20           *tributions and value of partially man-*  
21           *ufactured products;*

22           *(II) to ensure that intellectual*  
23           *property developed with Federal fund-*  
24           *ing is commercialized in the United*  
25           *States; and*



1           (III) to ensure, to the maximum  
2           appropriate extent, that intellectual  
3           property developed with Federal fund-  
4           ing is not being used by foreign busi-  
5           ness entities that are majority owned  
6           or controlled (as defined in section  
7           800.208 of title 31, Code of Federal  
8           Regulations, or a successor regulation),  
9           or minority owned greater than 25  
10          percent by—

11                   (aa) any governmental orga-  
12                   nization of the People's Republic  
13                   of China; or

14                   (bb) any other entity that  
15                   is—

16                           (AA) known to be owned  
17                           or controlled by any govern-  
18                           mental organization of the  
19                           People's Republic of China;  
20                           or

21                           (BB) organized under,  
22                           or otherwise subject to, the  
23                           laws of the People's Republic  
24                           of China.

1                   (xii) *An identification of additional*  
2                   *resources, administrative action, or legisla-*  
3                   *tive action recommended to assist with the*  
4                   *implementation of such strategy.*

5           (d) *RESEARCH AND DEVELOPMENT FUNDING.—The*  
6 *Director of the Office of Science and Technology Policy*  
7 *shall, as the Director considers necessary, consult with the*  
8 *Director of the Office of Management and Budget and with*  
9 *the heads of such other elements of the Executive Office of*  
10 *the President as the Director of the Office of Science and*  
11 *Technology Policy considers appropriate to ensure that the*  
12 *recommendations and priorities with respect to research*  
13 *and development funding as expressed in the most recent*  
14 *report and strategy submitted under subsection (b)(1)(C)*  
15 *are incorporated into the development of annual budget re-*  
16 *quests for Federal research agencies.*

17           (e) *PUBLICATION.—The Director of the Office of*  
18 *Science and Technology Policy shall, consistent with the*  
19 *protection of national security and other sensitive matters*  
20 *and otherwise to the maximum extent practicable, make*  
21 *each report submitted under subsection (b)(1)(C)(i) publicly*  
22 *available on an internet website of the Office of Science and*  
23 *Technology Policy. The report may include a classified*  
24 *annex if the working group determines appropriate.*

1 **SEC. 502. PERSON OR ENTITY OF CONCERN PROHIBITION.**

2 *No person published on the list under section 1237(b)*  
 3 *of the Strom Thurmond National Defense Authorization Act*  
 4 *for Fiscal Year 1999 (Public Law 105–261; 50 U.S.C. 1701*  
 5 *note) or entity identified under section 1260H of the Wil-*  
 6 *liam M. (Mac) Thornberry National Defense Authorization*  
 7 *Act for Fiscal Year 2021 (Public Law 116–283) may receive*  
 8 *or participate in any grant, award, program, support, or*  
 9 *other activity under—*

10 *(1) the Directorate established in section 102;*

11 *(2) the supply chain resiliency program under*  
 12 *section 504;*

13 *(3) section 28(b)(1) of the Stevenson-Wydler*  
 14 *Technology Innovation Act of 1980 (15 U.S.C. 3701*  
 15 *et seq.), as added by section 401(a); or*

16 *(4) the Manufacturing USA Program, as im-*  
 17 *proved and expanded under section 402.*

18 **SEC. 503. STUDY ON EMERGING SCIENCE AND TECH-**  
 19 **NOLOGY CHALLENGES FACED BY THE UNITED**  
 20 **STATES AND RECOMMENDATIONS TO AD-**  
 21 **DRESS THEM.**

22 *(a) SHORT TITLE.—This section may be cited as the*  
 23 *“National Strategy to Ensure American Leadership Act of*  
 24 *2021” or the “National SEAL Act of 2021”.*

25 *(b) STUDY.—*

1           (1) *IN GENERAL.*—*The Secretary of Commerce*  
2           *shall seek to enter into an agreement with the Na-*  
3           *tional Academies of Sciences, Engineering, and Medi-*  
4           *cine to conduct a study—*

5                   (A) *to identify the 10 most critical emerg-*  
6                   *ing science and technology challenges facing the*  
7                   *United States; and*

8                   (B) *to develop recommendations for legisla-*  
9                   *tive or administrative action to ensure United*  
10                  *States leadership in matters relating to such*  
11                  *challenges.*

12           (2) *ELEMENTS.*—*The study conducted under*  
13           *paragraph (1) shall include identification, review,*  
14           *and evaluation of the following:*

15                   (A) *Matters pertinent to identification of*  
16                   *the challenges described in paragraph (1)(A).*

17                   (B) *Matters relating to the recommenda-*  
18                   *tions developed under paragraph (1)(B), includ-*  
19                   *ing with respect to education and workforce de-*  
20                   *velopment necessary to address each of the chal-*  
21                   *lenges identified under paragraph (1)(A).*

22                   (C) *Matters related to the review of key*  
23                   *technology focus areas by the Director of the Na-*  
24                   *tional Science Foundation under section 5.*

1           (D) *An assessment of the current relative*  
2 *balance in leadership in addressing the chal-*  
3 *lenges identified in paragraph (1)(A) between the*  
4 *United States, allies or key partners of the*  
5 *United States, and the People’s Republic of*  
6 *China.*

7           (3) *TIMEFRAME.—*

8           (A) *AGREEMENT.—The Secretary of Com-*  
9 *merce shall seek to enter into the agreement re-*  
10 *quired by paragraph (1) on or before the date*  
11 *that is 60 days after the date of enactment of*  
12 *this Act.*

13           (B) *FINDINGS.—Under an agreement en-*  
14 *tered into under paragraph (1), the National*  
15 *Academies of Sciences, Engineering, and Medi-*  
16 *cine shall, not later than 1 year after the date*  
17 *on which the Secretary of Commerce and the Na-*  
18 *tional Academies enter into such agreement,*  
19 *transmit to the Secretary of Commerce the find-*  
20 *ings of the National Academies with respect to*  
21 *the study conducted pursuant to such agreement.*

22           (c) *REPORT.—*

23           (1) *IN GENERAL.—Not later than 30 days after*  
24 *the date on which the Secretary of Commerce receives*  
25 *the findings of the National Academies of Sciences,*

1        *Engineering, and Medicine with respect to the study*  
2        *conducted under subsection (b), the Secretary of Com-*  
3        *merce shall submit to Congress a “Strategy to Ensure*  
4        *American Leadership” report on such study.*

5            (2) *CONTENTS.—The report submitted under*  
6        *paragraph (1) shall include the following:*

7            (A) *The findings of the National Academies*  
8        *of Sciences, Engineering, and Medicine with re-*  
9        *spect to the study conducted under subsection (b).*

10          (B) *The conclusions of the Secretary of*  
11        *Commerce with respect to such findings.*

12          (C) *The recommendations developed under*  
13        *subsection (b)(1)(B).*

14          (D) *Such other recommendations for legisla-*  
15        *tive or administrative action as the Secretary of*  
16        *Commerce may have with respect to such find-*  
17        *ings and conclusions.*

18            (3) *CLASSIFIED ANNEX.—The report submitted*  
19        *under paragraph (1) shall be submitted in unclassi-*  
20        *fied form, but may include a classified annex if the*  
21        *Secretary of Commerce determines appropriate.*

22            (d) *INFORMATION FROM FEDERAL AGENCIES.—*

23            (1) *IN GENERAL.—The National Academies of*  
24        *Sciences, Engineering, and Medicine may secure di-*  
25        *rectly from a Federal department or agency such in-*

1        *formation as the National Academies of Sciences, En-*  
2        *gineering, and Medicine consider necessary to carry*  
3        *out the study under subsection (b).*

4            (2) *FURNISHING INFORMATION.*—*On request of*  
5        *the National Academies of Sciences, Engineering, and*  
6        *Medicine for information, the head of the department*  
7        *or agency shall furnish such information to the Na-*  
8        *tional Academies of Sciences, Engineering, and Medi-*  
9        *cine.*

10        (e) *CONSULTATION.*—*The Secretary of Defense and the*  
11        *Director of National Intelligence shall provide support upon*  
12        *request from the Secretary of Commerce or the National*  
13        *Academies to carry out this section.*

14        (f) *NON-DUPLICATION OF EFFORT.*—*In carrying out*  
15        *subsection (b), the Secretary of Commerce shall, to the de-*  
16        *gree practicable, coordinate with the steering committee es-*  
17        *tablished under section 236(a) of the William M. (Mac)*  
18        *Thornberry National Defense Authorization Act for Fiscal*  
19        *Year 2021 (Public Law 116–283).*

20        **SEC. 504. REPORT ON GLOBAL SEMICONDUCTOR SHORT-**  
21            **AGE.**

22        *Not later than 1 year after the date of enactment of*  
23        *this Act, the Comptroller General of the United States shall*  
24        *submit to Congress a report on the global semiconductor*

1 *supply shortage and the impact of that shortage on manu-*  
2 *facturing in the United States.*

3 **SEC. 505. SUPPLY CHAIN RESILIENCY PROGRAM.**

4 (a) *DEFINITIONS.—In this section:*

5 (1) *CRITICAL INDUSTRY.—The term “critical in-*  
6 *dustry” means an industry identified under sub-*  
7 *section (f)(1)(A)(i).*

8 (2) *CRITICAL INFRASTRUCTURE.—The term*  
9 *“critical infrastructure” has the meaning given the*  
10 *term in the Critical Infrastructures Protection Act of*  
11 *2001 (42 U.S.C. 5195c).*

12 (3) *LABOR ORGANIZATION.—The term “labor or-*  
13 *ganization” has the meaning given the term in sec-*  
14 *tion 101.*

15 (4) *PROGRAM.—The term “program” means the*  
16 *supply chain resiliency and crisis response program*  
17 *established under subsection (b).*

18 (5) *RESILIENT SUPPLY CHAIN.—The term “resil-*  
19 *ient supply chain” means a supply chain that—*

20 (A) *ensures that the United States can sus-*  
21 *tain critical industry production, supply chains,*  
22 *services, and access to critical goods and services*  
23 *during supply chain shocks, including pandemic*  
24 *and biological threats, cyberattacks, extreme*  
25 *weather events, terrorist and geopolitical attacks,*



1           *great power conflicts, and other threats to the*  
2           *national security of the United States; and*

3                   *(B) has key components of resilience that*  
4           *include—*

5                           *(i) effective private sector risk manage-*  
6                           *ment and mitigation planning to sustain*  
7                           *critical supply chains and supplier net-*  
8                           *works during a supply chain shock;*

9                           *(ii) minimized or managed exposure to*  
10                          *supply chain shocks; and*

11                          *(iii) the financial and operational ca-*  
12                          *capacity to—*

13                                   *(I) sustain critical industry sup-*  
14                                   *ply chains during shocks; and*

15                                   *(II) recover from supply chain*  
16                                   *shocks.*

17                   (6) *RELEVANT COMMITTEES OF CONGRESS.—The*  
18           *term “relevant committees of Congress” means—*

19                           *(A) the Committee on Commerce, Science,*  
20                           *and Transportation of the Senate;*

21                           *(B) the Committee on Appropriations of the*  
22                           *Senate;*

23                           *(C) the Committee on Finance of the Sen-*  
24                           *ate;*

1           (D) *the Committee on Homeland Security*  
2           *and Governmental Affairs of the Senate;*

3           (E) *the Committee on Armed Services of the*  
4           *Senate;*

5           (F) *the Select Committee on Intelligence of*  
6           *the Senate;*

7           (G) *the Committee on Science, Space, and*  
8           *Technology of the House of Representatives;*

9           (H) *the Committee on Energy and Com-*  
10          *merce of the House of Representatives;*

11          (I) *the Committee on Appropriations of the*  
12          *House of Representatives;*

13          (J) *the Committee on Ways and Means of*  
14          *the House of Representatives;*

15          (K) *the Committee on Homeland Security*  
16          *of the House of Representatives;*

17          (L) *the Committee on Armed Services of the*  
18          *House of Representatives; and*

19          (M) *the Permanent Select Committee on In-*  
20          *telligence of the House of Representatives.*

21          (7) *SECRETARY.—The term “Secretary” means*  
22          *the Secretary of Commerce.*

23          (8) *SUPPLY CHAIN INFORMATION.—The term*  
24          *“supply chain information” means information that*

1 *is not customarily in the public domain and relating*  
2 *to—*

3 *(A) sustaining and adapting supply chains*  
4 *during a supply chain shock, including pan-*  
5 *demic and biological threats, cyberattacks, ex-*  
6 *treme weather events, terrorist and geopolitical*  
7 *attacks, great power conflict, and other threats to*  
8 *national security;*

9 *(B) the development of supply chain risk*  
10 *mitigation and recovery planning with respect to*  
11 *a supply chain shock, including any planned or*  
12 *past assessment, projection, or estimate of a vul-*  
13 *nerability within the supply chain, including*  
14 *testing, supplier network assessments, production*  
15 *flexibility, risk evaluations thereto, risk manage-*  
16 *ment planning, or risk audits; or*

17 *(C) operational best practices, planning,*  
18 *and supplier partnerships that enable enhanced*  
19 *supply chain resilience during a supply chain*  
20 *shock, including response, repair, recovery, re-*  
21 *construction, insurance, or continuity.*

22 *(b) ESTABLISHMENT.—The Secretary shall establish in*  
23 *the Department of Commerce a supply chain resiliency and*  
24 *crisis response program to carry out the activities described*  
25 *in subsection (d).*

1       (c) *MISSION.*—*The mission of the program shall be*  
2 *to—*

3           (1) *help to promote the leadership of the United*  
4 *States with respect to critical industries that are es-*  
5 *sential to the mid-term and long-term national secu-*  
6 *rity of the United States; and*

7           (2) *encourage partnerships between the Federal*  
8 *Government and industry, labor organizations, and*  
9 *State, local, territorial, and Tribal governments in*  
10 *order to—*

11               (A) *promote resilient supply chains; and*

12               (B) *respond to critical industry supply*  
13 *chain shocks.*

14       (d) *ACTIVITIES.*—*Under the program, the Secretary,*  
15 *acting through 1 or more bureaus or other divisions of the*  
16 *Department of Commerce as appropriate, shall carry out*  
17 *activities—*

18           (1) *in coordination with the private sector, to—*

19               (A) *map and monitor critical industry sup-*  
20 *ply chains; and*

21               (B) *identify high priority supply chain*  
22 *gaps and vulnerabilities in critical industries*  
23 *that—*

24                       (i) *exist as of the date of enactment of*  
25 *this Act; or*

1                   (ii) are anticipated in the future;

2                   (2) in coordination with the private sector and  
3                   State, local, territorial, and Tribal governments, and  
4                   as appropriate, in cooperation with the governments  
5                   of countries that are allies or key international part-  
6                   ners of the United States, to—

7                   (A) identify opportunities to reduce supply  
8                   chain gaps and vulnerabilities in critical indus-  
9                   tries;

10                  (B) encourage partnerships between the  
11                  Federal Government and industry, labor organi-  
12                  zations, and State, local, territorial, and Tribal  
13                  governments to better respond to supply chain  
14                  shocks to critical industries and coordinate re-  
15                  sponse efforts;

16                  (C) develop or identify opportunities to  
17                  build the capacity of the United States, or coun-  
18                  tries that are allies of the United States, in crit-  
19                  ical industries; and

20                  (D) develop contingency plans and coordi-  
21                  nation mechanisms to improve critical industry  
22                  supply chain response to supply chain shocks;  
23                  and

24                  (3) acting within existing authorities of the De-  
25                  partment of Commerce and in coordination with the

1        *Secretary of State and the United States Trade Rep-*  
2        *resentative, to—*

3                *(A) work with governments of countries that*  
4                *are allies or partners of the United States to pro-*  
5                *mote diversified and resilient supply chains that*  
6                *ensure the supply of critical goods to both the*  
7                *United States and companies of countries that*  
8                *are allies of the United States; and*

9                *(B) coordinate with other divisions of the*  
10              *Department of Commerce and other Federal*  
11              *agencies to leverage existing authorities, as of the*  
12              *date of enactment of this Act, to encourage resil-*  
13              *ient supply chains.*

14        *(e) COORDINATION GROUP.—In carrying out the ac-*  
15        *tivities under subsection (d), the Secretary may—*

16              *(1) establish a unified coordination group, which*  
17              *may include private sector partners, as appropriate,*  
18              *to serve as the primary method for coordinating be-*  
19              *tween and among Federal agencies to plan for supply*  
20              *chain shocks;*

21              *(2) establish subgroups of the unified coordina-*  
22              *tion group established under paragraph (1) led by the*  
23              *head of an appropriate Federal agency;*

24              *(3) through the unified coordination group estab-*  
25              *lished under paragraph (1)—*

1           (A) acquire on a voluntary basis technical,  
2           engineering, and operational supply chain infor-  
3           mation from the private sector, in a manner that  
4           ensures any supply chain information provided  
5           by the private sector is kept confidential and as  
6           required under section 552 of title 5, United  
7           States Code (commonly known as the “Freedom  
8           of Information Act”);

9           (B) study the supply chain information ac-  
10          quired under subparagraph (A) to assess critical  
11          industry supply chain resilience and inform  
12          planning;

13          (C) convene with relevant private sector en-  
14          tities to share best practices, planning, and ca-  
15          pabilities to response to potential supply chain  
16          shocks; and

17          (D) develop contingency plans and coordi-  
18          nation mechanisms to ensure an effective and co-  
19          ordinated response to potential supply chain  
20          shocks; and

21          (4) enter into agreements with governments of  
22          countries that are allies or partners of the United  
23          States relating to enhancing critical industry supply  
24          chain security and resilience in response to supply  
25          chain shocks.

1           (f) *REPORT ON SUPPLY CHAIN RESILIENCY AND DO-*  
2 *MESTIC MANUFACTURING.*—

3           (1) *IN GENERAL.*—*Not later than 1 year after*  
4 *the date of enactment of this Act, and from time to*  
5 *time thereafter, the Secretary, in coordination with*  
6 *relevant Federal agencies and relevant private sector*  
7 *entities, labor organizations, and State, local, terri-*  
8 *torial, and Tribal governments, shall submit to the*  
9 *relevant committees of Congress a review that—*

10                   (A) *identifies—*

11                           (i) *industries that are critical for the*  
12 *national security of the United States, con-*  
13 *sidering the key technology focus areas*  
14 *under this Act and critical infrastructure;*  
15 *and*

16                           (ii) *supplies that are critical to the cri-*  
17 *sis preparedness of the United States;*

18                   (B) *describes—*

19                           (i) *the manufacturing base and supply*  
20 *chains for critical industries in the United*  
21 *States as of the date of enactment of this*  
22 *Act, including the manufacturing base and*  
23 *supply chains for—*

24                                   (I) *raw materials;*

25                                   (II) *production equipment; and*



1                   (III) other goods, including semi-  
2                   conductors, that are essential to the  
3                   production of technologies and supplies  
4                   for critical industries; and

5                   (ii) the ability of the United States  
6                   to—

7                   (I) maintain readiness; and

8                   (II) in response to a supply chain  
9                   shock—

10                   (aa) surge production in  
11                   critical industries; and

12                   (bb) maintain access to crit-  
13                   ical goods and services;

14                   (C) identifies defense, intelligence, home-  
15                   land, economic, domestic labor supply, natural,  
16                   geopolitical, or other contingencies that may dis-  
17                   rupt, strain, compromise, or eliminate the sup-  
18                   ply chain for those critical industries;

19                   (D) assesses—

20                   (i) the resiliency and capacity of the  
21                   manufacturing base, supply chains, and  
22                   workforce of the United States, the allies of  
23                   the United States, and the partners of the  
24                   United States that can sustain critical in-  
25                   dustries through a supply chain shock; and

1                   (ii) any single points of failure in the  
2                   supply chains described in clause (i);

3                   (E) assesses the flexible manufacturing ca-  
4                   pacity and capabilities available in the United  
5                   States in the case of an emergency;

6                   (F) makes specific recommendations to im-  
7                   prove the security and resiliency of manufac-  
8                   turing capacity and supply chains for critical  
9                   industries by—

10                   (i) developing long-term strategies;

11                   (ii) increasing visibility into the net-  
12                   works and capabilities of suppliers;

13                   (iii) identifying industry best prac-  
14                   tices;

15                   (iv) evaluating how diverse supplier  
16                   networks, multi-platform and multi-region  
17                   production capabilities and sources, and in-  
18                   tegrated global and regional supply chains  
19                   can enhance the resilience of—

20                   (I) critical industries in the  
21                   United States;

22                   (II) jobs in the United States;

23                   (III) capabilities of the United  
24                   States; and

1                   (IV) *the support access of the*  
2                   *United States to needed goods and*  
3                   *services during a supply chain shock;*

4                   (v) *identifying and mitigating risks,*  
5                   *including—*

6                   (I) *the financial and operational*  
7                   *risks of a supply chain after a supply*  
8                   *chain shock;*

9                   (II) *significant vulnerabilities to*  
10                  *extreme weather events, cyberattacks,*  
11                  *pandemic and biological threats, ter-*  
12                  *rorist and geopolitical attacks, and*  
13                  *other emergencies; and*

14                  (III) *exposure to gaps and*  
15                  *vulnerabilities in—*

16                   (aa) *domestic capacity or ca-*  
17                   *pabilities; and*

18                   (bb) *sources of imports need-*  
19                   *ed to sustain critical industries;*

20                  (vi) *identifying enterprise resource*  
21                  *planning systems that are—*

22                   (I) *compatible across supply*  
23                   *chain tiers; and*

24                   (II) *affordable for small and me-*  
25                   *dium-sized businesses;*

1           (vii) understanding the total cost of  
2           ownership, total value contribution, and  
3           other best practices that encourage strategic  
4           partnerships throughout supply chains;

5           (viii) understanding Federal procure-  
6           ment opportunities to increase resiliency of  
7           supply chains for goods and services and fill  
8           gaps in domestic purchasing;

9           (ix) identifying policies that maximize  
10          job retention and creation in the United  
11          States, including workforce development  
12          programs;

13          (x) identifying opportunities to work  
14          with allies or key partners of the United  
15          States in building more resilient critical in-  
16          dustry supply chains and mitigating risks;

17          (xi) identifying areas requiring further  
18          investment in research and development or  
19          workforce education; and

20          (xii) identifying such other services as  
21          the Secretary determines necessary;

22          (G) provides guidance to the Department of  
23          Commerce, the National Science Foundation,  
24          and other relevant Federal agencies with respect

1           to technologies and supplies that should be  
2           prioritized;

3           (H) with respect to countries that are allies  
4           or key partners of the United States—

5           (i) reviews and, if appropriate, pro-  
6           vides recommendations for expanding the  
7           sourcing of goods associated with critical  
8           industries from those countries; and

9           (ii) recommends coordination with  
10          those countries on—

11           (I) sourcing critical raw mate-  
12          rials, inputs, and products; and

13           (II) sustaining production and  
14          availability of critical supplies during  
15          a supply chain shock;

16          (I) monitors and makes recommendations  
17          for strengthening the financial and operational  
18          health of small and medium-sized businesses in  
19          supply chains of the United States and countries  
20          that are allies or partners of the United States  
21          to mitigate risks and ensure diverse and com-  
22          petitive supplier markets that are less vulnerable  
23          to single points of failure; and

24          (J) assessment of policies, rules, and regula-  
25          tions that impact domestic manufacturing oper-

1            *ating costs and inhibit the ability for domestic*  
2            *manufacturing to compete with global competi-*  
3            *tors.*

4            (2) *PROHIBITION.*—*The report submitted under*  
5            *paragraph (1) may not include—*

6                    (A) *supply chain information that is not*  
7                    *aggregated; or*

8                    (B) *confidential business information of a*  
9                    *private sector entity.*

10          (g) *SEMICONDUCTOR INCENTIVES.*—

11                    (1) *IN GENERAL.*—*The Secretary shall carry out*  
12                    *the program established under section 9902 of the*  
13                    *William M. (Mac) Thornberry National Defense Au-*  
14                    *thorization Act for Fiscal Year 2021 (Public Law*  
15                    *116–283) as part of the program.*

16                    (2) *TECHNICAL AND CONFORMING AMEND-*  
17                    *MENT.*—*Section 9902(a)(1) of the William M. (Mac)*  
18                    *Thornberry National Defense Authorization Act for*  
19                    *Fiscal Year 2021 (Public Law 116–283) is amended*  
20                    *by striking “in the Department of Commerce” and in-*  
21                    *serting “as part of the program established under sec-*  
22                    *tion 504 of the Endless Frontier Act”.*

23                    (h) *REPORT TO CONGRESS.*—*Concurrent with the an-*  
24                    *nual submission by the President of the budget under sec-*  
25                    *tion 1105 of title 31, United States Code, the Secretary shall*

1 *submit to the relevant committees of Congress a report that*  
2 *contains a summary of every activity carried out under this*  
3 *section during the year covered by the report.*

4 *(i) COORDINATION.—*

5 *(1) IN GENERAL.—In implementing the pro-*  
6 *gram, the Secretary shall, as appropriate coordinate*  
7 *with—*

8 *(A) the heads of Federal agencies, includ-*  
9 *ing—*

10 *(i) the Secretary of State; and*

11 *(ii) the United States Trade Represent-*  
12 *ative; and*

13 *(B) the Attorney General and the Federal*  
14 *Trade Commission with respect to—*

15 *(i) advice on the design and activities*  
16 *of the unified coordination group described*  
17 *in subsection (e)(1); and*

18 *(ii) ensuring compliance with Federal*  
19 *antitrust law.*

20 *(2) SPECIFIC COORDINATION.—In implementing*  
21 *the program, with respect to supply chains involving*  
22 *specific sectors, the Secretary shall, as appropriate,*  
23 *coordinate with—*

24 *(A) the Secretary of Defense;*

25 *(B) the Secretary of Homeland Security;*

- 1                   (C) *the Secretary of the Treasury;*  
2                   (D) *the Secretary of Energy;*  
3                   (E) *the Secretary of Transportation;*  
4                   (F) *the Secretary of Agriculture;*  
5                   (G) *the Director of National Intelligence;*  
6                   and  
7                   (H) *the heads of other relevant agencies.*

8           (j) *RULE OF CONSTRUCTION.—Nothing in this section*  
9 *shall be construed to require any private entity—*

- 10                   (1) *to share information with the Secretary;*  
11                   (2) *to request assistance from the Secretary; or*  
12                   (3) *that requests assistance from the Secretary to*  
13 *implement any measure or recommendation suggested*  
14 *by the Secretary.*

15           (k) *PROTECTIONS.—*

16                   (1) *IN GENERAL.—*

17                           (A) *PROTECTIONS.—Subsections (a)(1), (b),*  
18 *(c), and (d) of section 2224 of the Homeland Se-*  
19 *curity Act of 2002 (6 U.S.C. 673) shall apply to*  
20 *the voluntary submission of supply chain infor-*  
21 *mation by a private entity under this section in*  
22 *the same manner as those provisions apply to*  
23 *critical infrastructure information voluntarily*  
24 *submitted to a covered agency for an other infor-*  
25 *mational purpose under that subsection if the*



1           *voluntary submission is accompanied by an ex-*  
2           *press statement described in paragraph (2) of*  
3           *this subsection; and*

4           *(B) REFERENCES.—For the purpose of this*  
5           *subsection, with respect to section 2224 of the*  
6           *Homeland Security Act of 2002 (6 U.S.C.*  
7           *673)——*

8                   *(i) the express statement described in*  
9                   *subsection (a)(1) of that section shall be*  
10                  *deemed to refer to the express statement de-*  
11                  *scribed in paragraph (2) of this subsection;*

12                   *(ii) references in the subsections de-*  
13                  *scribed in subparagraph (A) to “this sub-*  
14                  *title” shall be deemed to refer to this section;*

15                   *(iii) the reference to “protecting crit-*  
16                  *ical infrastructure or protected systems” in*  
17                  *subsection (a)(1)(E)(iii) of that section shall*  
18                  *be deemed to refer to carrying out this sec-*  
19                  *tion; and*

20                   *(iv) the reference to “critical infra-*  
21                  *structure information” in subsections (b)*  
22                  *and (c) of that section shall be deemed to*  
23                  *refer to supply chain information.*

1           (2) *EXPRESS STATEMENT.*—*The express state-*  
2           *ment described in this paragraph, with respect to in-*  
3           *formation or records, is—*

4                   (A) *in the case of written information or*  
5                   *records, a written marking on the information or*  
6                   *records substantially similar to the following:*  
7                   *“This information is voluntarily submitted to*  
8                   *the Federal Government in expectation of protec-*  
9                   *tion from disclosure as provided by the provi-*  
10                   *sions of section 504 of the Endless Frontier*  
11                   *Act.”; or*

12                   (B) *in the case of oral information, a writ-*  
13                   *ten statement similar to the statement described*  
14                   *in subparagraph (A) submitted within a reason-*  
15                   *able period following the oral communication.*

16           (3) *INAPPLICABILITY TO SEMICONDUCTOR INCEN-*  
17           *TIVE PROGRAM.*—*This subsection shall not apply to*  
18           *the voluntary submission of supply chain information*  
19           *by a private entity in an application for Federal fi-*  
20           *nancial assistance under section 9902 of the William*  
21           *M. (Mac) Thornberry National Defense Authorization*  
22           *Act for Fiscal Year 2021 (Public Law 116–283).*

23           (l) *DETERMINATION RELATED TO OPTICAL TRANS-*  
24           *MISSION EQUIPMENT.*—

1           (1) *PROCEEDING.*—Not later than 45 days after  
2           the date of enactment of this Act , the Secretary of  
3           Commerce shall commence a process to make a deter-  
4           mination for purposes of section 2 of the Secure and  
5           Trusted Communications Networks Act of 2019 (47  
6           U.S.C. 1601) whether optical transmission equipment  
7           manufactured, produced, or distributed by an entity  
8           owned, controlled, or supported by the People’s Re-  
9           public of China poses an unacceptable risk to the na-  
10          tional security of the United States or the security  
11          and safety of United States persons.

12           (2) *COMMUNICATION OF DETERMINATION.*—If the  
13          Secretary determines pursuant to paragraph (1) that  
14          such optical transmission equipment poses an unac-  
15          ceptable risk consistent with that paragraph, the Sec-  
16          retary shall immediately transmit that determination  
17          to the Federal Communications Commission con-  
18          sistent with section 2 of the Secure and Trusted Com-  
19          munications Networks Act of 2019 (47 U.S.C. 1601).

20 **SEC. 506. SEMICONDUCTOR INCENTIVES.**

21           (a) *DEFINITIONS.*—Section 9901 of the William M.  
22          (Mac) Thornberry National Defense Authorization Act for  
23          Fiscal Year 2021 (Public Law 116–283) is amended—

1           (1) *by redesignating paragraphs (4), (5), (6),*  
2           *(7), (8), and (9) as paragraphs (5), (6), (7), (8), (10),*  
3           *and (11), respectively;*

4           (2) *by inserting after paragraph (3) the fol-*  
5           *lowing:*

6           “(4) *The term ‘critical manufacturing indus-*  
7           *try’—*

8                   “(A) *means an industry—*

9                           “(i) *that is assigned a North American*  
10                           *Industry Classification System code begin-*  
11                           *ning with 31, 32, or 33; and*

12                           “(ii) *for which the industry compo-*  
13                           *nents that are assigned a North American*  
14                           *Industry Classification System code begin-*  
15                           *ning with the same 4 digits as the indus-*  
16                           *try—*

17                                   “(I) *manufacture primary prod-*  
18                                   *ucts and parts, the sum of which ac-*  
19                                   *count for not less than 5 percent of the*  
20                                   *manufacturing value added by indus-*  
21                                   *try gross domestic product of the*  
22                                   *United States; and*

23                                   “(II) *employ individuals for pri-*  
24                                   *mary products and parts manufac-*  
25                                   *turing activities that, combined, ac-*

1                   *count for not less than 5 percent of*  
2                   *manufacturing employment in the*  
3                   *United States; and*

4                   *“(B) may include any other manufacturing*  
5                   *industry designated by the Secretary based on*  
6                   *the relevance of the manufacturing industry to*  
7                   *the national and economic security of the United*  
8                   *States, including the impacts of job losses.”;*

9                   *(3) by inserting after paragraph (8), as so reded-*  
10                  *ignated, the following:*

11                  *“(9) The term ‘mature technology node’ has the*  
12                  *meaning given the term by the Secretary.”.*

13                  *(b) SEMICONDUCTOR PROGRAM.—Section 9902 of the*  
14                  *William M. (Mac) Thornberry National Defense Authoriza-*  
15                  *tion Act for Fiscal Year 2021 (Public Law 116–283) is*  
16                  *amended—*

17                  *(1) in subsection (a)(2)—*

18                    *(A) in subparagraph (B)(ii)—*

19                      *(i) in subclause (III), by striking*  
20                      *“and” at the end;*

21                      *(ii) in subclause (IV), by striking the*  
22                      *period at the end and inserting “and”; and*

23                      *(iii) by adding at the end the fol-*  
24                      *lowing:*

25                      *“(V) determined—*

1                   “(aa) the type of semicon-  
2                   ductor technology the covered enti-  
3                   ty will produce at the facility de-  
4                   scribed in clause (i); and

5                   “(bb) the customers to which  
6                   the covered entity plans to sell the  
7                   semiconductor technology de-  
8                   scribed in item (aa).”;

9                   (B) in subparagraph (C)—

10                   (i) in clause (i)—

11                   (I) in subclause (II), by striking  
12                   “is in the interest of the United  
13                   States” and inserting “is in the eco-  
14                   nomic and national security interests  
15                   of the United States”; and

16                   (II) in subclause (III), by striking  
17                   “and” at the end;

18                   (ii) in clause (ii)(IV), by striking  
19                   “and” at the end;

20                   (iii) by redesignating clause (iii) as  
21                   clause (iv); and

22                   (iv) by inserting after clause (ii) the  
23                   following:

24                   “(iii) the Secretary shall consider the  
25                   type of semiconductor technology produced

1           *by the covered entity and whether that semi-*  
2           *conductor technology advances the economic*  
3           *and national security interests of the*  
4           *United States; and”;*

5           *(C) by redesignating subparagraph (D) as*  
6           *subparagraph (E); and*

7           *(D) by inserting after subparagraph (C) the*  
8           *following:*

9           *“(D) PRIORITY.—In awarding Federal fi-*  
10          *nanacial assistance to covered entities under sub-*  
11          *section (a), the Secretary shall give priority to*  
12          *ensuring that a covered entity receiving finan-*  
13          *cial assistance will—*

14                 *“(i) manufacture semiconductors nec-*  
15                 *essary to address gaps and vulnerabilities*  
16                 *in the domestic supply chain across a di-*  
17                 *verse range of technology and process nodes;*  
18                 *and*

19                 *“(ii) provide a secure supply of semi-*  
20                 *conductors necessary for the national secu-*  
21                 *rity, manufacturing, critical infrastructure,*  
22                 *and technology leadership of the United*  
23                 *States and other essential elements of the*  
24                 *economy of the United States.”; and*

25           *(2) by adding at the end the following:*

1       “(d) *SENSE OF CONGRESS.—It is the sense of Congress*  
2 *that, in carrying out subsection (a), the Secretary should*  
3 *allocate funds in a manner that—*

4               “(1) *strengthens the security and resilience of the*  
5 *semiconductor supply chain, including by mitigating*  
6 *gaps and vulnerabilities;*

7               “(2) *provides a supply of secure semiconductors*  
8 *relevant for national security;*

9               “(3) *strengthens the leadership of the United*  
10 *States in semiconductor technology;*

11               “(4) *grows the economy of the United States and*  
12 *supports job creation in the United States; and*

13               “(5) *improves the resiliency of the semiconductor*  
14 *supply chains of critical manufacturing industries.*

15       “(e) *ADDITIONAL ASSISTANCE FOR MATURE TECH-*  
16 *NOLOGY NODES.—*

17               “(1) *IN GENERAL.—The Secretary shall establish*  
18 *within the program established under subsection (a)*  
19 *an additional program that provides Federal finan-*  
20 *cial assistance to covered entities to incentivize invest-*  
21 *ment in facilities and equipment in the United States*  
22 *for the fabrication, assembly, testing, or advanced*  
23 *packaging of semiconductors at mature technology*  
24 *nodes.*



1           “(2) *ELIGIBILITY AND REQUIREMENTS.*—*In*  
2           *order for an entity to qualify to receive Federal fi-*  
3           *nancial assistance under this subsection, the covered*  
4           *entity shall—*

5                   “(A) *submit an application under sub-*  
6                   *section (a)(2)(A);*

7                   “(B) *meet the eligibility requirements under*  
8                   *subsection (a)(2)(B);*

9                   “(C)(i) *provide equipment or materials for*  
10                  *the fabrication, assembly, testing, or advanced*  
11                  *packaging of semiconductors at mature tech-*  
12                  *nology nodes in the United States; or*

13                  “(ii) *fabricate, assemble using advanced*  
14                  *packaging, or test semiconductors at mature*  
15                  *technology nodes in the United States;*

16                  “(D) *commit to using any Federal financial*  
17                  *assistance received under this section to increase*  
18                  *the production of semiconductors at mature tech-*  
19                  *nology nodes; and*

20                  “(E) *be subject to the considerations de-*  
21                  *scribed in subsection (a)(2)(C).*

22           “(3) *PROCEDURES.*—*In granting Federal finan-*  
23           *cial assistance to covered entities under this sub-*  
24           *section, the Secretary may use the procedures estab-*  
25           *lished under subsection (a).*

1           “(4) *CONSIDERATIONS.*—*In addition to the con-*  
2           *siderations described in subsection (a)(2)(C), in*  
3           *granting Federal financial assistance under this sec-*  
4           *tion, the Secretary may consider whether a covered*  
5           *entity produces or supplies equipment or materials*  
6           *used in the fabrication, assembly, testing, or advanced*  
7           *packaging of semiconductors at mature technology*  
8           *nodes that are necessary to support a critical manu-*  
9           *facturing industry.*

10           “(5) *PRIORITY.*—*In awarding Federal financial*  
11           *assistance to covered entities under this subsection,*  
12           *the Secretary shall give priority to covered entities*  
13           *that support the resiliency of semiconductor supply*  
14           *chains for critical manufacturing industries in the*  
15           *United States.*

16           “(6) *AUTHORIZATION OF APPROPRIATIONS.*—  
17           *There are authorized to be appropriated to the Sec-*  
18           *retary to carry out this subsection \$2,000,000,000,*  
19           *which shall remain available until expended.*

20           “(f) *CONSTRUCTION PROJECTS.*—*Section 602 of the*  
21           *Public Works and Economic Development Act of 1965 (42*  
22           *U.S.C. 3212) shall apply to a construction project that re-*  
23           *ceives financial assistance from the Secretary under this*  
24           *section.”.*

1       (c) *ADVANCED MICROELECTRONICS RESEARCH AND*  
 2 *DEVELOPMENT.*—Section 9906 of the William M. (Mac)  
 3 Thornberry National Defense Authorization Act for Fiscal  
 4 Year 2021 (Public Law 116–283) is amended by adding  
 5 at the end the following:

6       “(h) *INFRASTRUCTURE GRANTS.*—Section 602 of the  
 7 *Public Works and Economic Development Act of 1965* (42  
 8 *U.S.C. 3212*) shall apply to a construction project that re-  
 9 ceives financial assistance from the Secretary under this  
 10 section.”.

11 **SEC. 507. RESEARCH INVESTMENT TO SPARK THE ECON-**  
 12 **OMY ACT.**

13       (a) *DEFINITIONS.*—In this section:

14           (1) *AWARD.*—The term “award” includes a  
 15 grant, cooperative agreement, or other financial as-  
 16 sistance.

17           (2) *COVID–19 PUBLIC HEALTH EMERGENCY.*—  
 18 The term “COVID–19 public health emergency”  
 19 means the public health emergency declared by the  
 20 Secretary of Health and Human Services under sec-  
 21 tion 319 of the Public Health Service Act (42 U.S.C.  
 22 247d) on January 31, 2020, with respect to the  
 23 Coronavirus Disease 2019 (COVID–19).

24           (3) *RESEARCH INSTITUTION.*—The term “re-  
 25 search institution” means the following:

1           (A) *An institution of higher education (as*  
 2           *defined in section 101(a) of the Higher Edu-*  
 3           *cation Act of 1965 (20 U.S.C. 1001(a)).*

4           (B) *A Tribal College or University (as de-*  
 5           *fined in section 316 of the Higher Education Act*  
 6           *of 1965 (20 U.S.C. 1059c)).*

7           (C) *A nonprofit entity that conducts Feder-*  
 8           *ally funded research.*

9           (4) *RESEARCH LABORATORY.—The term “Re-*  
 10          *search Laboratory” means the following:*

11           (A) *A National Laboratory (as defined in*  
 12           *section 2 of the Energy Policy Act of 2005 (42*  
 13           *U.S.C. 15801)).*

14           (B) *A Federally Funded Research and De-*  
 15           *velopment Center for purposes of section 35.017*  
 16           *of title 48, Code of Federal Regulations, or a suc-*  
 17           *cessor regulation.*

18          (b) *AWARD AND MODIFICATION OF GRANTS, COOPERA-*  
 19          *TIVE AGREEMENTS AND OTHER FINANCIAL ASSISTANCE*  
 20          *FOR INSTITUTIONS OF HIGHER EDUCATION, RESEARCH*  
 21          *LABORATORIES, AND OTHER RESEARCH INSTITUTIONS TO*  
 22          *ADDRESS MATTERS RELATING TO DISRUPTION CAUSED BY*  
 23          *COVID-19.—*

1           (1) *IN GENERAL.*—Each officer specified in  
2           paragraph (2) may exercise the authorities described  
3           in paragraph (3).

4           (2) *OFFICERS.*—The officers specified in this  
5           paragraph are as follows:

6                   (A) *The Secretary of Commerce, acting*  
7                   *through the Administrator of the National Oce-*  
8                   *anic and Atmospheric Administration and the*  
9                   *Director of the National Institute of Standards*  
10                  *and Technology.*

11                   (B) *The Secretary of Agriculture.*

12                   (C) *The Secretary of Defense.*

13                   (D) *The Secretary of Education.*

14                   (E) *The Secretary of Energy, acting for the*  
15                   *Department of Energy (with respect to Energy*  
16                   *Efficiency and Renewable Energy, Nuclear En-*  
17                   *ergy, and Fossil Research and Development) and*  
18                   *through the Office of Science, the Advanced Re-*  
19                   *search Projects Agency—Energy (ARPA—E), and*  
20                   *the Office of Electricity.*

21                   (F) *The Secretary of Interior, acting*  
22                   *through the Director of the United States Geo-*  
23                   *logical Survey.*

1           (G) *The Secretary of Health and Human*  
2           *Services, acting through the Director of the Na-*  
3           *tional Institutes of Health.*

4           (H) *The Secretary of Transportation.*

5           (I) *The Administrator of the National Aero-*  
6           *navitics and Space Administration.*

7           (J) *The Administrator of the Environ-*  
8           *mental Protection Agency.*

9           (K) *The Director of the National Science*  
10          *Foundation.*

11          (3) *AUTHORITIES.*—*The officers specified in*  
12          *paragraph (2) may—*

13               (A) *provide supplemental funding to extend*  
14               *the duration of an award disrupted because of*  
15               *the COVID–19 public health emergency to a re-*  
16               *search institution, Research Laboratory, or indi-*  
17               *vidual that was awarded before the date of the*  
18               *enactment of this Act, or to expand the purposes*  
19               *of such an award, in order to—*

20                       (i) *enable a postsecondary student or*  
21                       *post-doctoral researcher to complete work;*

22                       (ii) *enable research scientists, technical*  
23                       *staff, research associates, and principal in-*  
24                       *vestigators to complete work;*

1           (iii) extend the training of a postsec-  
2           ondary student, or the employment of a  
3           post-doctoral researcher, on an ongoing re-  
4           search project for up to 2 years because of  
5           the disruption of the job market;

6           (iv) create research opportunities for  
7           up to 2 years for graduate students and  
8           post-doctoral researchers;

9           (v) replace, refurbish, or otherwise  
10          make usable laboratory animals, reagents,  
11          equipment, or other items required for re-  
12          search;

13          (vi) facilitate other research (including  
14          field work), training, and ongoing construc-  
15          tion activities, including at institutions  
16          that are disproportionately affected by the  
17          COVID–19 public health emergency (such  
18          as minority-serving institutions and 2-year  
19          institutions of higher education);

20          (vii) enable experimental field cam-  
21          paigns and maintenance of field infrastruc-  
22          ture, including through replacement of dis-  
23          rupted experimental data to enable comple-  
24          tion of impacted research; and

1                   *(viii) support training in online course*  
2                   *delivery and virtual research experiences*  
3                   *that will improve quality and access needed*  
4                   *to continue undergraduate, graduate, and*  
5                   *post-doctoral training;*

6                   *(B) issue awards to research institutions,*  
7                   *Research Laboratories, or other individuals to*  
8                   *conduct research on the effects of the Coronavirus*  
9                   *Disease 2019 and future potential pandemics, on*  
10                   *the effects and effectiveness of responses to such*  
11                   *diseases, and on improving the prediction of the*  
12                   *possible courses of such pandemics; and*

13                   *(C) provide flexibility on an award for*  
14                   *funds made available to an agency, by any prior*  
15                   *or subsequent Act, by modifying the terms and*  
16                   *conditions of the award with a research institu-*  
17                   *tion, Research Laboratory, or individual due to*  
18                   *facility closures or other limitations during the*  
19                   *COVID–19 public health emergency.*

20                   *(4) MODIFICATIONS.—The modifications author-*  
21                   *ized by paragraph (3)(C) include, but are not limited*  
22                   *to—*

23                   *(A) the provision of supplemental funding*  
24                   *to extend the duration of the award concerned;*  
25                   *and*



1           (B) *flexibility on the allowable expenses*  
2           *under such award.*

3           (c) *PROCEDURES.—The officers specified in subsection*  
4 *(b)(2) shall each establish procedures to carry out subsection*  
5 *(b).*

6           (d) *EXPEDITED AWARDS.—Awards under subsection*  
7 *(b) shall be issued as expeditiously as possible.*

8 **SEC. 508. OFFICE OF MANUFACTURING AND INDUSTRIAL**  
9           **INNOVATION POLICY.**

10          (a) *FINDINGS.—Congress finds the following:*

11           (1) *The general welfare, security, and economic*  
12 *health and stability of the United States require a*  
13 *long-term, substantial, coordinated, and multidisci-*  
14 *plinary strategy and implementation of cohesive ob-*  
15 *jectives to remain at the forefront of industrial inno-*  
16 *vation.*

17           (2) *The large and complex innovative and tech-*  
18 *nological capabilities of global supply chains and*  
19 *manufacturing economies, which influence the course*  
20 *of national and international manufacturing and in-*  
21 *novative relevance, require appropriate attention, in-*  
22 *cluding long-range inclusive planning and more im-*  
23 *mediate program development, to encourage and sup-*  
24 *port private manufacturing growth in the United*

1       *States and participation in the public decision-making*  
2       *process.*

3               (3) *The innovative and manufacturing capabilities*  
4       *of business in the United States, when properly*  
5       *fostered, applied, and supported, can effectively assist*  
6       *in improving the quality of life for people in the*  
7       *United States, in anticipating and addressing emerg-*  
8       *ing international, national, and local problems, and*  
9       *strengthening the international economic engagement*  
10       *and pioneering leadership of the United States.*

11              (4) *Just as Federal funding for science and tech-*  
12       *nology represents an investment in the future, strate-*  
13       *gically addressing gaps in the innovation pipeline of*  
14       *the United States would—*

15                   (A) *contribute to converting research and*  
16       *development investments into high-value, quality*  
17       *job-creating product production and capture do-*  
18       *mestic and global markets; and*

19                   (B) *strengthen the economic posture of the*  
20       *United States.*

21              (5) *The capabilities of the United States at both*  
22       *the Federal and State levels need enhanced strategic*  
23       *planning and influence over policy formulation for*  
24       *industrial innovation and technology development, as*  
25       *well as a means to ensure an adequate workforce.*

1       **(b) SENSE OF CONGRESS.**—

2               **(1) PRIORITY GOALS.**—*It is the sense of Congress*  
3 *that manufacturing and industrial innovation should*  
4 *include contributing to the following priority goals:*

5                       **(A) Taking concrete national action to re-**  
6 *build, restore, and expand domestic manufac-*  
7 *turing capabilities, skills, and production capac-*  
8 *ity, including world-class infrastructure.*

9                       **(B) Rebuilding the industrial innovation**  
10 *commons, including common resources, technical*  
11 *knowledge, and entrepreneurial opportunities as-*  
12 *sociated with technical concepts.*

13                      **(C) Supporting domestic supply chains.**

14                      **(D) Expanding production capabilities, co-**  
15 *operation, and knowledge.*

16                      **(E) Revitalizing communities harmed by**  
17 *historical and poorly conceived, implemented,*  
18 *and enforced regulatory and trade policies.*

19                      **(F) Developing a strategy for innovation**  
20 *and establishment of manufacturing industries of*  
21 *the future, including adoption and production of*  
22 *Industry 4.0 technology to support domestic eco-*  
23 *nomie expansion, particularly manufacturers*  
24 *with fewer than 800 employees, and in tradition-*  
25 *ally underserved communities.*

1           (G) *Contributing to national health and se-*  
2           *curity and emergency readiness and resilience,*  
3           *including addressing environmental concerns.*

4           (H) *Strengthening the economy of the*  
5           *United States and promoting full employment in*  
6           *high-quality, high-wage jobs through useful in-*  
7           *dustrial and technological innovation.*

8           (I) *Cultivating, utilizing, and enhancing*  
9           *academic and industrial thought-leadership with*  
10          *practical workforce development and training to*  
11          *the fullest extent possible.*

12          (J) *Implementing a national strategy that*  
13          *identifies and prioritizes high growth, high*  
14          *value-added industries, products, and compo-*  
15          *nents of national importance to the long-term*  
16          *economic, environmental, national security, and*  
17          *public health of the United States.*

18          (2) *NATIONAL POLICY.—In view of the findings*  
19          *under subsection (a), it is the sense of Congress that*  
20          *the Federal Government and public and private insti-*  
21          *tutions in the United States should pursue a national*  
22          *policy of manufacturing and industrial innovation*  
23          *that includes the following principles:*

24                 (A) *Ensuring global leadership in advanced*  
25                 *manufacturing technologies critical to the long-*

1           *term economic, environmental, and public health*  
2           *of the United States, and to the long-term na-*  
3           *tional security of the United States.*

4           *(B) Restoring and strengthening the indus-*  
5           *trial commons of the United States, including—*

6                   *(i) essential engineering and produc-*  
7                   *tion skills;*

8                   *(ii) infrastructure for research and de-*  
9                   *velopment, standardization, and metrology;*

10                  *(iii) process innovations and manufac-*  
11                  *turing know-how;*

12                  *(iv) equipment; and*

13                  *(v) suppliers that provide the founda-*  
14                  *tion for the innovativeness and competitive-*  
15                  *ness of all manufacturers in the United*  
16                  *States.*

17           *(C) Strengthening the technical, financial,*  
18           *and educational commons and assets necessary*  
19           *to ensure that the United States is the best posi-*  
20           *tioned nation for the creation and production of*  
21           *advanced technologies and products emerging*  
22           *from national research and development invest-*  
23           *ments.*

24           *(D) Capitalizing on the scientific and tech-*  
25           *nological advances produced by researchers and*

1           *innovators in the United States by developing*  
2           *capable and responsive institutions focused on*  
3           *advancing the technology and manufacturing*  
4           *readiness levels of those advances.*

5           *(E) Supporting the discovery, invention,*  
6           *start-up, ramp-up, scale-up, and transition of*  
7           *new products and manufacturing technologies to*  
8           *full-scale production in the United States.*

9           *(F) Addressing the evolving needs of manu-*  
10          *facturers for a diverse set of workers with the*  
11          *necessary skills, training, and expertise as man-*  
12          *ufacturers in the United States increase high-*  
13          *quality, high-wage employment opportunities.*

14          *(G) Improving and expanding manufac-*  
15          *turing engineering and technology offerings with-*  
16          *in institutions of higher education, including 4-*  
17          *year engineering technology programs at poly-*  
18          *technic institutes and secondary schools, to be*  
19          *more closely aligned with the needs of manufac-*  
20          *turers in the United States and the goal of*  
21          *strengthening the long-term competitiveness of*  
22          *such manufacturing.*

23          *(H) Working collaboratively with Federal*  
24          *agencies, State and local governments, Tribal*  
25          *governments, regional authorities, institutions of*

1           *higher education, economic development organi-*  
2           *zations, and labor organizations that primarily*  
3           *represent workers in manufacturing to leverage*  
4           *their knowledge, resources, applied research, ex-*  
5           *perimental development, and programs to foster*  
6           *manufacturing in the United States so as to an-*  
7           *ticipate and prepare for emergencies and global,*  
8           *national, and regional supply chain disruptions,*  
9           *including disruptions brought on and exacer-*  
10          *bated by changing environmental and other cir-*  
11          *cumstances.*

12           *(I) Recognizing that, as changing cir-*  
13          *cumstances require the periodic revision and ad-*  
14          *aptation of this section, Congress is responsible*  
15          *for—*

16                   *(i) identifying and interpreting the*  
17                   *changes in those circumstances as they*  
18                   *occur; and*

19                   *(ii) affecting subsequent changes to this*  
20                   *section, as appropriate.*

21           *(J) Reforming rules, regulations, and pol-*  
22          *icy, which negatively impact domestic manufac-*  
23          *turing.*

24           *(3) PROCEDURES.—It is the sense of Congress*  
25          *that, in order to expedite and facilitate the implemen-*

1 *tation of the national policy described in paragraph*  
2 *(2)—*

3 *(A) Federal procurement policy should—*

4 *(i) prioritize and encourage domestic*  
5 *manufacturing and robust domestic supply*  
6 *chains;*

7 *(ii) support means of expanding do-*  
8 *mestic manufacturing job creation;*

9 *(iii) enhance manufacturing workforce*  
10 *preparedness;*

11 *(iv) prioritize the development of*  
12 *means to support diversity and inclusion*  
13 *throughout the manufacturing and indus-*  
14 *trial sector;*

15 *(v) promote the consideration of, and*  
16 *support to, minority-owned and women-*  
17 *owned manufacturing contractors of the*  
18 *Federal Government; and*

19 *(vi) support the ingenuity and entre-*  
20 *preneurship of the United States by pro-*  
21 *viding enhanced attention to manufacturing*  
22 *startups and small businesses in the United*  
23 *States;*

24 *(B) Federal trade and monetary policies*  
25 *should—*



1                   (i) ensure that global competition in  
2                   manufacturing is free, open, and fair;

3                   (ii) prioritize policies and investments  
4                   that support domestic manufacturing  
5                   growth and innovation; and

6                   (iii) not be utilized to offshore poor  
7                   manufacturing working conditions or de-  
8                   structive manufacturing environmental  
9                   practices;

10                  (C) Federal policies and practices should  
11                  reasonably prioritize competitiveness for manu-  
12                  facturing and industrial innovation efforts in  
13                  the United States, but should not sacrifice the  
14                  quality of employment opportunities, including  
15                  the health and safety of workers, pay, and bene-  
16                  fits;

17                  (D) Federal manufacturing and industrial  
18                  innovation policies, practices, and priorities  
19                  should reasonably improve environmental sus-  
20                  tainability within the manufacturing industry,  
21                  while minimizing economic impact;

22                  (E) Federal patent policies should be devel-  
23                  oped, based on uniform principles, which have as  
24                  their objective to preserve incentives for indus-  
25                  trial technological innovation and the applica-

1            *tion of procedures that will continue to assure*  
2            *the full use of beneficial technology to serve the*  
3            *public;*

4            *(F) Federal efforts should promote and sup-*  
5            *port a strong system of intellectual property*  
6            *rights to include trade secrets, through both pro-*  
7            *tection of intellectual property rights and en-*  
8            *forcement against intellectual property theft, and*  
9            *broad engagement to limit foreign efforts to ille-*  
10           *gally or inappropriately utilize compromised in-*  
11           *tellectual property;*

12           *(G) closer relationships should be encour-*  
13           *aged among practitioners of scientific and tech-*  
14           *nological research and development and those*  
15           *who apply those foundations to domestic com-*  
16           *mercial manufacturing;*

17           *(H) the full use of the contributions of man-*  
18           *ufacturing and industrial innovation to support*  
19           *State and local government goals should be en-*  
20           *couraged;*

21           *(I) formal recognition should be accorded to*  
22           *those persons, the manufacturing and industrial*  
23           *innovation achievements of which contributed*  
24           *significantly to the national welfare; and*

1           *(J) departments, agencies, and instrumen-*  
2           *talities of the Federal Government should estab-*  
3           *lish procedures to ensure among them the system-*  
4           *atic interchange of data, efforts, and findings de-*  
5           *veloped under their programs.*

6           *(K) policies, rules, and regulations that neg-*  
7           *atively impact domestic manufacturing should be*  
8           *reformed.*

9           *(4) IMPLEMENTATION.—To implement the na-*  
10          *tional policy described in paragraph (2), it is the*  
11          *sense of Congress—*

12           *(A) that—*

13           *(i) the Federal Government should*  
14           *maintain integrated policy planning ele-*  
15           *ments in the executive branch that assist*  
16           *agencies in such branch in—*

17                   *(I) identifying problems and ob-*  
18                   *jectives that could be addressed or en-*  
19                   *hanced by public policy;*

20                   *(II) mobilizing industrial and in-*  
21                   *novative manufacturing resources for*  
22                   *national security and emergency re-*  
23                   *sponse purposes;*

24                   *(III) securing appropriate fund-*  
25                   *ing for programs so identified by the*

1                    *President or the Chief Manufacturing*  
2                    *Officer;*

3                    *(IV) anticipating future concerns*  
4                    *to which industrial and innovative*  
5                    *manufacturing can contribute and de-*  
6                    *vide industrial strategies for such pur-*  
7                    *poses;*

8                    *(V) reviewing systematically the*  
9                    *manufacturing and industrial innova-*  
10                   *tion policy and programs of the Fed-*  
11                   *eral Government and recommending*  
12                   *legislative amendments to those policies*  
13                   *and programs when needed; and*

14                   *(VI) reforming policies, rules, and*  
15                   *regulations that harm domestic manu-*  
16                   *facturing and inhibit domestic manu-*  
17                   *facturing from competing with global*  
18                   *competitors; and*

19                   *(ii) the elements described in clause (i)*  
20                   *should include a data collection, analysis,*  
21                   *and advisory mechanism within the Execu-*  
22                   *tive Office of the President to provide the*  
23                   *President with independent, expert judg-*  
24                   *ment and assessments of the complex manu-*

1           *facturing and industrial features involved;*  
2           *and*

3           *(B) that it is the responsibility of the Fed-*  
4           *eral Government to—*

5                   *(i) promote prompt, effective, reliable,*  
6                   *and systematic dissemination of manufac-*  
7                   *turing and industrial information—*

8                           *(I) by such methods as may be*  
9                           *appropriate; and*

10                               *(II) through efforts conducted by*  
11                               *nongovernmental organizations, in-*  
12                               *cluding industrial groups, technical so-*  
13                               *cieties, and educational entities;*

14                               *(ii) coordinate and develop a manufac-*  
15                               *turing industrial strategy and facilitate the*  
16                               *close coupling of this manufacturing strat-*  
17                               *egy with commercial manufacturing appli-*  
18                               *cation; and*

19                               *(iii) enhance domestic development and*  
20                               *utilization of such industrial information*  
21                               *by prioritization of efforts with manufac-*  
22                               *turers, the production of which takes place*  
23                               *in the United States.*

24           *(c) ESTABLISHMENT.—*

1           (1) *IN GENERAL.*—*The President shall appoint,*  
 2           *by and with the advice and consent of the Senate, a*  
 3           *Chief Manufacturing Officer to serve within the Exec-*  
 4           *utive Office of the President.*

5           (2) *OFFICE.*—

6           (A) *IN GENERAL.*—*There is established in*  
 7           *the Executive Office of the President an Office of*  
 8           *Manufacturing and Industrial Innovation Policy*  
 9           *(referred to in this section as the “Office”).*

10          (B) *CMO.*—*The Chief Manufacturing Officer*  
 11          *shall—*

12                   (i) *head the Office; and*

13                   (ii) *serve as a source of manufacturing*  
 14                   *and industrial innovation analysis and*  
 15                   *judgment for the President and the Director*  
 16                   *of the National Economic Council with re-*  
 17                   *spect to the major policies, plans, and pro-*  
 18                   *grams of the Federal Government relating*  
 19                   *to manufacturing and industrial innova-*  
 20                   *tion.*

21          (d) *CHIEF MANUFACTURING OFFICER; ASSOCIATE*  
 22          *MANUFACTURING OFFICERS.*—

23           (1) *CHIEF MANUFACTURING OFFICER.*—

24                   (A) *FUNCTIONS.*—

1                   (i) *PRIMARY FUNCTION.*—*To the extent*  
2                   *consistent with law, the Chief Manufac-*  
3                   *turing Officer shall report to the President,*  
4                   *and such agencies within the Executive Of-*  
5                   *fice of the President and the Director of the*  
6                   *National Economic Council, as may be ap-*  
7                   *propriate, on issues regarding and impact-*  
8                   *ing manufacturing and industrial innova-*  
9                   *tion efforts of the Federal Government, or of*  
10                   *the private sector, that require attention at*  
11                   *the highest levels of the Federal Government.*

12                   (ii) *OTHER FUNCTIONS.*—*The Chief*  
13                   *Manufacturing Officer shall—*

14                    (I) *advise the President on manu-*  
15                    *facturing and industrial innovation*  
16                    *considerations relating to areas of na-*  
17                    *tional concern, including—*

18                      (aa) *the economy of the*  
19                      *United States;*

20                      (bb) *national security;*

21                      (cc) *public health;*

22                      (dd) *the workforce of the*  
23                      *United States;*

24                      (ee) *education;*

1                    *(ff) foreign relations (includ-*  
2                    *ing trade and supply chain*  
3                    *issues);*

4                    *(gg) the environment; and*

5                    *(hh) technological innovation*  
6                    *in the United States;*

7                    *(II) convene stakeholders, includ-*  
8                    *ing key industry stakeholders, aca-*  
9                    *demie stakeholders, defense stake-*  
10                    *holders, governmental stakeholders, and*  
11                    *stakeholders from nonprofit organiza-*  
12                    *tions and labor organizations that pri-*  
13                    *marily represent workers in manufac-*  
14                    *turing, to develop the national stra-*  
15                    *tegic plan required under subsection*  
16                    *(f);*

17                    *(III) evaluate the scale, quality,*  
18                    *and effectiveness of the effort of the*  
19                    *Federal Government to support manu-*  
20                    *facturing and industrial innovation by*  
21                    *the Federal Government or by the pri-*  
22                    *vate sector, and advise on appropriate*  
23                    *actions;*

24                    *(IV) to the extent consistent with*  
25                    *law, report to the President, the Direc-*



1            *tor of the National Economic Council,*  
2            *the Director of the Office of Manage-*  
3            *ment Budget, and such agencies within*  
4            *the Executive Office of the President as*  
5            *may be appropriate, advise the Presi-*  
6            *dent on the budgets, regulations, and*  
7            *regulatory reforms of agencies of the*  
8            *executive branch of the Federal Govern-*  
9            *ment with respect to issues concerning*  
10           *manufacturing and industrial innova-*  
11           *tion;*

12                    *(V) to the extent consistent with*  
13                    *law, assist the President and the Direc-*  
14                    *tor of the National Economic Council*  
15                    *in providing general leadership and*  
16                    *coordination of activities and policies*  
17                    *of the Federal Government relating to*  
18                    *and impacting manufacturing and in-*  
19                    *dustrial innovation; and*

20                    *(VI) perform such other functions,*  
21                    *duties, and activities as the President*  
22                    *and the Director of the National Eco-*  
23                    *nomic Council may assign.*

1           (B) *AUTHORITIES.*—*In carrying out the du-*  
2 *ties and functions under this section, the Chief*  
3 *Manufacturing Officer may—*

4           (i) *appoint such officers and employees*  
5 *as may be determined necessary to perform*  
6 *the functions vested in the position and to*  
7 *prescribe the duties of such officers and em-*  
8 *ployees;*

9           (ii) *obtain services as authorized under*  
10 *section 3109 of title 5, United States Code,*  
11 *at rates not to exceed the rate prescribed for*  
12 *grade GS-15 of the General Schedule under*  
13 *section 5332 of title 5, United States Code;*  
14 *and*

15           (iii) *enter into contracts and other ar-*  
16 *rangements for studies, analysis, and other*  
17 *services with public agencies and with pri-*  
18 *vate persons, organizations, or institutions,*  
19 *and make such payments as determined*  
20 *necessary to carry out the provisions of this*  
21 *section without legal consideration, without*  
22 *performance bonds, and without regard to*  
23 *section 6101 of title 41, United States Code.*

24           (2) *ASSOCIATE DIRECTORS.*—

1           (A) *IN GENERAL.*—*The Chief Manufac-*  
2           *turing Officer may appoint not more than 5 As-*  
3           *sociate Directors, to be known as Associate Man-*  
4           *ufacturing Officers to carry out such functions*  
5           *as may be prescribed by the Chief Manufacturing*  
6           *Officer.*

7           (B) *COMPENSATION.*—*Each Associate Man-*  
8           *ufacturing Officer shall be compensated at a rate*  
9           *not to exceed that provided for level III of the*  
10           *Executive Schedule under section 5314 title 5,*  
11           *United States Code.*

12       (e) *POLICY PLANNING, ANALYSIS, AND ADVICE.*—

13           (1) *IN GENERAL.*—*In carrying out the provisions*  
14           *of this section, the Chief Manufacturing Officer*  
15           *shall—*

16           (A) *monitor the status of technological de-*  
17           *velopments, critical production capacity, skill*  
18           *availability, investment patterns, emerging de-*  
19           *fense needs, and other key indicators of manufac-*  
20           *turing competitiveness to—*

21                   (i) *provide foresight for periodic up-*  
22                   *dates to the national strategic plan required*  
23                   *under subsection (f); and*

24                   (ii) *guide investment decisions;*

1           (B) convene interagency and public-private  
2 working groups to align Federal policies that  
3 drive implementation of the national strategic  
4 plan required under subsection (f);

5           (C) initiate and support translation re-  
6 search in engineering and manufacturing by en-  
7 tering into contracts or making other arrange-  
8 ments (including grants, awards, cooperative  
9 agreements, loans, and other forms of assistance)  
10 to study that research and to assess the impact  
11 of that research on the economic well-being, cli-  
12 mate and environmental impact, public health,  
13 and national security of the United States;

14           (D) report to the President and the Director  
15 of the National Economic Council on the extent  
16 to which the various programs, policies, and ac-  
17 tivities of the Federal Government are likely to  
18 affect the achievement of priority goals of the  
19 United States described in subsection (b)(1);

20           (E) annually survey the nature and needs  
21 of the policies relating to national manufac-  
22 turing and industrial innovation and make rec-  
23 ommendations to the President and the Director  
24 of the National Economic Council, for review  
25 and submission to Congress, for the timely and

1           *appropriate revision of the manufacturing and*  
2           *industrial innovation policies of the Federal*  
3           *Government, including the reform of policies,*  
4           *rules, and regulations that harm domestic manu-*  
5           *facturing and inhibit the ability for domestic*  
6           *manufacturing to compete with global competi-*  
7           *tors;*

8           *(F) perform such other duties and functions*  
9           *and make and furnish such studies and reports*  
10           *thereon, and recommendations with respect to*  
11           *matters of policy and legislation as the President*  
12           *and the Director of the National Economic*  
13           *Council may request; and*

14           *(G) coordinate, as appropriate, Federal per-*  
15           *mitting with respect to manufacturing and in-*  
16           *dustrial innovation.*

17           (2) *INTERGOVERNMENTAL MANUFACTURING AND*  
18           *INDUSTRIAL INNOVATION PANEL.—*

19           *(A) ESTABLISHMENT.—The Chief Manufac-*  
20           *turing Officer shall establish an Intergovern-*  
21           *mental Manufacturing and Industrial Innova-*  
22           *tion Panel (referred to in this section as the*  
23           *“Panel”) within the Office, the purpose of which*  
24           *shall be to—*

1           (i) identify instances in which the  
2 policies of the Federal Government—

3           (I) with respect to manufacturing  
4 and industrial innovation can help ad-  
5 dress problems at the State and local  
6 levels; and

7           (II) unnecessarily impede manu-  
8 facturing and industrial innovation;

9           (ii) make recommendations for ad-  
10 dressing the problems described in clause  
11 (i); and

12           (iii) advise and assist the Chief Manu-  
13 facturing Officer in identifying and fos-  
14 tering policies to facilitate the application  
15 to and incorporation of federally funded re-  
16 search and development into manufacturing  
17 and industrial innovation in the United  
18 States, so as to maximize the application of  
19 such research.

20           (B) COMPOSITION.—The Panel shall be  
21 composed of—

22           (i) the Chief Manufacturing Officer, or  
23 a representative of the Chief Manufacturing  
24 Officer;

1           (ii) not fewer than 10 members rep-  
2           resenting the interests of the States, ap-  
3           pointed by the Chief Manufacturing Officer  
4           after consultation with State officials;

5           (iii) the Director of the National Insti-  
6           tute of Standards and Technology;

7           (iv) the Deputy Assistant Secretary of  
8           Defense for Manufacturing and Industrial  
9           Base Policy;

10          (v) the Assistant Secretary of Labor for  
11          Employment and Training;

12          (vi) the Administrator of the Small  
13          Business Administration; and

14          (vii) the Assistant Secretary of Energy  
15          for Energy Efficiency and Renewable En-  
16          ergy.

17          (C) CHAIR.—The Chief Manufacturing Offi-  
18          cer, or the representative of the Chief Manufac-  
19          turing Officer, shall serve as Chair of the Panel.

20          (D) MEETINGS.—The Panel shall meet at  
21          the call of the Chair.

22          (E) COMPENSATION.—

23          (i) IN GENERAL.—Each member of the  
24          Panel shall be entitled to receive compensa-  
25          tion at a rate not to exceed the daily rate

1           *prescribed for GS-15 of the General Sched-*  
2           *ule under section 5332 of title 5, United*  
3           *States Code, for each day (including travel*  
4           *time) during which the member is engaged*  
5           *in the performance of the duties of the*  
6           *Panel.*

7           (ii) *TRAVEL EXPENSES.—Each mem-*  
8           *ber of the Panel who is serving away from*  
9           *the home or regular place of business of the*  
10           *member in the performance of the duties of*  
11           *the Panel shall be allowed travel expenses,*  
12           *including per diem in lieu of subsistence, in*  
13           *the same manner as the expenses authorized*  
14           *by section 5703(b) of title 5, United States*  
15           *Code, for persons in government service em-*  
16           *ployed intermittently.*

17           (f) *NATIONAL STRATEGIC PLAN FOR MANUFACTURING*  
18           *AND INDUSTRIAL INNOVATION.—*

19           (1) *STRATEGIC PLAN.—*

20           (A) *IN GENERAL.—Not later than 1 year*  
21           *after the date of enactment of this Act, the Chief*  
22           *Manufacturing Officer, in coordination with the*  
23           *Director of the National Economic Council,*  
24           *shall, to the extent practicable, in accordance*  
25           *with subsection (d)(1)(A)(ii) and in consultation*



1           *with other agencies and private individuals as*  
2           *the Chief Manufacturing Officer determines nec-*  
3           *essary, establish a national strategic plan for*  
4           *manufacturing and industrial innovation that*  
5           *identifies—*

6                   *(i) short-term, medium-term, and long-*  
7                   *term needs critical to the economy, national*  
8                   *security, public health, workforce readiness,*  
9                   *environmental concerns, and priorities of*  
10                  *the United States manufacturing sector, in-*  
11                  *cluding emergency readiness and resilience;*  
12                  *and*

13                   *(ii) situations and conditions that*  
14                   *warrant special attention by the Federal*  
15                   *Government relating to—*

16                           *(I) any problems, constraints, or*  
17                           *opportunities of manufacturing and*  
18                           *industrial innovation that—*

19                                   *(aa) are of national signifi-*  
20                                   *cance;*

21                                   *(bb) will occur or may*  
22                                   *emerge during the 4-year period*  
23                                   *beginning on the date on which*  
24                                   *the national strategic plan is es-*  
25                                   *tablished; and*

1                   (cc) are identified through  
2                   basic research;

3                   (II) an evaluation of activities  
4                   and accomplishments of all agencies in  
5                   the executive branch of the Federal  
6                   Government that are related to car-  
7                   rying out such plan;

8                   (III) opportunities for, and con-  
9                   straints on, manufacturing and indus-  
10                  trial innovation that can make a sig-  
11                  nificant contribution to—

12                   (aa) the resolution of prob-  
13                   lems identified under this para-  
14                   graph; or

15                   (bb) the achievement of Fed-  
16                   eral program objectives or pri-  
17                   ority goals, including those de-  
18                   scribed in subsection (b)(1); and

19                   (IV) recommendations for pro-  
20                   posals to carry out such plan.

21                   (B) REVISIONS.—Not later than 4 years  
22                   after the date on which the national strategic  
23                   plan is established under subparagraph (A), and  
24                   every 4 years thereafter, the Chief Manufacturing  
25                   Officer, in coordination with the Director of the

1           *National Economic Council, shall revise that*  
2           *plan so that the plan takes account of near- and*  
3           *long-term problems, constraints, and opportuni-*  
4           *ties and changing national goals and cir-*  
5           *cumstances.*

6           (2) *CONSULTATION WITH OTHER AGENCIES.—*  
7           *The Chief Manufacturing Officer shall consult, as nec-*  
8           *essary, with officials of agencies in the executive*  
9           *branch of the Federal Government that administer*  
10          *programs or have responsibilities relating to the prob-*  
11          *lems, constraints, and opportunities identified in the*  
12          *national strategic plan under paragraph (1) in order*  
13          *to—*

14                 (A) *identify and evaluate actions that*  
15                 *might be taken by the Federal Government,*  
16                 *State, and local governments, or the private sec-*  
17                 *tor to deal with such problems, constraints, or*  
18                 *opportunities; and*

19                 (B) *ensure to the extent possible that actions*  
20                 *identified under subparagraph (A) are consid-*  
21                 *ered by each agency of the executive branch of the*  
22                 *Federal Government in formulating proposals of*  
23                 *each such agency.*

24           (3) *CONSULTATION WITH MANUFACTURING*  
25          *STAKEHOLDERS.—The Chief Manufacturing Officer*

1       *shall consult broadly with representatives from stake-*  
2       *holder constituencies, including from technology*  
3       *fields, engineering fields, manufacturing fields, aca-*  
4       *ademic fields, worker training or credentialing pro-*  
5       *grams, industrial sectors, business sectors, consumer*  
6       *sectors, defense sector, public interest sectors, and*  
7       *labor organizations which primarily represent work-*  
8       *ers in manufacturing to ensure information and per-*  
9       *spectives from such consultations are incorporated*  
10       *within the problems, constraints, opportunities, and*  
11       *actions identified in the national strategic plan under*  
12       *paragraph (1).*

13               (4) *CONSULTATION WITH OMB.—The Chief Man-*  
14       *ufacturing Officer shall consult as necessary with offi-*  
15       *cials of the Office of Management and Budget and*  
16       *other appropriate elements of the Executive Office of*  
17       *the President to ensure that the problems, constraints,*  
18       *opportunities, and actions identified under para-*  
19       *graph (1) are fully considered in the development of*  
20       *legislative proposals and the President’s budget.*

21               (g) *ADDITIONAL FUNCTIONS OF THE CHIEF MANUFAC-*  
22       *TURING OFFICER; ADMINISTRATIVE PROVISIONS.—*

23               (1) *IN GENERAL.—The Chief Manufacturing Of-*  
24       *ficer, in addition to the other duties and functions*  
25       *under this section, shall serve—*

1           (A) *on the Federal Strategy and Coordi-*  
2           *nating Council on Manufacturing and Indus-*  
3           *trial Innovation established under subsection (j);*  
4           *and*

5           (B) *as a member of the Domestic Policy*  
6           *Council, the National Economic Council, and the*  
7           *Office of Science and Technology Policy Council.*

8           (2) *ADVICE TO NATIONAL SECURITY COUNCIL.—*

9           *For the purpose of ensuring the optimal contribution*  
10          *of manufacturing and industrial innovation to the*  
11          *national security of the United States, the Chief Man-*  
12          *ufacturing Officer, at the request of the President,*  
13          *shall advise the National Security Council in such*  
14          *matters concerning manufacturing and industrial in-*  
15          *novation as may be related to national security.*

16          (3) *COORDINATION WITH OTHER ORGANIZA-*  
17          *TIONS.—*

18               (A) *IN GENERAL.—In exercising the func-*  
19               *tions under this section, the Chief Manufacturing*  
20               *Officer—*

21                       (i) *shall—*

22                               (I) *work in close consultation and*  
23                               *cooperation with the Director of the*  
24                               *Domestic Policy Council, the National*  
25                               *Security Advisor, the Assistant to the*

1                    *President for Economic Policy and Di-*  
2                    *rector of the National Economic Coun-*  
3                    *cil, the Director of the Office of Science*  
4                    *and Technology Policy, the Director of*  
5                    *the Office of Management and Budget,*  
6                    *and the heads of other agencies in the*  
7                    *executive branch of the Federal Govern-*  
8                    *ment;*

9                    *(II) utilize the services of consult-*  
10                   *ants, establish such advisory panels,*  
11                   *and, to the extent practicable, consult*  
12                   *with—*

13                   *(aa) State and local govern-*  
14                   *ment agencies;*

15                   *(bb) appropriate professional*  
16                   *groups;*

17                   *(cc) representatives of indus-*  
18                   *try, universities, consumers, labor*  
19                   *organizations that primarily rep-*  
20                   *resent workers in manufacturing;*  
21                   *and*

22                   *(dd) such other public inter-*  
23                   *est groups, organizations, and in-*  
24                   *dividuals as may be necessary;*

1           (III) hold such hearings in var-  
2           ious parts of the United States as nec-  
3           essary to determine the views of the  
4           agencies, groups, and organizations de-  
5           scribed in subparagraph (B), and of  
6           the general public, concerning national  
7           needs and trends in manufacturing  
8           and industrial innovation; and

9           (IV) utilize, with the heads of  
10          public and private agencies and orga-  
11          nizes, to the fullest extent possible the  
12          services, personnel, equipment, facili-  
13          ties, and information (including statisti-  
14          cal information) of public and pri-  
15          vate agencies and organizations, and  
16          individuals, in order to avoid the du-  
17          plication of efforts and expenses; and

18          (ii) may transfer funds made available  
19          pursuant to this section to other agencies in  
20          the executive branch of the Federal Govern-  
21          ment as reimbursement for the utilization of  
22          such personnel, services, facilities, equip-  
23          ment, and information.

24          (B) FURNISHMENT OF INFORMATION.—

25          Each department, agency, and instrumentality

1           *of the executive branch of the Federal Govern-*  
2           *ment, including any independent agency, shall*  
3           *furnish the Chief Manufacturing Officer such in-*  
4           *formation as necessary to carry out this section.*

5           *(h) MANUFACTURING AND INDUSTRIAL INNOVATION*  
6           *REPORT.—*

7           *(1) REPORT.—Not later than 3 years after the*  
8           *date of enactment of this Act, and every 4 years there-*  
9           *after, the Chief Manufacturing Officer, in consulta-*  
10          *tion with the Director of the National Economic*  
11          *Council, shall submit to Congress a Manufacturing*  
12          *and Industrial Innovation Report (referred to in this*  
13          *section as the “report”) with appropriate assistance*  
14          *from agencies in the executive branch of the Federal*  
15          *Government and such consultants and contractors as*  
16          *the Chief Manufacturing Officer determines necessary.*

17          *(2) CONTENTS OF REPORT.—Each report re-*  
18          *quired under paragraph (1) shall draw upon the most*  
19          *recent national strategic plan established under sub-*  
20          *section (f) and shall include, to the extent practicable*  
21          *and within the limitations of available knowledge and*  
22          *resources—*

23                  *(A) a review of developments of national*  
24                  *significance in manufacturing and industrial*  
25                  *innovation;*



1           (B) the significant effects of trends at the  
2 time of the submission of the report and pro-  
3 jected trends in manufacturing and industrial  
4 innovation on the economy, workforce, and envi-  
5 ronmental, health and national security, and  
6 other requirements of the United States;

7           (C) a review and appraisal of selected man-  
8 ufacturing and industrial innovation related  
9 programs, policies, and activities of the Federal  
10 Government, including procurement;

11           (D) an inventory and forecast of critical  
12 and emerging national problems, the resolution  
13 of which might be substantially assisted by man-  
14 ufacturing and industrial innovation in the  
15 United States;

16           (E) the identification and assessment of  
17 manufacturing and industrial innovation meas-  
18 ures that can contribute to the resolution of the  
19 problems described in subparagraph (D) in light  
20 of the related economic, workforce, environ-  
21 mental, public health, and national security con-  
22 siderations;

23           (F) at the time of the submission of the re-  
24 port, and as projected, the manufacturing and  
25 industrial resources, including specialized man-

1            *power, that could contribute to the resolution of*  
2            *the problems described in subparagraph (D); and*  
3            *(G) recommendations for legislation and*  
4            *regulatory changes on manufacturing and indus-*  
5            *trial innovation-related programs and policies*  
6            *that will contribute to the resolution of the prob-*  
7            *lems described in subparagraph (D).*

8            *(3) PREPARATION OF REPORT.—In preparing*  
9            *each report required under paragraph (1), the Chief*  
10           *Manufacturing Officer shall make maximum use of*  
11           *relevant data available from agencies in the executive*  
12           *branch of the Federal Government.*

13           *(4) PUBLIC AVAILABILITY OF REPORT.—The*  
14           *Chief Manufacturing Officer shall ensure that the re-*  
15           *port is made available to the public.*

16           *(i) COMPTROLLER GENERAL REPORT.—Not later than*  
17           *3 years after the date of enactment of this Act, the Comp-*  
18           *troller General of the United States shall submit to the Com-*  
19           *mittee on Commerce, Science, and Transportation of the*  
20           *Senate, the Committee on Appropriations of the Senate, the*  
21           *Committee on Science, Space, and Technology of the House*  
22           *of Representatives, the Committee on Energy and Com-*  
23           *merce of the House of Representatives, and the Committee*  
24           *on Appropriations of the House of Representatives, and*  
25           *make available to the public, a report—*

1           (1) *containing an assessment of the efforts of the*  
2           *Office to implement or advance the priority goals de-*  
3           *scribed in subsection (b)(1); and*

4           (2) *providing recommendations on how to im-*  
5           *prove the efforts described in paragraph (1).*

6           (j) *FEDERAL STRATEGY AND COORDINATING COUNCIL*  
7           *ON MANUFACTURING AND INDUSTRIAL INNOVATION.—There*  
8           *is established in the executive branch of the Federal Govern-*  
9           *ment the Federal Strategy and Coordinating Council on*  
10           *Manufacturing and Industrial Innovation (referred to in*  
11           *this section as the “Council”).*

12           (1) *MEMBERSHIP.—*

13           (A) *IN GENERAL.—The Council shall be*  
14           *composed of the following:*

15                   (i) *The President, who shall serve as*  
16                   *Chair of the Council.*

17                   (ii) *The Vice President.*

18                   (iii) *The Secretary of Commerce.*

19                   (iv) *The Secretary of Defense.*

20                   (v) *The Secretary of Education.*

21                   (vi) *The Secretary of Energy.*

22                   (vii) *The Secretary of Health and*  
23                   *Human Services.*

24                   (viii) *The Secretary of Housing and*  
25                   *Urban Development.*

1                   *(ix) The Secretary of Labor.*

2                   *(x) The Secretary of State.*

3                   *(xi) The Secretary of Transportation.*

4                   *(xii) The Secretary of the Treasury.*

5                   *(xiii) The Secretary of Veterans Af-*  
6                   *fairs.*

7                   *(xiv) The Administrator of the Envi-*  
8                   *ronmental Protection Agency.*

9                   *(xv) The Administrator of the National*  
10                  *Aeronautics and Space Administration.*

11                  *(xvi) The Administrator of the Small*  
12                  *Business Administration.*

13                  *(xvii) The Director of the National*  
14                  *Science Foundation.*

15                  *(xviii) The Director of the Office of*  
16                  *Management and Budget.*

17                  *(xix) The Assistant to the President for*  
18                  *Science and Technology.*

19                  *(xx) The United States Trade Rep-*  
20                  *resentative.*

21                  *(xxi) The National Security Advisor.*

22                  *(xxii) The Assistant to the President*  
23                  *for Economic Policy.*

24                  *(xxiii) The Director of the Domestic*  
25                  *Policy Council.*

1                    *(xxiv) The Chair of the Council of Eco-*  
 2                    *nomics Advisers.*

3                    *(xxv) The Chief Manufacturing Officer.*

4                    *(B) ADDITIONAL PARTICIPANTS.—The*  
 5                    *President may, from time to time and as nec-*  
 6                    *essary, appoint officials in the executive branch*  
 7                    *of the Federal Government to serve as members*  
 8                    *of the Council.*

9                    *(2) MEETINGS OF THE COUNCIL.—*

10                    *(A) IN GENERAL.—The President or the*  
 11                    *Chief Manufacturing Officer may convene meet-*  
 12                    *ings of the Council.*

13                    *(B) PRESIDING OFFICER.—*

14                    *(i) IN GENERAL.—Subject to clause*  
 15                    *(ii), the President shall preside over the*  
 16                    *meetings of the Council.*

17                    *(ii) EXCEPTION.—If the President is*  
 18                    *not present at a meeting of the Council, the*  
 19                    *Vice President (and if the Vice President is*  
 20                    *not present at a meeting of the Council, the*  
 21                    *Chief Manufacturing Officer) shall preside*  
 22                    *and be considered the chair of the Council.*

23                    *(k) COUNCIL ON MANUFACTURING AND INDUSTRIAL*  
 24                    *INNOVATION FUNCTIONS.—*

25                    *(1) IN GENERAL.—The Council shall—*

1           (A) consider problems and developments, in-  
2           cluding concerns relating to the workforce of the  
3           United States, in manufacturing and industrial  
4           innovation and related activities of more than 1  
5           agency in the executive branch of the Federal  
6           Government;

7           (B) coordinate the manufacturing and in-  
8           dustrial innovation policy-making process;

9           (C) harmonize the Federal permitting proc-  
10          ess relating to manufacturing and industrial in-  
11          novation, as appropriate;

12          (D) ensure manufacturing and industrial  
13          innovation policy decisions and programs are  
14          consistent with the priority goals described in  
15          subsection (b)(1);

16          (E) help implement the priority goals de-  
17          scribed in subsection (b)(1) across the Federal  
18          Government;

19          (F) ensure manufacturing and industrial  
20          innovation are considered in the development  
21          and implementation of Federal policies and pro-  
22          grams;

23          (G) achieve more effective use of  
24          foundational aspects of manufacturing and in-  
25          dustrial innovation, particularly scientific, engi-

1            *neering, and technological resources and facili-*  
2            *ties of agencies in the executive branch of the*  
3            *Federal Government, including the elimination*  
4            *of efforts that have been unwarrantedly dupli-*  
5            *cated;*

6            *(H) identify—*

7                    *(i) threats to, and vulnerabilities of,*  
8                    *supply chains;*

9                    *(ii) workforce skills;*

10                   *(iii) aspects of supply chains and*  
11                   *workforce skills requiring additional empha-*  
12                   *sis; and*

13                   *(iv) for reform policies, rules, and reg-*  
14                   *ulations that harm domestic manufacturing*  
15                   *and inhibit the ability for domestic manu-*  
16                   *facturing to compete with global competi-*  
17                   *tors; and*

18            *(I) further international cooperation on*  
19            *manufacturing and industrial innovation poli-*  
20            *cies that enhance the policies of the United*  
21            *States and internationally agreed upon policies.*

22            *(2) CHIEF MANUFACTURING OFFICER.—The*  
23            *Chief Manufacturing Officer may take such actions as*  
24            *may be necessary or appropriate to implement the*  
25            *functions described in paragraph (1).*

1       (l) *COORDINATION.*—*The head of each agency in the*  
2 *executive branch of the Federal Government, without regard*  
3 *to whether the head of the agency is a member of the Coun-*  
4 *cil, shall coordinate manufacturing and industrial innova-*  
5 *tion policy with the Council.*

6       (m) *ADMINISTRATION.*—

7           (1) *COORDINATION WITH NATIONAL SCIENCE AND*  
8 *TECHNOLOGY COUNCIL.*—*In carrying out the duties of*  
9 *the Council, the Council shall consult with the Na-*  
10 *tional Science and Technology Council, as necessary.*

11          (2) *AD COMMITTEES; TASKS FORCES, INTER-*  
12 *AGENCY GROUPS.*—*The Council may function through*  
13 *established or ad hoc committees, task forces, or inter-*  
14 *agency groups.*

15          (3) *REQUIREMENT TO COOPERATE.*—*Each agen-*  
16 *cy in the executive branch of the Federal Government*  
17 *shall—*

18           (A) *cooperate with the Council; and*

19           (B) *provide assistance, information, and*  
20 *advice to the Council, as the Council may re-*  
21 *quest, to the extent permitted by law.*

22          (4) *ASSISTANCE TO COUNCIL.*—*For the purpose*  
23 *of carrying out the provisions of this section, the head*  
24 *of each agency that is a member of the Council shall*



1       *furnish necessary assistance and resources to the*  
2       *Council, which may include—*

3               *(A) detailing employees of the agency to the*  
4               *Council to perform such functions, consistent*  
5               *with the purposes of this section, as the Chair of*  
6               *the Council may assign to those detailees;*

7               *(B) providing office support and printing,*  
8               *as requested by the Chair of the Council; and*

9               *(C) upon the request of the Chair of the*  
10              *Council, undertake special studies for the Coun-*  
11              *cil that come within the functions of the Council*  
12              *described in subsection (k).*

13       *(n) NATIONAL MEDAL OF MANUFACTURING AND IN-*  
14       *DUSTRIAL INNOVATION.—*

15              *(1) RECOMMENDATIONS.—The President shall*  
16              *from time to time award a medal, to be known as the*  
17              *“National Medal of Manufacturing and Industrial*  
18              *Innovation”, on the basis of recommendations re-*  
19              *ceived from the National Academies of Sciences, the*  
20              *Chief Manufacturing Officer, or on the basis of such*  
21              *other information and evidence as the President deter-*  
22              *mines appropriate, to individuals who in the judg-*  
23              *ment of the President are deserving of special recogni-*  
24              *tion by reason of outstanding contributions to knowl-*  
25              *edge in manufacturing and industrial innovation.*

1           (2) *NUMBER.*—*Not more than 20 individuals*  
2           *may be awarded a medal under this section in any*  
3           *one calendar year.*

4           (3) *CITIZENSHIP.*—*An individual may not be*  
5           *awarded a medal under this section unless at the time*  
6           *such award is made the individual—*

7                   (A) *is a citizen or other national of the*  
8                   *United States; or*

9                   (B) *is an individual lawfully admitted to*  
10                  *the United States for permanent residence who—*

11                           (i) *has filed an application for petition*  
12                           *for naturalization in the manner prescribed*  
13                           *by section 334(b) of the Immigration and*  
14                           *Nationality Act (8 U.S.C. 1445(b)); and*

15                           (ii) *is not permanently ineligible to be-*  
16                           *come a citizen of the United States.*

17           (4) *CEREMONIES.*—*The presentation of the*  
18           *award shall be made by the President with such cere-*  
19           *monies as determined proper, including attendance by*  
20           *appropriate Members of Congress.*

21           (o) *AUTHORIZATION OF APPROPRIATIONS.*—*There are*  
22           *authorized to be appropriated for each of fiscal years 2022*  
23           *through 2026—*

24                   (1) *\$5,000,000, for the purpose of carrying out*  
25                   *subsections (c) through (i); and*

1           (2) \$5,000,000, for the purpose of carrying out  
2           subsections (j) through (m).

3 **SEC. 509. TELECOMMUNICATIONS WORKFORCE TRAINING**  
4           **GRANT PROGRAM.**

5           (a) *SHORT TITLE.*—This section may be cited as the  
6 “Improving Minority Participation And Careers in Tele-  
7 communications Act” or the “IMPACT Act”.

8           (b) *DEFINITIONS.*—In this section:

9           (1) *ASSISTANT SECRETARY.*—The term “Assist-  
10           ant Secretary” means the Assistant Secretary of Com-  
11           merce for Communications and Information.

12           (2) *COVERED GRANT.*—The term “covered grant”  
13           means a grant awarded under subsection (c).

14           (3) *ELIGIBLE ENTITY.*—The term “eligible enti-  
15           ty” means a historically Black college or university,  
16           Tribal College or University, or minority-serving in-  
17           stitution, or a consortium of such entities, that forms  
18           a partnership with 1 or more of the following entities  
19           to carry out a training program:

20           (A) A member of the telecommunications in-  
21           dustry, such as a company or industry associa-  
22           tion.

23           (B) A labor or labor-management organiza-  
24           tion with experience working in the tele-  
25           communications industry or a similar industry.

1           (C) *The Telecommunications Industry Reg-*  
2           *istered Apprenticeship Program.*

3           (D) *A nonprofit organization dedicated to*  
4           *helping individuals gain employment in the tele-*  
5           *communications industry.*

6           (E) *A community or technical college with*  
7           *experience in providing workforce development*  
8           *for individuals seeking employment in the tele-*  
9           *communications industry or a similar industry.*

10          (F) *A Federal agency laboratory special-*  
11          *izing in telecommunications technology.*

12          (4) *FUND.—The term “Fund” means the Tele-*  
13          *communications Workforce Training Grant Program*  
14          *Fund established under subsection (d)(1).*

15          (5) *GRANT PROGRAM.—The term “Grant Pro-*  
16          *gram” means the Telecommunications Workforce*  
17          *Training Grant Program established under subsection*  
18          *(c).*

19          (6) *HISTORICALLY BLACK COLLEGE OR UNIVER-*  
20          *SITY.—The term “historically Black college or univer-*  
21          *sity” has the meaning given the term “part B institu-*  
22          *tion” in section 322 of the Higher Education Act of*  
23          *1965 (20 U.S.C. 1061).*

24          (7) *INDUSTRY FIELD ACTIVITIES.—The term “in-*  
25          *dustry field activities” means activities at active tele-*

1        *communications, cable, and broadband network work-*  
2        *sites, such as towers, construction sites, and network*  
3        *management hubs.*

4            (8) *INDUSTRY PARTNER.*—*The term “industry*  
5        *partner” means an entity described in subparagraphs*  
6        *(A) through (F) of paragraph (3) with which an eligi-*  
7        *ble entity forms a partnership to carry out a training*  
8        *program.*

9            (9) *MINORITY-SERVING INSTITUTION.*—*The term*  
10        *“minority-serving institution” means an institution*  
11        *described in section 371(a) of the Higher Education*  
12        *Act of 1965 (20 U.S.C. 1067q(a)).*

13            (10) *TRAINING PROGRAM.*—*The term “training*  
14        *program” means a credit or non-credit program de-*  
15        *veloped by an eligible entity, in partnership with an*  
16        *industry partner, that—*

17                    (A) *is designed to educate and train stu-*  
18                    *dents to participate in the telecommunications*  
19                    *workforce; and*

20                    (B) *includes a curriculum and apprentice-*  
21                    *ship or internship opportunities that can also be*  
22                    *paired with—*

23                            (i) *a degree program; or*

24                            (ii) *stacked credentialing toward a de-*  
25                            *gree.*

1           (11) *TRIBAL COLLEGE OR UNIVERSITY.*—*The*  
2           *term “Tribal College or University” has the meaning*  
3           *given the term in section 316(b)(3) of the Higher*  
4           *Education Act of 1965 (20 U.S.C. 1059c(b)(3)).*

5           (c) *PROGRAM.*—*The Assistant Secretary, acting*  
6           *through the Office of Minority Broadband Initiatives estab-*  
7           *lished under section 902(b)(1) of division N of the Consoli-*  
8           *dated Appropriations Act, 2021 (Public Law 116–260),*  
9           *shall establish a program, to be known as the “Tele-*  
10           *communications Workforce Training Grant Program”,*  
11           *under which the Assistant Secretary awards grants to eligi-*  
12           *ble entities to develop training programs.*

13           (d) *FUND.*—

14           (1) *ESTABLISHMENT.*—*There is established in*  
15           *the Treasury of the United States a fund to be known*  
16           *as the “Telecommunications Workforce Training*  
17           *Grant Program Fund”.*

18           (2) *AVAILABILITY.*—*Amounts in the Fund shall*  
19           *be available to the Assistant Secretary to carry out*  
20           *the Grant Program.*

21           (e) *APPLICATION.*—

22           (1) *IN GENERAL.*—*An eligible entity desiring a*  
23           *covered grant shall submit an application to the As-*  
24           *stant Secretary at such time, in such manner, and*

1       *containing such information as the Assistant Sec-*  
2       *retary may require.*

3           (2) *CONTENTS.—An eligible entity shall include*  
4       *in an application under paragraph (1)—*

5           (A) *a commitment from the industry part-*  
6       *ner of the eligible entity to collaborate with the*  
7       *eligible entity to develop a training program, in-*  
8       *cluding curricula and internships or apprentice-*  
9       *ships;*

10          (B) *a description of how the eligible entity*  
11       *plans to use the covered grant, including the type*  
12       *of training program the eligible entity plans to*  
13       *develop;*

14          (C) *a plan for recruitment of students and*  
15       *potential students to participate in the training*  
16       *program;*

17          (D) *a plan to increase female student par-*  
18       *ticipation in the training program of the eligible*  
19       *entity; and*

20          (E) *a description of potential jobs to be se-*  
21       *cured through the training program, including*  
22       *jobs in the communities surrounding the eligible*  
23       *entity.*

1       (f) *USE OF FUNDS.*—*An eligible entity may use a cov-*  
2 *ered grant, with respect to the training program of the eligi-*  
3 *ble entity, to—*

4           (1) *hire faculty members to teach courses in the*  
5 *training program;*

6           (2) *train faculty members to prepare students for*  
7 *employment in jobs related to the deployment of next-*  
8 *generation wired and wireless communications net-*  
9 *works, including 5G networks, hybrid fiber-coaxial*  
10 *networks, and fiber infrastructure, particularly in—*

11           (A) *broadband and wireless network engi-*  
12 *neering;*

13           (B) *network deployment, operation, and*  
14 *maintenance;*

15           (C) *industry field activities; and*

16           (D) *cloud networks, data centers, and cyber-*  
17 *security;*

18           (3) *design and develop curricula and other com-*  
19 *ponents necessary for degrees, courses, or programs of*  
20 *study, including certificate programs and*  
21 *credentialing programs, that comprise the training*  
22 *program;*

23           (4) *pay for costs associated with instruction*  
24 *under the training program, including the costs of*  
25 *equipment, telecommunications training towers, lab-*



1        *oratory space, classroom space, and instructional field*  
2        *activities;*

3            (5) *fund scholarships, student internships, ap-*  
4        *prenticeships, and pre-apprenticeship opportunities;*

5            (6) *recruit students for the training program;*  
6        *and*

7            (7) *support the enrollment in the training pro-*  
8        *gram of individuals working in the telecommuni-*  
9        *cations industry in order to advance professionally in*  
10       *the industry.*

11       (g) *GRANT AWARDS.—*

12            (1) *DEADLINE.—Not later than 2 years after the*  
13       *date on which amounts are appropriated to the Fund*  
14       *pursuant to subsection (m), the Assistant Secretary*  
15       *shall award all covered grants.*

16            (2) *MINIMUM ALLOCATION TO CERTAIN ENTI-*  
17       *TIES.—The Assistant Secretary shall award not less*  
18       *than—*

19            (A) *30 percent of covered grant amounts to*  
20       *historically Black colleges or universities; and*

21            (B) *30 percent of covered grant amounts to*  
22       *Tribal Colleges or Universities.*

23            (3) *EVALUATION CRITERIA.—As part of the final*  
24       *rules issued under subsection (h), the Assistant Sec-*

1        *retary shall develop criteria for evaluating applica-*  
2        *tions for covered grants.*

3            (4) *COORDINATION.*—*The Assistant Secretary*  
4        *shall ensure that grant amounts awarded under para-*  
5        *graph (2) are coordinated with, and do not duplicate*  
6        *the specific use of, grant amounts provided under sec-*  
7        *tion 902 of division N of the Consolidated Appropria-*  
8        *tions Act, 2021 (Public Law 116–260).*

9            (5) *CONSTRUCTION.*—*In awarding grants under*  
10       *this section for training or education relating to con-*  
11       *struction, the Assistant Secretary may prioritize ap-*  
12       *plicants that partner with apprenticeship programs,*  
13       *pre-apprenticeship programs, or public two-year com-*  
14       *munity or technical colleges that have a written*  
15       *agreement with one or more apprenticeship programs.*

16        (h) *RULES.*—*Not later than 180 days after the date*  
17       *of enactment of this Act, after providing public notice and*  
18       *an opportunity to comment, the Assistant Secretary, in*  
19       *consultation with the Secretary of Labor and the Secretary*  
20       *of Education, shall issue final rules governing the Grant*  
21       *Program.*

22        (i) *TERM.*—*The Assistant Secretary shall establish the*  
23       *term of a covered grant, which may not be less than 5 years.*

24        (j) *GRANTEE REPORTS.*—*During the term of a covered*  
25       *grant received by an eligible entity, the eligible entity shall*

1 *submit to the Assistant Secretary a semiannual report that,*  
2 *with respect to the preceding 6-month period—*

3 *(1) describes how the eligible entity used the cov-*  
4 *ered grant amounts;*

5 *(2) describes the progress the eligible entity made*  
6 *in developing and executing the training program of*  
7 *the eligible entity;*

8 *(3) describes the number of faculty and students*  
9 *participating in the training program of the eligible*  
10 *entity;*

11 *(4) describes the partnership with the industry*  
12 *partner of the eligible entity, including—*

13 *(A) the commitments and in-kind contribu-*  
14 *tions made by the industry partner; and*

15 *(B) the role of the industry partner in cur-*  
16 *riculum development, the degree program, and*  
17 *internships and apprenticeships; and*

18 *(5) includes data on internship, apprenticeship,*  
19 *and employment opportunities and placements.*

20 *(k) OVERSIGHT.—*

21 *(1) AUDITS.—The Inspector General of the De-*  
22 *partment of Commerce shall audit the Grant Program*  
23 *in order to—*

24 *(A) ensure that eligible entities use covered*  
25 *grant amounts in accordance with—*

1                   (i) the requirements of this section; and  
2                   (ii) the overall purpose of the Grant  
3                   Program, as described in subsection (c); and  
4                   (B) prevent waste, fraud, and abuse in the  
5                   operation of the Grant Program.

6                   (2) *REVOCATION OF FUNDS.*—The Assistant Sec-  
7                   retary shall revoke a grant awarded to an eligible en-  
8                   tity that is not in compliance with the requirements  
9                   of this section or the overall purpose of the Grant Pro-  
10                  gram, as described in subsection (c).

11                  (1) *ANNUAL REPORT TO CONGRESS.*—Each year, until  
12 all covered grants have expired, the Assistant Secretary  
13 shall submit to Congress a report that—

14                   (1) identifies each eligible entity that received a  
15 covered grant and the amount of the covered grant;

16                   (2) describes the progress each eligible entity de-  
17 scribed in paragraph (1) has made toward accom-  
18 plishing the overall purpose of the Grant Program, as  
19 described in subsection (c);

20                   (3) summarizes the job placement status or ap-  
21 prenticeship opportunities of students who have par-  
22 ticipated in the training program of the eligible enti-  
23 ty; and

24                   (4) includes the findings of any audits conducted  
25 by the Inspector General of the Department of Com-

1        *merce under subsection (k)(1) that were not included*  
2        *in the previous report submitted under this sub-*  
3        *section.*

4        *(m) AUTHORIZATION OF APPROPRIATIONS.—*

5            *(1) IN GENERAL.—There is authorized to be ap-*  
6            *propriated to the Fund a total of \$100,000,000 for fis-*  
7            *cal years 2022 through 2027, to remain available*  
8            *until expended.*

9            *(2) ADMINISTRATION.—The Assistant Secretary*  
10          *may use not more than 2 percent of the amounts ap-*  
11          *propriated to the Fund for the administration of the*  
12          *Grant Program.*

13        **SEC. 510. COUNTRY OF ORIGIN LABELING ONLINE ACT.**

14          *(a) MANDATORY ORIGIN AND LOCATION DISCLOSURE*  
15        *FOR PRODUCTS OFFERED FOR SALE ON THE INTERNET.—*

16            *(1) IN GENERAL.—It shall be unlawful for a*  
17            *product that is required to be marked under section*  
18            *304 of the Tariff Act of 1930 (19 U.S.C. 1304) or its*  
19            *implementing regulations to be introduced, sold, ad-*  
20            *vertised, or offered for sale in commerce on an inter-*  
21            *net website unless the internet website description of*  
22            *the product—*

23                    *(A)(i) indicates in a conspicuous place the*  
24                    *country of origin of the product, in a manner*  
25                    *consistent with the regulations prescribed under*

1           *section 304 of the Tariff Act of 1930 (19 U.S.C.*  
2           *1304) and the country of origin marking regula-*  
3           *tions administered by U.S. Customs and Border*  
4           *Protection; and*

5           *(ii) includes, in the case of—*

6                   *(I) a new passenger motor vehicle (as*  
7                   *defined in section 32304 of title 49, United*  
8                   *States Code), the disclosure required by such*  
9                   *section;*

10                   *(II) a textile fiber product (as defined*  
11                   *in section 2 of the Textile Fiber Products*  
12                   *Identification Act (15 U.S.C. 70b)), the dis-*  
13                   *closure required by such Act;*

14                   *(III) a wool product (as defined in sec-*  
15                   *tion 2 of the Wool Products Labeling Act of*  
16                   *1939 (15 U.S.C. 68)), the disclosure re-*  
17                   *quired by such Act;*

18                   *(IV) a fur product (as defined in sec-*  
19                   *tion 2 of the Fur Products Labeling Act (15*  
20                   *U.S.C. 69)), the disclosure required by such*  
21                   *Act;*

22                   *(V) a covered commodity (as defined in*  
23                   *section 281 of the Agricultural Marketing*  
24                   *Act of 1946 (7 U.S.C. 1638)), the country of*

1 *origin information required by section 282*  
2 *of such Act (7 U.S.C. 1638a); and*

3 *(VI) a pharmaceutical product subject*  
4 *to the jurisdiction of the Food and Drug*  
5 *Administration, the disclosure required by*  
6 *section 502 of the Federal Food, Drug, and*  
7 *Cosmetic Act (21 U.S.C. 352); and*

8 *(B) indicates in a conspicuous place the*  
9 *country in which the seller of the product is lo-*  
10 *located (and, if applicable, the country in which*  
11 *any parent corporation of such seller is located).*

12 *(2) LIMITATION.—The disclosure of a product’s*  
13 *country of origin required pursuant to paragraph*  
14 *(1)(A) shall not be made in such a manner as to rep-*  
15 *resent to a consumer that the product is in whole, or*  
16 *part, of United States origin, unless such disclosure*  
17 *is consistent with section 5 of the Federal Trade Com-*  
18 *mission Act (15 U.S.C. 45(a)), provided that no other*  
19 *Federal statute applies.*

20 *(b) PROHIBITION ON FALSE AND MISLEADING REP-*  
21 *RESENTATION OF UNITED STATES ORIGIN ON PROD-*  
22 *UCTS.—*

23 *(1) UNLAWFUL ACTIVITY.—Notwithstanding any*  
24 *other provision of law, it shall be unlawful to make*  
25 *any false or deceptive representation that a product*

1        *or its parts or processing are of United States origin*  
2        *in any labeling, advertising, or other promotional*  
3        *materials, or any other form of marketing, including*  
4        *marketing through digital or electronic means in the*  
5        *United States.*

6            (2) *DECEPTIVE REPRESENTATION.—For pur-*  
7        *poses of paragraph (1), a representation that a prod-*  
8        *uct is in whole, or in part, of United States origin*  
9        *is deceptive if, at the time the representation is made,*  
10       *such claim is not consistent with section 5 of the Fed-*  
11       *eral Trade Commission Act (15 U.S.C. 45(a)), pro-*  
12       *vided that no other Federal statute applies.*

13        (c) *ENFORCEMENT BY COMMISSION.—*

14            (1) *UNFAIR OR DECEPTIVE ACTS OR PRAC-*  
15        *TICES.—A violation of subsection (a) or (b) shall be*  
16        *treated as a violation of a rule under section*  
17        *18(a)(1)(B) of the Federal Trade Commission Act (15*  
18        *U.S.C. 57a(a)(1)(B)).*

19            (2) *POWERS OF THE COMMISSION.—*

20            (A) *IN GENERAL.—The Commission shall*  
21        *enforce this section in the same manner, by the*  
22        *same means, and with the same jurisdiction,*  
23        *powers, and duties as though all applicable*  
24        *terms and provisions of the Federal Trade Com-*



1           *mission Act (15 U.S.C. 41 et seq.) were incor-*  
2           *porated into and made a part of this section.*

3           (B) *PRIVILEGES AND IMMUNITIES.*—*Any*  
4           *person that violates subsection (a) or (b) shall be*  
5           *subject to the penalties and entitled to the privi-*  
6           *leges and immunities provided in the Federal*  
7           *Trade Commission Act (15 U.S.C. 41 et seq.) as*  
8           *though all applicable terms and provisions of*  
9           *that Act were incorporated and made part of*  
10          *this section.*

11          (C) *AUTHORITY PRESERVED.*—*Nothing in*  
12          *this section may be construed to limit the au-*  
13          *thority of the Commission under any other pro-*  
14          *vision of law.*

15          (3) *INTERAGENCY AGREEMENT.*—*Not later than*  
16          *6 months after the date of enactment of this Act, the*  
17          *Commission and U.S. Customs and Border Protection*  
18          *shall—*

19                 (A) *enter into a Memorandum of Under-*  
20                 *standing or other appropriate agreement for the*  
21                 *purpose of providing consistent implementation*  
22                 *of this section; and*

23                 (B) *publish such agreement to provide pub-*  
24                 *lic guidance.*

1           (4) *DEFINITION OF COMMISSION.*—*In this sub-*  
 2           *section, the term “Commission” means the Federal*  
 3           *Trade Commission.*

4           (d) *EFFECTIVE DATE.*—*This section shall take effect*  
 5           *9 months after the date of enactment of this Act.*

6           **SEC. 511. COUNTRY OF ORIGIN LABELING FOR KING CRAB**  
 7                                   **AND TANNER CRAB.**

8           *Section 281(7)(B) of the Agricultural Marketing Act*  
 9           *of 1946 (7 U.S.C. 1638(7)(B)) is amended—*

10           (1) *by striking “includes a fillet” and inserting*  
 11           *“includes—*

12                                   *“(i) a fillet”;*

13           (2) *by striking the period at the end and insert-*  
 14           *ing “; and”; and*

15           (3) *by adding at the end the following:*

16                                   *“(ii) whole cooked king crab and tan-*  
 17                                   *ner crab and cooked king crab and tanner*  
 18                                   *crab sections.”.*

19           **SEC. 512. INTERNET EXCHANGES AND SUBMARINE CABLES.**

20           (a) *DEFINITIONS.*—*In this section:*

21           (1) *ASSISTANT SECRETARY.*—*The term “Assist-*  
 22           *ant Secretary” means the Assistant Secretary of Com-*  
 23           *merce for Communications and Information.*

24           (2) *CORE BASED STATISTICAL AREA.*—*The term*  
 25           *“core based statistical area” has the meaning given*

1 *the term by the Office of Management and Budget in*  
2 *the Notice of Decision entitled “2010 Standards for*  
3 *Delineating Metropolitan and Micropolitan Statis-*  
4 *tical Areas”, published in the Federal Register on*  
5 *June 28, 2010 (75 Fed. Reg. 37246), or any successor*  
6 *to that Notice.*

7 (3) *COVERED GRANT.—The term “covered grant”*  
8 *means a grant awarded under subsection (b)(1).*

9 (4) *INDIAN TRIBE.—The term “Indian Tribe”—*

10 (A) *has the meaning given the term in sec-*  
11 *tion 4 of the Indian Self-Determination and*  
12 *Education Assistance Act (25 U.S.C. 5304); and*

13 (B) *includes a Native Hawaiian organiza-*  
14 *tion, as that term is defined in section 6207 of*  
15 *the Native Hawaiian Education Act (20 U.S.C.*  
16 *7517).*

17 (5) *INTERNET EXCHANGE FACILITY.—The term*  
18 *“internet exchange facility” means physical infra-*  
19 *structure through which internet service providers*  
20 *and content delivery networks exchange internet traf-*  
21 *fic between their networks.*

22 (6) *STATE.—The term “State” has the meaning*  
23 *given the term in section 3 of the Communications*  
24 *Act of 1934 (47 U.S.C. 153).*

1           (7) *SUBMARINE CABLE LANDING STATION.*—*The*  
2           *term “submarine cable landing station” means a*  
3           *cable landing station, as that term is used in section*  
4           *1.767(a)(5) of title 47, Code of Federal Regulations*  
5           *(or any successor regulation), that can be utilized to*  
6           *land a submarine cable by an entity that has ob-*  
7           *tained a license under the first section of the Act enti-*  
8           *tled “An Act relating to the landing and operation of*  
9           *submarine cables in the United States”, approved*  
10          *May 27, 1921 (47 U.S.C. 34) (commonly known as*  
11          *the “Cable Landing Licensing Act”).*

12          **(b) *INTERNET EXCHANGE FACILITY GRANTS.***—

13                 (1) *GRANTS.*—*Not later than 1 year after the*  
14                 *date on which amounts are made available under sub-*  
15                 *section (e), the Assistant Secretary shall award grants*  
16                 *to entities to acquire real property and necessary*  
17                 *equipment to—*

18                         (A) *establish a new internet exchange facil-*  
19                         *ity in a core based statistical area in which, at*  
20                         *the time the grant is awarded, there are no exist-*  
21                         *ing internet exchange facilities; or*

22                         (B) *expand operations at an existing inter-*  
23                         *net exchange facility in a core based statistical*  
24                         *area in which, at the time the grant is awarded,*  
25                         *there is only 1 internet exchange facility.*

1           (2) *ELIGIBILITY.*—*To be eligible to receive a cov-*  
2 *ered grant, an entity shall—*

3           (A) *have sufficient interest from third party*  
4 *entities that will use the internet exchange facil-*  
5 *ity to be funded by the grant once the facility is*  
6 *established or operations are expanded, as appli-*  
7 *cable;*

8           (B) *have sovereign control over the land or*  
9 *building in which the internet exchange facility*  
10 *is to be housed;*

11           (C) *provide evidence of direct conduit, duct,*  
12 *and manhole access to public rights-of-way;*

13           (D) *have a plan to establish security proto-*  
14 *cols for the internet exchange facility to prevent*  
15 *physical or electronic intrusion from unauthor-*  
16 *ized users; and*

17           (E) *provide other information required by*  
18 *the Assistant Secretary to protect against waste,*  
19 *fraud, or abuse.*

20           (3) *FEDERAL SHARE.*—*The Federal share of the*  
21 *total cost of the establishment of, or expansion of op-*  
22 *erations at, an internet exchange facility for which a*  
23 *covered grant is awarded may not exceed 50 percent.*

24           (4) *GRANT AMOUNT.*—*The amount of a covered*  
25 *grant may not exceed \$3,000,000.*

1           (5) *APPLICATIONS.*—

2                   (A) *RULES AND TIMELINES.*—*Not later*  
3 *than 1 year after the date of enactment of this*  
4 *Act, the Assistant Secretary shall establish rules*  
5 *and timelines for applications for—*

6                           (i) *covered grants; and*

7                           (ii) *grants under subsection (c).*

8                   (B) *THIRD PARTY REVIEW.*—*To prevent*  
9 *fraud in the covered grant program, the Assist-*  
10 *ant Secretary shall enter into a contract with an*  
11 *independent third party under which the third*  
12 *party reviews an application for a covered grant*  
13 *not later than 60 days after the date on which*  
14 *the application is submitted to ensure that only*  
15 *an entity that is eligible for a covered grant re-*  
16 *ceives a covered grant.*

17                   (6) *RULE OF CONSTRUCTION.*—*Nothing in this*  
18 *subsection shall be construed to authorize the Assist-*  
19 *ant Secretary to regulate, issue guidance for, or other-*  
20 *wise interfere with the activities at an internet ex-*  
21 *change facility.*

22                   (c) *SUBMARINE CABLE LANDING STATION GRANTS.*—  
23 *Not later than 1 year after the date on which amounts are*  
24 *made available under subsection (e), and in accordance*  
25 *with the rules and timelines established under subsection*

1 (b)(5)(A), the Assistant Secretary shall award grants to  
2 States and Indian Tribes to build infrastructure and ac-  
3 quire necessary equipment to establish or expand an open-  
4 access, carrier-neutral submarine cable landing station that  
5 serves a military facility.

6 (d) REPORT.—Not later than 5 years after the date  
7 of enactment of this Act, and annually thereafter for 5  
8 years, the Assistant Secretary shall submit a report on out-  
9 comes of grants awarded under this section to—

10 (1) the Committee on Commerce, Science, and  
11 Transportation of the Senate; and

12 (2) the Committee on Energy and Commerce of  
13 the House of Representatives.

14 (e) AUTHORIZATION OF APPROPRIATIONS.—

15 (1) IN GENERAL.—There is authorized to be ap-  
16 propriated \$35,000,000 to carry out subsections (b)  
17 and (c).

18 (2) LIMITATION.—The Assistant Secretary may  
19 not use more than 10 percent of the amounts made  
20 available under paragraph (1) to administer and re-  
21 port on the outcomes of grants awarded under this  
22 section.

23 (f) RETURN OF CERTAIN GRANT AMOUNTS.—The As-  
24 sistant Secretary may require a recipient of a grant award-  
25 ed under subsection (b) or (c) to return all or a portion

1 of the grant amount if there is evidence of waste, fraud,  
2 or abuse of grant funds by the recipient.

3 **SEC. 513. STUDY OF SISTER CITY PARTNERSHIPS OPER-**  
4 **ATING WITHIN THE UNITED STATES INVOLV-**  
5 **ING FOREIGN COMMUNITIES IN COUNTRIES**  
6 **WITH SIGNIFICANT PUBLIC SECTOR CORRUP-**  
7 **TION.**

8 (a) *SHORT TITLE.*—*This section may be cited as the*  
9 *“Sister City Transparency Act”.*

10 (b) *DEFINITIONS.*—*In this section:*

11 (1) *APPROPRIATE CONGRESSIONAL COMMIT-*  
12 *TEES.*—*The term “appropriate congressional commit-*  
13 *tees” means—*

14 (A) *the Committee on Foreign Relations of*  
15 *the Senate;*

16 (B) *the Committee on Health, Education,*  
17 *Labor, and Pensions of the Senate;*

18 (C) *the Committee on Armed Services of the*  
19 *Senate;*

20 (D) *the Committee on Foreign Affairs of the*  
21 *House of Representatives;*

22 (E) *the Committee on Education and Labor*  
23 *of the House of Representatives; and*

24 (F) *the Committee on Armed Services of the*  
25 *House of Representatives.*



1           (2) *FOREIGN COMMUNITY.*—*The term “foreign*  
2 *community” means any subnational unit of govern-*  
3 *ment outside of the United States.*

4           (3) *SISTER CITY PARTNERSHIP.*—*The term “sis-*  
5 *ter city partnership” means a formal agreement be-*  
6 *tween a United States community and a foreign com-*  
7 *munity that—*

8                   (A) *is recognized by Sister Cities Inter-*  
9 *national; and*

10                   (B) *is operating within the United States.*

11           (4) *UNITED STATES COMMUNITY.*—*The term*  
12 *“United States community” means a State, county,*  
13 *city, or other unit of local government in the United*  
14 *States.*

15           (c) *STUDY OF SISTER CITY PARTNERSHIPS OPER-*  
16 *ATING WITHIN THE UNITED STATES INVOLVING FOREIGN*  
17 *COMMUNITIES IN COUNTRIES WITH SIGNIFICANT PUBLIC*  
18 *SECTOR CORRUPTION.*—

19                   (1) *IN GENERAL.*—*The Comptroller General of*  
20 *the United States shall conduct a study of the activi-*  
21 *ties of sister city partnerships involving foreign com-*  
22 *munities in countries receiving a score of 45 or less*  
23 *on Transparency International’s 2019 Corruption*  
24 *Perceptions Index.*

1           (2) *ELEMENTS OF THE STUDY.*—*The study con-*  
2 *ducted under paragraph (1) shall—*

3           (A) *identify—*

4                   (i) *the criteria by which foreign com-*  
5 *munities identify United States commu-*  
6 *nities as candidates for sister city partner-*  
7 *ships, including themes with respect to the*  
8 *prominent economic activities and demo-*  
9 *graphics of such United States commu-*  
10 *nities;*

11                   (ii) *the activities conducted within sis-*  
12 *ter city partnerships;*

13                   (iii) *the economic and educational out-*  
14 *comes of such activities;*

15                   (iv) *the types of information that sister*  
16 *city partnerships make publicly available,*  
17 *including information relating to contracts*  
18 *and activities;*

19                   (v) *the means by which United States*  
20 *communities safeguard freedom of expres-*  
21 *sion within sister city partnerships; and*

22                   (vi) *the oversight practices that United*  
23 *States communities implement to mitigate*  
24 *the risks of foreign espionage and economic*  
25 *coercion within sister city partnerships;*

1 (B) assess—

2 (i) the extent to which United States  
3 communities ensure transparency regarding  
4 sister city partnership contracts and activi-  
5 ties;

6 (ii) the extent to which sister city part-  
7 nerships involve economic arrangements  
8 that make United States communities vul-  
9 nerable to malign market practices;

10 (iii) the extent to which sister city  
11 partnerships involve educational arrange-  
12 ments that diminish the freedom of expres-  
13 sion;

14 (iv) the extent to which sister city  
15 partnerships allow foreign nationals to ac-  
16 cess local commercial, educational, and po-  
17 litical institutions;

18 (v) the extent to which foreign commu-  
19 nities could use sister city partnerships to  
20 realize strategic objectives that do not con-  
21 duce to the economic and national security  
22 interests of the United States;

23 (vi) the extent to which sister city  
24 partnerships could enable or otherwise con-  
25 tribute to foreign communities' malign ac-

1            *tivities globally, including activities relat-*  
2            *ing to human rights abuses and academic*  
3            *and industrial espionage; and*

4            *(vii) the extent to which United States*  
5            *communities seek to mitigate foreign na-*  
6            *tionals' potentially inappropriate use of*  
7            *visa programs to participate in activities*  
8            *relating to sister city partnerships; and*

9            *(C) review—*

10           *(i) the range of activities conducted*  
11           *within sister city partnerships, including*  
12           *activities relating to cultural exchange and*  
13           *economic development;*

14           *(ii) how such activities differ between*  
15           *sister city partnerships; and*

16           *(iii) best practices to ensure trans-*  
17           *parency regarding sister city partnerships'*  
18           *agreements, activities, and employees.*

19           *(3) REPORT.—*

20           *(A) IN GENERAL.—Not later than 6 months*  
21           *after initiating the study required under para-*  
22           *graph (1), the Comptroller General shall submit*  
23           *a report to the appropriate congressional com-*  
24           *mittees that contains the results of such study,*

1           *including the findings, conclusions, and rec-*  
2           *ommendations (if any) of the study.*

3                   *(B) FORM.—The report required under sub-*  
4           *paragraph (A) may include a classified annex, if*  
5           *necessary.*

6 **SEC. 514. PROHIBITION ON TRANSFER, ASSIGNMENT, OR**  
7                   **DISPOSITION OF CONSTRUCTION PERMITS**  
8                   **AND STATION LICENSES TO ENTITIES SUB-**  
9                   **JECT TO UNDUE INFLUENCE BY THE CHI-**  
10                  **NESE COMMUNIST PARTY OR THE GOVERN-**  
11                  **MENT OF THE PEOPLE’S REPUBLIC OF CHINA.**

12           *The Federal Communications Commission shall, pur-*  
13           *suant to section 310 of the Communications Act of 1934*  
14           *(47 U.S.C. 310), prohibit the transfer, assignment, or dis-*  
15           *position of construction permits and station licenses to an*  
16           *entity that is subject to undue influence by the Chinese*  
17           *Communist Party or the Government of the People’s Repub-*  
18           *lic of China.*

19 **SEC. 515. LIMITATION ON NUCLEAR COOPERATION WITH**  
20                   **THE PEOPLE’S REPUBLIC OF CHINA.**

21           *(a) IN GENERAL.—The President shall not—*

22                   *(1) develop, design, plan, promulgate, imple-*  
23           *ment, or execute a bilateral policy, program, order, or*  
24           *contract of any kind to participate in, collaborate on,*  
25           *or coordinate bilaterally in any manner with respect*

1       to nuclear cooperation activities, or otherwise engage  
2       in nuclear cooperation, with—

3               (A) the Government of the People’s Republic  
4       of China; or

5               (B) any company—

6                     (i) owned by the Government of the  
7       People’s Republic of China; or

8                     (ii) incorporated under the laws of the  
9       People’s Republic of China; or

10           (2) allow any agency of the United States Gov-  
11       ernment to host official visitors at a facility belonging  
12       to the agency if those visitors are—

13               (A) officials, corporate officers, or principal  
14       shareholders of any entity described in subpara-  
15       graph (A) or (B) of paragraph (1); or

16               (B) individuals subject to undue influence  
17       by the individuals described in subparagraph  
18       (A).

19       (b) *REVIEW OF PRIOR NUCLEAR COOPERATION AND*  
20       *ASSOCIATED IMPACTS.*—

21           (1) *AGREEMENT.*—Not later than 60 days after  
22       the date of enactment of this Act, the Secretary of  
23       State shall seek to enter into an agreement with the  
24       National Academy of Public Administration (referred  
25       to in this section as the “National Academy”) to

1       *carry out the review and assessment described in*  
2       *paragraph (2) and submit the report described in*  
3       *paragraph (3).*

4               (2) *REVIEW AND ASSESSMENT.*—

5               (A) *IN GENERAL.*—*Under the agreement de-*  
6       *scribed in paragraph (1), the National Academy*  
7       *shall—*

8               (i) *conduct a review of nuclear co-*  
9       *operation during the 25-year period ending*  
10       *on the date of enactment of this Act between*  
11       *the United States Government and the Peo-*  
12       *ple’s Republic of China, including the role*  
13       *of the Department of State in facilitating*  
14       *such cooperation; and*

15              (ii) *perform an assessment of the im-*  
16       *PLICATIONS of the cooperation described in*  
17       *clause (i) on the national security of the*  
18       *United States.*

19              (B) *ELEMENTS.*—*In conducting the review*  
20       *and assessment under subparagraph (A), the Na-*  
21       *tional Academy shall examine all cooperative ac-*  
22       *tivities relating to nuclear cooperation between*  
23       *the United States Government and the People’s*  
24       *Republic of China during the 25-year period*

1 ending on the date of enactment of this Act, in-  
2 cluding—

3 (i) all trips relating to nuclear co-  
4 operation taken by officials of the Depart-  
5 ment of State to the People's Republic of  
6 China;

7 (ii) all exchanges of goods, services,  
8 data, or information between officials of the  
9 United States Government and an entity  
10 described in subparagraph (A) or (B) of  
11 subsection (a)(1); and

12 (C) all instances in which officials of the  
13 United States Government hosted officials from,  
14 or significantly tied to, an entity described in  
15 subparagraph (A) or (B) of subsection (a)(1).

16 (3) *DEADLINE AND REPORT.*—Not later than 1  
17 year after the date on which the Secretary and the  
18 National Academy enter into an agreement described  
19 in paragraph (1), the National Academy shall—

20 (A) complete the review and assessment de-  
21 scribed in paragraph (2); and

22 (B) submit a report containing the results  
23 of the review and assessment, which shall be un-  
24 classified but, if necessary, may contain a classi-  
25 fied annex, to—



- 1                   (i) *the Secretary; and*  
2                   (ii) *the appropriate congressional com-*  
3                   *mittees.*

4                   (4) *PUBLICATION.*—*Not later than 60 days after*  
5                   *the date on which the National Academy submits the*  
6                   *report under paragraph (3), the Secretary shall make*  
7                   *the report publically available in an easily accessible*  
8                   *electronic format, with appropriate redactions for in-*  
9                   *formation that, in the determination of the Secretary,*  
10                   *would be damaging to the national security of the*  
11                   *United States if disclosed.*

12                   (c) *WAIVERS.*—

13                   (1) *WAIVER FOR COUNTERTERRORISM; NON-*  
14                   *PROLIFERATION ACTIVITIES; AND THE NATIONAL IN-*  
15                   *TEREST.*—*The President may waive the limitation*  
16                   *under subsection (a)—*

17                   (A) *to continue ongoing activities with the*  
18                   *People’s Republic of China relating to nuclear*  
19                   *and radiological counterterrorism, nuclear and*  
20                   *radiological counterproliferation, and nuclear*  
21                   *and radiological nonproliferation; or*

22                   (B) *if the President determines that such*  
23                   *waiver is in the national interests of the United*  
24                   *States, provided the Federal Bureau of Investiga-*

1            *tion certifies prior to such waiver that the per-*  
2            *sons covered under such waiver—*

3                    *(i) are not subject to undue influence*  
4                    *by the Government of the People’s Republic*  
5                    *of China or the Chinese Communist Party,*  
6                    *or by officials of the People’s Republic of*  
7                    *China or the Chinese Communist Party;*  
8                    *and*

9                    *(ii) are not engaged in human rights*  
10                   *abuses.*

11            *(2) WAIVER TO ADDRESS EMERGENCIES.—Sub-*  
12            *ject to receiving appropriate licenses and other au-*  
13            *thorizations, the President may waive the limitation*  
14            *under subsection (a) to allow transfers of technology*  
15            *and equipment to address a nuclear or radiological*  
16            *emergency.*

17            *(3) NOTIFICATION REQUIREMENT.—The Presi-*  
18            *dent shall notify Congress of any waiver issued under*  
19            *paragraph (1) or (2).*

20            *(d) DEFINITIONS.—In this section:*

21                    *(1) NUCLEAR COOPERATION.—The term “nuclear*  
22                    *cooperation” means cooperation with respect to nu-*  
23                    *clear activities, including the development, use, or*  
24                    *control of atomic energy, including any activities in-*  
25                    *volving the processing or utilization of source mate-*

1        *rial, byproduct material, or special nuclear material*  
2        *(as those terms are defined in section 11 of the Atomic*  
3        *Energy Act of 1954 (42 U.S.C. 2014)).*

4            (2) *NUCLEAR COOPERATION ACTIVITIES.*—*The*  
5        *term “nuclear cooperation activities” means activities*  
6        *relating to nuclear cooperation.*

7        (e) *RULE OF CONSTRUCTION.*—*Nothing in this Act*  
8        *shall be construed to prohibit—*

9            (1) *United States commercial activities, provided*  
10        *such activities are consistent with the laws and regu-*  
11        *lations of the United States; and*

12            (2) *limited diplomatic engagement or dialogue—*

13            (A) *including regarding protection of the*  
14        *intellectual property and trade secrets of Amer-*  
15        *ican persons; and*

16            (B) *except for any diplomatic engagement*  
17        *or dialogue relating to or aimed at facilitating*  
18        *the transfer of nuclear technology.*

19        **SEC. 516. CERTIFICATION.**

20        *Section 1260I(a) of the National Defense Authoriza-*  
21        *tion Act for Fiscal Year 2020 (Public Law 116–92; 113*  
22        *Stat. 1687) is amended—*

23            (1) *by inserting “and” at the end of paragraph*

24        (2); *and*

1           (2) *by striking paragraphs (3) and (4) and in-*  
2           *serting the following:*

3           “(3) *Huawei does not pose an ongoing threat to*  
4           *the critical infrastructure of the United States or its*  
5           *allies.”.*

6   **SEC. 517. FAIRNESS AND DUE PROCESS IN STANDARDS-SET-**  
7           **TING BODIES.**

8           (a) *DEFINITIONS.—In this section:*

9           (1) *APPROPRIATE COMMITTEES OF CONGRESS.—*  
10          *The term “appropriate committees of Congress”*  
11          *means—*

12                   (A) *the Committee on Commerce, Science,*  
13                   *and Transportation of the Senate;*

14                   (B) *the Committee on Armed Services of the*  
15                   *Senate;*

16                   (C) *the Select Committee on Intelligence of*  
17                   *the Senate;*

18                   (D) *the Committee on Foreign Relations of*  
19                   *the Senate;*

20                   (E) *the Committee on Science, Space, and*  
21                   *Technology of the House of Representatives;*

22                   (F) *the Committee on Armed Services of the*  
23                   *House of Representatives;*

24                   (G) *the Permanent Select Committee on In-*  
25                   *telligence of the House of Representatives; and*

1                   (H) *the Committee on Foreign Affairs of the*  
2                   *House of Representatives.*

3                   (2) *ASSISTANT SECRETARY.*—*The term “Assist-*  
4                   *ant Secretary” means the Assistant Secretary of Com-*  
5                   *merce for Communications and Information.*

6                   (b) *STUDY.*—

7                   (1) *IN GENERAL.*—*Not later than 270 days after*  
8                   *the date of enactment of this Act, the Secretary of*  
9                   *Commerce, acting through the Assistant Secretary,*  
10                  *shall submit to the appropriate committees of Con-*  
11                  *gress the results of a study identifying opportunities*  
12                  *for improved participation by United States Govern-*  
13                  *ment experts in the standardization activities of the*  
14                  *Telecommunication Standardization Sector of the*  
15                  *International Telecommunication Union.*

16                  (2) *CONSULTATIONS REQUIRED.*—*In conducting*  
17                  *the study required under paragraph (1), the Assistant*  
18                  *Secretary shall—*

19                         (A) *consult with—*

20                                 (i) *the Under Secretary of State for*  
21                                 *Economic Growth, Energy, and the Envi-*  
22                                 *ronment; and*

23                                 (ii) *the Chairman of the Federal Com-*  
24                                 *munications Commission;*

1           (B) engage with the International Digital  
2           Economy and Telecommunication Advisory  
3           Committee; and

4           (C) provide opportunities for all relevant  
5           stakeholders in the United States to provide  
6           meaningful input with respect to the conduct of  
7           the study.

8           (3) CONTENTS.—The study required under para-  
9           graph (1) shall include—

10           (A) the identification and assessment of fac-  
11           tors that serve as a barrier to the participation  
12           of United States Government experts in the  
13           standards development activities of the Tele-  
14           communication Standardization Sector of the  
15           International Telecommunication Union, includ-  
16           ing—

17                   (i) budgetary constraints;

18                   (ii) lack of awareness regarding the  
19                   strategic importance of, and support for,  
20                   participation in those activities;

21                   (iii) limited knowledge about opportu-  
22                   nities for, and means of, participation with  
23                   respect to those activities;

24                   (iv) the extent to which there are op-  
25                   portunities for cooperation with government

1 *experts from like-minded foreign allies with*  
2 *respect to those activities; and*

3 *(v) any other barriers to effective par-*  
4 *ticipation in, and representation with re-*  
5 *spect to, those activities; and*

6 *(B) recommendations regarding how the*  
7 *barriers to increased and effective participation,*  
8 *as identified under subparagraph (A), could be*  
9 *addressed, which may include—*

10 *(i) strategies and tactics to ensure*  
11 *long-term participation;*

12 *(ii) means for improved information*  
13 *sharing and coordination—*

14 *(I) among Federal Government*  
15 *participants;*

16 *(II) between the public and pri-*  
17 *ivate sectors; and*

18 *(III) between the Federal Govern-*  
19 *ment and like-minded foreign allies;*

20 *(iii) identification of suitable leader-*  
21 *ship opportunities for Federal Government*  
22 *participants; and*

23 *(iv) any other recommendation that*  
24 *the Assistant Secretary determines to be ap-*  
25 *propriate.*

1 **SEC. 518. SHARK FIN SALES ELIMINATION.**

2 (a) *SHORT TITLE.*—*This section may be cited as the*  
3 *“Shark Fin Sales Elimination Act of 2021”.*

4 (b) *PROHIBITION ON SALE OF SHARK FINS.*—

5 (1) *PROHIBITION.*—*Except as provided in sub-*  
6 *section (c), no person shall possess, transport, offer for*  
7 *sale, sell, or purchase shark fins or products con-*  
8 *taining shark fins.*

9 (2) *PENALTY.*—*A violation of paragraph (1)*  
10 *shall be treated as an act prohibited by section 307*  
11 *of the Magnuson-Stevens Fishery Conservation and*  
12 *Management Act (16 U.S.C. 1857) and shall be pe-*  
13 *nalized pursuant to section 308(a) of that Act (16*  
14 *U.S.C. 1858(a)), except that the maximum civil pen-*  
15 *alty for each violation shall be \$100,000, or the fair*  
16 *market value of the shark fins involved, whichever is*  
17 *greater.*

18 (c) *EXCEPTIONS.*—*A person may possess a shark fin*  
19 *that was taken lawfully under a State, territorial, or Fed-*  
20 *eral license or permit to take or land sharks, if the shark*  
21 *fin is separated from the shark in a manner consistent with*  
22 *the license or permit and is—*

23 (1) *destroyed or discarded upon separation;*

24 (2) *used for noncommercial subsistence purposes*  
25 *in accordance with State or territorial law;*



1           (3) *used solely for display or research purposes*  
2           *by a museum, college, or university, or other person*  
3           *under a State or Federal permit to conduct non-*  
4           *commercial scientific research; or*

5           (4) *retained by the license or permit holder for*  
6           *a noncommercial purpose.*

7           (d) *DOGFISH.—*

8           (1) *IN GENERAL.—It shall not be a violation of*  
9           *subsection bc) for any person to possess, transport,*  
10          *offer for sale, sell, or purchase any fresh or frozen raw*  
11          *fin or tail from any stock of the species *Mustelus**  
12          **canis* (smooth dogfish) or *Squalus acanthias* (spiny*  
13          *dogfish).*

14          (2) *REPORT.—By not later than January 1,*  
15          *2027, the Secretary of Commerce shall review the ex-*  
16          *emption contained in paragraph (1) and shall pre-*  
17          *pare and submit to Congress a report that includes a*  
18          *recommendation on whether the exemption contained*  
19          *in paragraph (1) should continue or be terminated.*  
20          *In preparing such report and making such rec-*  
21          *ommendation, the Secretary shall analyze factors in-*  
22          *cluding—*

23                  (A) *the economic viability of dogfish fish-*  
24                  *eries with and without the continuation of the*  
25                  *exemption;*

1           (B) *the impact to ocean ecosystems of con-*  
2           *tinuing or terminating the exemption;*

3           (C) *the impact on enforcement of the ban*  
4           *contained in subsection (b) caused by the exemp-*  
5           *tion; and*

6           (D) *the impact of the exemption on shark*  
7           *conservation.*

8           (e) *DEFINITION OF SHARK FIN.—In this section, the*  
9           *term “shark fin” means—*

10           (1) *the raw or dried or otherwise processed de-*  
11           *tached fin of a shark; or*

12           (2) *the raw or dried or otherwise processed de-*  
13           *tached tail of a shark.*

14           (f) *STATE AUTHORITY.—Nothing in this section may*  
15           *be construed to preclude, deny, or limit any right of a State*  
16           *or territory to adopt or enforce any regulation or standard*  
17           *that is more stringent than a regulation or standard in ef-*  
18           *fect under this section.*

19           (g) *SEVERABILITY.—If any provision of this section or*  
20           *its application to any person or circumstance is held in-*  
21           *valid, the invalidity does not affect other provisions or ap-*  
22           *plications of this section which can be given effect without*  
23           *the invalid provision or application, and to this end the*  
24           *provisions of this section are severable.*

1 **SEC. 519. SENSE OF CONGRESS ON FORCED LABOR.**

2 *It is the sense of Congress that the Federal Government*  
3 *shall not engage in research, partnerships, contracts, or*  
4 *other agreements with any entity (including any country*  
5 *or institution of higher education) that has any affiliation*  
6 *with a country that engages in forced labor.*

7 **SEC. 520. OPEN NETWORK ARCHITECTURE.**

8 *(a) OPEN NETWORK ARCHITECTURE TESTBED.—*

9 *(1) DEFINITIONS.—In this subsection—*

10 *(A) the term “Applied Research Open-RAN*  
11 *testbed” means the testbed established under*  
12 *paragraph (2);*

13 *(B) the term “Assistant Secretary” means*  
14 *the Assistant Secretary of Commerce for Commu-*  
15 *nications and Information; and*

16 *(C) the term “NTIA” means the National*  
17 *Telecommunications and Information Adminis-*  
18 *tration.*

19 *(2) ESTABLISHMENT.—The Assistant Secretary*  
20 *shall establish an applied research open network ar-*  
21 *chitecture testbed at the Institute for Telecommuni-*  
22 *cation Sciences of the NTIA to develop and dem-*  
23 *onstrate network architectures and applications,*  
24 *equipment integration and interoperability at scale,*  
25 *including—*

1           (A) *Open Radio Access Network* (commonly  
2           known as “*Open-RAN*”) technology;

3           (B) *Virtualized Radio Access Network* (com-  
4           monly known as “*vRAN*”) technology; and

5           (C) *cloud native technologies* that replicate  
6           telecommunications hardware as software-based  
7           virtual network elements and functions.

8           (3) *FOCUS; CONSIDERATIONS.*—*In establishing*  
9           *the Applied Research Open-RAN testbed pursuant to*  
10          *this section, the Assistant Secretary shall ensure that*  
11          *such testbed evaluates issues related to deployment*  
12          *and operation of open network architectures in rural*  
13          *areas.*

14          (4) *COOPERATIVE RESEARCH AND DEVELOPMENT*  
15          *AGREEMENTS.*—*The Assistant Secretary shall enter*  
16          *into cooperative research and development agreements*  
17          *as appropriate to obtain equipment, devices, and ex-*  
18          *pertise for the Applied Research Open-RAN testbed,*  
19          *in accordance with section 12 of the Stevenson-Wydler*  
20          *Technology Innovation Act of 1980 (15 U.S.C.*  
21          *3710a).*

22          (5) *PRIVATE SECTOR CONTRIBUTIONS.*—*The As-*  
23          *stant Secretary may accept private contributions to*  
24          *the Applied Research Open-RAN testbed in the form*  
25          *of network equipment or devices for testing purposes.*

1           (6) *PARTNERSHIP WITH GOVERNMENT ENTI-*  
2           *TIES.—*

3                   (A) *ESTABLISHMENT.—In establishing the*  
4           *Applied Research Open-RAN testbed, the Assist-*  
5           *ant Secretary shall—*

6                           (i) *consult with the Federal Commu-*  
7                           *nications Commission, including with re-*  
8                           *spect to ongoing work by the Commission to*  
9                           *develop other testbeds, including private sec-*  
10                           *tor testbeds, related to Open-RAN tech-*  
11                           *nologies; and*

12                           (ii) *ensure that the work on the testbed*  
13                           *is coordinated with the responsibilities of*  
14                           *the Assistant Secretary under any relevant*  
15                           *memorandum of understanding with the*  
16                           *Federal Communications Commission and*  
17                           *the National Science Foundation related to*  
18                           *spectrum.*

19                   (B) *OPERATIONS.—In operating the Ap-*  
20           *plied Research Open-RAN testbed, the Assistant*  
21           *Secretary shall, in consultation with the Federal*  
22           *Communications Commission, partner with—*

23                           (i) *the First Responder Network Au-*  
24                           *thority of the NTIA (also known as*  
25                           *“FirstNet”) and the Public Safety Commu-*

1                    *nications Research Division of the National*  
2                    *Institute of Standards and Technology to*  
3                    *examine use cases and applications for*  
4                    *Open-RAN technologies in a public safety*  
5                    *network;*

6                    *(ii) other Federal agencies, as appro-*  
7                    *priate to examine use cases and applica-*  
8                    *tions for Open-RAN technologies in other*  
9                    *areas of interest to such agencies; and*

10                    *(iii) international partners, as appro-*  
11                    *priate.*

12                    *(7) STAKEHOLDER INPUT.—The Assistant Sec-*  
13                    *retary shall seek input from stakeholders regarding*  
14                    *the establishment and operation of the Applied Re-*  
15                    *search Open-RAN testbed.*

16                    *(8) IMPLEMENTATION DEADLINE.—Not later*  
17                    *than 180 days after the date of enactment of this Act,*  
18                    *the Assistant Secretary shall—*

19                    *(A) define metrics and parameters for the*  
20                    *Applied Research Open-RAN testbed, including*  
21                    *functionality, project configuration and capac-*  
22                    *ity, performance, security requirements, and*  
23                    *quality assurance;*

1           (B) adopt any rules as necessary, in con-  
2           sultation with the Federal Communications  
3           Commission; and

4           (C) begin the development of the Applied  
5           Research Open-RAN testbed, including seeking  
6           stakeholder input as required by paragraph (7).

7           (9) REPORT.—Not later than 1 year after the  
8           date of enactment of this Act, the Assistant Secretary  
9           shall submit to the Committee on Commerce, Science  
10          and Transportation of the Senate and the Committee  
11          on Energy and Commerce of the House of Representa-  
12          tives a report on the findings of the testbed and any  
13          recommendations for additional legislative or regu-  
14          latory actions relating to the work of the testbed.

15          (10) AUTHORIZATION OF APPROPRIATIONS.—

16           (A) IN GENERAL.—There are authorized to  
17           be appropriated for the administration of the  
18           Applied Research Open-RAN testbed \$20,000,000  
19           for fiscal year 2022, to remain available until  
20           expended.

21           (B) RULE OF CONSTRUCTION.—Nothing in  
22           paragraph (6) shall be construed to obligate  
23           FirstNet or any other Federal entity to pay for  
24           the cost of the Applied Research Open-RAN  
25           testbed created under this section in the absence

1           *of the appropriation of amounts under this*  
2           *paragraph.*

3           (C) *AUTHORIZATION FOR VOLUNTARY SUP-*  
4           *PORT.—A Federal entity, including FirstNet,*  
5           *may voluntarily enter into an agreement with*  
6           *NTIA to provide monetary or nonmonetary sup-*  
7           *port for the Applied Research Open-RAN testbed.*

8           (b) *PARTICIPATION IN STANDARDS-SETTING BOD-*  
9           *IES.—*

10           (1) *DEFINITIONS.—In this section—*

11                   (A) *the term “Assistant Secretary” means*  
12                   *the Assistant Secretary of Commerce for Commu-*  
13                   *nications and Information;*

14                   (B) *the term “eligible standards -setting*  
15                   *body”—*

16                           (i) *means a standards-setting body,*  
17                           *participation in which may be funded by a*  
18                           *grant awarded under paragraph (2), as de-*  
19                           *termined by the Assistant Secretary; and*

20                           (ii) *includes—*

21                                   (I) *the 3rd Generation Partner-*  
22                                   *ship Project (commonly known as*  
23                                   *“3GPP”);*



1           (II) *the Alliance for Tele-*  
2 *communications Industry Solutions*  
3 *(commonly known as “ATIS”);*

4           (III) *the International Tele-*  
5 *communications Union (commonly*  
6 *known as “ITU”);*

7           (IV) *the Institute for Electrical*  
8 *and Electronics Engineers (commonly*  
9 *known as “IEEE”);*

10           (V)           *the           World*  
11 *Radiocommunications       Conferences*  
12 *(commonly known as the “WRC”) of*  
13 *the ITU;*

14           (VI) *the Internet Engineering*  
15 *Task Force (commonly known as the*  
16 *“IETF”);*

17           (VII) *the International Organiza-*  
18 *tion for Standardization (commonly*  
19 *known as the “ISO”) and the Inter-*  
20 *national Electrotechnical Commission*  
21 *(commonly known as the “IEC”);*

22           (VIII) *the O-RAN Alliance;*

23           (IX) *the Telecommunications In-*  
24 *dustry Association (commonly known*  
25 *as “TIA”); and*

1                   (X) any other standards-setting  
2                   body identified under paragraph (4);

3                   (C) the term “Secretary” means the Sec-  
4                   retary of Commerce; and

5                   (D) the term “standards-setting body”  
6                   means an international body that develops the  
7                   standards for open network architecture tech-  
8                   nologies.

9                   (2) GRANT PROGRAM.—

10                   (A) IN GENERAL.—The Secretary, in col-  
11                   laboration with the Assistant Secretary, shall  
12                   award grants to private sector entities based in  
13                   the United States to participate in eligible  
14                   standards-setting bodies.

15                   (B) PRIORITIZATION.—The Secretary shall  
16                   prioritize grants awarded under this section to  
17                   private sector entities that would not otherwise  
18                   be able to participate in eligible standards-set-  
19                   ting bodies without the grant.

20                   (3) GRANT CRITERIA.—Not later than 180 days  
21                   after the date on which amounts are appropriated  
22                   under paragraph (5), the Secretary, in collaboration  
23                   with the Assistant Secretary, shall establish criteria  
24                   for the grants awarded under paragraph (2).

1           (4) *CONSULTATION WITH FEDERAL COMMUNICA-*  
 2           *TIONS COMMISSION.—The Secretary shall consult with*  
 3           *the Federal Communications Commission in—*

4                   (A) *determining criteria for the grants*  
 5                   *awarded under paragraph (2); and*

6                   (B) *determining which standards-setting*  
 7                   *bodies, if any, in addition to the standards-set-*  
 8                   *ting bodies listed in paragraph (1)(C)(ii) are eli-*  
 9                   *gible standards-setting bodies.*

10           (5) *AUTHORIZATION OF APPROPRIATIONS.—*

11                   (A) *IN GENERAL.—There are authorized to*  
 12                   *be appropriated for grants under paragraph (2)*  
 13                   *\$30,000,000 in total for fiscal years 2022*  
 14                   *through 2025, to remain available until ex-*  
 15                   *pended.*

16                   (B) *ADMINISTRATIVE COSTS.—The Sec-*  
 17                   *retary may use not more than 2 percent of any*  
 18                   *funds appropriated under this paragraph for the*  
 19                   *administration of the grant program established*  
 20                   *under this subsection.*

21 **SEC. 521. COMBATTING SEXUAL HARASSMENT IN SCIENCE.**

22           (a) *DEFINITIONS.—This section may be cited as the*  
 23           *“Combating Sexual Harassment in Science Act of 2021”.*

24           (b) *DEFINITIONS.—In this section:*

1           (1) *DIRECTOR.*—*The term “Director” means the*  
2           *Director of the National Science Foundation.*

3           (2) *FEDERAL SCIENCE AGENCY.*—*The term “Fed-*  
4           *eral science agency” means any Federal agency with*  
5           *an annual extramural research expenditure of over*  
6           *\$100,000,000.*

7           (3) *GRANT PERSONNEL.*—*The term “grant per-*  
8           *sonnel” means principal investigators and co-prin-*  
9           *cipal investigators supported by a grant award under*  
10          *Federal law and their trainees.*

11          (4) *INSTITUTION OF HIGHER EDUCATION.*—*The*  
12          *term “institution of higher education” has the mean-*  
13          *ing given such term in section 101 of the Higher Edu-*  
14          *cation Act of 1965 (20 U.S.C. 1001).*

15          (5) *NATIONAL ACADEMIES.*—*The term “National*  
16          *Academies” means the National Academies of*  
17          *Sciences, Engineering, and Medicine.*

18          (6) *RECIPIENT.*—*The term “recipient” means an*  
19          *entity, usually a non-Federal entity, that receives a*  
20          *Federal award directly from a Federal awarding*  
21          *agency. The term “recipient” does not include entities*  
22          *that receive subgrants or individuals that are the*  
23          *beneficiaries of the award.*

24          (7) *SEXUAL HARASSMENT.*—*The term “sexual*  
25          *harassment” has the meaning given such term in sec-*

1        *tion 1604.11 of title 29, Code of Federal Regulations*  
2        *(or any successor regulations).*

3        *(c) RESEARCH GRANTS.—*

4            *(1) IN GENERAL.—The Director shall award*  
5        *grants, on a competitive basis, to institutions of high-*  
6        *er education or nonprofit organizations (or consortia*  
7        *of such institutions or organizations)—*

8            *(A) to expand research efforts to better un-*  
9        *derstand the factors contributing to, and con-*  
10       *sequences of, sexual harassment affecting individ-*  
11       *uals in the scientific, technical, engineering, and*  
12       *mathematics workforce, including students and*  
13       *trainees; and*

14           *(B) to examine best practices to reduce the*  
15       *incidence and negative consequences of such har-*  
16       *assment.*

17           *(2) USE OF FUNDS.—Activities funded by a*  
18       *grant under this subsection may include—*

19           *(A) research on the sexual harassment expe-*  
20       *riences of individuals in underrepresented or*  
21       *vulnerable groups, including communities of*  
22       *color, disabled individuals, foreign nationals,*  
23       *sexual- and gender-minority individuals, and*  
24       *others;*

1           (B) development and assessment of policies,  
2           procedures, trainings, and interventions, with re-  
3           spect to sexual harassment, conflict management,  
4           and ways to foster respectful and inclusive cli-  
5           mates;

6           (C) research on approaches for remediating  
7           the negative impacts and outcomes of such har-  
8           assment on individuals experiencing such har-  
9           assment;

10          (D) support for institutions of higher edu-  
11          cation or nonprofit organizations to develop,  
12          adapt, implement, and assess the impact of inno-  
13          vative, evidence-based strategies, policies, and  
14          approaches to policy implementation to prevent  
15          and address sexual harassment;

16          (E) research on alternatives to the power  
17          dynamics and hierarchical and dependent rela-  
18          tionships in academia that have been shown to  
19          create higher levels of risk for and lower levels of  
20          reporting of sexual harassment; and

21          (F) research related to the ongoing compila-  
22          tion, management, and analysis of organiza-  
23          tional climate survey data.

24          (d) DATA COLLECTION.—Not later than 180 days after  
25          the date of enactment of this Act, the Director, through the

1 *National Center for Science and Engineering Statistics and*  
2 *with guidance from the Office of Management and Budget*  
3 *given their oversight of the Federal statistical agencies, shall*  
4 *convene a working group composed of representatives of*  
5 *Federal statistical agencies—*

6           (1) *to develop questions on sexual harassment in*  
7 *science, technology, engineering, and mathematics de-*  
8 *partments to gather national data on the prevalence,*  
9 *nature, and implications of sexual harassment in in-*  
10 *stitutions of higher education that builds on the work*  
11 *conducted by the National Center for Science and En-*  
12 *gineering Statistics in response to recommendations*  
13 *from the National Academies to develop questions on*  
14 *harassment; and*

15           (2) *to include such questions as appropriate,*  
16 *with sufficient protections of the privacy of respond-*  
17 *ents, in relevant surveys conducted by the National*  
18 *Center for Science and Engineering Statistics and*  
19 *other relevant entities.*

20 *(e) RESPONSIBLE CONDUCT GUIDE.—*

21           (1) *IN GENERAL.—Not later than 180 days after*  
22 *the date of enactment of this Act, the Director shall*  
23 *enter into an agreement with the National Academies*  
24 *to update the report entitled “On Being a Scientist:*  
25 *A Guide to Responsible Conduct in Research” issued*

1 *by the National Academies. The report, as so updated,*  
2 *shall include—*

3 *(A) updated professional standards of con-*  
4 *duct in research;*

5 *(B) standards of treatment individuals can*  
6 *expect to receive under such updated standards*  
7 *of conduct;*

8 *(C) evidence-based practices for fostering a*  
9 *climate intolerant of sexual harassment;*

10 *(D) methods, including bystander interven-*  
11 *tion, for identifying and addressing incidents of*  
12 *sexual harassment;*

13 *(E) professional standards for mentorship*  
14 *and teaching with an emphasis on power diffu-*  
15 *sion mechanisms and preventing sexual harass-*  
16 *ment;*

17 *(F) recommended vetting and hiring prac-*  
18 *tices scientific research entities are urged to im-*  
19 *plement to eliminate serial harassers; and*

20 *(G) other topics as the National Academies*  
21 *determines appropriate.*

22 *(2) RECOMMENDATIONS.—In updating the report*  
23 *under paragraph (1), the National Academies shall*  
24 *take into account recommendations made in the re-*  
25 *port issued by the National Academies in 2018 enti-*



1 *tled “Sexual Harassment of Women: Climate, Cul-*  
2 *ture, and Consequences in Academic Sciences, Engi-*  
3 *neering, and Medicine” and other relevant studies*  
4 *and evidence.*

5 (3) *REPORT.—Not later than 18 months after the*  
6 *effective date of the agreement under paragraph (1),*  
7 *the National Academies, as part of such agreement,*  
8 *shall submit to the Director and the Committee on*  
9 *Science, Space, and Technology of the House of Rep-*  
10 *resentatives and the Committee on Commerce,*  
11 *Science, and Transportation of the Senate the report*  
12 *referred to in such subsection, as updated pursuant to*  
13 *such subsection.*

14 (f) *POLICY GUIDELINES.—*

15 (1) *RESPONSIBILITIES OF OSTP.—The Director*  
16 *of the Office of Science and Technology Policy, in co-*  
17 *ordination with the working group on inclusion in*  
18 *STEM fields established under section 308 of the*  
19 *American Innovation and Competitiveness Act (42*  
20 *U.S.C. 6626) and the Safe Inclusive Research Envi-*  
21 *ronments Subcommittee of the National Science and*  
22 *Technology Council, and in consultation with rep-*  
23 *resentatives from each Federal science agency, the De-*  
24 *partment of Education, and the Equal Employment*  
25 *Opportunity Commission, shall—*

1           (A) not later than 90 days after the date of  
2           the enactment of this Act, submit to the Com-  
3           mittee on Science, Space, and Technology of the  
4           House of Representatives and the Committee on  
5           Commerce, Science, and Transportation of the  
6           Senate an inventory of Federal science agency  
7           policies, procedures, and resources dedicated to  
8           preventing and responding to reports of sexual  
9           harassment;

10           (B) not later than 6 months after the date  
11           on which the inventory is submitted under sub-  
12           paragraph (A)—

13                   (i) in consultation with outside stake-  
14                   holders, develop a set of policy guidelines for  
15                   Federal science agencies; and

16                   (ii) submit a report to the committees  
17                   referred to in subparagraph (A) containing  
18                   such guidelines;

19           (C) encourage Federal science agencies to  
20           develop or maintain and implement policies  
21           based on the guidelines developed under subpara-  
22           graph (B);

23           (D) not later than 1 year after the date on  
24           which the inventory under subparagraph (A) is  
25           submitted, and every 5 years thereafter, the Di-

1            *rector of the Office of Science and Technology*  
2            *Policy shall report to Congress on the implemen-*  
3            *tation by Federal science agencies of the policy*  
4            *guidelines developed under subparagraph (B);*  
5            *and*

6            *(E) update such policy guidelines as needed.*

7            *(2) REQUIREMENTS.—*

8            *(A) IN GENERAL.—In developing policy*  
9            *guidelines under paragraph (1)(B), the Director*  
10           *of the Office of Science and Technology Policy*  
11           *shall consider guidelines that require, to the ex-*  
12           *tent practicable—*

13           *(i) recipients to submit to the Federal*  
14           *science agency or agencies from which the*  
15           *recipients receive funding reports relating*  
16           *to—*

17           *(I) any decision made to launch a*  
18           *formal investigation of sexual harass-*  
19           *ment by, or of, grant personnel; and*

20           *(II) findings or determinations of*  
21           *sexual harassment by, or of, grant per-*  
22           *sonnel, including the final disposition*  
23           *of a matter involving a violation of or-*  
24           *ganizational policies and processes, to*  
25           *include the exhaustion of permissible*

1                    *appeals, or a conviction of a sexual of-*  
2                    *fense in a criminal court of law;*

3                    *(ii) the updating and sharing of re-*  
4                    *ports of sexual harassment submitted under*  
5                    *clause (i) with relevant Federal science*  
6                    *agencies by agency request; and*

7                    *(iii) consistency among relevant Fed-*  
8                    *eral agencies with regards to the policies*  
9                    *and procedures for receiving reports sub-*  
10                   *mitted pursuant to clause (i).*

11                   *(B) FERPA.—The Director of the Office of*  
12                   *Science and Technology Policy shall ensure that*  
13                   *such guidelines and requirements are consistent*  
14                   *with the requirements of section 444 of the Gen-*  
15                   *eral Education Provisions Act (20 U.S.C. 1232g)*  
16                   *(commonly referred to as the “Family Edu-*  
17                   *cational Rights and Privacy Act of 1974”).*

18                   *(C) PRIVACY PROTECTIONS.—The Director*  
19                   *of the Office of Science and Technology Policy*  
20                   *shall ensure that such guidelines and require-*  
21                   *ments—*

22                   *(i) do not infringe upon the privacy*  
23                   *rights of individuals associated with reports*  
24                   *submitted to Federal science agencies; and*

1                   (ii) do not require recipients to provide  
2                   interim reports to Federal science agencies.

3           (3) CONSIDERATIONS.—In developing policy  
4           guidelines under paragraph (1)(B), the Director of  
5           the Office of Science and Technology Policy shall con-  
6           sider protocols that require or incent—

7                   (A) recipients that receive funds from Fed-  
8                   eral science agencies to periodically assess their  
9                   organizational climate, which may include the  
10                  use of climate surveys, focus groups, or exit  
11                  interviews;

12                  (B) recipients that receive funds from Fed-  
13                  eral science agencies to publish on a publicly  
14                  available internet website the results of assess-  
15                  ments conducted pursuant to paragraph (1),  
16                  disaggregated by gender and, if possible, race,  
17                  ethnicity, disability status, and sexual orienta-  
18                  tion, and in a manner that does not include per-  
19                  sonally identifiable information;

20                  (C) recipients that receive funds from Fed-  
21                  eral science agencies to make public on an an-  
22                  nual basis the number of determinations of sex-  
23                  ual harassment at that institution or organiza-  
24                  tion;

1           (D) recipients that receive funds from Fed-  
2           eral science agencies to regularly assess and im-  
3           prove policies, procedures, and interventions to  
4           reduce the prevalence of and improve the report-  
5           ing of sexual harassment;

6           (E) each entity applying for Federal assist-  
7           ance awards from a Federal science agency to  
8           have a code of conduct for maintaining a healthy  
9           and welcoming workplace for grant personnel  
10          posted on their public website;

11          (F) each recipient that receives funds from  
12          Federal science agencies to have in place mecha-  
13          nisms for the re-integration of individuals who  
14          have experienced sexual harassment; and

15          (G) recipients that receive funds from Fed-  
16          eral science agencies to work to create a climate  
17          intolerant of sexual harassment and that values  
18          and promotes diversity and inclusion.

19          (4) *FEDERAL SCIENCE AGENCY IMPLEMENTA-*  
20          *TION.—Each Federal science agency shall—*

21               (A) develop or maintain and implement  
22               policies with respect to sexual harassment that  
23               are consistent with policy guidelines under para-  
24               graph (1)(B) and that protect the privacy of all

1            *parties involved in any report and investigation*  
2            *of sexual harassment; and*

3            *(B) broadly disseminate such policies to*  
4            *current and potential recipients of research*  
5            *grants awarded by such agency.*

6            *(g) NATIONAL ACADEMIES ASSESSMENT.—Not later*  
7            *than 3 years after the date of enactment of this Act, the*  
8            *Director shall enter into an agreement with the National*  
9            *Academies to undertake a study and issue a report on the*  
10           *influence of sexual harassment in institutions of higher edu-*  
11           *cation on the career advancement of individuals in the sci-*  
12           *entific, engineering, technical, and mathematics workforce.*  
13           *The study shall assess—*

14           *(1) the state of research on sexual harassment in*  
15           *such workforce;*

16           *(2) whether research demonstrates a decrease in*  
17           *the prevalence of sexual harassment in such workforce;*

18           *(3) the progress made with respect to imple-*  
19           *menting recommendations promulgated in the Na-*  
20           *tional Academies consensus study report entitled*  
21           *“Sexual Harassment of Women: Climate, Culture,*  
22           *and Consequences in Academic Sciences, Engineering,*  
23           *and Medicine”;*

1           (4) *where to focus future efforts with respect to*  
2           *decreasing sexual harassment in such institutions, in-*  
3           *cluding specific recommendations; and*

4           (5) *other recommendations and issues, as the Na-*  
5           *tional Academies determines appropriate.*

6           (h) *GOVERNMENT ACCOUNTABILITY OFFICE STUDY.—*  
7           *Not later than 3 years after the date of enactment of this*  
8           *Act, the Comptroller General of the United States shall—*

9           (1) *complete a study that assesses the degree to*  
10           *which Federal science agencies have implemented the*  
11           *policy guidelines developed under subsection (f)(1)(B)*  
12           *and the effectiveness of that implementation; and*

13           (2) *submit a report to the Committee on Science,*  
14           *Space, and Technology of the House of Representa-*  
15           *tives and the Committee on Commerce, Science, and*  
16           *Transportation of the Senate on the results of such*  
17           *study, including recommendations on potential*  
18           *changes to practices and policies to improve those*  
19           *guidelines and that implementation.*

20           (i) *HARASSMENT ON THE BASIS OF PREGNANCY STA-*  
21           *TUS.—The Director of the Office of Science and Technology*  
22           *Policy, in consultation with the Equal Employment Oppor-*  
23           *tunity Commission, shall develop a definition of “harass-*  
24           *ment on the basis of pregnancy status” for the purposes of*  
25           *carrying out this section.*



**TITLE VI—SPACE MATTERS****Subtitle A—SPACE Act****3 SEC. 601. SHORT TITLE.**

4       *This subtitle may be cited as the “Space Preservation*  
5 *and Conjunction Emergency Act of 2021” or the “SPACE*  
6 *Act”.*

**7 SEC. 602. SENSE OF CONGRESS.**

8       *It is the sense of Congress that—*

9               (1) *the increasingly congested nature of the space*  
10 *environment requires immediate action to address the*  
11 *threat of collisions between spacecraft and orbital de-*  
12 *bris;*

13               (2) *such collisions threaten the billions of dollars*  
14 *of existing United States and allied spacecraft, in-*  
15 *cluding the International Space Station, and endan-*  
16 *ger the future usability of space;*

17               (3) *the provision of accurate and timely notice*  
18 *to commercial satellite operators with respect to po-*  
19 *tential conjunctions enhances safety;*

20               (4) *a 2020 National Academies for Public Ad-*  
21 *ministration study identified the Department of Com-*  
22 *merce as the preferred Federal agency to manage,*  
23 *process, and disseminate space situational awareness*  
24 *data to commercial satellite operators; and*

1           (5) *given the growing space economy, elevating*  
2 *the Office of Space Commerce within the Department*  
3 *of Commerce may enhance the ability of the Office of*  
4 *Space Commerce—*

5                   (A) *to promote space safety through future*  
6 *space situational awareness and space traffic*  
7 *management efforts; and*

8                   (B) *to coordinate with other Federal agen-*  
9 *cies and foreign entities.*

10 **SEC. 603. DEFINITIONS.**

11 *In this subtitle:*

12           (1) *CENTER.—The term “Center” means a Cen-*  
13 *ter of Excellence for Space Situational Awareness es-*  
14 *tablished under section 605.*

15           (2) *INSTITUTION OF HIGHER EDUCATION.—The*  
16 *term “institution of higher education” has the mean-*  
17 *ing given the term in section 101 of the Higher Edu-*  
18 *cation Act of 1965 (20 U.S.C. 1001).*

19           (3) *ORBITAL DEBRIS.—The term “orbital debris”*  
20 *means any space object that—*

21                   (A) *remains in orbit; and*

22                   (B) *no longer serves any useful function or*  
23 *purpose.*

24           (4) *SECRETARY.—The term “Secretary” means*  
25 *the Secretary of Commerce.*

1           (5) *SPACE OBJECT*.—The term “space object”  
 2           means any object launched into space or created in  
 3           space by humans.

4           (6) *SPACE SITUATIONAL AWARENESS*.—The term  
 5           “space situational awareness” means—

6                   (A) the identification and characterization  
 7                   of space objects and orbital debris; and

8                   (B) the understanding of the manner in  
 9                   which space objects and orbital debris behave in  
 10                  space.

11 **SEC. 604. SPACE SITUATIONAL AWARENESS DATA, INFOR-**  
 12 **MATION, AND SERVICES: PROVISION TO NON-**  
 13 **UNITED STATES GOVERNMENT ENTITIES.**

14           (a) *IN GENERAL*.—Chapter 507 of title 51, United  
 15 States Code, is amended by adding at the end the following:

16 **“§50704. Space situational awareness data, informa-**  
 17 **tion, and services: provision to non-United**  
 18 **States Government entities**

19           “(a) *SPACE SITUATIONAL AWARENESS PROGRAM*.—

20                   “(1) *REQUIREMENT*.—Pursuant to the authority  
 21 provided in section 50702, the Director of Space Com-  
 22 merce, in coordination with appropriate entities  
 23 within the Department of Commerce and the heads of  
 24 other relevant Federal agencies—

1           “(A) shall carry out a program to improve  
2           the collection, processing, and dissemination of  
3           space situational awareness data, information,  
4           and services;

5           “(B) subject to paragraph (2), may provide  
6           such data, information, and services to 1 or more  
7           eligible entities described in subsection (b);

8           “(C) may obtain such data, information,  
9           and services from 1 or more such eligible entities;  
10          and

11          “(D) not later than 180 days after the date  
12          of the enactment of this section, shall obtain data  
13          or services from 1 or more United States com-  
14          mercial entities, to be stored in an open-architec-  
15          ture data repository that uses commercially  
16          available cloud-based computing platforms and  
17          other analytic or visualization capabilities.

18          “(2) TYPE OF INFORMATION PROVIDED.—

19                 “(A) IN GENERAL.—Data and information  
20                 provided to eligible entities under paragraph  
21                 (1)(B) shall be safety-related and unclassified.

22                 “(B) NATIONAL SECURITY.—The Secretary  
23                 of Commerce, in consultation with the Secretary  
24                 of Defense and the heads of other relevant Fed-  
25                 eral agencies, shall develop a policy to determine

1           *the type of information that may be provided*  
2           *under paragraph (1) without compromising the*  
3           *national security interests of the United States.*

4           “(b) *ELIGIBLE ENTITY DESCRIBED.*—*An eligible enti-*  
5 *ty described in this subsection is any non-United States*  
6 *Government entity, including—*

7           “(1) *a State;*

8           “(2) *a political subdivision of a State;*

9           “(3) *a United States commercial entity;*

10          “(4) *the government of a foreign country; and*

11          “(5) *a foreign commercial entity.*

12          “(c) *PUBLIC SERVICES.*—

13           “(1) *IN GENERAL.*—*The Secretary of Commerce*  
14 *shall designate a basic level of space situational*  
15 *awareness data, information, and services to be pro-*  
16 *vided at no charge to 1 or more eligible entities de-*  
17 *scribed in subsection (b), which shall include public*  
18 *services, free of charge, such as—*

19           “(A) *a public catalog of tracked space ob-*  
20 *jects;*

21           “(B) *emergency conjunction notifications;*

22           *and*

23           “(C) *any other data or services the Director*  
24 *of Space Commerce considers appropriate.*

1           “(2) *LIMITATION.*—*The Secretary of Commerce*  
2           *may only provide data or services under paragraph*  
3           *(1)(C) that compete with products offered by United*  
4           *States commercial entities if the provision of such*  
5           *data or services is required to address a threat to*  
6           *space safety.*

7           “(d) *ADVANCED SERVICES.*—*The Secretary of Com-*  
8           *merce may undertake activities to promote the development*  
9           *of advanced space situational awareness data, information,*  
10          *and services to foster the growth of a global space safety*  
11          *industry.*

12          “(e) *PROCEDURES.*—*The Secretary of Commerce shall*  
13          *establish procedures by which the authority under this sec-*  
14          *tion shall be carried out.*

15          “(f) *IMMUNITY.*—*The United States, any agency or in-*  
16          *strumentality thereof, and any individual, firm, corpora-*  
17          *tion, or other person acting for the United States shall be*  
18          *immune from any suit in any court for any cause of action*  
19          *arising from the provision or receipt of space situational*  
20          *awareness data, information, or services, whether or not*  
21          *provided in accordance with this section, or any related ac-*  
22          *tion or omission.*

1 **“§ 50705. Authorization of appropriations**

2       *“There is authorized to be appropriated to the Sec-*  
 3 *retary of Commerce to carry out this chapter \$15,000,000*  
 4 *for fiscal year 2021.”.*

5       **(b) TECHNICAL AND CONFORMING AMENDMENT.**—*The*  
 6 *table of sections for chapter 507 of title 51, United States*  
 7 *Code, is amended by inserting after the item relating to*  
 8 *section 50703 the following:*

*“50704. Space situational awareness data, information, and services: provision to*  
*non-United States Government entities.*

*“50705. Authorization of appropriations.”.*

9 **SEC. 605. CENTERS OF EXCELLENCE FOR SPACE SITUA-**  
 10 **TIONAL AWARENESS.**

11       **(a) IN GENERAL.**—*Subject to appropriations, the Sec-*  
 12 *retary shall award grants to eligible entities to establish 1*  
 13 *or more Centers of Excellence for Space Situational Aware-*  
 14 *ness to advance scientific, technological, transdisciplinary,*  
 15 *and policy research in space situational awareness.*

16       **(b) PURPOSES.**—*Each Center shall—*

17               **(1)** *conduct transdisciplinary research, develop-*  
 18 *ment, and demonstration projects related to detecting,*  
 19 *tracking, identifying, characterizing, modeling, and*  
 20 *minimizing space safety, security, and sustainability*  
 21 *risks to improve—*

22                       **(A)** *space situational awareness and the de-*  
 23 *velopment of open-architecture resources for im-*  
 24 *proved space safety, security, and sustainability;*

1           (B) the unique identification, tracking, clas-  
2           sification, prediction, and modeling of orbital  
3           debris and space objects;

4           (C) the monitoring, quantification, assess-  
5           ment, modeling, and prediction of space oper-  
6           ations and environmental threats and hazards,  
7           including in space collisions;

8           (D) peer exchange and documentation of  
9           evidence-based practices, policies, laws, and regu-  
10          lations related to orbital debris mitigation and  
11          remediation; and

12          (E) sharing, modeling, and curation of data  
13          related to orbital debris, space objects, and the  
14          environment of orbital debris and space objects;

15          (2) conduct policy research related to space safe-  
16          ty, security, and sustainability so as to improve shar-  
17          ing of common data and legal standards related to or-  
18          bital debris;

19          (3) leverage non-Federal sources of support to  
20          improve space situational awareness and minimize  
21          space safety, security, and sustainability risks; and

22          (4) draw on commercial capabilities and data,  
23          as appropriate.

24          (c) *ELIGIBLE ENTITIES*.—



1           (1) *IN GENERAL.*—*To be eligible for a grant*  
2 *under this section, an entity shall be a consortium led*  
3 *by—*

4                   (A) *an institution of higher education; or*

5                   (B) *a nonprofit organization.*

6           (2) *MEMBERSHIP OF CONSORTIUM.*—*The consor-*  
7 *tium referred to in paragraph (1) may include 1 or*  
8 *more—*

9                   (A) *commercial entities;*

10                  (B) *Federal laboratories, including Depart-*  
11 *ment of Defense research laboratories; and*

12                  (C) *other institutions of higher education or*  
13 *nonprofit organizations.*

14           (d) *CONSIDERATIONS.*—*In awarding grants under this*  
15 *section, the Secretary shall consider, at a minimum—*

16                   (1) *the potential of a proposed Center—*

17                           (A) *to improve the science and technology of*  
18 *space situational awareness; and*

19                           (B) *to reduce the amount of space safety, se-*  
20 *curity, and sustainability risks; and*

21                   (2) *the commitment of financial support, advice,*  
22 *participation, and other contributions from non-Fed-*  
23 *eral sources.*

24           (e) *GRANT PERIOD.*—*A grant awarded under this sec-*  
25 *tion shall be awarded for a period of 5 years.*

1       (f) *AUTHORIZATION OF APPROPRIATIONS.*—*There is*  
2 *authorized to be appropriated to carry out this section*  
3 *\$20,000,000.*

4       ***Subtitle B—National Aeronautics***  
5       ***and Space Administration Au-***  
6       ***thorization Act***

7       ***SEC. 611. SHORT TITLE.***

8       *This subtitle may be cited as the “National Aero-*  
9 *navtics and Space Administration Authorization Act of*  
10 *2021”.*

11       ***SEC. 612. DEFINITIONS.***

12       *In this subtitle:*

13               (1) *ADMINISTRATION.*—*The term “Administra-*  
14 *tion” means the National Aeronautics and Space Ad-*  
15 *ministration.*

16               (2) *ADMINISTRATOR.*—*The term “Adminis-*  
17 *trator” means the Administrator of the National Aer-*  
18 *onautics and Space Administration.*

19               (3) *APPROPRIATE COMMITTEES OF CONGRESS.*—  
20 *Except as otherwise expressly provided, the term “ap-*  
21 *propriate committees of Congress” means—*

22                       (A) *the Committee on Commerce, Science,*  
23 *and Transportation of the Senate; and*

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

1           (4) *CISLUNAR SPACE*.—The term “*cislunar*  
2           *space*” means the region of space beyond low-Earth  
3           orbit out to and including the region around the sur-  
4           face of the Moon.

5           (5) *DEEP SPACE*.—The term “*deep space*” means  
6           the region of space beyond low-Earth orbit, including  
7           *cislunar space*.

8           (6) *DEVELOPMENT COST*.—The term “*develop-*  
9           *ment cost*” has the meaning given the term in section  
10          30104 of title 51, United States Code.

11          (7) *ISS*.—The term “*ISS*” means the *Inter-*  
12          *national Space Station*.

13          (8) *ISS MANAGEMENT ENTITY*.—The term “*ISS*  
14          *management entity*” means the organization with  
15          which the Administrator has entered into a *coopera-*  
16          *tive agreement* under section 504(a) of the *National*  
17          *Aeronautics and Space Administration Authorization*  
18          *Act of 2010 (42 U.S.C. 18354(a))*.

19          (9) *NASA*.—The term “*NASA*” means the *Na-*  
20          *tional Aeronautics and Space Administration*.

21          (10) *ORION*.—The term “*Orion*” means the *mul-*  
22          *tipurpose crew vehicle* described in section 303 of the  
23          *National Aeronautics and Space Administration Au-*  
24          *thorization Act of 2010 (42 U.S.C. 18323)*.

1           (11) *OSTP*.—The term “*OSTP*” means the Of-  
2           *ice of Science and Technology Policy.*

3           (12) *SPACE LAUNCH SYSTEM*.—The term “*Space*  
4           *Launch System*” means the *Space Launch System*  
5           *authorized under section 302 of the National Aero-*  
6           *nautics and Space Administration Act of 2010 (42*  
7           *U.S.C. 18322).*

8           ***PART I—AUTHORIZATION OF APPROPRIATIONS***

9           ***SEC. 613. AUTHORIZATION OF APPROPRIATIONS.***

10           *There are authorized to be appropriated to the Admin-*  
11           *istration for fiscal year 2021 \$23,495,000,000 as follows:*

12           (1) *For Exploration, \$6,706,400,000.*

13           (2) *For Space Operations, \$3,988,200,000.*

14           (3) *For Science, \$7,274,700,000.*

15           (4) *For Aeronautics, \$828,700,000.*

16           (5) *For Space Technology, \$1,206,000,000.*

17           (6) *For Science, Technology, Engineering, and*  
18           *Mathematics Engagement, \$120,000,000.*

19           (7) *For Safety, Security, and Mission Services,*  
20           *\$2,936,500,000.*

21           (8) *For Construction and Environmental Com-*  
22           *pliance and Restoration, \$390,300,000.*

23           (9) *For Inspector General, \$44,200,000.*

1                   **PART II—HUMAN SPACEFLIGHT AND**  
2                                   **EXPLORATION**

3   **SEC. 614. COMPETITIVENESS WITHIN THE HUMAN LANDING**  
4                                   **SYSTEM PROGRAM.**

5           (a) *SENSE OF CONGRESS.*—*It is the sense of Congress*  
6 *that—*

7                   (1) *advances in space technology and space ex-*  
8 *ploration capabilities ensure the long-term techno-*  
9 *logical preeminence, economic competitiveness, STEM*  
10 *workforce development, and national security of the*  
11 *United States;*

12                   (2) *the development of technologies that enable*  
13 *human exploration of the lunar surface and other ce-*  
14 *lestial bodies is critical to the space industrial base*  
15 *of the United States;*

16                   (3) *commercial entities in the United States have*  
17 *made significant investment and progress toward the*  
18 *development of human-class lunar landers;*

19                   (4) *NASA developed the Artemis program—*

20                                   (A) *to fulfill the goal of landing United*  
21 *States astronauts, including the first woman and*  
22 *the next man, on the Moon; and*

23                                   (B) *to collaborate with commercial and*  
24 *international partners to establish sustainable*  
25 *lunar exploration by 2028;*

1           (5) *in carrying out the Artemis program, the*  
2           *Administrator should ensure that the entire Artemis*  
3           *program is inclusive and representative of all people*  
4           *of the United States, including women and minori-*  
5           *ties; and*

6           (6) *maintaining multiple technically-credible*  
7           *providers within NASA commercial programs is a*  
8           *best practice that reduces programmatic risk.*

9           (b) *STATEMENT OF POLICY.—It shall be the policy of*  
10 *the United States—*

11           (1) *to bolster the domestic space technology in-*  
12           *dustrial base, using existing tools and authorities,*  
13           *particularly in areas central to competition between*  
14           *the United States and the People’s Republic of China;*  
15           *and*

16           (2) *to mitigate threats and minimize challenges*  
17           *to the superiority of the United States in space tech-*  
18           *nology, including lunar infrastructure and lander ca-*  
19           *pabilities.*

20           (c) *HUMAN LANDING SYSTEM PROGRAM.—*

21           (1) *IN GENERAL.—Not later than 30 days after*  
22           *the date of the enactment of this Act, the Adminis-*  
23           *trator shall maintain competitiveness within the*  
24           *human landing system program by funding design,*

1       *development, testing, and evaluation for not fewer*  
2       *than 2 entities.*

3           (2) *REQUIREMENTS.—In carrying out the*  
4       *human landing system program referred to in para-*  
5       *graph (1), the Administrator shall, to the extent prac-*  
6       *ticable—*

7                   (A) *encourage reusability and sustainability*  
8                   *of systems developed;*

9                   (B) *offer existing capabilities and assets of*  
10                  *NASA centers to support such partnerships; and*

11                  (C) *seek to foster a robust and diverse space*  
12                  *technology industrial base.*

13           (3) *BRIEFING.—Not later than 60 days after the*  
14       *date of the enactment of this Act, the Administrator*  
15       *shall provide to the appropriate committees of Con-*  
16       *gress a briefing on the implementation of paragraph*  
17       *(1).*

18           (4) *AUTHORIZATION OF APPROPRIATIONS.—In*  
19       *addition to amounts otherwise appropriated for the*  
20       *Artemis program, for fiscal years 2021 through 2026,*  
21       *there is authorized to be appropriated not less than*  
22       *\$10,032,000,000 to NASA to carry out the human*  
23       *landing system program.*

1           (d) *APPROPRIATE COMMITTEES OF CONGRESS DE-*  
2 *FINED.*—*In this section, the term “appropriate committees*  
3 *of Congress” means—*

4                 (1) *the Committee on Commerce, Science, and*  
5 *Transportation and the Committee on Appropriations*  
6 *of the Senate; and*

7                 (2) *the Committee on Science, Space, and Tech-*  
8 *nology and the Committee on Appropriations of the*  
9 *House of Representatives.*

10 **SEC. 615. SPACE LAUNCH SYSTEM CONFIGURATIONS.**

11           (a) *MOBILE LAUNCH PLATFORM.*—*The Administrator*  
12 *is authorized to maintain 2 operational mobile launch plat-*  
13 *forms to enable the launch of multiple configurations of the*  
14 *Space Launch System.*

15           (b) *EXPLORATION UPPER STAGE.*—*To meet the capa-*  
16 *bility requirements under section 302(c)(2) of the National*  
17 *Aeronautics and Space Administration Authorization Act*  
18 *of 2010 (42 U.S.C. 18322(c)(2)), the Administrator shall*  
19 *continue development of the Exploration Upper Stage for*  
20 *the Space Launch System with a scheduled availability suf-*  
21 *ficient for use on the third launch of the Space Launch Sys-*  
22 *tem.*

23           (c) *BRIEFING.*—*Not later than 90 days after the date*  
24 *of the enactment of this Act, the Administrator shall brief*  
25 *the appropriate committees of Congress on the development*



1 *and scheduled availability of the Exploration Upper Stage*  
2 *for the third launch of the Space Launch System.*

3 (d) *MAIN PROPULSION TEST ARTICLE.—To meet the*  
4 *requirements under section 302(c)(3) of the National Aero-*  
5 *navitics and Space Administration Authorization Act of*  
6 *2010 (42 U.S.C. 18322(c)(3)), the Administrator shall—*

7 (1) *immediately on completion of the first full-*  
8 *duration integrated core stage test of the Space*  
9 *Launch System, initiate development of a main pro-*  
10 *pulsion test article for the integrated core stage pro-*  
11 *pulsion elements of the Space Launch System, con-*  
12 *sistent with cost and schedule constraints, particu-*  
13 *larly for long-lead propulsion hardware needed for*  
14 *flight;*

15 (2) *not later than 180 days after the date of the*  
16 *enactment of this Act, submit to the appropriate com-*  
17 *mittees of Congress a detailed plan for the develop-*  
18 *ment and operation of such main propulsion test ar-*  
19 *ticle; and*

20 (3) *use existing capabilities of NASA centers for*  
21 *the design, manufacture, and operation of the main*  
22 *propulsion test article.*

23 **SEC. 616. ADVANCED SPACESUITS.**

24 (a) *SENSE OF CONGRESS.—It is the sense of Congress*  
25 *that next-generation advanced spacesuits are a critical tech-*

1 *nology for human space exploration and use of low-Earth*  
2 *orbit, cislunar space, the surface of the Moon, and Mars.*

3 (b) *DEVELOPMENT PLAN.*—*The Administrator shall*  
4 *establish a detailed plan for the development and manufac-*  
5 *ture of advanced spacesuits, consistent with the deep space*  
6 *exploration goals and timetables of NASA.*

7 (c) *DIVERSE ASTRONAUT CORPS.*—*The Administrator*  
8 *shall ensure that spacesuits developed and manufactured*  
9 *after the date of the enactment of this Act are capable of*  
10 *accommodating a wide range of sizes of astronauts so as*  
11 *to meet the needs of the diverse NASA astronaut corps.*

12 (d) *ISS USE.*—*Throughout the operational life of the*  
13 *ISS, the Administrator should fully use the ISS for testing*  
14 *advanced spacesuits.*

15 (e) *PRIOR INVESTMENTS.*—

16 (1) *IN GENERAL.*—*In developing an advanced*  
17 *spacesuit, the Administrator shall, to the maximum*  
18 *extent practicable, partner with industry-proven*  
19 *spacesuit design, development, and manufacturing*  
20 *suppliers and leverage prior and existing investments*  
21 *in advanced spacesuit technologies and existing capa-*  
22 *bilities at NASA centers to maximize the benefits of*  
23 *such investments and technologies.*

24 (2) *AGREEMENTS WITH PRIVATE ENTITIES.*—*In*  
25 *carrying out this subsection, the Administrator may*

1        *enter into 1 or more agreements with 1 or more pri-*  
2        *ate entities for the manufacture of advanced*  
3        *spacesuits, as the Administrator considers appro-*  
4        *priate.*

5        *(f) BRIEFING.—Not later than 180 days after the date*  
6        *of the enactment of this Act, and semiannually thereafter*  
7        *until NASA procures advanced spacesuits under this sec-*  
8        *tion, the Administrator shall brief the appropriate commit-*  
9        *tees of Congress on the development plan in subsection (b).*

10    **SEC. 617. ACQUISITION OF DOMESTIC SPACE TRANSPOR-**  
11                                    **TATION AND LOGISTICS RESUPPLY SERVICES.**

12        *(a) IN GENERAL.—Except as provided in subsection*  
13        *(b), the Administrator shall not enter into any contract*  
14        *with a person or entity that proposes to use, or will use,*  
15        *a foreign launch provider for a commercial service to pro-*  
16        *vide space transportation or logistics resupply for—*

17                    *(1) the ISS; or*

18                    *(2) any Government-owned or Government-fund-*  
19        *ed platform in Earth orbit or cislunar space, on the*  
20        *lunar surface, or elsewhere in space.*

21        *(b) EXCEPTION.—The Administrator may enter into*  
22        *a contract with a person or an entity that proposes to use,*  
23        *or will use, a foreign launch provider for a commercial serv-*  
24        *ice to carry out an activity described in subsection (a) if—*

1           (1) *a domestic vehicle or service is unavailable;*

2           *or*

3           (2) *the launch vehicle or service is a contribution*  
4           *by a partner to an international no-exchange-of-funds*  
5           *collaborative effort.*

6           (c) *RULE OF CONSTRUCTION.*—*Nothing in this section*  
7           *shall be construed to prohibit the Administrator from enter-*  
8           *ing into 1 or more no-exchange-of-funds collaborative agree-*  
9           *ments with an international partner in support of the deep*  
10           *space exploration plan of NASA.*

11       **SEC. 618. ROCKET ENGINE TEST INFRASTRUCTURE.**

12           (a) *IN GENERAL.*—*The Administrator shall continue*  
13           *to carry out a program to modernize rocket propulsion test*  
14           *infrastructure at NASA facilities—*

15                   (1) *to increase capabilities;*

16                   (2) *to enhance safety;*

17                   (3) *to support propulsion development and test-*  
18           *ing; and*

19                   (4) *to foster the improvement of Government and*  
20           *commercial space transportation and exploration.*

21           (b) *PROJECTS.*—*Projects funded under the program*  
22           *described in subsection (a) may include—*

23                   (1) *infrastructure and other facilities and sys-*  
24           *tems relating to rocket propulsion test stands and*  
25           *rocket propulsion testing;*

1           (2) *enhancements to test facility capacity and*  
2           *flexibility; and*

3           (3) *such other projects as the Administrator con-*  
4           *siders appropriate to meet the goals described in that*  
5           *subsection.*

6           (c) *REQUIREMENTS.—In carrying out the program*  
7           *under subsection (a), the Administrator shall—*

8           (1) *prioritize investments in projects that en-*  
9           *hance test and flight certification capabilities for*  
10           *large thrust-level atmospheric and altitude engines*  
11           *and engine systems, and multi-engine integrated test*  
12           *capabilities;*

13           (2) *continue to make underutilized test facilities*  
14           *available for commercial use on a reimbursable basis;*  
15           *and*

16           (3) *ensure that no project carried out under this*  
17           *program adversely impacts, delays, or defers testing*  
18           *or other activities associated with facilities used for*  
19           *Government programs, including—*

20           (A) *the Space Launch System and the Ex-*  
21           *ploration Upper Stage of the Space Launch Sys-*  
22           *tem;*

23           (B) *in-space propulsion to support explo-*  
24           *ration missions; or*

25           (C) *nuclear propulsion testing.*

1       (d) *RULE OF CONSTRUCTION.*—*Nothing in this section*  
2 *shall preclude a NASA program, including the Space*  
3 *Launch System and the Exploration Upper Stage of the*  
4 *Space Launch System, from using the modernized test in-*  
5 *frastructure developed under this section.*

6       (e) *WORKING CAPITAL FUND STUDY.*—

7           (1) *IN GENERAL.*—*Not later than 180 days after*  
8 *the date of the enactment of this Act, the Adminis-*  
9 *trator shall submit to the appropriate committees of*  
10 *Congress a report on the use of the authority under*  
11 *section 30102 of title 51, United States Code, to pro-*  
12 *mote increased use of NASA rocket propulsion test in-*  
13 *frastructure for research, development, testing, and*  
14 *evaluation activities by other Federal agencies, firms,*  
15 *associations, corporations, and educational institu-*  
16 *tions.*

17           (2) *MATTERS TO BE INCLUDED.*—*The report re-*  
18 *quired by paragraph (1) shall include the following:*

19                   (A) *An assessment of prior use, if any, of*  
20 *the authority under section 30102 of title 51,*  
21 *United States Code, to improve testing infra-*  
22 *structure.*

23                   (B) *An analysis of any barrier to imple-*  
24 *mentation of such authority for the purpose of*

1           *promoting increased use of NASA rocket propul-*  
2           *sion test infrastructure.*

3 **SEC. 619. PEARL RIVER MAINTENANCE.**

4           *(a) IN GENERAL.—The Administrator shall coordinate*  
5           *with the Chief of the Army Corps of Engineers to ensure*  
6           *the continued navigability of the Pearl River and Little*  
7           *Lake channels sufficient to support NASA barge operations*  
8           *surrounding Stennis Space Center and the Michoud Assem-*  
9           *bly Facility.*

10          *(b) REPORT TO CONGRESS.—Not later than 180 days*  
11          *after the date of the enactment of this Act, the Adminis-*  
12          *trator shall submit to the appropriate committees of Con-*  
13          *gress a report on efforts under subsection (a).*

14          *(c) APPROPRIATE COMMITTEES OF CONGRESS DE-*  
15          *FINED.—In this section, the term “appropriate committees*  
16          *of Congress” means—*

17                 *(1) the Committee on Commerce, Science, and*  
18                 *Transportation, the Committee on Environment and*  
19                 *Public Works, and the Committee on Appropriations*  
20                 *of the Senate; and*

21                 *(2) the Committee on Science, Space, and Tech-*  
22                 *nology, the Committee on Transportation and Infra-*  
23                 *structure, and the Committee on Appropriations of*  
24                 *the House of Representatives.*

1 **SEC. 620. VALUE OF INTERNATIONAL SPACE STATION AND**  
2 **CAPABILITIES IN LOW-EARTH ORBIT.**

3 (a) *SENSE OF CONGRESS.*—*It is the sense of Congress*  
4 *that—*

5 (1) *it is in the national and economic security*  
6 *interests of the United States to maintain a contin-*  
7 *uous human presence in low-Earth orbit;*

8 (2) *low-Earth orbit should be used as a test bed*  
9 *to advance human space exploration and scientific*  
10 *discoveries; and*

11 (3) *the ISS is a critical component of economic,*  
12 *commercial, and industrial development in low-Earth*  
13 *orbit.*

14 (b) *HUMAN PRESENCE REQUIREMENT.*—*The United*  
15 *States shall continuously maintain the capability for a con-*  
16 *tinuous human presence in low-Earth orbit through and be-*  
17 *yond the useful life of the ISS.*

18 **SEC. 621. EXTENSION AND MODIFICATION RELATING TO**  
19 **INTERNATIONAL SPACE STATION.**

20 (a) *POLICY.*—*Section 501(a) of the National Aero-*  
21 *nautics and Space Administration Authorization Act of*  
22 *2010 (42 U.S.C. 18351(a)) is amended by striking “2024”*  
23 *and inserting “2030”.*

24 (b) *MAINTENANCE OF UNITED STATES SEGMENT AND*  
25 *ASSURANCE OF CONTINUED OPERATIONS.*—*Section 503(a)*  
26 *of the National Aeronautics and Space Administration Au-*



1 *thorization Act of 2010 (42 U.S.C. 18353(a)) is amended*  
2 *by striking “September 30, 2024” and inserting “September*  
3 *30, 2030”.*

4 *(c) RESEARCH CAPACITY ALLOCATION AND INTEGRA-*  
5 *TION OF RESEARCH PAYLOADS.—Section 504(d) of the Na-*  
6 *tional Aeronautics and Space Administration Authoriza-*  
7 *tion Act of 2010 (42 U.S.C. 18354(d)) is amended—*

8 *(1) in paragraph (1), in the first sentence—*

9 *(A) by striking “As soon as practicable”*  
10 *and all that follows through “2011,” and insert-*  
11 *ing “The”; and*

12 *(B) by striking “September 30, 2024” and*  
13 *inserting “September 30, 2030”; and*

14 *(2) in paragraph (2), in the third sentence, by*  
15 *striking “September 30, 2024” and inserting “Sep-*  
16 *tember 30, 2030”.*

17 *(d) MAINTENANCE OF USE.—Section 70907 of title 51,*  
18 *United States Code, is amended—*

19 *(1) in the section heading, by striking “**2024**”*  
20 *and inserting “**2030**”;*

21 *(2) in subsection (a), by striking “September 30,*  
22 *2024” and inserting “September 30, 2030”; and*

23 *(3) in subsection (b)(3), by striking “September*  
24 *30, 2024” and inserting “September 30, 2030”.*

1       (e) *TRANSITION PLAN REPORTS.*—Section 50111(c)(2)  
2 *of title 51, United States Code is amended—*

3           (1) *in the matter preceding subparagraph (A),*  
4 *by striking “2023” and inserting “2028”; and*

5           (2) *in subparagraph (J), by striking “2028” and*  
6 *inserting “2030”.*

7       (f) *ELIMINATION OF INTERNATIONAL SPACE STATION*  
8 *NATIONAL LABORATORY ADVISORY COMMITTEE.*—Section  
9 *70906 of title 51, United States Code, is repealed.*

10       (g) *CONFORMING AMENDMENTS.*—Chapter 709 of title  
11 *51, United States Code, is amended—*

12           (1) *by redesignating section 70907 as section*  
13 *70906; and*

14           (2) *in the table of sections for the chapter, by*  
15 *striking the items relating to sections 70906 and*  
16 *70907 and inserting the following:*

*“70906. Maintaining use through at least 2030.”.*

17 **SEC. 622. DEPARTMENT OF DEFENSE ACTIVITIES ON INTER-**  
18 **NATIONAL SPACE STATION.**

19       (a) *IN GENERAL.*—Not later than 180 days after the  
20 *date of the enactment of this Act, the Secretary of Defense*  
21 *shall—*

22           (1) *identify and review each activity, program,*  
23 *and project of the Department of Defense completed,*  
24 *being carried out, or planned to be carried out on the*  
25 *ISS as of the date of the review; and*



1       (c) *NONCOMPETITION.*—

2           (1) *IN GENERAL.*—*Except as provided in para-*  
3 *graph (2), the Administrator may not offer to a for-*  
4 *foreign person or a foreign government a spaceflight*  
5 *product or service relating to the ISS, if a com-*  
6 *parable spaceflight product or service, as applicable,*  
7 *is offered by a private entity in the United States.*

8           (2) *EXCEPTION.*—*The Administrator may offer a*  
9 *spaceflight product or service relating to the ISS to*  
10 *the government of a country that is a signatory to the*  
11 *Agreement Among the Government of Canada, Gov-*  
12 *ernments of Member States of the European Space*  
13 *Agency, the Government of Japan, the Government of*  
14 *the Russian Federation, and the Government of the*  
15 *United States of America Concerning Cooperation on*  
16 *the Civil International Space Station, signed at*  
17 *Washington January 29, 1998, and entered into force*  
18 *on March 27, 2001 (TIAS 12927), including an inter-*  
19 *national partner astronaut (as defined in section*  
20 *50902 of title 51, United States Code) that is spon-*  
21 *sored by the government of such a country.*

22       (d) *SHORT-DURATION COMMERCIAL MISSIONS.*—*To*  
23 *provide opportunities for additional transport of astronauts*  
24 *to the ISS and help establish a commercial market in low-*  
25 *Earth orbit, the Administrator may permit short-duration*

1 *missions to the ISS for commercial passengers on a fully*  
2 *or partially reimbursable basis.*

3 *(e) PROGRAM AUTHORIZATION.—*

4 *(1) ESTABLISHMENT.—The Administrator shall*  
5 *establish a low-Earth orbit commercial development*  
6 *program to encourage the fullest commercial use and*  
7 *development of space by private entities in the United*  
8 *States.*

9 *(2) ELEMENTS.—The program established under*  
10 *paragraph (1) shall, to the maximum extent prac-*  
11 *ticable, include activities—*

12 *(A) to stimulate demand for—*

13 *(i) space-based commercial research,*  
14 *development, and manufacturing;*

15 *(ii) spaceflight products and services;*  
16 *and*

17 *(iii) human spaceflight products and*  
18 *services in low-Earth orbit;*

19 *(B) to improve the capability of the ISS to*  
20 *accommodate commercial users; and*

21 *(C) subject to paragraph (3), to foster the*  
22 *development of commercial space stations and*  
23 *habitats.*

24 *(3) COMMERCIAL SPACE STATIONS AND HABI-*  
25 *TATS.—*

1           (A) *PRIORITY.*—*With respect to an activity*  
2 *to develop a commercial space station or habitat,*  
3 *the Administrator shall give priority to an activ-*  
4 *ity for which a private entity provides a signifi-*  
5 *cant share of the cost to develop and operate the*  
6 *activity.*

7           (B) *REPORT.*—*Not later than 30 days after*  
8 *the date that an award or agreement is made to*  
9 *carry out an activity to develop a commercial*  
10 *space station or habitat, the Administrator shall*  
11 *submit to the appropriate committees of Congress*  
12 *a report on the development of the commercial*  
13 *space station or habitat, as applicable, that in-*  
14 *cludes—*

15                   (i) *a business plan that describes the*  
16 *manner in which the project will—*

17                           (I) *meet the future requirements*  
18 *of NASA for low-Earth orbit human*  
19 *space-flight services; and*

20                           (II) *fulfill the cost-share funding*  
21 *prioritization under subparagraph (A);*  
22 *and*

23                   (ii) *a review of the viability of the*  
24 *operational business case, including—*

1                   (I) *the level of expected Govern-*  
2                   *ment participation;*

3                   (II) *a list of anticipated non-*  
4                   *governmental an international cus-*  
5                   *tomers and associated contributions;*  
6                   *and*

7                   (III) *an assessment of long-term*  
8                   *sustainability for the nongovernmental*  
9                   *customers, including an independent*  
10                  *assessment of the viability of the mar-*  
11                  *ket for such commercial services or*  
12                  *products.*

13 **SEC. 624. MAINTAINING A NATIONAL LABORATORY IN**  
14                   **SPACE.**

15           (a) *SENSE OF CONGRESS.—It is the sense of Congress*  
16 *that—*

17                   (1) *the United States segment of the Inter-*  
18                   *national Space Station (as defined in section 70905*  
19                   *of title 51, United States Code), which is designated*  
20                   *as a national laboratory under section 70905(b) of*  
21                   *title 51, United States Code—*

22                           (A) *benefits the scientific community and*  
23                           *promotes commerce in space;*

1           (B) fosters stronger relationships among  
2           NASA and other Federal agencies, the private  
3           sector, and research groups and universities;

4           (C) advances science, technology, engineer-  
5           ing, and mathematics education through use of  
6           the unique microgravity environment; and

7           (D) advances human knowledge and inter-  
8           national cooperation;

9           (2) after the ISS is decommissioned, the United  
10          States should maintain a national microgravity lab-  
11          oratory in space;

12          (3) in maintaining a national microgravity lab-  
13          oratory in space, the United States should make ap-  
14          propriate accommodations for different types of own-  
15          ership and operation arrangements for the ISS and  
16          future space stations;

17          (4) to the maximum extent practicable, a na-  
18          tional microgravity laboratory in space should be  
19          maintained in cooperation with international space  
20          partners; and

21          (5) NASA should continue to support funda-  
22          mental science research on future platforms in low-  
23          Earth orbit and cislunar space, orbital and suborbital  
24          flights, drop towers, and other microgravity testing  
25          environments.



1       (b) *REPORT.*—*The Administrator, in coordination*  
 2 *with the National Space Council and other Federal agencies*  
 3 *as the Administrator considers appropriate, shall issue a*  
 4 *report detailing the feasibility of establishing a micro-*  
 5 *gravity national laboratory federally funded research and*  
 6 *development center to carry out activities relating to the*  
 7 *study and use of in-space conditions.*

8   **SEC. 625. INTERNATIONAL SPACE STATION NATIONAL LAB-**  
 9                   **ORATORY; PROPERTY RIGHTS IN INVEN-**  
 10                   **TIONS.**

11       (a) *IN GENERAL.*—*Subchapter III of chapter 201 of*  
 12 *title 51, United States Code, is amended by adding at the*  
 13 *end the following:*

14   **“§ 20150. Property rights in designated inventions**

15       “(a) *EXCLUSIVE PROPERTY RIGHTS.*—*Notwith-*  
 16 *standing section 3710a of title 15, chapter 18 of title 35,*  
 17 *section 20135, or any other provision of law, a designated*  
 18 *invention shall be the exclusive property of a user, and shall*  
 19 *not be subject to a Government-purpose license, if—*

20               “(1)(A) *the Administration is reimbursed under*  
 21 *the terms of the contract for the full cost of a con-*  
 22 *tribution by the Federal Government of the use of*  
 23 *Federal facilities, equipment, materials, proprietary*  
 24 *information of the Federal Government, or services of*  
 25 *a Federal employee during working hours, including*

1 *the cost for the Administration to carry out its re-*  
2  *sponsibilities under paragraphs (1) and (4) of section*  
3  *504(d) of the National Aeronautics and Space Ad-*  
4  *ministration Authorization Act of 2010 (42 U.S.C.*  
5  *18354(d));*

6 *“(B) Federal funds are not transferred to the*  
7  *user under the contract; and*

8 *“(C) the designated invention was made (as de-*  
9  *fined in section 20135(a))—*

10 *“(i) solely by the user; or*

11 *“(ii)(I) by the user with the services of a*  
12  *Federal employee under the terms of the contract;*  
13 *and*

14 *“(II) the Administration is reimbursed for*  
15  *such services under subparagraph (B); or*

16 *“(2) the Administrator determines that the rel-*  
17  *evant field of commercial endeavor is sufficiently im-*  
18  *mature that granting exclusive property rights to the*  
19  *user is necessary to help bolster demand for products*  
20  *and services produced on crewed or crew-tended space*  
21  *stations.*

22 *“(b) NOTIFICATION TO CONGRESS.—On completion of*  
23  *a determination made under paragraph (2), the Adminis-*  
24  *trator shall submit to the appropriate committees of Con-*

1 *gress a notification of the determination that includes a*  
2 *written justification.*

3       “(c) *PUBLIC AVAILABILITY.*—*A determination or part*  
4 *of such determination under paragraph (1) shall be made*  
5 *available to the public on request, as required under section*  
6 *552 of title 5, United States Code (commonly referred to*  
7 *as the ‘Freedom of Information Act’).*

8       “(d) *RULE OF CONSTRUCTION.*—*Nothing in this sec-*  
9 *tion may be construed to affect the rights of the Federal*  
10 *Government, including property rights in inventions, under*  
11 *any contract, except in the case of a written contract with*  
12 *the Administration or the ISS management entity for the*  
13 *performance of a designated activity.*

14       “(e) *DEFINITIONS.*—*In this section—*

15               “(1) *CONTRACT.*—*The term ‘contract’ has the*  
16 *meaning giving the term in section 20135(a).*

17               “(2) *DESIGNATED ACTIVITY.*—*The term ‘des-*  
18 *ignated activity’ means any non-NASA scientific use*  
19 *of the ISS national laboratory as described in section*  
20 *504 of the National Aeronautics and Space Adminis-*  
21 *tration Authorization Act of 2010 (42 U.S.C. 18354).*

22               “(3) *DESIGNATED INVENTION.*—*The term ‘des-*  
23 *ignated invention’ means any invention, product, or*  
24 *service conceived or first reduced to practice by any*  
25 *person in the performance of a designated activity*

1        *under a written contract with the Administration or*  
2        *the ISS management entity.*

3            “(4) *FULL COST.*—*The term ‘full cost’ means the*  
4        *cost of transporting materials or passengers to and*  
5        *from the ISS, including any power needs, the disposal*  
6        *of mass, crew member time, stowage, power on the*  
7        *ISS, data downlink, crew consumables, and life sup-*  
8        *port.*

9            “(5) *GOVERNMENT-PURPOSE LICENSE.*—*The*  
10        *term ‘Government-purpose license’ means the reserva-*  
11        *tion by the Federal Government of an irrevocable,*  
12        *nonexclusive, nontransferable, royalty-free license for*  
13        *the use of an invention throughout the world by or on*  
14        *behalf of the United States or any foreign government*  
15        *pursuant to a treaty or agreement with the United*  
16        *States.*

17            “(6) *ISS MANAGEMENT ENTITY.*—*The term ‘ISS*  
18        *management entity’ means the organization with*  
19        *which the Administrator enters into a cooperative*  
20        *agreement under section 504(a) of the National Aero-*  
21        *navics and Space Administration Authorization Act*  
22        *of 2010 (42 U.S.C. 18354(a)).*

23            “(7) *USER.*—*The term ‘user’ means a person, in-*  
24        *cluding a nonprofit organization or small business*  
25        *firm (as such terms are defined in section 201 of title*

1       35), or class of persons that enters into a written con-  
 2       tract with the Administration or the ISS manage-  
 3       ment entity for the performance of designated activi-  
 4       ties.”.

5       (b) *CONFORMING AMENDMENT.*—The table of sections  
 6       for chapter 201 of title 51, United States Code, is amended  
 7       by inserting after the item relating to section 20149 the fol-  
 8       lowing:

      “20150. Property rights in designated inventions.”.

9       **SEC. 626. DATA FIRST PRODUCED DURING NON-NASA SCI-**  
 10                   **ENTIFIC USE OF THE ISS NATIONAL LABORA-**  
 11                   **TORY.**

12       (a) *DATA RIGHTS.*—Subchapter III of chapter 201 of  
 13       title 51, United States Code, as amended by section 626,  
 14       is further amended by adding at the end the following:

15       **“§20151. Data rights**

16       “(a) *NON-NASA SCIENTIFIC USE OF THE ISS NA-*  
 17       *TIONAL LABORATORY.*—The Federal Government may not  
 18       use or reproduce, or disclose outside of the Government, any  
 19       data first produced in the performance of a designated ac-  
 20       tivity under a written contract with the Administration or  
 21       the ISS management entity, unless—

22               “(1) otherwise agreed under the terms of the con-  
 23       tract with the Administration or the ISS manage-  
 24       ment entity, as applicable;

1           “(2) *the designated activity is carried out with*  
2 *Federal funds;*

3           “(3) *disclosure is required by law;*

4           “(4) *the Federal Government has rights in the*  
5 *data under another Federal contract, grant, coopera-*  
6 *tive agreement, or other transaction; or*

7           “(5) *the data is—*

8                 “(A) *otherwise lawfully acquired or inde-*  
9 *pendently developed by the Federal Government;*

10                “(B) *related to the health and safety of per-*  
11 *sonnel on the ISS; or*

12                “(C) *essential to the performance of work by*  
13 *the ISS management entity or NASA personnel.*

14           “(b) *DEFINITIONS.—In this section:*

15                “(1) *CONTRACT.—The term ‘contract’ has the*  
16 *meaning given the term under section 20135(a).*

17                “(2) *DATA.—*

18                   “(A) *IN GENERAL.—The term ‘data’ means*  
19 *recorded information, regardless of form or the*  
20 *media on which it may be recorded.*

21                   “(B) *INCLUSIONS.—The term ‘data’ in-*  
22 *cludes technical data and computer software.*

23                   “(C) *EXCLUSIONS.—The term ‘data’ does*  
24 *not include information incidental to contract*  
25 *administration, such as financial, administra-*

1           *tive, cost or pricing, or management informa-*  
2           *tion.*

3           “(3) *DESIGNATED ACTIVITY.*—*The term ‘des-*  
4           *ignated activity’ has the meaning given the term in*  
5           *section 20150.*

6           “(4) *ISS MANAGEMENT ENTITY.*—*The term ‘ISS*  
7           *management entity’ has the meaning given the term*  
8           *in section 20150.”.*

9           **(b) *SPECIAL HANDLING OF TRADE SECRETS OR CON-***  
10          ***FIDENTIAL INFORMATION.***—*Section 20131(b)(2) of title 51,*  
11          *United States Code, is amended to read as follows:*

12           “(2) *INFORMATION DESCRIBED.*—

13           “(A) *ACTIVITIES UNDER AGREEMENT.*—*In-*  
14           *formation referred to in paragraph (1) is infor-*  
15           *mation that—*

16                   “(i) *results from activities conducted*  
17                   *under an agreement entered into under sub-*  
18                   *sections (e) and (f) of section 20113; and*

19                   “(ii) *would be a trade secret or com-*  
20                   *mercial or financial information that is*  
21                   *privileged or confidential within the mean-*  
22                   *ing of section 552(b)(4) of title 5 if the in-*  
23                   *formation had been obtained from a non-*  
24                   *Federal party participating in such an*  
25                   *agreement.*

1           “(B) *CERTAIN DATA.*—*Information referred*  
 2 *to in paragraph (1) includes data (as defined in*  
 3 *section 20151) that—*

4                   “(i) *was first produced by the Admin-*  
 5 *istration in the performance of any des-*  
 6 *ignated activity (as defined in section*  
 7 *20150); and*

8                   “(ii) *would be a trade secret or com-*  
 9 *mercial or financial information that is*  
 10 *privileged or confidential within the mean-*  
 11 *ing of section 552(b)(4) of title 5 if the data*  
 12 *had been obtained from a non-Federal*  
 13 *party.”.*

14           (c) *CONFORMING AMENDMENT.*—*The table of sections*  
 15 *for chapter 201 of title 51, United States Code, as amended*  
 16 *by section 626, is further amended by inserting after the*  
 17 *item relating to section 20150 the following:*

          “20151. *Data rights.*”.

18   **SEC. 627. PAYMENTS RECEIVED FOR COMMERCIAL SPACE-**  
 19                   **ENABLED PRODUCTION ON THE ISS.**

20           (a) *SENSE OF CONGRESS.*—*It is the sense of Congress*  
 21 *that—*

22                   (1) *the Administrator should determine a thresh-*  
 23 *old for NASA to recover the costs of supporting the*  
 24 *commercial development of products or services*  
 25 *aboard the ISS, through the negotiation of agree-*





1           *ment, or services of a Federal employee during*  
2           *working hours, including the cost for the Admin-*  
3           *istration to carry out its responsibilities under*  
4           *paragraphs (1) and (4) of section 504(d) of the*  
5           *National Aeronautics and Space Administration*  
6           *Authorization Act of 2010 (42 U.S.C. 18354(d)).*

7           “(2) *NEGOTIATION OF REIMBURSEMENTS.*—Sub-  
8           *ject to the review described in paragraph (1), the Ad-*  
9           *ministrator shall seek to enter into an agreement to*  
10          *negotiate reimbursements for payments received, or*  
11          *portions of profits created, by any mature, profitable*  
12          *private entity described in that paragraph, as appro-*  
13          *priate, through a tiered process that reflects the prof-*  
14          *itability of the relevant product or service.*

15          “(3) *USE OF FUNDS.*—Amounts received by the  
16          *Administrator in accordance with an agreement*  
17          *under paragraph (2) shall be used by the Adminis-*  
18          *trator in the following order of priority:*

19                  “(A) *To defray the operating cost of the*  
20                  *ISS.*

21                  “(B) *To develop, implement, or operate fu-*  
22                  *ture low-Earth orbit platforms or capabilities.*

23                  “(C) *To develop, implement, or operate fu-*  
24                  *ture human deep space platforms or capabilities.*

1                   “(D) *Any other costs the Administrator con-*  
2                   *siders appropriate.*

3                   “(4) *REPORT.—On completion of the first an-*  
4                   *nuual review under paragraph (1), and annually*  
5                   *thereafter, the Administrator shall submit to the ap-*  
6                   *propriate committees of Congress a report that in-*  
7                   *cludes a description of the results of the annual re-*  
8                   *view, any agreement entered into under this section,*  
9                   *and the amounts recouped or obtained under any*  
10                   *such agreement.*

11                   “(b) *LICENSING AND ASSIGNMENT OF INVENTIONS.—*  
12                   *Notwithstanding sections 3710a and 3710c of title 15 and*  
13                   *any other provision of law, after payment in accordance*  
14                   *with subsection (A)(i) of such section 3710c(a)(1)(A)(i) to*  
15                   *the inventors who have directly assigned to the Federal Gov-*  
16                   *ernment their interests in an invention under a written*  
17                   *contract with the Administration or the ISS management*  
18                   *entity for the performance of a designated activity, the bal-*  
19                   *ance of any royalty or other payment received by the Ad-*  
20                   *ministrator or the ISS management entity from licensing*  
21                   *and assignment of such invention shall be paid by the Ad-*  
22                   *ministrator or the ISS management entity, as applicable,*  
23                   *to the Space Exploration Fund.*

24                   “(c) *SPACE EXPLORATION FUND.—*

1           “(1) *ESTABLISHMENT.*—*There is established in*  
2 *the Treasury of the United States a fund, to be known*  
3 *as the ‘Space Exploration Fund’ (referred to in this*  
4 *subsection as the ‘Fund’), to be administered by the*  
5 *Administrator.*

6           “(2) *USE OF FUND.*—*The Fund shall be avail-*  
7 *able to carry out activities described in subsection*  
8 *(a)(3).*

9           “(3) *DEPOSITS.*—*There shall be deposited in the*  
10 *Fund—*

11                 “(A) *amounts appropriated to the Fund;*

12                 “(B) *fees and royalties collected by the Ad-*  
13 *ministrator or the ISS management entity under*  
14 *subsections (a) and (b); and*

15                 “(C) *donations or contributions designated*  
16 *to support authorized activities.*

17           “(4) *RULE OF CONSTRUCTION.*—*Amounts avail-*  
18 *able to the Administrator under this subsection shall*  
19 *be—*

20                 “(A) *in addition to amounts otherwise*  
21 *made available for the purpose described in*  
22 *paragraph (2); and*

23                 “(B) *available for a period of 5 years, to the*  
24 *extent and in the amounts provided in annual*  
25 *appropriation Acts.*

1 “(d) *DEFINITIONS.*—

2 “(1) *IN GENERAL.*—*In this section, any term*  
 3 *used in this section that is also used in section 20150*  
 4 *shall have the meaning given the term in that section.*

5 “(2) *APPROPRIATE COMMITTEES OF CON-*  
 6 *GRESS.*—*The term ‘appropriate committees of Con-*  
 7 *gress’ means—*

8 “(A) *the Committee on Commerce, Science,*  
 9 *and Transportation and the Committee on Ap-*  
 10 *propriations of the Senate; and*

11 “(B) *the Committee on Science, Space, and*  
 12 *Technology and the Committee on Appropria-*  
 13 *tions of the House of Representatives.”*

14 (c) *CONFORMING AMENDMENT.*—*The table of sections*  
 15 *for chapter 201 of title 51, United States Code, as amended*  
 16 *by section and 626, is further amended by inserting after*  
 17 *the item relating to section 20151 the following:*

“20152. *Payments received for commercial space-enabled production.*”.

18 **SEC. 628. STEPPING STONE APPROACH TO EXPLORATION.**

19 (a) *IN GENERAL.*—*Section 70504 of title 51, United*  
 20 *States Code, is amended to read as follows:*

21 **“§ 70504. Stepping stone approach to exploration**

22 “(a) *IN GENERAL.*—*The Administrator, in sustainable*  
 23 *steps, may conduct missions to intermediate destinations,*  
 24 *such as the Moon, in accordance with section 20302(b), and*  
 25 *on a timetable determined by the availability of funding,*

1 *in order to achieve the objective of human exploration of*  
2 *Mars specified in section 202(b)(5) of the National Aero-*  
3 *nautics and Space Administration Authorization Act of*  
4 *2010 (42 U.S.C. 18312(b)(5)), if the Administrator—*

5           “(1) *determines that each such mission dem-*  
6 *onstrates or advances a technology or operational con-*  
7 *cept that will enable human missions to Mars; and*

8           “(2) *incorporates each such mission into the*  
9 *human exploration roadmap under section 432 of the*  
10 *National Aeronautics and Space Administration*  
11 *Transition Authorization Act of 2017 (Public Law*  
12 *115–10; 51 U.S.C. 20302 note).*

13           “(b) *CISLUNAR SPACE EXPLORATION ACTIVITIES.—In*  
14 *conducting a mission under subsection (a), the Adminis-*  
15 *trator shall—*

16           “(1) *use a combination of launches of the Space*  
17 *Launch System and space transportation services*  
18 *from United States commercial providers, as appro-*  
19 *priate, for the mission;*

20           “(2) *plan for not fewer than 1 Space Launch*  
21 *System launch annually beginning after the first suc-*  
22 *cessful crewed launch of Orion on the Space Launch*  
23 *System; and*

24           “(3) *establish an outpost in orbit around the*  
25 *Moon that—*

1           “(A) demonstrates technologies, systems,  
2           and operational concepts directly applicable to  
3           the space vehicle that will be used to transport  
4           humans to Mars;

5           “(B) has the capability for periodic human  
6           habitation; and

7           “(C) can function as a point of departure,  
8           return, or staging for Administration or non-  
9           governmental or international partner missions  
10          to multiple locations on the lunar surface or  
11          other destinations.

12          “(c) *COST-EFFECTIVENESS.*—To maximize the cost-ef-  
13          fectiveness of the long-term space exploration and utiliza-  
14          tion activities of the United States, the Administrator shall  
15          take all necessary steps, including engaging nongovern-  
16          mental and international partners, to ensure that activities  
17          in the Administration’s human space exploration program  
18          are balanced in order to help meet the requirements of fu-  
19          ture exploration and utilization activities leading to human  
20          habitation on the surface of Mars.

21          “(d) *COMPLETION.*—Within budgetary considerations,  
22          once an exploration-related project enters its development  
23          phase, the Administrator shall seek, to the maximum extent  
24          practicable, to complete that project without undue delay.

1           “(e) *INTERNATIONAL PARTICIPATION.*—*To achieve the*  
2 *goal of successfully conducting a crewed mission to the sur-*  
3 *face of Mars, the Administrator shall invite the partners*  
4 *in the ISS program and other nations, as appropriate, to*  
5 *participate in an international initiative under the leader-*  
6 *ship of the United States.”.*

7           “(b) *DEFINITION OF CISLUNAR SPACE.*—*Section 10101*  
8 *of title 51, United States Code, is amended by adding at*  
9 *the end the following:*

10                   “(3) *CISLUNAR SPACE.*—*The term ‘cislunar*  
11 *space’ means the region of space beyond low-Earth*  
12 *orbit out to and including the region around the sur-*  
13 *face of the Moon.”.*

14           “(c) *TECHNICAL AND CONFORMING AMENDMENTS.*—  
15 *Section 3 of the National Aeronautics and Space Adminis-*  
16 *tration Authorization Act of 2010 (42 U.S.C. 18302) is*  
17 *amended by striking paragraphs (2) and (3) and inserting*  
18 *the following:*

19                   “(2) *APPROPRIATE COMMITTEES OF CON-*  
20 *GRESS.*—*The term ‘appropriate committees of Con-*  
21 *gress’ means—*

22                           “(A) *the Committee on Commerce, Science,*  
23 *and Transportation of the Senate; and*

24                           “(B) *the Committee on Science, Space, and*  
25 *Technology of the House of Representatives.*



1           “(3) *CISLUNAR SPACE*.—*The term ‘cislunar*  
2           *space’ means the region of space beyond low-Earth*  
3           *orbit out to and including the region around the sur-*  
4           *face of the Moon.’”.*

5   **SEC. 629. TECHNICAL AMENDMENTS RELATING TO ARTEMIS**  
6           **MISSIONS.**

7           *(a) Section 421 of the National Aeronautics and Space*  
8           *Administration Authorization Act of 2017 (Public Law*  
9           *115–10; 51 U.S.C. 20301 note) is amended—*

10           *(1) in subsection (c)(3)—*

11                   *(A) by striking “EM–1” and inserting*  
12                   *“Artemis I”;*

13                   *(B) by striking “EM–2” and inserting*  
14                   *“Artemis II”; and*

15                   *(C) by striking “EM–3” and inserting*  
16                   *“Artemis III”; and*

17           *(2) in subsection (f)(3), by striking “EM–3” and*  
18           *inserting “Artemis III”.*

19           *(b) Section 432(b) of the National Aeronautics and*  
20           *Space Administration Authorization Act of 2017 (Public*  
21           *Law 115–10; 51 U.S.C. 20302 note) is amended—*

22           *(1) in paragraph (3)(D)—*

23                   *(A) by striking “EM–1” and inserting*  
24                   *“Artemis I”; and*

1                   (B) by striking “EM-2” and inserting  
 2                   “Artemis II”; and  
 3                   (2) in paragraph (4)(C), by striking “EM-3”  
 4                   and inserting “Artemis III”.

5                   **PART III—SCIENCE**

6   **SEC. 631. SCIENCE PRIORITIES.**

7                   (a) *SENSE OF CONGRESS ON SCIENCE PORTFOLIO.*—  
 8                   Congress reaffirms the sense of Congress that—

9                   (1) a balanced and adequately funded set of ac-  
 10                  tivities, consisting of research and analysis grant pro-  
 11                  grams, technology development, suborbital research  
 12                  activities, and small, medium, and large space mis-  
 13                  sions, contributes to a robust and productive science  
 14                  program and serves as a catalyst for innovation and  
 15                  discovery; and

16                  (2) the Administrator should set science prior-  
 17                  ities by following the guidance provided by the sci-  
 18                  entific community through the decadal surveys of the  
 19                  National Academies of Sciences, Engineering, and  
 20                  Medicine.

21                  (b) *NATIONAL ACADEMIES DECADEAL SURVEYS.*—Sec-  
 22                  tion 20305(c) of title 51, United States Code, is amended—

23                  (1) by striking “The Administrator shall” and  
 24                  inserting the following:

1           “(1) *REEXAMINATION OF PRIORITIES BY NA-*  
2           *TIONAL ACADEMIES.—The Administrator shall*”; and

3           (2) *by adding at the end the following:*

4           “(2) *REEXAMINATION OF PRIORITIES BY ADMIN-*  
5           *ISTRATOR.—If the Administrator decides to reexam-*  
6           *ine the applicability of the priorities of the decadal*  
7           *surveys to the missions and activities of the Adminis-*  
8           *tration due to scientific discoveries or external factors,*  
9           *the Administrator shall consult with the relevant com-*  
10          *mittees of the National Academies.*”.

11 **SEC. 632. LUNAR DISCOVERY PROGRAM.**

12          (a) *IN GENERAL.—The Administrator may carry out*  
13 *a program to conduct lunar science research, including mis-*  
14 *sions to the surface of the Moon, that materially contributes*  
15 *to the objective described in section 20102(d)(1) of title 51,*  
16 *United States Code.*

17          (b) *COMMERCIAL LANDERS.—In carrying out the pro-*  
18 *gram under subsection (a), the Administrator shall procure*  
19 *the services of commercial landers developed primarily by*  
20 *United States industry to land science payloads of all class-*  
21 *es on the lunar surface.*

22          (c) *LUNAR SCIENCE RESEARCH.—The Administrator*  
23 *shall ensure that lunar science research carried out under*  
24 *subsection (a) is consistent with recommendations made by*

1 *the National Academies of Sciences, Engineering, and Med-*  
2 *icine.*

3       (d) *LUNAR POLAR VOLATILES.*—*In carrying out the*  
4 *program under subsection (a), the Administrator shall, at*  
5 *the earliest opportunity, consider mission proposals to*  
6 *evaluate the potential of lunar polar volatiles to contribute*  
7 *to sustainable lunar exploration.*

8 **SEC. 633. SEARCH FOR LIFE.**

9       (a) *SENSE OF CONGRESS.*—*It is the sense of Congress*  
10 *that—*

11               (1) *the report entitled “An Astrobiology Strategy*  
12 *for the Search for Life in the Universe” published by*  
13 *the National Academies of Sciences, Engineering, and*  
14 *Medicine outlines the key scientific questions and*  
15 *methods for fulfilling the objective of NASA to search*  
16 *for the origin, evolution, distribution, and future of*  
17 *life in the universe; and*

18               (2) *the interaction of lifeforms with their envi-*  
19 *ronment, a central focus of astrobiology research, is a*  
20 *topic of broad significance to life sciences research in*  
21 *space and on Earth.*

22       (b) *PROGRAM CONTINUATION.*—

23               (1) *IN GENERAL.*—*The Administrator shall con-*  
24 *tinue to implement a collaborative, multidisciplinary*  
25 *science and technology development program to search*

1       *for proof of the existence or historical existence of life*  
2       *beyond Earth in support of the objective described in*  
3       *section 20102(d)(10) of title 51, United States Code.*

4           (2) *ELEMENT.—The program under paragraph*  
5       *(1) shall include activities relating to astronomy, bi-*  
6       *ology, geology, and planetary science.*

7           (3) *COORDINATION WITH LIFE SCIENCES PRO-*  
8       *GRAM.—In carrying out the program under para-*  
9       *graph (1), the Administrator shall coordinate efforts*  
10       *with the life sciences program of the Administration.*

11          (4) *TECHNOSIGNATURES.—In carrying out the*  
12       *program under paragraph (1), the Administrator*  
13       *shall support activities to search for and analyze*  
14       *technosignatures.*

15          (5) *INSTRUMENTATION AND SENSOR TECH-*  
16       *NOLOGY.—In carrying out the program under para-*  
17       *graph (1), the Administrator may strategically invest*  
18       *in the development of new instrumentation and sensor*  
19       *technology.*

20       **SEC. 634. JAMES WEBB SPACE TELESCOPE.**

21          (a) *SENSE OF CONGRESS.—It is the sense of Congress*  
22       *that—*

23           (1) *the James Webb Space Telescope will be the*  
24       *next premier observatory in space and has great po-*

1        *tential to further scientific study and assist scientists*  
2        *in making new discoveries in the field of astronomy;*

3            *(2) the James Webb Space Telescope was devel-*  
4        *oped as an ambitious project with a scope that was*  
5        *not fully defined at inception and with risk that was*  
6        *not fully known or understood;*

7            *(3) despite the major technology development and*  
8        *innovation that was needed to construct the James*  
9        *Webb Space Telescope, major negative impacts to the*  
10       *cost and schedule of the James Webb Space Telescope*  
11       *resulted from poor program management and poor*  
12       *contractor performance;*

13           *(4) the Administrator should take into account*  
14       *the lessons learned from the cost and schedule issues*  
15       *relating to the development of the James Webb Space*  
16       *Telescope in making decisions regarding the scope of*  
17       *and the technologies needed for future scientific mis-*  
18       *sions; and*

19           *(5) in selecting future scientific missions, the Ad-*  
20       *ministrator should take into account the impact that*  
21       *large programs that overrun cost and schedule esti-*  
22       *mates may have on other NASA programs in earlier*  
23       *phases of development.*

24        *(b) PROJECT CONTINUATION.—The Administrator*  
25       *shall continue—*

1           (1) to closely track the cost and schedule per-  
2           formance of the James Webb Space Telescope project;  
3           and

4           (2) to improve the reliability of cost estimates  
5           and contractor performance data throughout the re-  
6           maining development of the James Webb Space Tele-  
7           scope.

8           (c) *REVISED ESTIMATE.*—Due to delays to the James  
9           Webb Space Telescope project resulting from the COVID-  
10          19 pandemic, the Administrator shall provide to Con-  
11          gress—

12           (1) an estimate of any increase to program de-  
13          velopment costs, if such costs are anticipated to exceed  
14          \$8,802,700,000; and

15           (2) an estimate for a revised launch date.

16          **SEC. 635. WIDE-FIELD INFRARED SURVEY TELESCOPE.**

17          (a) *SENSE OF CONGRESS.*—It is the sense of Congress  
18          that—

19           (1) major growth in the cost of astrophysics flag-  
20          ship-class missions has impacted the overall portfolio  
21          balance of the Science Mission Directorate; and

22           (2) the Administrator should continue to develop  
23          the Wide-Field Infrared Survey Telescope with a de-  
24          velopment cost of not more than \$3,200,000,000.

1       (b) *PROJECT CONTINUATION.*—*The Administrator*  
2 *shall continue to develop the Wide-Field Infrared Survey*  
3 *Telescope to meet the objectives outlined in the 2010 decadal*  
4 *survey on astronomy and astrophysics of the National*  
5 *Academies of Sciences, Engineering, and Medicine in a*  
6 *manner that maximizes scientific productivity based on the*  
7 *resources invested.*

8       **SEC. 636. STUDY ON SATELLITE SERVICING FOR SCIENCE**  
9                               **MISSIONS.**

10       (a) *IN GENERAL.*—*The Administrator shall conduct a*  
11 *study on the feasibility of using in-space robotic refueling,*  
12 *repair, or refurbishment capabilities to extend the useful life*  
13 *of telescopes and other science missions that are operational*  
14 *or in development as of the date of the enactment of this*  
15 *Act.*

16       (b) *ELEMENTS.*—*The study conducted under sub-*  
17 *section (a) shall include the following:*

18               (1) *An identification of the technologies and in-*  
19 *space testing required to demonstrate the in-space*  
20 *robotic refueling, repair, or refurbishment capabilities*  
21 *described in that subsection.*

22               (2) *The projected cost of using such capabilities,*  
23 *including the cost of extended operations for science*  
24 *missions described in that subsection.*



1       (c) *BRIEFING*.—Not later than 1 year after the date  
2 of the enactment of this Act, the Administrator shall provide  
3 to the appropriate committees of Congress a briefing on the  
4 results of the study conducted under subsection (a).

5       (d) *PUBLIC AVAILABILITY*.—Not later than 30 days  
6 after the Administrator provides the briefing under sub-  
7 section (c), the Administrator shall make the study con-  
8 ducted under subsection (a) available to the public.

9 **SEC. 637. EARTH SCIENCE MISSIONS AND PROGRAMS.**

10       (a) *SENSE OF CONGRESS*.—It is the sense of Congress  
11 that the Earth Science Division of NASA plays an impor-  
12 tant role in national efforts—

13               (1) to collect and use Earth observations in serv-  
14 ice to society; and

15               (2) to understand global change.

16       (b) *EARTH SCIENCE MISSIONS AND PROGRAMS*.—With  
17 respect to the missions and programs of the Earth Science  
18 Division, the Administrator shall, to the maximum extent  
19 practicable, follow the recommendations and guidance pro-  
20 vided by the scientific community through the decadal sur-  
21 vey for Earth science and applications from space of the  
22 National Academies of Sciences, Engineering, and Medi-  
23 cine, including—

24               (1) the science priorities described in such sur-  
25 vey;

1           (2) *the execution of the series of existing or pre-*  
2           *viously planned observations (commonly known as the*  
3           *“program of record”); and*

4           (3) *the development of a range of missions of all*  
5           *classes, including opportunities for principal investi-*  
6           *gator-led, competitively selected missions.*

7 **SEC. 638. LIFE SCIENCE AND PHYSICAL SCIENCE RE-**  
8           **SEARCH.**

9           (a) *SENSE OF CONGRESS.—It is the sense of Congress*  
10          *that—*

11           (1) *the 2011 decadal survey on biological and*  
12          *physical sciences in space identifies—*

13           (A) *many areas in which fundamental sci-*  
14          *entific research is needed to efficiently advance*  
15          *the range of human activities in space, from the*  
16          *first stages of exploration to eventual economic*  
17          *development; and*

18           (B) *many areas of basic and applied sci-*  
19          *entific research that could use the microgravity,*  
20          *radiation, and other aspects of the spaceflight en-*  
21          *vironment to answer fundamental scientific ques-*  
22          *tions;*

23           (2) *given the central role of life science and phys-*  
24          *ical science research in developing the future of space*  
25          *exploration, NASA should continue to invest strategi-*

1 *cally in such research to maintain United States*  
2 *leadership in space exploration; and*

3 *(3) such research remains important to the objec-*  
4 *tives of NASA with respect to long-duration deep*  
5 *space human exploration to the Moon and Mars.*

6 *(b) PROGRAM CONTINUATION.—*

7 *(1) IN GENERAL.—In support of the goals de-*  
8 *scribed in section 20302 of title 51, United States*  
9 *Code, the Administrator shall continue to implement*  
10 *a collaborative, multidisciplinary life science and*  
11 *physical science fundamental research program—*

12 *(A) to build a scientific foundation for the*  
13 *exploration and development of space;*

14 *(B) to investigate the mechanisms of*  
15 *changes to biological systems and physical sys-*  
16 *tems, and the environments of those systems in*  
17 *space, including the effects of long-duration expo-*  
18 *sure to deep space-related environmental factors*  
19 *on those systems;*

20 *(C) to understand the effects of combined*  
21 *deep space radiation and altered gravity levels*  
22 *on biological systems so as to inform the develop-*  
23 *ment and testing of potential countermeasures;*

24 *(D) to understand physical phenomena in*  
25 *reduced gravity that affect design and perform-*

1           *ance of enabling technologies necessary for the*  
2           *space exploration program;*

3                   *(E) to provide scientific opportunities to*  
4           *educate, train, and develop the next generation of*  
5           *researchers and engineers; and*

6                   *(F) to provide state-of-the-art data reposi-*  
7           *tories and curation of large multi-data sets to*  
8           *enable comparative research analyses.*

9           (2) *ELEMENTS.*—*The program under paragraph*  
10       (1) *shall—*

11                   *(A) include fundamental research relating*  
12           *to life science, space bioscience, and physical*  
13           *science; and*

14                   *(B) maximize intra-agency and interagency*  
15           *partnerships to advance space exploration, sci-*  
16           *entific knowledge, and benefits to Earth.*

17           (3) *USE OF FACILITIES.*—*In carrying out the*  
18       *program under paragraph (1), the Administrator*  
19       *may use ground-based, air-based, and space-based fa-*  
20       *ilities in low-Earth orbit and beyond low-Earth*  
21       *orbit.*

22       **SEC. 639. SCIENCE MISSIONS TO MARS.**

23           (a) *IN GENERAL.*—*The Administrator shall conduct 1*  
24       *or more science missions to Mars to enable the selection of*  
25       *1 or more sites for human landing.*

1       (b) *SAMPLE PROGRAM.*—*The Administrator may*  
2 *carry out a program—*

3             (1) *to collect samples from the surface of Mars;*

4       *and*

5             (2) *to return such samples to Earth for scientific*  
6 *analysis.*

7       (c) *USE OF EXISTING CAPABILITIES AND ASSETS.*—

8 *In carrying out this section, the Administrator shall, to the*  
9 *maximum extent practicable, use existing capabilities and*  
10 *assets of NASA centers.*

11 **SEC. 640. PLANETARY DEFENSE COORDINATION OFFICE.**

12       (a) *FINDINGS.*—*Congress makes the following findings:*

13             (1) *Near-Earth objects remain a threat to the*  
14 *United States.*

15             (2) *Section 321(d)(1) of the National Aero-*  
16 *nautics and Space Administration Authorization Act*  
17 *of 2005 (Public Law 109–155; 119 Stat. 2922; 51*  
18 *U.S.C. 71101 note prec.) established a requirement*  
19 *that the Administrator plan, develop, and implement*  
20 *a Near-Earth Object Survey program to detect, track,*  
21 *catalogue, and characterize the physical characteris-*  
22 *tics of near-Earth objects equal to or greater than 140*  
23 *meters in diameter in order to assess the threat of*  
24 *such near-Earth objects to the Earth, with the goal of*

1       90-percent completion of the catalogue of such near-  
2       Earth objects by December 30, 2020.

3           (3) *The current planetary defense strategy of*  
4       *NASA acknowledges that such goal will not be met.*

5           (4) *The report of the National Academies of*  
6       *Sciences, Engineering, and Medicine entitled “Find-*  
7       *ing Hazardous Asteroids Using Infrared and Visible*  
8       *Wavelength Telescopes” issued in 2019 states that—*

9           (A) *NASA cannot accomplish such goal*  
10       *with currently available assets;*

11          (B) *NASA should develop and launch a*  
12       *dedicated space-based infrared survey telescope to*  
13       *meet the requirements of section 321(d)(1) of the*  
14       *National Aeronautics and Space Administration*  
15       *Authorization Act of 2005 (Public Law 109–155;*  
16       *119 Stat. 2922; 51 U.S.C. 71101 note prec.); and*

17          (C) *the early detection of potentially haz-*  
18       *ardous near-Earth objects enabled by a space-*  
19       *based infrared survey telescope is important to*  
20       *enable deflection of a dangerous asteroid.*

21       (b) *ESTABLISHMENT OF PLANETARY DEFENSE CO-*  
22       *ORDINATION OFFICE.—*

23           (1) *IN GENERAL.—Not later than 90 days after*  
24       *the date of the enactment of this Act, the Adminis-*  
25       *trator shall establish an office within the Planetary*

1     *Science Division of the Science Mission Directorate,*  
2     *to be known as the “Planetary Defense Coordination*  
3     *Office”, to plan, develop, and implement a program*  
4     *to survey threats posed by near-Earth objects equal to*  
5     *or greater than 140 meters in diameter, as required*  
6     *by section 321(d)(1) of the National Aeronautics and*  
7     *Space Administration Authorization Act of 2005*  
8     *(Public Law 109–155; 119 Stat. 2922; 51 U.S.C.*  
9     *71101 note prec.).*

10           (2) *ACTIVITIES.—The Administrator shall—*

11                   (A) *develop and, not later than September*  
12                   *30, 2025, launch a space-based infrared survey*  
13                   *telescope that is capable of detecting near-Earth*  
14                   *objects equal to or greater than 140 meters in di-*  
15                   *ameter, with preference given to planetary mis-*  
16                   *sions selected by the Administrator as of the date*  
17                   *of the enactment of this Act to pursue concept de-*  
18                   *sign studies relating to the development of a*  
19                   *space-based infrared survey telescope;*

20                   (B) *identify, track, and characterize poten-*  
21                   *tially hazardous near-Earth objects and issue*  
22                   *warnings of the effects of potential impacts of*  
23                   *such objects; and*

1           (C) assist in coordinating Government  
2           planning for response to a potential impact of a  
3           near-Earth object.

4           (c) ANNUAL REPORT.—Section 321(f) of the National  
5           Aeronautics and Space Administration Authorization Act  
6           of 2005 (Public Law 109–155; 119 Stat. 2922; 51 U.S.C.  
7           71101 note prec.) is amended to read as follows:

8           “(f) ANNUAL REPORT.—Not later than 180 days after  
9           the date of the enactment of the National Aeronautics and  
10          Space Administration Authorization Act of 2021, and an-  
11          nually thereafter through 90-percent completion of the cata-  
12          logue required by subsection (d)(1), the Administrator shall  
13          submit to the Committee on Commerce, Science, and Trans-  
14          portation of the Senate and the Committee on Science,  
15          Space, and Technology of the House of Representatives a  
16          report that includes the following:

17               “(1) A summary of all activities carried out by  
18               the Planetary Defense Coordination Office established  
19               under section 640(b)(1) of the National Aeronautics  
20               and Space Administration Authorization Act of 2021  
21               since the date of enactment of that Act.

22               “(2) A description of the progress with respect to  
23               the design, development, and launch of the space-  
24               based infrared survey telescope required by section



1       640 (b)(2)(A) of the National Aeronautics and Space  
2       Administration Authorization Act of 2021 .

3               “(3) An assessment of the progress toward meet-  
4       ing the requirements of subsection (d)(1).

5               “(4) A description of the status of efforts to co-  
6       ordinate planetary defense activities in response to a  
7       threat posed by a near-Earth object with other Fed-  
8       eral agencies since the date of enactment of the Na-  
9       tional Aeronautics and Space Administration Author-  
10       ization Act of 2021 .

11              “(5) A description of the status of efforts to co-  
12       ordinate and cooperate with other countries to dis-  
13       cover hazardous asteroids and comets, plan a mitiga-  
14       tion strategy, and implement that strategy in the  
15       event of the discovery of an object on a likely collision  
16       course with Earth.

17              “(6) A summary of expenditures for all activities  
18       carried out by the Planetary Defense Coordination  
19       Office since the date of enactment of the National Aer-  
20       onautics and Space Administration Authorization  
21       Act of 2021.”.

22       (d) *LIMITATION ON USE OF FUNDS.*—None of the  
23       amounts authorized to be appropriated by this subtitle for  
24       a fiscal year may be obligated or expended for the Office  
25       of the Administrator during the last 3 months of that fiscal

1 *year unless the Administrator submits the report for that*  
2 *fiscal year required by section 321(f) of the National Aero-*  
3 *nautics and Space Administration Authorization Act of*  
4 *2005 (Public Law 109–155; 119 Stat. 2922; 51 U.S.C.*  
5 *71101 note prec.).*

6 (e) *NEAR-EARTH OBJECT DEFINED.—In this section,*  
7 *the term “near-Earth object” means an asteroid or comet*  
8 *with a perihelion distance of less than 1.3 Astronomical*  
9 *Units from the Sun.*

10 **SEC. 641. SUBORBITAL SCIENCE FLIGHTS.**

11 (a) *SENSE OF CONGRESS.—It is the sense of Congress*  
12 *that commercially available suborbital flight platforms en-*  
13 *able low-cost access to a microgravity environment to ad-*  
14 *vance science and train scientists and engineers under the*  
15 *Suborbital Research Program established under section*  
16 *802(c) of the National Aeronautics and Space Administra-*  
17 *tion Authorization Act of 2010 (42 U.S.C. 18382(c)).*

18 (b) *REPORT.—*

19 (1) *IN GENERAL.—Not later than 270 days after*  
20 *the date of the enactment of this Act, the Adminis-*  
21 *trator shall submit to the appropriate committees of*  
22 *Congress a report evaluating the manner in which*  
23 *suborbital flight platforms can contribute to meeting*  
24 *the science objectives of NASA for the Science Mission*

1        *Directorate and the Human Exploration and Oper-*  
2        *ations Mission Directorate.*

3            (2) *CONTENTS.—The report required by para-*  
4        *graph (1) shall include the following:*

5            (A) *An assessment of the advantages of sub-*  
6        *orbital flight platforms to meet science objectives.*

7            (B) *An evaluation of the challenges to great-*  
8        *er use of commercial suborbital flight platforms*  
9        *for science purposes.*

10          (C) *An analysis of whether commercial sub-*  
11        *orbital flight platforms can provide low-cost*  
12        *flight opportunities to test lunar and Mars*  
13        *science payloads.*

14        **SEC. 642. EARTH SCIENCE DATA AND OBSERVATIONS.**

15          (a) *IN GENERAL.—The Administrator shall to the*  
16        *maximum extent practicable, make available to the public*  
17        *in an easily accessible electronic database all data (includ-*  
18        *ing metadata, documentation, models, data processing*  
19        *methods, images, and research results) of the missions and*  
20        *programs of the Earth Science Division of the Administra-*  
21        *tion, or any successor division.*

22          (b) *OPEN DATA PROGRAM.—In carrying out sub-*  
23        *section (a), the Administrator shall establish and continue*  
24        *to operate an open data program that—*

1           (1) *is consistent with the greatest degree of inter-*  
2           *activity, interoperability, and accessibility; and*

3           (2) *enables outside communities, including the*  
4           *research and applications community, private indus-*  
5           *try, academia, and the general public, to effectively*  
6           *collaborate in areas important to—*

7                 (A) *studying the Earth system and improv-*  
8                 *ing the prediction of Earth system change; and*

9                 (B) *improving model development, data as-*  
10                *similation techniques, systems architecture inte-*  
11                *gration, and computational efficiencies; and*

12           (3) *meets basic end-user requirements for run-*  
13           *ning on public computers and networks located out-*  
14           *side of secure Administration information and tech-*  
15           *nology systems.*

16           (c) *HOSTING.—The program under subsection (b) shall*  
17           *use, as appropriate and cost-effective, innovative strategies*  
18           *and methods for hosting and management of part or all*  
19           *of the program, including cloud-based computing capabili-*  
20           *ties.*

21           (d) *RULE OF CONSTRUCTION.—Nothing in this section*  
22           *shall be interpreted to require the Administrator to release*  
23           *classified, proprietary, or otherwise restricted information*  
24           *that would be harmful to the national security of the United*  
25           *States.*

1 **SEC. 643. SENSE OF CONGRESS ON SMALL SATELLITE**  
2 **SCIENCE.**

3 *It is the sense of Congress that—*

4 *(1) small satellites—*

5 *(A) are increasingly robust, effective, and*  
6 *affordable platforms for carrying out space*  
7 *science missions;*

8 *(B) can work in tandem with or augment*  
9 *larger NASA spacecraft to support high-priority*  
10 *science missions of NASA; and*

11 *(C) are cost effective solutions that may*  
12 *allow NASA to continue collecting legacy obser-*  
13 *vations while developing next-generation science*  
14 *missions; and*

15 *(2) NASA should continue to support small sat-*  
16 *ellite research, development, technologies, and pro-*  
17 *grams, including technologies for compact and light-*  
18 *weight instrumentation for small satellites.*

19 **SEC. 644. SENSE OF CONGRESS ON COMMERCIAL SPACE**  
20 **SERVICES.**

21 *It is the sense of Congress that—*

22 *(1) the Administration should explore partner-*  
23 *ships with the commercial space industry for space*  
24 *science missions in and beyond Earth orbit, including*  
25 *partnerships relating to payload and instrument*  
26 *hosting and commercially available datasets; and*

1           (2) *such partnerships could result in increased*  
2           *mission cadence, technology advancement, and cost*  
3           *savings for the Administration.*

4 **SEC. 645. PROCEDURES FOR IDENTIFYING AND ADDRESS-**  
5                           **ING ALLEGED VIOLATIONS OF SCIENTIFIC IN-**  
6                           **TEGRITY POLICY.**

7           *Not later than 180 days after the date of the enactment*  
8           *of this Act, the Administrator shall develop and document*  
9           *procedures for identifying and addressing alleged violations*  
10          *of the scientific integrity policy of NASA.*

11                           **PART IV—AERONAUTICS**

12 **SEC. 646. SHORT TITLE.**

13           *This part may be cited as the “Aeronautics Innovation*  
14          *Act”.*

15 **SEC. 647. DEFINITIONS.**

16           *In this part:*

17                   (1) **AERONAUTICS STRATEGIC IMPLEMENTATION**  
18           **PLAN.**—*The term “Aeronautics Strategic Implementa-*  
19           *tion Plan” means the Aeronautics Strategic Imple-*  
20           *mentation Plan issued by the Aeronautics Research*  
21           *Mission Directorate.*

22                   (2) **UNMANNED AIRCRAFT; UNMANNED AIRCRAFT**  
23           **SYSTEM.**—*The terms “unmanned aircraft” and “un-*  
24           *manned aircraft system” have the meanings given*

1        *those terms in section 44801 of title 49, United States*  
2        *Code.*

3            (3) *X-PLANE.*—*The term “X-plane” means an*  
4        *experimental aircraft that is—*

5                    (A) *used to test and evaluate a new tech-*  
6                    *nology or aerodynamic concept; and*

7                    (B) *operated by NASA or the Department*  
8                    *of Defense.*

9        **SEC. 648. EXPERIMENTAL AIRCRAFT PROJECTS.**

10        (a) *SENSE OF CONGRESS.*—*It is the sense of Congress*  
11        *that—*

12                    (1) *developing high-risk, precompetitive aero-*  
13                    *space technologies for which there is not yet a profit*  
14                    *rationale is a fundamental role of NASA;*

15                    (2) *large-scale piloted flight test experimentation*  
16                    *and validation are necessary for—*

17                            (A) *transitioning new technologies and ma-*  
18                            *terials, including associated manufacturing proc-*  
19                            *esses, for general aviation, commercial aviation,*  
20                            *and military aeronautics use; and*

21                            (B) *capturing the full extent of benefits*  
22                            *from investments made by the Aeronautics Re-*  
23                            *search Mission Directorate in priority programs*  
24                            *called for in—*

1                   (i) *the National Aeronautics Research*  
2                   *and Development Plan issued by the Na-*  
3                   *tional Science and Technology Council in*  
4                   *February 2010;*

5                   (ii) *the NASA 2014 Strategic Plan;*

6                   (iii) *the Aeronautics Strategic Imple-*  
7                   *mentation Plan; and*

8                   (iv) *any updates to the programs*  
9                   *called for in the plans described in clauses*  
10                  *(i) through (iii);*

11                  (3) *a level of funding that adequately supports*  
12                  *large-scale piloted flight test experimentation and val-*  
13                  *idation, including related infrastructure, should be*  
14                  *ensured over a sustained period of time to restore the*  
15                  *capacity of NASA—*

16                   (A) *to see legacy priority programs through*  
17                   *to completion; and*

18                   (B) *to achieve national economic and secu-*  
19                   *rity objectives; and*

20                  (4) *NASA should not be directly involved in the*  
21                  *Type Certification of aircraft for current and future*  
22                  *scheduled commercial air service under part 121 or*  
23                  *135 of title 14, Code of Federal Regulations, that*  
24                  *would result in reductions in crew augmentation or*  
25                  *single pilot or autonomously operated aircraft.*



1       **(b) STATEMENT OF POLICY.**—*It is the policy of the*  
2 *United States—*

3           **(1) to maintain world leadership in—**

4               **(A) military and civilian aeronautical**  
5 *science and technology;*

6               **(B) global air power projection; and**

7               **(C) aerospace industrialization; and**

8           **(2) to maintain as a fundamental objective of**  
9 *NASA aeronautics research the steady progression*  
10 *and expansion of flight research and capabilities, in-*  
11 *cluding the science and technology of critical under-*  
12 *lying disciplines and competencies, such as—*

13               **(A) computational-based analytical and**  
14 *predictive tools and methodologies;*

15               **(B) aerothermodynamics;**

16               **(C) propulsion;**

17               **(D) advanced materials and manufacturing**  
18 *processes;*

19               **(E) high-temperature structures and mate-**  
20 *rials; and*

21               **(F) guidance, navigation, and flight con-**  
22 *trols.*

23       **(c) ESTABLISHMENT AND CONTINUATION OF X-PLANE**  
24 *PROJECTS.—*

1           (1) *IN GENERAL.*—*The Administrator shall es-*  
2           *tablish or continue to implement, in a manner that*  
3           *is consistent with the roadmap for supersonic aero-*  
4           *nautics research and development required by section*  
5           *604(b) of the National Aeronautics and Space Admin-*  
6           *istration Transition Authorization Act of 2017 (Pub-*  
7           *lic Law 115–10; 131 Stat. 55), the following projects:*

8                   (A) *A low-boom supersonic aircraft project*  
9                   *to demonstrate supersonic aircraft designs and*  
10                   *technologies that—*

11                           (i) *reduce sonic boom noise; and*

12                           (ii) *assist the Administrator of the*  
13                   *Federal Aviation Administration in ena-*  
14                   *bling—*

15                           (I) *the safe commercial deploy-*  
16                   *ment of civil supersonic aircraft tech-*  
17                   *nology; and*

18                           (II) *the safe and efficient oper-*  
19                   *ation of civil supersonic aircraft.*

20                   (B) *A subsonic flight demonstrator aircraft*  
21                   *project to advance high-aspect-ratio, thin-wing*  
22                   *aircraft designs and to integrate propulsion,*  
23                   *composites, and other technologies that enable*  
24                   *significant increases in energy efficiency and re-*

1           *duced life-cycle emissions in the aviation system*  
2           *while reducing noise and emissions.*

3           *(C) A series of large-scale X-plane dem-*  
4           *onstrators that are—*

5                     *(i) developed sequentially or in par-*  
6                     *allel; and*

7                     *(ii) each based on a set of new configu-*  
8                     *ration concepts or technologies determined*  
9                     *by the Administrator to demonstrate—*

10                        *(I) aircraft and propulsion con-*  
11                        *cepts and technologies and related ad-*  
12                        *vances in alternative propulsion and*  
13                        *energy; and*

14                        *(II) flight propulsion concepts*  
15                        *and technologies.*

16           *(2) ELEMENTS.—For each project under para-*  
17           *graph (1), the Administrator shall—*

18                     *(A) include the development of X-planes and*  
19                     *all necessary supporting flight test assets;*

20                     *(B) pursue a robust technology maturation*  
21                     *and flight test validation effort;*

22                     *(C) improve necessary facilities, flight test-*  
23                     *ing capabilities, and computational tools to sup-*  
24                     *port the project;*

1           (D) award any primary contracts for de-  
2           sign, procurement, and manufacturing to United  
3           States persons, consistent with international ob-  
4           ligations and commitments;

5           (E) coordinate research and flight test dem-  
6           onstration activities with other Federal agencies  
7           and the United States aviation community, as  
8           the Administrator considers appropriate; and

9           (F) ensure that the project is aligned with  
10          the Aeronautics Strategic Implementation Plan  
11          and any updates to the Aeronautics Strategic  
12          Implementation Plan.

13          (3) UNITED STATES PERSON DEFINED.—In this  
14          subsection, the term “United States person” means—

15               (A) a United States citizen or an alien law-  
16               fully admitted for permanent residence to the  
17               United States; or

18               (B) an entity organized under the laws of  
19               the United States or of any jurisdiction within  
20               the United States, including a foreign branch of  
21               such an entity.

22          (d) ADVANCED MATERIALS AND MANUFACTURING  
23          TECHNOLOGY PROGRAM.—

1           (1) *IN GENERAL.*—*The Administrator may estab-*  
2           *lish an advanced materials and manufacturing tech-*  
3           *nology program—*

4                   (A) *to develop—*

5                           (i) *new materials, including composite*  
6                           *and high-temperature materials, from base*  
7                           *material formulation through full-scale*  
8                           *structural validation and manufacture;*

9                           (ii) *advanced materials and manufac-*  
10                           *turing processes, including additive manu-*  
11                           *facturing, to reduce the cost of manufac-*  
12                           *turing scale-up and certification for use in*  
13                           *general aviation, commercial aviation, and*  
14                           *military aeronautics; and*

15                           (iii) *noninvasive or nondestructive*  
16                           *techniques for testing or evaluating aviation*  
17                           *and aeronautics structures, including for*  
18                           *materials and manufacturing processes;*

19                   (B) *to reduce the time it takes to design, in-*  
20                   *dustrialize, and certify advanced materials and*  
21                   *manufacturing processes;*

22                   (C) *to provide education and training op-*  
23                   *portunities for the aerospace workforce; and*

24                   (D) *to address global cost and human cap-*  
25                   *ital competitiveness for United States aero-*

1           *nautical industries and technological leadership*  
2           *in advanced materials and manufacturing tech-*  
3           *nology.*

4           (2) *ELEMENTS.*—*In carrying out a program*  
5           *under paragraph (1), the Administrator shall—*

6                   (A) *build on work that was carried out by*  
7                   *the Advanced Composites Project of NASA;*

8                   (B) *partner with the private and academic*  
9                   *sectors, such as members of the Advanced Com-*  
10                   *posites Consortium of NASA, the Joint Advanced*  
11                   *Materials and Structures Center of Excellence of*  
12                   *the Federal Aviation Administration, the Manu-*  
13                   *facturing USA institutes of the Department of*  
14                   *Commerce, and national laboratories, as the Ad-*  
15                   *ministrator considers appropriate;*

16                   (C) *provide a structure for managing intel-*  
17                   *lectual property generated by the program based*  
18                   *on or consistent with the structure established for*  
19                   *the Advanced Composites Consortium of NASA;*

20                   (D) *ensure adequate Federal cost share for*  
21                   *applicable research; and*

22                   (E) *coordinate with advanced manufac-*  
23                   *turing and composites initiatives in other mis-*  
24                   *sion directorates of NASA, as the Administrator*  
25                   *considers appropriate.*

1       (e) *RESEARCH PARTNERSHIPS.*—*In carrying out the*  
2 *projects under subsection (c) and a program under sub-*  
3 *section (d), the Administrator may engage in cooperative*  
4 *research programs with—*

5           (1) *academia; and*

6           (2) *commercial aviation and aerospace manufac-*  
7 *turers.*

8 **SEC. 649. UNMANNED AIRCRAFT SYSTEMS.**

9       (a) *UNMANNED AIRCRAFT SYSTEMS OPERATION PRO-*  
10 *GRAM.*—*The Administrator shall—*

11           (1) *research and test capabilities and concepts,*  
12 *including unmanned aircraft systems communica-*  
13 *tions, for integrating unmanned aircraft systems into*  
14 *the national airspace system;*

15           (2) *leverage the partnership NASA has with in-*  
16 *dustry focused on the advancement of technologies for*  
17 *future air traffic management systems for unmanned*  
18 *aircraft systems; and*

19           (3) *continue to align the research and testing*  
20 *portfolio of NASA to inform the integration of un-*  
21 *manned aircraft systems into the national airspace*  
22 *system, consistent with public safety and national se-*  
23 *curity objectives.*

1       **(b) SENSE OF CONGRESS ON COORDINATION WITH**  
2 **FEDERAL AVIATION ADMINISTRATION.**—*It is the sense of*  
3 *Congress that—*

4           **(1) NASA should continue—**

5                   **(A) to coordinate with the Federal Aviation**  
6 *Administration on research on air traffic man-*  
7 *agement systems for unmanned aircraft systems;*  
8 *and*

9                   **(B) to assist the Federal Aviation Adminis-**  
10 *tration in the integration of air traffic manage-*  
11 *ment systems for unmanned aircraft systems*  
12 *into the national airspace system; and*

13           **(2) the test ranges (as defined in section 44801**  
14 *of title 49, United States Code) should continue to be*  
15 *leveraged for research on—*

16                   **(A) air traffic management systems for un-**  
17 *manned aircraft systems; and*

18                   **(B) the integration of such systems into the**  
19 *national airspace system.*

20 **SEC. 650. 21ST CENTURY AERONAUTICS CAPABILITIES INI-**  
21 **TIATIVE.**

22           **(a) IN GENERAL.**—*The Administrator may establish*  
23 *an initiative, to be known as the “21st Century Aeronautics*  
24 *Capabilities Initiative”, within the Construction and Envi-*  
25 *ronmental Compliance and Restoration Account, to ensure*



1 *that NASA possesses the infrastructure and capabilities nec-*  
2 *essary to conduct proposed flight demonstration projects*  
3 *across the range of NASA aeronautics interests.*

4 *(b) ACTIVITIES.—In carrying out the 21st Century*  
5 *Aeronautics Capabilities Initiative, the Administrator may*  
6 *carry out the following activities:*

7 *(1) Any investments the Administrator considers*  
8 *necessary to upgrade and create facilities for civil*  
9 *and national security aeronautics research to support*  
10 *advancements in—*

11 *(A) long-term foundational science and*  
12 *technology;*

13 *(B) advanced aircraft systems;*

14 *(C) air traffic management systems;*

15 *(D) fuel efficiency;*

16 *(E) electric propulsion technologies;*

17 *(F) system-wide safety assurance;*

18 *(G) autonomous aviation; and*

19 *(H) supersonic and hypersonic aircraft de-*  
20 *sign and development.*

21 *(2) Any measures the Administrator considers*  
22 *necessary to support flight testing activities, includ-*  
23 *ing—*

24 *(A) continuous refinement and development*  
25 *of free-flight test techniques and methodologies;*

1           (B) upgrades and improvements to real-  
2           time tracking and data acquisition; and

3           (C) such other measures relating to aero-  
4           nautics research support and modernization as  
5           the Administrator considers appropriate to carry  
6           out the scientific study of the problems of flight,  
7           with a view to practical solutions for such prob-  
8           lems.

9   **SEC. 651. SENSE OF CONGRESS ON ON-DEMAND AIR TRANS-**  
10           **PORTATION.**

11       *It is the sense of Congress that—*

12           (1) greater use of high-speed air transportation,  
13           small airports, helipads, vertical flight infrastructure,  
14           and other aviation-related infrastructure can alleviate  
15           surface transportation congestion and support eco-  
16           nomic growth within cities;

17           (2) with respect to urban air mobility and re-  
18           lated concepts, NASA should continue—

19                   (A) to conduct research focused on concepts,  
20                   technologies, and design tools; and

21                   (B) to support the evaluation of advanced  
22                   technologies and operational concepts that can be  
23                   leveraged by—

24                           (i) industry to develop future vehicles  
25                           and systems; and

1                   (ii) the Federal Aviation Administra-  
2                   tion to support vehicle safety and oper-  
3                   ational certification; and

4                   (3) NASA should leverage ongoing efforts to de-  
5                   velop advanced technologies to actively support the re-  
6                   search needed for on-demand air transportation.

7 **SEC. 652. SENSE OF CONGRESS ON HYPERSONIC TECH-**  
8                   **NOLOGY RESEARCH.**

9                   *It is the sense of Congress that—*

10                   (1) hypersonic technology is critical to the devel-  
11                   opment of advanced high-speed aerospace vehicles for  
12                   both civilian and national security purposes;

13                   (2) for hypersonic vehicles to be realized, research  
14                   is needed to overcome technical challenges, including  
15                   in propulsion, advanced materials, and flight per-  
16                   formance in a severe environment;

17                   (3) NASA plays a critical role in supporting  
18                   fundamental hypersonic research focused on system  
19                   design, analysis and validation, and propulsion tech-  
20                   nologies;

21                   (4) NASA research efforts in hypersonic tech-  
22                   nology should complement research supported by the  
23                   Department of Defense to the maximum extent prac-  
24                   ticable, since contributions from both agencies work-

1        *ing in partnership with universities and industry are*  
2        *necessary to overcome key technical challenges;*

3            *(5) previous coordinated research programs be-*  
4        *tween NASA and the Department of Defense enabled*  
5        *important progress on hypersonic technology;*

6            *(6) the commercial sector could provide flight*  
7        *platforms and other capabilities that are able to host*  
8        *and support NASA hypersonic technology research*  
9        *projects; and*

10          *(7) in carrying out hypersonic technology re-*  
11        *search projects, the Administrator should—*

12            *(A) focus research and development efforts*  
13        *on high-speed propulsion systems, reusable vehi-*  
14        *cle technologies, high-temperature materials, and*  
15        *systems analysis;*

16            *(B) coordinate with the Department of De-*  
17        *fense to prevent duplication of efforts and of in-*  
18        *vestments;*

19            *(C) include partnerships with universities*  
20        *and industry to accomplish research goals; and*

21            *(D) maximize public-private use of commer-*  
22        *cially available platforms for hosting research*  
23        *and development flight projects.*

**PART V—SPACE TECHNOLOGY****2 SEC. 653. SPACE TECHNOLOGY MISSION DIRECTORATE.**

3       (a) *SENSE OF CONGRESS.*—*It is the sense of Congress*  
4 *that an independent Space Technology Mission Directorate*  
5 *is critical to ensuring continued investments in the develop-*  
6 *ment of technologies for missions across the portfolio of*  
7 *NASA, including science, aeronautics, and human explo-*  
8 *ration.*

9       (b) *SPACE TECHNOLOGY MISSION DIRECTORATE.*—  
10 *The Administrator shall maintain a Space Technology Mis-*  
11 *sion Directorate consistent with section 702 of the National*  
12 *Aeronautics and Space Administration Transition Author-*  
13 *ization Act of 2017 (51 U.S.C. 20301 note).*

**14 SEC. 654. FLIGHT OPPORTUNITIES PROGRAM.**

15       (a) *SENSE OF CONGRESS.*—*It is the sense of Congress*  
16 *that the Administrator should provide flight opportunities*  
17 *for payloads to microgravity environments and suborbital*  
18 *altitudes as required by section 907(c) of the National Aero-*  
19 *nautics and Space Administration Authorization Act of*  
20 *2010 (42 U.S.C. 18405(c)), as amended by subsection (b).*

21       (b) *ESTABLISHMENT.*—*Section 907(c) of the National*  
22 *Aeronautics and Space Administration Authorization Act*  
23 *of 2010 (42 U.S.C. 18405(c)) is amended to read as follows:*

24       “(c) *ESTABLISHMENT.*—

25               “(1) *IN GENERAL.*—*The Administrator shall es-*  
26 *tablish a Commercial Reusable Suborbital Research*

1        *Program within the Space Technology Mission Direc-*  
2        *torate to fund—*

3                *“(A) the development of payloads for sci-*  
4                *entific research, technology development, and*  
5                *education;*

6                *“(B) flight opportunities for those payloads*  
7                *to microgravity environments and suborbital al-*  
8                *titudes; and*

9                *“(C) transition of those payloads to orbital*  
10               *opportunities.*

11               *“(2) COMMERCIAL REUSABLE VEHICLE*  
12               *FLIGHTS.—In carrying out the Commercial Reusable*  
13               *Suborbital Research Program, the Administrator may*  
14               *fund engineering and integration demonstrations,*  
15               *proofs of concept, and educational experiments for*  
16               *flights of commercial reusable vehicles.*

17               *“(3) COMMERCIAL SUBORBITAL LAUNCH VEHI-*  
18               *CLES.—In carrying out the Commercial Reusable*  
19               *Suborbital Research Program, the Administrator may*  
20               *not fund the development of new commercial sub-*  
21               *orbital launch vehicles.*

22               *“(4) WORKING WITH MISSION DIRECTORATES.—*  
23               *In carrying out the Commercial Reusable Suborbital*  
24               *Research Program, the Administrator shall work with*

1        *the mission directorates of NASA to achieve the re-*  
2        *search, technology, and education goals of NASA.”.*

3        *(c) CONFORMING AMENDMENT.—Section 907(b) of the*  
4        *National Aeronautics and Space Administration Author-*  
5        *ization Act of 2010 (42 U.S.C. 18405(b)) is amended, in*  
6        *the first sentence, by striking “Commercial Reusable Sub-*  
7        *orbital Research Program in” and inserting “Commercial*  
8        *Reusable Suborbital Research Program established under*  
9        *subsection (c)(1) within”.*

10    **SEC. 655. SMALL SPACECRAFT TECHNOLOGY PROGRAM.**

11        *(a) SENSE OF CONGRESS.—It is the sense of Congress*  
12        *that the Small Spacecraft Technology Program is impor-*  
13        *tant for conducting science and technology validation for—*

14                *(1) short- and long-duration missions in low-*  
15        *Earth orbit;*

16                *(2) deep space missions; and*

17                *(3) deorbiting capabilities designed specifically*  
18        *for smaller spacecraft.*

19        *(b) ACCOMMODATION OF CERTAIN PAYLOADS.—In car-*  
20        *rying out the Small Spacecraft Technology Program, the*  
21        *Administrator shall, as the mission risk posture and tech-*  
22        *nology development objectives allow, accommodate science*  
23        *payloads that further the goal of long-term human explo-*  
24        *ration to the Moon and Mars.*

1 **SEC. 656. NUCLEAR PROPULSION TECHNOLOGY.**

2 (a) *SENSE OF CONGRESS.*—*It is the sense of Congress*  
3 *that nuclear propulsion is critical to the development of ad-*  
4 *vanced spacecraft for civilian and national defense pur-*  
5 *poses.*

6 (b) *DEVELOPMENT; STUDIES.*—*The Administrator*  
7 *shall, in coordination with the Secretary of Energy and the*  
8 *Secretary of Defense—*

9 (1) *continue to develop the fuel element design*  
10 *for NASA nuclear propulsion technology;*

11 (2) *undertake the systems feasibility studies for*  
12 *such technology; and*

13 (3) *partner with members of commercial indus-*  
14 *try to conduct studies on such technology.*

15 (c) *NUCLEAR PROPULSION TECHNOLOGY DEMONSTRA-*  
16 *TION.*—

17 (1) *DETERMINATION; REPORT.*—*Not later than*  
18 *December 31, 2022, the Administrator shall—*

19 (A) *determine the correct approach for con-*  
20 *ducting a flight demonstration of nuclear pro-*  
21 *pulsion technology; and*

22 (B) *submit to Congress a report on a plan*  
23 *for such a demonstration.*

24 (2) *DEMONSTRATION.*—*Not later than December*  
25 *31, 2026, the Administrator shall conduct the flight*  
26 *demonstration described in paragraph (1).*



1 **SEC. 657. MARS-FORWARD TECHNOLOGIES.**

2 (a) *SENSE OF CONGRESS.*—*It is the sense of Congress*  
3 *that the Administrator should pursue multiple technical*  
4 *paths for entry, descent, and landing for Mars, including*  
5 *competitively selected technology demonstration missions.*

6 (b) *PRIORITIZATION OF LONG-LEAD TECHNOLOGIES*  
7 *AND SYSTEMS.*—*The Administrator shall prioritize, within*  
8 *the Space Technology Mission Directorate, research, testing,*  
9 *and development of long-lead technologies and systems for*  
10 *Mars, including technologies and systems relating to—*

11 (1) *entry, descent, and landing; and*

12 (2) *in-space propulsion, including nuclear pro-*  
13 *pulsion, cryogenic fluid management, in-situ large-*  
14 *scale additive manufacturing, and electric propulsion*  
15 *(including solar electric propulsion leveraging lessons*  
16 *learned from the power and propulsion element of the*  
17 *lunar outpost) options.*

18 (c) *TECHNOLOGY DEMONSTRATION.*—*The Adminis-*  
19 *trator may use low-Earth orbit and cis-lunar missions, in-*  
20 *cluding missions to the lunar surface, to demonstrate tech-*  
21 *nologies for Mars.*

22 **SEC. 658. PRIORITIZATION OF LOW-ENRICHED URANIUM**  
23 **TECHNOLOGY.**

24 (a) *SENSE OF CONGRESS.*—*It is the sense of Congress*  
25 *that—*

1           (1) *space technology, including nuclear propul-*  
2           *sion technology and space surface power reactors,*  
3           *should be developed in a manner consistent with*  
4           *broader United States foreign policy, national de-*  
5           *fense, and space exploration and commercialization*  
6           *priorities;*

7           (2) *highly enriched uranium presents security*  
8           *and nuclear nonproliferation concerns;*

9           (3) *since 1977, based on the concerns associated*  
10          *with highly enriched uranium, the United States has*  
11          *promoted the use of low-enriched uranium over highly*  
12          *enriched uranium in nonmilitary contexts, including*  
13          *research and commercial applications;*

14          (4) *as part of United States efforts to limit*  
15          *international use of highly enriched uranium, the*  
16          *United States has actively pursued—*

17                (A) *since 1978, the conversion of domestic*  
18                *and foreign research reactors that use highly en-*  
19                *riched uranium fuel to low-enriched uranium*  
20                *fuel and the avoidance of any new research reac-*  
21                *tors that use highly enriched uranium fuel; and*

22                (B) *since 1994, the elimination of inter-*  
23                *national commerce in highly enriched uranium*  
24                *for civilian purposes; and*

1           (5) *the use of low-enriched uranium in place of*  
2           *highly enriched uranium has security, nonprolifera-*  
3           *tion, and economic benefits, including for the na-*  
4           *tional space program.*

5           (b) *PRIORITIZATION OF LOW-ENRICHED URANIUM*  
6           *TECHNOLOGY.—The Administrator shall—*

7           (1) *establish, within the Space Technology Mis-*  
8           *sion Directorate, a program for the research, testing,*  
9           *and development of in-space reactor designs, includ-*  
10          *ing a surface power reactor, that uses low-enriched*  
11          *uranium fuel; and*

12          (2) *prioritize the research, demonstration, and*  
13          *deployment of such designs over designs using highly*  
14          *enriched uranium fuel.*

15          (c) *REPORT ON NUCLEAR TECHNOLOGY*  
16          *PRIORITIZATION.—Not later than 120 days after the date*  
17          *of the enactment of this Act, the Administrator shall submit*  
18          *to the appropriate committees of Congress a report that—*

19          (1) *details the actions taken to implement sub-*  
20          *section (b); and*

21          (2) *identifies a plan and timeline under which*  
22          *such subsection will be implemented.*

23          (d) *DEFINITIONS.—In this section:*

24          (1) *HIGHLY ENRICHED URANIUM.—The term*  
25          *“highly enriched uranium” means uranium having*

1        *an assay of 20 percent or greater of the uranium-235*  
2        *isotope.*

3            (2) *LOW-ENRICHED URANIUM.*—*The term “low-*  
4        *enriched uranium” means uranium having an assay*  
5        *greater than the assay for natural uranium but less*  
6        *than 20 percent of the uranium-235 isotope.*

7        **SEC. 659. SENSE OF CONGRESS ON NEXT-GENERATION**  
8            **COMMUNICATIONS TECHNOLOGY.**

9        *It is the sense of Congress that—*

10            (1) *optical communications technologies—*

11                    (A) *will be critical to the development of*  
12                    *next-generation space-based communications net-*  
13                    *works;*

14                    (B) *have the potential to allow NASA to ex-*  
15                    *pand the volume of data transmissions in low-*  
16                    *Earth orbit and deep space; and*

17                    (C) *may provide more secure and cost-effec-*  
18                    *tive solutions than current radio frequency com-*  
19                    *munications systems;*

20            (2) *quantum encryption technology has prom-*  
21            *ising implications for the security of the satellite and*  
22            *terrestrial communications networks of the United*  
23            *States, including optical communications networks,*  
24            *and further research and development by NASA with*  
25            *respect to quantum encryption is essential to main-*

1        *taining the security of the United States and United*  
2        *States leadership in space; and*

3                *(3) in order to provide NASA with more secure*  
4        *and reliable space-based communications, the Space*  
5        *Communications and Navigation program office of*  
6        *NASA should continue—*

7                *(A) to support research on and development*  
8                *of optical communications; and*

9                *(B) to develop quantum encryption capa-*  
10        *bilities, especially as those capabilities apply to*  
11        *optical communications networks.*

12    **SEC. 660. LUNAR SURFACE TECHNOLOGIES.**

13        *(a) SENSE OF CONGRESS.—It is the sense of Congress*  
14        *that the Administrator should—*

15                *(1) identify and develop the technologies needed*  
16        *to live on and explore the lunar surface and prepare*  
17        *for future operations on Mars;*

18                *(2) convene teams of experts from academia, in-*  
19        *dustry, and government to shape the technology devel-*  
20        *opment priorities of the Administration for lunar*  
21        *surface exploration and habitation; and*

22                *(3) establish partnerships with researchers, uni-*  
23        *versities, and the private sector to rapidly develop*  
24        *and deploy technologies required for successful lunar*  
25        *surface exploration.*

1           (b) *DEVELOPMENT AND DEMONSTRATION.*—*The Ad-*  
2 *ministrators shall carry out a program, within the Space*  
3 *Technology Mission Directorate, to conduct technology de-*  
4 *velopment and demonstrations to enable human and robotic*  
5 *exploration on the lunar surface.*

6           (c) *RESEARCH CONSORTIUM.*—*The Administrator*  
7 *shall establish a consortium consisting of experts from aca-*  
8 *demia, industry, and government—*

9                   (1) *to assist the Administrator in developing a*  
10 *cohesive, executable strategy for the development and*  
11 *deployment of technologies required for successful*  
12 *lunar surface exploration; and*

13                   (2) *to identify specific technologies relating to*  
14 *lunar surface exploration that—*

15                           (A) *should be developed to facilitate such ex-*  
16 *ploration; or*

17                           (B) *require future research and develop-*  
18 *ment.*

19           (d) *RESEARCH AWARDS.*—

20                   (1) *IN GENERAL.*—*The Administrator may task*  
21 *any member of the research consortium established*  
22 *under subsection (c) with conducting research and de-*  
23 *velopment with respect to a technology identified*  
24 *under paragraph (2) of that subsection.*

25                   (2) *STANDARD PROCESS FOR ARRANGEMENTS.*—

1           (A) *IN GENERAL.*—*The Administrator shall*  
2           *develop a standard process by which a consor-*  
3           *tium member tasked with research and develop-*  
4           *ment under paragraph (1) may enter into a for-*  
5           *mal arrangement with the Administrator to*  
6           *carry out such research and development, such as*  
7           *an arrangement under section 666 or 667.*

8           (B) *REPORT.*—*Not later than 120 days*  
9           *after the date of the enactment of this Act, the*  
10          *Administrator shall submit to the appropriate*  
11          *committees of Congress a report on the one or*  
12          *more types of arrangement the Administrator in-*  
13          *tends to enter into under this subsection.*

14                   ***PART VI—STEM ENGAGEMENT***

15   ***SEC. 661. SENSE OF CONGRESS.***

16           *It is the sense of Congress that—*

17           (1) *NASA serves as a source of inspiration to the*  
18           *people of the United States; and*

19           (2) *NASA is uniquely positioned to help increase*  
20           *student interest in science, technology, engineering,*  
21           *and math;*

22           (3) *engaging students, and providing hands-on*  
23           *experience at an early age, in science, technology, en-*  
24           *gineering, and math are important aspects of ensur-*

1        *ing and promoting United States leadership in inno-*  
2        *vation; and*

3                *(4) NASA should strive to leverage its unique po-*  
4        *sition—*

5                        *(A) to increase kindergarten through grade*  
6        *12 involvement in NASA projects;*

7                        *(B) to enhance higher education in STEM*  
8        *fields in the United States;*

9                        *(C) to support individuals who are under-*  
10        *represented in science, technology, engineering,*  
11        *and math fields, such as women, minorities, and*  
12        *individuals in rural areas; and*

13                        *(D) to provide flight opportunities for stu-*  
14        *dent experiments and investigations.*

15        **SEC. 662. STEM EDUCATION ENGAGEMENT ACTIVITIES.**

16                *(a) IN GENERAL.—The Administrator shall continue*  
17        *to provide opportunities for formal and informal STEM*  
18        *education engagement activities within the Office of NASA*  
19        *STEM Engagement and other NASA directorates, includ-*  
20        *ing—*

21                        *(1) the Established Program to Stimulate Com-*  
22        *petitive Research;*

23                        *(2) the Minority University Research and Edu-*  
24        *cation Project; and*



1           (3) *the National Space Grant College and Fel-*  
2           *lowship Program.*

3           (b) *LEVERAGING NASA NATIONAL PROGRAMS TO PRO-*  
4           *MOTE STEM EDUCATION.*—*The Administrator, in partner-*  
5           *ship with museums, nonprofit organizations, and commer-*  
6           *cial entities, shall, to the maximum extent practicable, le-*  
7           *verage human spaceflight missions, Deep Space Explo-*  
8           *ration Systems (including the Space Launch System,*  
9           *Orion, and Exploration Ground Systems), and NASA*  
10           *science programs to engage students at the kindergarten*  
11           *through grade 12 and higher education levels to pursue*  
12           *learning and career opportunities in STEM fields.*

13           (c) *BRIEFING.*—*Not later than 1 year after the date*  
14           *of the enactment of this Act, the Administrator shall brief*  
15           *the appropriate committees of Congress on—*

16           (1) *the status of the programs described in sub-*  
17           *section (a); and*

18           (2) *the manner by which each NASA STEM edu-*  
19           *cation engagement activity is organized and funded.*

20           (d) *STEM EDUCATION DEFINED.*—*In this section, the*  
21           *term “STEM education” has the meaning given the term*  
22           *in section 2 of the STEM Education Act of 2015 (Public*  
23           *Law 114–59; 42 U.S.C. 6621 note).*

1 **SEC. 663. SKILLED TECHNICAL EDUCATION OUTREACH**  
2 **PROGRAM.**

3 (a) *ESTABLISHMENT.*—*The Administrator shall estab-*  
4 *lish a program to conduct outreach to secondary school stu-*  
5 *dents—*

6 (1) *to expose students to careers that require ca-*  
7 *reer and technical education; and*

8 (2) *to encourage students to pursue careers that*  
9 *require career and technical education.*

10 (b) *OUTREACH PLAN.*—*Not later than 180 days after*  
11 *the date of the enactment of this Act, the Administrator*  
12 *shall submit to the appropriate committees of Congress a*  
13 *report on the outreach program under subsection (a) that*  
14 *includes—*

15 (1) *an implementation plan;*

16 (2) *a description of the resources needed to carry*  
17 *out the program; and*

18 (3) *any recommendations on expanding outreach*  
19 *to secondary school students interested in skilled tech-*  
20 *nical occupations.*

21 (c) *SYSTEMS OBSERVATION.*—

22 (1) *IN GENERAL.*—*The Administrator shall de-*  
23 *velop a program and associated policies to allow stu-*  
24 *dents from accredited educational institutions to view*  
25 *the manufacturing, assembly, and testing of NASA-*

1        *funded space and aeronautical systems, as the Ad-*  
2        *ministrator considers appropriate.*

3            (2) *CONSIDERATIONS.—In developing the pro-*  
4        *gram and policies under paragraph (1), the Adminis-*  
5        *trator shall take into consideration factors such as*  
6        *workplace safety, mission needs, and the protection of*  
7        *sensitive and proprietary technologies.*

8        **SEC. 664. NATIONAL SPACE GRANT COLLEGE AND FELLOW-**  
9            **SHIP PROGRAM.**

10        (a) *PURPOSES.—Section 40301 of title 51, United*  
11        *States Code, is amended—*

12            (1) *in paragraph (3)—*

13                    (A) *in subparagraph (B), by striking “and”*  
14                    *at the end;*

15                    (B) *in subparagraph (C), by adding “and”*  
16                    *after the semicolon at the end; and*

17                    (C) *by adding at the end the following:*

18                            “(D) *promote equally the State and re-*  
19                            *gional STEM interests of each space grant con-*  
20                            *sortium;”;* and

21            (2) *in paragraph (4), by striking “made up of*  
22        *university and industry members, in order to ad-*  
23        *vance” and inserting “comprised of members of uni-*  
24        *versities in each State and other entities, such as 2-*

1        *year colleges, industries, science learning centers, mu-*  
2        *seums, and government entities, to advance”.*

3        (b) *DEFINITIONS.—Section 40302 of title 51, United*  
4        *States Code, is amended—*

5                (1) *by striking paragraph (3);*

6                (2) *by inserting after paragraph (2) the fol-*  
7        *lowing:*

8                “(3) *LEAD INSTITUTION.—The term ‘lead insti-*  
9        *tution’ means an entity in a State that—*

10                “(A) *was designated by the Administrator*  
11                *under section 40306, as in effect on the day be-*  
12                *fore the date of the enactment of the National*  
13                *Aeronautics and Space Administration Author-*  
14                *ization Act of 2021; or*

15                “(B) *is designated by the Administrator*  
16                *under section 40303(d)(3).”;*

17                (3) *in paragraph (4), by striking “space grant*  
18                *college, space grant regional consortium, institution of*  
19                *higher education,” and inserting “lead institution,*  
20                *space grant consortium,”;*

21                (4) *by striking paragraphs (6), (7), and (8);*

22                (5) *by inserting after paragraph (5) the fol-*  
23        *lowing:*

24                “(6) *SPACE GRANT CONSORTIUM.—The term*  
25        *‘space grant consortium’ means a State-wide group,*

1        *led by a lead institution, that has established partner-*  
2        *ships with other academic institutions, industries,*  
3        *science learning centers, museums, and government*  
4        *entities to promote a strong educational base in the*  
5        *space and aeronautical sciences.”;*

6            *(6) by redesignating paragraph (9) as para-*  
7        *graph (7);*

8            *(7) in paragraph (7)(B), as so redesignated, by*  
9        *inserting “and aeronautics” after “space”;*

10           *(8) by striking paragraph (10); and*

11           *(9) by adding at the end the following:*

12           *“(8) STEM.—The term ‘STEM’ means science,*  
13        *technology, engineering, and mathematics.”.*

14        *(c) PROGRAM OBJECTIVE.—Section 40303 of title 51,*  
15        *United States Code, is amended—*

16           *(1) by striking subsections (d) and (e);*

17           *(2) by redesignating subsection (c) as subsection*  
18        *(e); and*

19           *(3) by striking subsection (b) and inserting the*  
20        *following:*

21           *“(b) PROGRAM OBJECTIVE.—*

22           *“(1) IN GENERAL.—The Administrator shall*  
23        *carry out the national space grant college and fellow-*  
24        *ship program with the objective of providing hands-*  
25        *on research, training, and education programs with*

1        *measurable outcomes in each State, including pro-*  
2        *grams to provide—*

3                *“(A) internships, fellowships, and scholar-*  
4                *ships;*

5                *“(B) interdisciplinary hands-on mission*  
6                *programs and design projects;*

7                *“(C) student internships with industry or*  
8                *university researchers or at centers of the Ad-*  
9                *ministration;*

10               *“(D) faculty and curriculum development*  
11               *initiatives;*

12               *“(E) university-based research initiatives*  
13               *relating to the Administration and the STEM*  
14               *workforce needs of each State; or*

15               *“(F) STEM engagement programs for kin-*  
16               *dergarten through grade 12 teachers and stu-*  
17               *dents.*

18               *“(2) PROGRAM PRIORITIES.—In carrying out the*  
19               *objective described in paragraph (1), the Adminis-*  
20               *trator shall ensure that each program carried out by*  
21               *a space grant consortium under the national space*  
22               *grant college and fellowship program balances the fol-*  
23               *lowing priorities:*

1           “(A) *The space and aeronautics research*  
2           *needs of the Administration, including the mis-*  
3           *sion directorates.*

4           “(B) *The need to develop a national STEM*  
5           *workforce.*

6           “(C) *The STEM workforce needs of the*  
7           *State.*

8           “(c) *PROGRAM ADMINISTERED THROUGH SPACE*  
9           *GRANT CONSORTIA.—The Administrator shall carry out the*  
10          *national space grant college and fellowship program*  
11          *through the space grant consortia.*

12          “(d) *SUSPENSION; TERMINATION; NEW COMPETI-*  
13          *TION.—*

14                 “(1) *SUSPENSION.—The Administrator may, for*  
15                 *cause and after an opportunity for hearing, suspend*  
16                 *a lead institution that was designated by the Admin-*  
17                 *istrator under section 40306, as in effect on the day*  
18                 *before the date of the enactment of the National Aero-*  
19                 *navitics and Space Administration Authorization Act*  
20                 *of 2021.*

21                 “(2) *TERMINATION.—If the issue resulting in a*  
22                 *suspension under paragraph (1) is not resolved with-*  
23                 *in a period determined by the Administrator, the Ad-*  
24                 *ministrator may terminate the designation of the en-*  
25                 *tity as a lead institution.*

1           “(3) *NEW COMPETITION.*—*If the Administrator*  
 2           *terminates the designation of an entity as a lead in-*  
 3           *stitution, the Administrator may initiate a new com-*  
 4           *petition in the applicable State for the designation of*  
 5           *a lead institution.”.*

6           (d) *GRANTS.*—*Section 40304 of title 51, United States*  
 7           *Code, is amended to read as follows:*

8           **“§ 40304. Grants**

9           “(a) *ELIGIBLE SPACE GRANT CONSORTIUM DE-*  
 10           *FINED.*—*In this section, the term ‘eligible space grant con-*  
 11           *sortium’ means a space grant consortium that the Adminis-*  
 12           *trator has determined—*

13                   “(1) *has the capability and objective to carry out*  
 14                   *not fewer than 3 of the 6 programs under section*  
 15                   *40303(b)(1);*

16                   “(2) *will carry out programs that balance the*  
 17                   *priorities described in section 40303(b)(2); and*

18                   “(3) *is engaged in research, training, and edu-*  
 19                   *cation relating to space and aeronautics.*

20           “(b) *GRANTS.*—

21                   “(1) *IN GENERAL.*—*The Administrator shall*  
 22                   *award grants to the lead institutions of eligible space*  
 23                   *grant consortia to carry out the programs under sec-*  
 24                   *tion 40303(b)(1).*

25                   “(2) *REQUEST FOR PROPOSALS.*—



1           “(A) *IN GENERAL.*—*On the expiration of*  
2           *existing cooperative agreements between the Ad-*  
3           *ministration and the space grant consortia, the*  
4           *Administrator shall issue a request for proposals*  
5           *from space grant consortia for the award of*  
6           *grants under this section.*

7           “(B) *APPLICATIONS.*—*A lead institution of*  
8           *a space grant consortium that seeks a grant*  
9           *under this section shall submit, on behalf of such*  
10          *space grant consortium, an application to the*  
11          *Administrator at such time, in such manner,*  
12          *and accompanied by such information as the Ad-*  
13          *ministrator may require.*

14          “(3) *GRANT AWARDS.*—*The Administrator shall*  
15          *award 1 or more 5-year grants, disbursed in annual*  
16          *installments, to the lead institution of the eligible*  
17          *space grant consortium of—*

18                  “(A) *each State;*

19                  “(B) *the District of Columbia; and*

20                  “(C) *the Commonwealth of Puerto Rico.*

21          “(4) *USE OF FUNDS.*—*A grant awarded under*  
22          *this section shall be used by an eligible space grant*  
23          *consortium to carry out not fewer than 3 of the 6 pro-*  
24          *grams under section 40303(b)(1).*

25          “(c) *ALLOCATION OF FUNDING.*—

1           “(1) *PROGRAM IMPLEMENTATION.*—

2                   “(A) *IN GENERAL.*—*To carry out the objec-*  
3                   *tive described in section 40303(b)(1), of the funds*  
4                   *made available each fiscal year for the national*  
5                   *space grant college and fellowship program, the*  
6                   *Administrator shall allocate not less than 85 per-*  
7                   *cent as follows:*

8                           “(i) *The 52 eligible space grant con-*  
9                           *sortia shall each receive an equal share.*

10                           “(ii) *The territories of Guam and the*  
11                           *United States Virgin Islands shall each re-*  
12                           *ceive funds equal to approximately  $\frac{1}{5}$  of the*  
13                           *share for each eligible space grant consortia.*

14                   “(B) *MATCHING REQUIREMENT.*—*Each eli-*  
15                   *gible space grant consortium shall match the*  
16                   *funds allocated under subparagraph (A)(i) on a*  
17                   *basis of not less than 1 non-Federal dollar for*  
18                   *every 1 Federal dollar, except that any program*  
19                   *funded under paragraph (3) or any program to*  
20                   *carry out 1 or more internships or fellowships*  
21                   *shall not be subject to that matching require-*  
22                   *ment.*

23           “(2) *PROGRAM ADMINISTRATION.*—

24                   “(A) *IN GENERAL.*—*Of the funds made*  
25                   *available each fiscal year for the national space*

1           *grant college and fellowship program, the Ad-*  
2           *ministrator shall allocate not more than 10 per-*  
3           *cent for the administration of the program.*

4           “(B) *COSTS COVERED.*—*The funds allocated*  
5           *under subparagraph (A) shall cover all costs of*  
6           *the Administration associated with the adminis-*  
7           *tration of the national space grant college and*  
8           *fellowship program, including—*

9                   “(i) *direct costs of the program, includ-*  
10                  *ing costs relating to support services and*  
11                  *civil service salaries and benefits;*

12                  “(ii) *indirect general and administra-*  
13                  *tive costs of centers and facilities of the Ad-*  
14                  *ministration; and*

15                  “(iii) *indirect general and administra-*  
16                  *tive costs of the Administration head-*  
17                  *quarters.*

18           “(3) *SPECIAL PROGRAMS.*—*Of the funds made*  
19           *available each fiscal year for the national space grant*  
20           *college and fellowship program, the Administrator*  
21           *shall allocate not more than 5 percent to the lead in-*  
22           *stitutions of space grant consortia established as of*  
23           *the date of the enactment of the National Aeronautics*  
24           *and Space Administration Authorization Act of 2021*  
25           *for grants to carry out innovative approaches and*

1 *programs to further science and education relating to*  
2 *the missions of the Administration and STEM dis-*  
3 *ciplines.*

4 *“(d) TERMS AND CONDITIONS.—*

5 *“(1) LIMITATIONS.—Amounts made available*  
6 *through a grant under this section may not be ap-*  
7 *plied to—*

8 *“(A) the purchase of land;*

9 *“(B) the purchase, construction, preserva-*  
10 *tion, or repair of a building; or*

11 *“(C) the purchase or construction of a*  
12 *launch facility or launch vehicle.*

13 *“(2) LEASES.—Notwithstanding paragraph (1),*  
14 *land, buildings, launch facilities, and launch vehicles*  
15 *may be leased under a grant on written approval by*  
16 *the Administrator.*

17 *“(3) RECORDS.—*

18 *“(A) IN GENERAL.—Any person that re-*  
19 *ceives or uses the proceeds of a grant under this*  
20 *section shall keep such records as the Adminis-*  
21 *trator shall by regulation prescribe as being nec-*  
22 *essary and appropriate to facilitate effective*  
23 *audit and evaluation, including records that*  
24 *fully disclose the amount and disposition by a*  
25 *recipient of such proceeds, the total cost of the*

1           *program or project in connection with which*  
2           *such proceeds were used, and the amount, if any,*  
3           *of such cost that was provided through other*  
4           *sources.*

5           “(B) *MAINTENANCE OF RECORDS.*—*Records*  
6           *under subparagraph (A) shall be maintained for*  
7           *not less than 3 years after the date of completion*  
8           *of such a program or project.*

9           “(C) *ACCESS.*—*For the purpose of audit*  
10           *and evaluation, the Administrator and the*  
11           *Comptroller General of the United States shall*  
12           *have access to any books, documents, papers, and*  
13           *records of receipts relating to a grant under this*  
14           *section, as determined by the Administrator or*  
15           *Comptroller General.”.*

16           (e) *PROGRAM STREAMLINING.*—*Title 51, United States*  
17           *Code, is amended—*

18                   (1) *by striking sections 40305 through 40308,*  
19                   *40310, and 40311; and*

20                   (2) *by redesignating section 40309 as section*  
21                   *40305.*

22           (f) *CONFORMING AMENDMENT.*—*The table of sections*  
23           *at the beginning of chapter 403 of title 51, United States*  
24           *Code, is amended by striking the items relating to sections*  
25           *40304 through 40311 and inserting the following:*

*“40304. Grants.*

*“40305. Availability of other Federal personnel and data.”.*

1 **PART VII—WORKFORCE AND INDUSTRIAL BASE**

2 **SEC. 665. APPOINTMENT AND COMPENSATION PILOT PRO-**

3 **GRAM.**

4 (a) *DEFINITION OF COVERED PROVISIONS.—In this*  
 5 *section, the term “covered provisions” means the provisions*  
 6 *of title 5, United States Code, other than—*

7 (1) *section 2301 of that title;*

8 (2) *section 2302 of that title;*

9 (3) *chapter 71 of that title;*

10 (4) *section 7204 of that title; and*

11 (5) *chapter 73 of that title.*

12 (b) *ESTABLISHMENT.—There is established a 3-year*  
 13 *pilot program under which, notwithstanding section 20113*  
 14 *of title 51, United States Code, the Administrator may,*  
 15 *with respect to not more than 3,000 designated personnel—*

16 (1) *appoint and manage such designated per-*  
 17 *sonnel of the Administration, without regard to the*  
 18 *covered provisions; and*

19 (2) *fix the compensation of such designated per-*  
 20 *sonnel of the Administration, without regard to chap-*  
 21 *ter 51 and subchapter III of chapter 53 of title 5,*  
 22 *United States Code, at a rate that does not exceed the*  
 23 *per annum rate of salary of the Vice President of the*

1 *United States under section 104 of title 3, United*  
2 *States Code.*

3 (c) *ADMINISTRATOR RESPONSIBILITIES.—In carrying*  
4 *out the pilot program established under subsection (b), the*  
5 *Administrator shall ensure that the pilot program—*

6 (1) *uses—*

7 (A) *state-of-the-art recruitment techniques;*

8 (B) *simplified classification methods with*  
9 *respect to personnel of the Administration; and*

10 (C) *broad banding; and*

11 (2) *offers—*

12 (A) *competitive compensation; and*

13 (B) *the opportunity for career mobility.*

14 **SEC. 666. ESTABLISHMENT OF MULTI-INSTITUTION CON-**  
15 **SORTIA.**

16 (a) *IN GENERAL.—The Administrator, pursuant to*  
17 *section 2304(c)(3)(B) of title 10, United States Code,*  
18 *may—*

19 (1) *establish one or more multi-institution con-*  
20 *sortia to facilitate access to essential engineering, re-*  
21 *search, and development capabilities in support of*  
22 *NASA missions;*

23 (2) *use such a consortium to fund technical anal-*  
24 *yses and other engineering support to address the ac-*

1        *quisition, technical, and operational needs of NASA*  
2        *centers; and*

3            (3) *ensure such a consortium—*

4                    (A) *is held accountable for the technical*  
5                    *quality of the work product developed under this*  
6                    *section; and*

7                    (B) *convenes disparate groups to facilitate*  
8                    *public-private partnerships.*

9        (b) *POLICIES AND PROCEDURES.—The Administrator*  
10        *shall develop and implement policies and procedures to gov-*  
11        *ern, with respect to the establishment of a consortium under*  
12        *subsection (a)—*

13            (1) *the selection of participants;*

14            (2) *the award of cooperative agreements or other*  
15        *contracts;*

16            (3) *the appropriate use of competitive awards*  
17        *and sole source awards; and*

18            (4) *technical capabilities required.*

19        (c) *ELIGIBILITY.—The following entities shall be eligi-*  
20        *ble to participate in a consortium established under sub-*  
21        *section (a):*

22            (1) *An institution of higher education (as de-*  
23        *finied in section 102 of the Higher Education Act of*  
24        *1965 (20 U.S.C. 1002)).*



1           (2) *An operator of a federally funded research*  
2 *and development center.*

3           (3) *A nonprofit or not-for-profit research institu-*  
4 *tion.*

5           (4) *A consortium composed of—*

6                 (A) *an entity described in paragraph (1),*

7                 (2), *or (3); and*

8                 (B) *one or more for-profit entities.*

9 **SEC. 667. EXPEDITED ACCESS TO TECHNICAL TALENT AND**  
10 **EXPERTISE.**

11         (a) *IN GENERAL.—The Administrator may—*

12                 (1) *establish one or more multi-institution task*  
13 *order contracts, consortia, cooperative agreements, or*  
14 *other arrangements to facilitate expedited access to el-*  
15 *igible entities in support of NASA missions; and*

16                 (2) *use such a multi-institution task order con-*  
17 *tract, consortium, cooperative agreement, or other ar-*  
18 *rangement to fund technical analyses and other engi-*  
19 *neering support to address the acquisition, technical,*  
20 *and operational needs of NASA centers.*

21         (b) *CONSULTATION WITH OTHER NASA-AFFILIATED*  
22 *ENTITIES.—To ensure access to technical expertise and re-*  
23 *duce costs and duplicative efforts, a multi-institution task*  
24 *order contract, consortium, cooperative agreement, or any*  
25 *other arrangement established under subsection (a)(1) shall,*

1 *to the maximum extent practicable, be carried out in con-*  
2 *sultation with other NASA-affiliated entities, including fed-*  
3 *erally funded research and development centers, university-*  
4 *affiliated research centers, and NASA laboratories and test*  
5 *centers.*

6 (c) *POLICIES AND PROCEDURES.*—*The Administrator*  
7 *shall develop and implement policies and procedures to gov-*  
8 *ern, with respect to the establishment of a multi-institution*  
9 *task order contract, consortium, cooperative agreement, or*  
10 *any other arrangement under subsection (a)(1)—*

11 (1) *the selection of participants;*

12 (2) *the award of task orders;*

13 (3) *the maximum award size for a task;*

14 (4) *the appropriate use of competitive awards*  
15 *and sole source awards; and*

16 (5) *technical capabilities required.*

17 (d) *ELIGIBLE ENTITY DEFINED.*—*In this section, the*  
18 *term “eligible entity” means—*

19 (1) *an institution of higher education (as defined*  
20 *in section 102 of the Higher Education Act of 1965*  
21 *(20 U.S.C. 1002));*

22 (2) *an operator of a federally funded research*  
23 *and development center;*

24 (3) *a nonprofit or not-for-profit research institu-*  
25 *tion; and*

1           (4) a consortium composed of—

2                   (A) an entity described in paragraph (1),

3                   (2), or (3); and

4                   (B) one or more for-profit entities.

5   **SEC. 668. REPORT ON INDUSTRIAL BASE FOR CIVIL SPACE**  
6                   **MISSIONS AND OPERATIONS.**

7           (a) *IN GENERAL.*—Not later than 1 year after the date  
8 of the enactment of this Act, and from time to time there-  
9 after, the Administrator shall submit to the appropriate  
10 committees of Congress a report on the United States indus-  
11 trial base for NASA civil space missions and operations.

12           (b) *ELEMENTS.*—The report required by subsection (a)  
13 shall include the following:

14                   (1) A comprehensive description of the current  
15 status of the United States industrial base for NASA  
16 civil space missions and operations.

17                   (2) A description and assessment of the weak-  
18 nesses in the supply chain, skills, manufacturing ca-  
19 pacity, raw materials, key components, and other  
20 areas of the United States industrial base for NASA  
21 civil space missions and operations that could ad-  
22 versely impact such missions and operations if un-  
23 available.

1           (3) *A description and assessment of various*  
2           *mechanisms to address and mitigate the weaknesses*  
3           *described pursuant to paragraph (2).*

4           (4) *A comprehensive list of the collaborative ef-*  
5           *forts, including future and proposed collaborative ef-*  
6           *forts, between NASA and the Manufacturing USA in-*  
7           *stitutes of the Department of Commerce.*

8           (5) *An assessment of—*

9                   (A) *the defense and aerospace manufac-*  
10                  *turing supply chains relevant to NASA in each*  
11                  *region of the United States; and*

12                   (B) *the feasibility and benefits of estab-*  
13                  *lishing a supply chain center of excellence in a*  
14                  *State in which NASA does not, as of the date of*  
15                  *the enactment of this Act, have a research center*  
16                  *or test facility.*

17           (6) *Such other matters relating to the United*  
18           *States industrial base for NASA civil space missions*  
19           *and operations as the Administrator considers appro-*  
20           *priate.*

21 **SEC. 669. SEPARATIONS AND RETIREMENT INCENTIVES.**

22           *Section 20113 of title 51, United States Code, is*  
23           *amended by adding at the end the following:*

24           “(o) *PROVISIONS RELATED TO SEPARATION AND RE-*  
25           *TIREMENT INCENTIVES.—*

1           “(1) *DEFINITION.*—*In this subsection, the term*  
2           *‘employee’—*

3                   “(A) *means an employee of the Administra-*  
4                   *tion serving under an appointment without time*  
5                   *limitation; and*

6                   “(B) *does not include—*

7                           “(i) *a reemployed annuitant under*  
8                           *subchapter III of chapter 83 or chapter 84*  
9                           *of title 5 or any other retirement system for*  
10                           *employees of the Federal Government;*

11                           “(ii) *an employee having a disability*  
12                           *on the basis of which such employee is or*  
13                           *would be eligible for disability retirement*  
14                           *under any of the retirement systems referred*  
15                           *to in clause (i); or*

16                           “(iii) *for purposes of eligibility for sep-*  
17                           *aration incentives under this subsection, an*  
18                           *employee who is in receipt of a decision no-*  
19                           *tice of involuntary separation for mis-*  
20                           *conduct or unacceptable performance.*

21           “(2) *AUTHORITY.*—*The Administrator may es-*  
22           *tablish a program under which employees may be eli-*  
23           *gible for early retirement, offered separation incentive*  
24           *pay to separate from service voluntarily, or both. This*  
25           *authority may be used to reduce the number of per-*

1        *sonnel employed or to restructure the workforce to*  
2        *meet mission objectives without reducing the overall*  
3        *number of personnel. This authority is in addition to,*  
4        *and notwithstanding, any other authorities estab-*  
5        *lished by law or regulation for such programs.*

6            *“(3) EARLY RETIREMENT.—An employee who is*  
7        *at least 50 years of age and has completed 20 years*  
8        *of service, or has at least 25 years of service, may,*  
9        *pursuant to regulations promulgated under this sub-*  
10       *section, apply and be retired from the Administration*  
11       *and receive benefits in accordance with subchapter III*  
12       *of chapter 83 or 84 of title 5 if the employee has been*  
13       *employed continuously within the Administration for*  
14       *more than 30 days before the date on which the deter-*  
15       *mination to conduct a reduction or restructuring*  
16       *within 1 or more Administration centers is approved.*

17            *“(4) SEPARATION PAY.—*

18            *“(A) IN GENERAL.—Separation pay shall be*  
19        *paid in a lump sum or in installments and shall*  
20        *be equal to the lesser of—*

21            *“(i) an amount equal to the amount*  
22        *the employee would be entitled to receive*  
23        *under section 5595(c) of title 5, if the em-*  
24        *ployee were entitled to payment under such*  
25        *section; or*

1                   “(ii) \$40,000.

2                   “(B) *LIMITATIONS.*—*Separation pay shall*  
3 *not be a basis for payment, and shall not be in-*  
4 *cluded in the computation, of any other type of*  
5 *Government benefit. Separation pay shall not be*  
6 *taken into account for the purpose of deter-*  
7 *mining the amount of any severance pay to*  
8 *which an individual may be entitled under sec-*  
9 *tion 5595 of title 5, based on any other separa-*  
10 *tion.*

11                   “(C) *INSTALLMENTS.*—*Separation pay, if*  
12 *paid in installments, shall cease to be paid upon*  
13 *the recipient’s acceptance of employment by the*  
14 *Federal Government, or commencement of work*  
15 *under a personal services contract as described*  
16 *in paragraph (5).*

17                   “(5) *LIMITATIONS ON REEMPLOYMENT.*—

18                   “(A) *An employee who receives separation*  
19 *pay under such program may not be reemployed*  
20 *by the Administration for a 12-month period be-*  
21 *ginning on the effective date of the employee’s*  
22 *separation, unless this prohibition is waived by*  
23 *the Administrator on a case-by-case basis.*

24                   “(B) *An employee who receives separation*  
25 *pay under this section on the basis of a separa-*

1            *tion and accepts employment with the Govern-*  
2            *ment of the United States, or who commences*  
3            *work through a personal services contract with*  
4            *the United States within 5 years after the date*  
5            *of the separation on which payment of the sepa-*  
6            *ration pay is based, shall be required to repay*  
7            *the entire amount of the separation pay to the*  
8            *Administration. If the employment is with an*  
9            *Executive agency (as defined by section 105 of*  
10           *title 5) other than the Administration, the Ad-*  
11           *ministrator may, at the request of the head of*  
12           *that agency, waive the repayment if the indi-*  
13           *vidual involved possesses unique abilities and is*  
14           *the only qualified applicant available for the po-*  
15           *sition. If the employment is within the Adminis-*  
16           *tration, the Administrator may waive the repay-*  
17           *ment if the individual involved is the only quali-*  
18           *fied applicant available for the position. If the*  
19           *employment is with an entity in the legislative*  
20           *branch, the head of the entity or the appointing*  
21           *official may waive the repayment if the indi-*  
22           *vidual involved possesses unique abilities and is*  
23           *the only qualified applicant available for the po-*  
24           *sition. If the employment is with the judicial*  
25           *branch, the Director of the Administrative Office*



1           *of the United States Courts may waive the re-*  
 2           *payment if the individual involved possesses*  
 3           *unique abilities and is the only qualified appli-*  
 4           *cant available for the position.*

5           “(6) *REGULATIONS.*—*Under the program estab-*  
 6           *lished under paragraph (2), early retirement and sep-*  
 7           *aration pay may be offered only pursuant to regula-*  
 8           *tions established by the Administrator, subject to such*  
 9           *limitations or conditions as the Administrator may*  
 10          *require.*

11          “(7) *USE OF EXISTING FUNDS.*—*The Adminis-*  
 12          *trator shall carry out this subsection using amounts*  
 13          *otherwise made available to the Administrator and no*  
 14          *additional funds are authorized to be appropriated to*  
 15          *carry out this subsection.”.*

16 **SEC. 670. CONFIDENTIALITY OF MEDICAL QUALITY ASSUR-**  
 17           **ANCE RECORDS.**

18          “(a) *IN GENERAL.*—*Chapter 313 of title 51, United*  
 19          *States Code, is amended by adding at the end the following:*

20 **“§ 31303. Confidentiality of medical quality assurance**  
 21           **records**

22           “(a) *IN GENERAL.*—*Except as provided in subsection*  
 23          *(b)(1)—*

24           “(1) *a medical quality assurance record, or any*  
 25          *part of a medical quality assurance record, may not*

1 *be subject to discovery or admitted into evidence in a*  
2 *judicial or administrative proceeding; and*

3 *“(2) an individual who reviews or creates a med-*  
4 *ical quality assurance record for the Administration,*  
5 *or participates in any proceeding that reviews or cre-*  
6 *ates a medical quality assurance record, may not tes-*  
7 *tify in a judicial or administrative proceeding with*  
8 *respect to—*

9 *“(A) the medical quality assurance record;*

10 *or*

11 *“(B) any finding, recommendation, evalua-*  
12 *tion, opinion, or action taken by such individual*  
13 *or in accordance with such proceeding with re-*  
14 *spect to the medical quality assurance record.*

15 *“(b) DISCLOSURE OF RECORDS.—*

16 *“(1) IN GENERAL.—Notwithstanding subsection*  
17 *(a), a medical quality assurance record may be dis-*  
18 *closed to—*

19 *“(A) a Federal agency or private entity, if*  
20 *the medical quality assurance record is necessary*  
21 *for the Federal agency or private entity to carry*  
22 *out—*

23 *“(i) licensing or accreditation func-*  
24 *tions relating to Administration healthcare*  
25 *facilities; or*

1                   “(i) monitoring of Administration  
2                   healthcare facilities required by law;

3                   “(B) a Federal agency or healthcare pro-  
4                   vider, if the medical quality assurance record is  
5                   required by the Federal agency or healthcare  
6                   provider to enable Administration participation  
7                   in a healthcare program of the Federal agency or  
8                   healthcare provider;

9                   “(C) a criminal or civil law enforcement  
10                  agency, or an instrumentality authorized by law  
11                  to protect the public health or safety, on written  
12                  request by a qualified representative of such  
13                  agency or instrumentality submitted to the Ad-  
14                  ministrator that includes a description of the  
15                  lawful purpose for which the medical quality as-  
16                  surance record is requested;

17                  “(D) an officer, an employee, or a con-  
18                  tractor of the Administration who requires the  
19                  medical quality assurance record to carry out an  
20                  official duty associated with healthcare;

21                  “(E) healthcare personnel, to the extent nec-  
22                  essary to address a medical emergency affecting  
23                  the health or safety of an individual; and

24                  “(F) any committee, panel, or board con-  
25                  vened by the Administration to review the

1           *healthcare-related policies and practices of the*  
2           *Administration.*

3           “(2) *SUBSEQUENT DISCLOSURE PROHIBITED.*—  
4           *An individual or entity to whom a medical quality*  
5           *assurance record has been disclosed under paragraph*  
6           *(1) may not make a subsequent disclosure of the med-*  
7           *ical quality assurance record.*

8           “(c) *PERSONALLY IDENTIFIABLE INFORMATION.*—

9           “(1) *IN GENERAL.*—*Except as provided in para-*  
10          *graph (2), the personally identifiable information*  
11          *contained in a medical quality assurance record of a*  
12          *patient or an employee of the Administration, or any*  
13          *other individual associated with the Administration*  
14          *for purposes of a medical quality assurance program,*  
15          *shall be removed before the disclosure of the medical*  
16          *quality assurance record to an entity other than the*  
17          *Administration.*

18          “(2) *EXCEPTION.*—*Personally identifiable infor-*  
19          *mation described in paragraph (1) may be released to*  
20          *an entity other than the Administration if the Ad-*  
21          *ministrator makes a determination that the release of*  
22          *such personally identifiable information—*

23                  “(A) *is in the best interests of the Adminis-*  
24                  *tration; and*

1                   “(B) does not constitute an unwarranted  
2                   invasion of personal privacy.

3                   “(d) *EXCLUSION FROM FOIA.*—A medical quality as-  
4                   surance record may not be made available to any person  
5                   under section 552 of title 5, United States Code (commonly  
6                   referred to as the ‘Freedom of Information Act’), and this  
7                   section shall be considered a statute described in subsection  
8                   (b)(3)(B) of such section 522.

9                   “(e) *REGULATIONS.*—Not later than one year after the  
10                  date of the enactment of this section, the Administrator  
11                  shall promulgate regulations to implement this section.

12                  “(f) *RULES OF CONSTRUCTION.*—Nothing in this sec-  
13                  tion shall be construed—

14                         “(1) to withhold a medical quality assurance  
15                         record from a committee of the Senate or House of  
16                         Representatives or a joint committee of Congress if  
17                         the medical quality assurance record relates to a mat-  
18                         ter within the jurisdiction of such committee or joint  
19                         committee; or

20                         “(2) to limit the use of a medical quality assur-  
21                         ance record within the Administration, including the  
22                         use by a contractor or consultant of the Administra-  
23                         tion.

24                         “(g) *DEFINITIONS.*—In this section:

1           “(1) *MEDICAL QUALITY ASSURANCE RECORD.*—  
2           *The term ‘medical quality assurance record’ means*  
3           *any proceeding, discussion, record, finding, rec-*  
4           *ommendation, evaluation, opinion, minutes, report,*  
5           *or other document or action that results from a qual-*  
6           *ity assurance committee, quality assurance program,*  
7           *or quality assurance program activity.*

8           “(2) *QUALITY ASSURANCE PROGRAM.*—

9           “(A) *IN GENERAL.*—*The term ‘quality as-*  
10           *surance program’ means a comprehensive pro-*  
11           *gram of the Administration—*

12                   “(i) *to systematically review and im-*  
13                   *prove the quality of medical and behavioral*  
14                   *health services provided by the Administra-*  
15                   *tion to ensure the safety and security of in-*  
16                   *dividuals receiving such health services; and*

17                   “(ii) *to evaluate and improve the effi-*  
18                   *ciency, effectiveness, and use of staff and re-*  
19                   *sources in the delivery of such health serv-*  
20                   *ices.*

21           “(B) *INCLUSION.*—*The term ‘quality assur-*  
22           *ance program’ includes any activity carried out*  
23           *by or for the Administration to assess the quality*  
24           *of medical care provided by the Administra-*  
25           *tion.’.*

1           (b) *TECHNICAL AND CONFORMING AMENDMENT.*—The  
 2 *table of sections for chapter 313 of title 51, United States*  
 3 *Code, is amended by adding at the end the following:*

          “31303. *Confidentiality of medical quality assurance records.*”.

4           ***PART VIII—MISCELLANEOUS PROVISIONS***

5           ***SEC. 671. CONTRACTING AUTHORITY.***

6           *Section 20113 of title 51, United States Code, is*  
 7 *amended by adding at the end the following:*

8           “(o) *CONTRACTING AUTHORITY.*—The *Administra-*  
 9 *tion—*

10                   “(1) *may enter into an agreement with a pri-*  
 11 *vate, commercial, or State government entity to pro-*  
 12 *vide the entity with supplies, support, and services re-*  
 13 *lated to private, commercial, or State government*  
 14 *space activities carried out at a property owned or*  
 15 *operated by the Administration; and*

16                   “(2) *upon the request of such an entity, may in-*  
 17 *clude such supplies, support, and services in the re-*  
 18 *quirements of the Administration if—*

19                           “(A) *the Administrator determines that the*  
 20 *inclusion of such supplies, support, or services in*  
 21 *such requirements—*

22                                   “(i) *is in the best interest of the Fed-*  
 23 *eral Government;*

24                                   “(ii) *does not interfere with the re-*  
 25 *quirements of the Administration; and*

1                   “(iii) does not compete with the com-  
 2                   mercial space activities of other such enti-  
 3                   ties; and

4                   “(B) the Administration has full reimburs-  
 5                   able funding from the entity that requested sup-  
 6                   plies, support, and services prior to making any  
 7                   obligation for the delivery of such supplies, sup-  
 8                   port, or services under an Administration pro-  
 9                   curement contract or any other agreement.”.

10 **SEC. 672. AUTHORITY FOR TRANSACTION PROTOTYPE**  
 11                   **PROJECTS AND FOLLOW-ON PRODUCTION**  
 12                   **CONTRACTS.**

13                   Section 20113 of title 51, United States Code, as  
 14                   amended by section 671, is further amended by adding at  
 15                   the end the following:

16                   “(p) **TRANSACTION PROTOTYPE PROJECTS AND FOL-**  
 17                   **LOW-ON PRODUCTION CONTRACTS.**—

18                   “(1) **IN GENERAL.**—The Administration may  
 19                   enter into a transaction (other than a contract, coop-  
 20                   erative agreement, or grant) to carry out a prototype  
 21                   project that is directly relevant to enhancing the mis-  
 22                   sion effectiveness of the Administration.

23                   “(2) **SUBSEQUENT AWARD OF FOLLOW-ON PRO-**  
 24                   **DUCTION CONTRACT.**—A transaction entered into  
 25                   under this subsection for a prototype project may pro-



1 *vide for the subsequent award of a follow-on produc-*  
2 *tion contract to participants in the transaction.*

3 “(3) *INCLUSION.*—*A transaction under this sub-*  
4 *section includes a project awarded to an individual*  
5 *participant and to all individual projects awarded to*  
6 *a consortium of United States industry and academic*  
7 *institutions.*

8 “(4) *DETERMINATION.*—*The authority of this*  
9 *section may be exercised for a transaction for a proto-*  
10 *type project and any follow-on production contract,*  
11 *upon a determination by the head of the contracting*  
12 *activity, in accordance with Administration policies,*  
13 *that—*

14 “(A) *circumstances justify use of a trans-*  
15 *action to provide an innovative business ar-*  
16 *rangement that would not be feasible or appro-*  
17 *priate under a contract; and*

18 “(B) *the use of the authority of this section*  
19 *is essential to promoting the success of the proto-*  
20 *type project.*

21 “(5) *COMPETITIVE PROCEDURE.*—

22 “(A) *IN GENERAL.*—*To the maximum ex-*  
23 *tent practicable, the Administrator shall use*  
24 *competitive procedures with respect to entering*

1           *into a transaction to carry out a prototype*  
2           *project.*

3           “(B) *EXCEPTION.*—*Notwithstanding section*  
4           *2304 of title 10, United States Code, a follow-on*  
5           *production contract may be awarded to the par-*  
6           *ticipants in the prototype transaction without*  
7           *the use of competitive procedures, if—*

8                   “(i) *competitive procedures were used*  
9                   *for the selection of parties for participation*  
10                  *in the prototype transaction; and*

11                   “(ii) *the participants in the trans-*  
12                  *action successfully completed the prototype*  
13                  *project provided for in the transaction.*

14           “(6) *COST SHARE.*—*A transaction to carry out*  
15           *a prototype project and a follow-on production con-*  
16           *tract may require that part of the total cost of the*  
17           *transaction or contract be paid by the participant or*  
18           *contractor from a source other than the Federal Gov-*  
19           *ernment.*

20           “(7) *PROCUREMENT ETHICS.*—*A transaction*  
21           *under this authority shall be considered an agency*  
22           *procurement for purposes of chapter 21 of title 41,*  
23           *United States Code, with regard to procurement eth-*  
24           *ics.”.*

1 **SEC. 673. PROTECTION OF DATA AND INFORMATION FROM**  
2 **PUBLIC DISCLOSURE.**

3 (a) *CERTAIN TECHNICAL DATA.*—Section 20131 of  
4 title 51, United States Code, is amended—

5 (1) by redesignating subsection (c) as subsection  
6 (d);

7 (2) in subsection (a)(3), by striking “subsection  
8 (b)” and inserting “subsection (b) or (c)”;

9 (3) by inserting after subsection (b) the fol-  
10 lowing:

11 “(c) *SPECIAL HANDLING OF CERTAIN TECHNICAL*  
12 *DATA.*—

13 “(1) *IN GENERAL.*—The Administrator may pro-  
14 vide appropriate protections against the public dis-  
15 semination of certain technical data, including ex-  
16 emption from subchapter II of chapter 5 of title 5.

17 “(2) *DEFINITIONS.*—In this subsection:

18 “(A) *CERTAIN TECHNICAL DATA.*—The term  
19 ‘certain technical data’ means technical data  
20 that may not be exported lawfully outside the  
21 United States without approval, authorization,  
22 or license under—

23 “(i) the Export Control Reform Act of  
24 2018 (Public Law 115–232; 132 Stat.  
25 2208); or

1                   “(ii) *the International Security Assist-*  
2                   *ance and Arms Export Control Act of 1976*  
3                   *(Public Law 94–329; 90 Stat. 729).*

4                   “(B) *TECHNICAL DATA.—The term ‘tech-*  
5                   *nical data’ means any blueprint, drawing, pho-*  
6                   *tograph, plan, instruction, computer software, or*  
7                   *documentation, or any other technical informa-*  
8                   *tion.’;*

9                   (4) *in subsection (d), as so redesignated, by in-*  
10                  *serting “, including any data,” after “information”;*  
11                  *and*

12                  (5) *by adding at the end the following:*

13                  “(e) *EXCLUSION FROM FOIA.—This shall be consid-*  
14                  *ered a statute described in subsection (b)(3)(B) of 552 of*  
15                  *title 5 (commonly referred to as the ‘Freedom of Informa-*  
16                  *tion Act’).*”.

17                  (b) *CERTAIN VOLUNTARILY PROVIDED SAFETY-RE-*  
18                  *LATED INFORMATION.—*

19                  (1) *IN GENERAL.—The Administrator shall pro-*  
20                  *vide appropriate safeguards against the public dis-*  
21                  *semination of safety-related information collected as*  
22                  *part of a mishap investigation carried out under the*  
23                  *NASA safety reporting system or in conjunction with*  
24                  *an organizational safety assessment, if the Adminis-*

1        *trator makes a written determination, including a*  
2        *justification of the determination, that—*

3                *(A)(i) disclosure of the information would*  
4                *inhibit individuals from voluntarily providing*  
5                *safety-related information; and*

6                *(ii) the ability of NASA to collect such in-*  
7                *formation improves the safety of NASA pro-*  
8                *grams and research relating to aeronautics and*  
9                *space; or*

10              *(B) withholding such information from public*  
11              *disclosure improves the safety of such NASA pro-*  
12              *grams and research.*

13              *(2) OTHER FEDERAL AGENCIES.—Notwith-*  
14              *standing any other provision of law, if the Adminis-*  
15              *trator provides to the head of another Federal agency*  
16              *safety-related information with respect to which the*  
17              *Administrator has made a determination under para-*  
18              *graph (1), the head of the Federal agency shall with-*  
19              *hold the information from public disclosure.*

20              *(3) PUBLIC AVAILABILITY.—A determination or*  
21              *part of a determination under paragraph (1) shall be*  
22              *made available to the public on request, as required*  
23              *under 552 of title 5, United States Code (commonly*  
24              *referred to as the “Freedom of Information Act”).*

1           (4) *EXCLUSION FROM FOIA.*—*This subsection*  
2           *shall be considered a statute described in subsection*  
3           *(b)(3)(B) of section 552 of title 5, United States Code.*

4 **SEC. 674. PHYSICAL SECURITY MODERNIZATION.**

5           *Chapter 201 of title 51, United States Code, is amend-*  
6 *ed—*

7           (1) *in section 20133(2), by striking “property”*  
8           *and all that follows through “to the United States,”*  
9           *and inserting “Administration personnel or of prop-*  
10           *erty owned or leased by, or under the control of, the*  
11           *United States”; and*

12           (2) *in section 20134, in the second sentence—*

13                   (A) *by inserting “Administration personnel*  
14                   *or any” after “protecting”; and*

15                   (B) *by striking “, at facilities owned or*  
16                   *contracted to the Administration”.*

17 **SEC. 675. LEASE OF NON-EXCESS PROPERTY.**

18           *Section 20145 of title 51, United States Code, is*  
19 *amended—*

20           (1) *in subsection (b)(1)(B), by striking “entered*  
21           *into for the purpose of developing renewable energy*  
22           *production facilities”; and*

23           (2) *in subsection (g), in the first sentence, by*  
24           *striking “December 31, 2021” and inserting “Decem-*  
25           *ber 31, 2025”.*

1 **SEC. 676. CYBERSECURITY.**

2 (a) *IN GENERAL.*—Section 20301 of title 51, United  
3 States Code, is amended by adding at the end the following:

4 “(c) *CYBERSECURITY.*—The Administrator shall up-  
5 date and improve the cybersecurity of NASA space assets  
6 and supporting infrastructure.”.

7 (b) *SECURITY OPERATIONS CENTER.*—

8 (1) *ESTABLISHMENT.*—The Administrator shall  
9 maintain a Security Operations Center, to identify  
10 and respond to cybersecurity threats to NASA infor-  
11 mation technology systems, including institutional  
12 systems and mission systems.

13 (2) *INSPECTOR GENERAL RECOMMENDATIONS.*—  
14 The Administrator shall implement, to the maximum  
15 extent practicable, each of the recommendations con-  
16 tained in the report of the Inspector General of NASA  
17 entitled “Audit of NASA’s Security Operations Cen-  
18 ter”, issued on May 23, 2018.

19 (c) *CYBER THREAT HUNT.*—

20 (1) *IN GENERAL.*—The Administrator, in coordi-  
21 nation with the Secretary of Homeland Security and  
22 the heads of other relevant Federal agencies, may im-  
23 plement a cyber threat hunt capability to proactively  
24 search NASA information systems for advanced cyber  
25 threats that otherwise evade existing security tools.

1           (2) *THREAT-HUNTING PROCESS.*—*In carrying*  
2           *out paragraph (1), the Administrator shall develop*  
3           *and document a threat-hunting process, including the*  
4           *roles and responsibilities of individuals conducting a*  
5           *cyber threat hunt.*

6           (d) *GAO PRIORITY RECOMMENDATIONS.*—*The Admin-*  
7           *istrator shall implement, to the maximum extent prac-*  
8           *ticable, the recommendations for NASA contained in the re-*  
9           *port of the Comptroller General of the United States entitled*  
10          *“Information Security: Agencies Need to Improve Controls*  
11          *over Selected High-Impact Systems”, issued May 18, 2016,*  
12          *including—*

13                 (1) *re-evaluating security control assessments;*  
14                 *and*

15                 (2) *specifying metrics for the continuous moni-*  
16                 *toring strategy of the Administration.*

17         **SEC. 677. LIMITATION ON COOPERATION WITH THE PEO-**  
18                         **PLE’S REPUBLIC OF CHINA.**

19           (a) *IN GENERAL.*—*Except as provided by subsection*  
20           *(b), the Administrator, the Director of the OSTP, and the*  
21           *Chair of the National Space Council, shall not—*

22                 (1) *develop, design, plan, promulgate, imple-*  
23                 *ment, or execute a bilateral policy, program, order, or*  
24                 *contract of any kind to participate, collaborate, or co-*  
25                 *ordinate bilaterally in any manner with—*



1           (A) *the Government of the People’s Republic*  
2           *of China; or*

3           (B) *any company—*

4                 (i) *owned by the Government of the*  
5                 *People’s Republic of China; or*

6                 (ii) *incorporated under the laws of the*  
7                 *People’s Republic of China; and*

8           (2) *host official visitors from the People’s Repub-*  
9           *lic of China at a facility belonging to or used by*  
10           *NASA.*

11           (b) *WAIVER.—*

12                 (1) *IN GENERAL.—The Administrator, the Direc-*  
13                 *tor, or the Chair may waive the limitation under sub-*  
14                 *section (a) with respect to an activity described in*  
15                 *that subsection only if the Administrator, the Direc-*  
16                 *tor, or the Chair, as applicable, makes a determina-*  
17                 *tion that the activity—*

18                         (A) *does not pose a risk of a transfer of*  
19                         *technology, data, or other information with na-*  
20                         *tional security or economic security implications*  
21                         *to an entity described in paragraph (1) of such*  
22                         *subsection; and*

23                         (B) *does not involve knowing interactions*  
24                         *with officials who have been determined by the*

1           *United States to have direct involvement with*  
2           *violations of human rights.*

3           (2) *CERTIFICATION TO CONGRESS.*—*Not later*  
4           *than 30 days after the date on which a waiver is*  
5           *granted under paragraph (1), the Administrator, the*  
6           *Director, or the Chair, as applicable, shall submit to*  
7           *the Committee on Commerce, Science, and Transpor-*  
8           *tation and the Committee on Appropriations of the*  
9           *Senate and the Committee on Science, Space, and*  
10           *Technology and the Committee on Appropriations of*  
11           *the House of Representatives a written certification*  
12           *that the activity complies with the requirements in*  
13           *subparagraphs (A) and (B) of that paragraph.*

14           (i) *GAO REVIEW.*—

15           (1) *IN GENERAL.*—*The Comptroller General of*  
16           *the United States shall conduct a review of NASA*  
17           *contracts that may subject the Administration to un-*  
18           *acceptable transfers of intellectual property or tech-*  
19           *nology to any entity—*

20                   (A) *owned or controlled (in whole or in*  
21                   *part) by, or otherwise affiliated with, the Gov-*  
22                   *ernment of the People’s Republic of China; or*

23                   (B) *organized under, or otherwise subject to,*  
24                   *the laws of the People’s Republic of China.*

1           (2) *ELEMENTS.*—*The review required under*  
2 *paragraph (1) shall assess—*

3           (A) *whether the Administrator is aware—*

4                 (i) *of any NASA contractor that bene-*  
5 *fits from significant financial assistance*  
6 *from—*

7                     (I) *the Government of the People’s*  
8 *Republic of China;*

9                     (II) *any entity controlled by the*  
10 *Government of the People’s Republic of*  
11 *China; or*

12                    (III) *any other governmental enti-*  
13 *ty of the People’s Republic of China;*  
14 *and*

15                 (ii) *that the Government of the People’s*  
16 *Republic of China, or an entity controlled*  
17 *by the Government of the People’s Republic*  
18 *of China, may be—*

19                    (I) *leveraging United States com-*  
20 *panies that share ownership with*  
21 *NASA contractors; or*

22                    (II) *obtaining intellectual prop-*  
23 *erty or technology illicitly or by other*  
24 *unacceptable means; and*

1           (B) the steps the Administrator is taking to  
2           ensure that—

3                   (i) NASA contractors are not being le-  
4                   veraged (directly or indirectly) by the Gov-  
5                   ernment of the People's Republic of China  
6                   or by an entity controlled by the Govern-  
7                   ment of the People's Republic of China;

8                   (ii) the intellectual property and tech-  
9                   nology of NASA contractors are adequately  
10                  protected; and

11                  (iii) NASA flight-critical components  
12                  are not sourced from the People's Republic  
13                  of China through any entity benefitting  
14                  from Chinese investments, loans, or other  
15                  assistance.

16           (3) *RECOMMENDATIONS.*—The Comptroller Gen-  
17           eral shall provide to the Administrator recommenda-  
18           tions for future NASA contracting based on the re-  
19           sults of the review.

20           (4) *PLAN.*—Not later than 180 days after the  
21           date on which the Comptroller General completes the  
22           review, the Administrator shall—

23                   (A) develop a plan to implement the rec-  
24                   ommendations of the Comptroller General; and

1                   (B) submit the plan to the appropriate com-  
2                   mittees of Congress.

3           (d) *TERMINATION.*—*The limitation under subsection*  
4 *(a) shall cease to have effect on the date that is 10 years*  
5 *after the date of the enactment of this Act.*

6 **SEC. 678. CONSIDERATION OF ISSUES RELATED TO CON-**  
7 **TRACTING WITH ENTITIES RECEIVING AS-**  
8 **SISTANCE FROM OR AFFILIATED WITH THE**  
9 **PEOPLE’S REPUBLIC OF CHINA.**

10           (a) *IN GENERAL.*—*With respect to a matter in re-*  
11 *sponse to a request for proposal or a broad area announce-*  
12 *ment by the Administrator, or award of any contract,*  
13 *agreement, or other transaction with the Administrator, a*  
14 *commercial or noncommercial entity shall certify that it is*  
15 *not majority owned or controlled (as defined in section*  
16 *800.208 of title 31, Code of Federal Regulations), or minor-*  
17 *ity owned greater than 25 percent, by—*

18                   (1) *any governmental organization of the Peo-*  
19 *ple’s Republic of China; or*

20                   (2) *any other entity that is—*

21                           (A) *known to be owned or controlled by any*  
22 *governmental organization of the People’s Repub-*  
23 *lic of China; or*

24                           (B) *organized under, or otherwise subject to,*  
25 *the laws of the People’s Republic of China.*

1       (b) *FALSE STATEMENTS.*—

2             (1) *IN GENERAL.*—*A false statement contained*  
3       *in a certification under subsection (a) constitutes a*  
4       *false or fraudulent claim for purposes of chapter 47*  
5       *of title 18, United States Code.*

6             (2) *ACTION UNDER FEDERAL ACQUISITION REGU-*  
7       *LATION.*—*Any party convicted for making a false*  
8       *statement with respect to a certification under sub-*  
9       *section (a) shall be subject to debarment from con-*  
10       *tracting with the Administrator for a period of not*  
11       *less than 1 year, as determined by the Administrator,*  
12       *in addition to other appropriate action in accordance*  
13       *with the Federal Acquisition Regulation maintained*  
14       *under section 1303(a)(1) of title 41, United States*  
15       *Code.*

16       (c) *ANNUAL REPORT.*—*The Administrator shall sub-*  
17       *mit to the appropriate committees of Congress an annual*  
18       *report detailing any violation of this section.*

19       **SEC. 679. SMALL SATELLITE LAUNCH SERVICES PROGRAM.**

20       (a) *IN GENERAL.*—*The Administrator shall continue*  
21       *to procure dedicated launch services, including from small*  
22       *and venture class launch providers, for small satellites, in-*  
23       *cluding CubeSats, for the purpose of conducting science and*  
24       *technology missions that further the goals of NASA.*

1       (b) *REQUIREMENTS.*—*In carrying out the program*  
 2 *under subsection (a), the Administrator shall engage with*  
 3 *the academic community to maximize awareness and use*  
 4 *of dedicated small satellite launch opportunities.*

5       (c) *RULE OF CONSTRUCTION.*—*Nothing in this section*  
 6 *shall prevent the Administrator from continuing to use a*  
 7 *secondary payload of procured launch services for CubeSats.*

8 **SEC. 680. 21ST CENTURY SPACE LAUNCH INFRASTRUCTURE.**

9       (a) *IN GENERAL.*—*The Administrator shall carry out*  
 10 *a program to modernize multi-user launch infrastructure*  
 11 *at NASA facilities—*

12               (1) *to enhance safety; and*

13               (2) *to advance Government and commercial*  
 14 *space transportation and exploration.*

15       (b) *PROJECTS.*—*Projects funded under the program*  
 16 *under subsection (a) may include—*

17               (1) *infrastructure relating to commodities;*

18               (2) *standard interfaces to meet customer needs*  
 19 *for multiple payload processing and launch vehicle*  
 20 *processing;*

21               (3) *enhancements to range capacity and flexi-*  
 22 *bility; and*

23               (4) *such other projects as the Administrator con-*  
 24 *siders appropriate to meet the goals described in sub-*  
 25 *section (a).*

1       (c) *REQUIREMENTS.*—*In carrying out the program*  
2 *under subsection (a), the Administrator shall—*

3           (1) *identify and prioritize investments in*  
4 *projects that can be used by multiple users and*  
5 *launch vehicles, including non-NASA users and*  
6 *launch vehicles; and*

7           (2) *limit investments to projects that would not*  
8 *otherwise be funded by a NASA program, such as an*  
9 *institutional or programmatic infrastructure pro-*  
10 *gram.*

11       (d) *RULE OF CONSTRUCTION.*—*Nothing in this section*  
12 *shall preclude a NASA program, including the Space*  
13 *Launch System and Orion, from using the launch infra-*  
14 *structure modernized under this section.*

15 **SEC. 681. MISSIONS OF NATIONAL NEED.**

16       (a) *SENSE OF CONGRESS.*—*It is the Sense of Congress*  
17 *that—*

18           (1) *while certain space missions, such as asteroid*  
19 *detection or space debris mitigation or removal mis-*  
20 *sions, may not provide the highest-value science, as*  
21 *determined by the National Academies of Science, En-*  
22 *gineering, and Medicine decadal surveys, such mis-*  
23 *sions provide tremendous value to the United States*  
24 *and the world; and*



1           (2) *the current organizational and funding*  
2 *structure of NASA has not prioritized the funding of*  
3 *missions of national need.*

4 *(b) STUDY.—*

5           (1) *IN GENERAL.—The Director of the OSTP*  
6 *shall conduct a study on the manner in which NASA*  
7 *funds missions of national need.*

8           (2) *MATTERS TO BE INCLUDED.—The study con-*  
9 *ducted under paragraph (1) shall include the fol-*  
10 *lowing:*

11                   (A) *An identification and assessment of the*  
12 *types of missions or technology development pro-*  
13 *grams that constitute missions of national need.*

14                   (B) *An assessment of the manner in which*  
15 *such missions are currently funded and managed*  
16 *by NASA.*

17                   (C) *An analysis of the options for funding*  
18 *missions of national need, including—*

19                           (i) *structural changes required to allow*  
20 *NASA to fund such missions; and*

21                           (ii) *an assessment of the capacity of*  
22 *other Federal agencies to make funds avail-*  
23 *able for such missions.*

24           (c) *REPORT TO CONGRESS.—Not later than 1 year*  
25 *after the date of the enactment of this Act, the Director of*

1 *the OSTP shall submit to the appropriate committees of*  
 2 *Congress a report on the results of the study conducted*  
 3 *under subsection (b), including recommendations for fund-*  
 4 *ing missions of national need.*

5 **SEC. 682. DRINKING WATER WELL REPLACEMENT FOR**  
 6 **CHINCOTEAGUE, VIRGINIA.**

7 *Notwithstanding any other provision of law, during*  
 8 *the 5-year period beginning on the date of the enactment*  
 9 *of this Act, the Administrator may enter into 1 or more*  
 10 *agreements with the town of Chincoteague, Virginia, to re-*  
 11 *imburse the town for costs that are directly associated*  
 12 *with—*

13 *(1) the removal of drinking water wells located*  
 14 *on property administered by the Administration; and*

15 *(2) the relocation of such wells to property under*  
 16 *the administrative control, through lease, ownership,*  
 17 *or easement, of the town.*

18 **SEC. 683. PASSENGER CARRIER USE.**

19 *Section 1344(a)(2) of title 31, United States Code, is*  
 20 *amended—*

21 *(1) in subparagraph (A), by striking “or” at the*  
 22 *end;*

23 *(2) in subparagraph (B), by inserting “or” after*  
 24 *the comma at the end; and*

1           (3) by inserting after subparagraph (B) the fol-  
2           lowing:

3           “(C) necessary for post-flight transportation of  
4           United States Government astronauts, and other as-  
5           tronauts subject to reimbursable arrangements, re-  
6           turning from space for the performance of medical re-  
7           search, monitoring, diagnosis, or treatment, or other  
8           official duties, prior to receiving post-flight medical  
9           clearance to operate a motor vehicle.”.

10 **SEC. 684. USE OF COMMERCIAL NEAR-SPACE BALLOONS.**

11           (a) *SENSE OF CONGRESS.*—It is the sense of Congress  
12 that the use of an array of capabilities, including the use  
13 of commercially available near-space balloon assets, is in  
14 the best interest of the United States.

15           (b) *USE OF COMMERCIAL NEAR-SPACE BALLOONS.*—  
16 The Administrator shall use commercially available balloon  
17 assets operating at near-space altitudes, to the maximum  
18 extent practicable, as part of a diverse set of capabilities  
19 to effectively and efficiently meet the goals of the Adminis-  
20 tration.

21 **SEC. 685. PRESIDENT’S SPACE ADVISORY BOARD.**

22           Section 121 of the National Aeronautics and Space  
23 Administration Authorization Act, Fiscal Year 1991 (Pub-  
24 lic Law 101–611; 51 U.S.C. 20111 note) is amended—

1           (1) *in the section heading, by striking “**USERS’***  
 2           ***ADVISORY GROUP” and inserting “**PRESIDENT’S*****  
 3           ***SPACE ADVISORY BOARD”**; and*

4           (2) *by striking “Users’ Advisory Group” each*  
 5           *place it appears and inserting “President’s Space Ad-*  
 6           *visory Board.”*

7   **SEC. 686. INITIATIVE ON TECHNOLOGIES FOR NOISE AND**  
 8           **EMISSIONS REDUCTIONS.**

9           (a) *INITIATIVE REQUIRED.—Section 40112 of title 51,*  
 10          *United States Code, is amended—*

11           (1) *by redesignating subsections (b) through (f)*  
 12           *as subsections (c) through (g), respectively; and*

13           (2) *by inserting after subsection (a) the following*  
 14           *new subsection (b):*

15           “*(b) TECHNOLOGIES FOR NOISE AND EMISSIONS RE-*  
 16          *DUCTION.—*

17           “*(1) INITIATIVE REQUIRED.—The Administrator*  
 18           *shall establish an initiative to build upon and accel-*  
 19           *erate previous or ongoing work to develop and dem-*  
 20           *onstrate new technologies, including systems architec-*  
 21           *ture, components, or integration of systems and air-*  
 22           *frame structures, in electric aircraft propulsion con-*  
 23           *cepts that are capable of substantially reducing both*  
 24           *emissions and noise from aircraft.*

1           “(2) *APPROACH.*—*In carrying out the initiative,*  
2           *the Administrator shall do the following:*

3                   “(A) *Continue and expand work of the Ad-*  
4                   *ministration on research, development, and dem-*  
5                   *onstration of electric aircraft concepts, and the*  
6                   *integration of such concepts.*

7                   “(B) *To the extent practicable, work with*  
8                   *multiple partners, including small businesses*  
9                   *and new entrants, on research and development*  
10                   *activities related to transport category aircraft.*

11                   “(C) *Provide guidance to the Federal Avia-*  
12                   *tion Administration on technologies developed*  
13                   *and tested pursuant to the initiative.”.*

14           (b) *REPORTS.*—*Not later than 180 days after the date*  
15 *of the enactment of this Act, and annually thereafter as a*  
16 *part of the Administration’s budget submission, the Admin-*  
17 *istrator shall submit a report to the appropriate committee*  
18 *of Congress on the progress of the work under the initiative*  
19 *required by subsection (b) of section 40112 of title 51,*  
20 *United States Code (as amended by subsection (a) of this*  
21 *section), including an updated, anticipated timeframe for*  
22 *aircraft entering into service that produce 50 percent less*  
23 *noise and emissions than the highest performing aircraft*  
24 *in service as of December 31, 2019.*

1 **SEC. 687. REMEDIATION OF SITES CONTAMINATED WITH**  
2 **TRICHLOROETHYLENE.**

3 (a) *IDENTIFICATION OF SITES.*—Not later than 180  
4 days after the date of the enactment of this Act, the Admin-  
5 istrator shall identify sites of the Administration contami-  
6 nated with trichloroethylene.

7 (b) *REPORT REQUIRED.*—Not later than 1 year after  
8 the date of the enactment of this Act, the Administrator  
9 shall submit to the appropriate committees of Congress a  
10 report that includes—

11 (1) the recommendations of the Administrator  
12 for remediating the sites identified under subsection  
13 (a) during the 5-year period beginning on the date of  
14 the report; and

15 (2) an estimate of the financial resources nec-  
16 essary to implement those recommendations.

17 **SEC. 688. REVIEW ON PREFERENCE FOR DOMESTIC SUP-**  
18 **PLIERS.**

19 (a) *SENSE OF CONGRESS.*—It is the Sense of Congress  
20 that the Administration should, to the maximum extent  
21 practicable and with due consideration of foreign policy  
22 goals and obligations under Federal law—

23 (1) use domestic suppliers of goods and services;  
24 and

1           (2) *ensure compliance with the Federal acquisi-*  
2 *tion regulations, including subcontract flow-down*  
3 *provisions.*

4           (b) *REVIEW.—*

5           (1) *IN GENERAL.—Not later than 180 days after*  
6 *the date of the enactment of this Act, the Adminis-*  
7 *trator shall undertake a comprehensive review of the*  
8 *domestic supplier preferences of the Administration*  
9 *and the obligations of the Administration under the*  
10 *Federal acquisition regulations to ensure compliance,*  
11 *particularly with respect to Federal acquisition regu-*  
12 *lations provisions that apply to foreign-based sub-*  
13 *contractors.*

14           (2) *ELEMENTS.—The review under paragraph*  
15 *(1) shall include—*

16                   (A) *an assessment as to whether the Admin-*  
17 *istration has provided funding for infrastructure*  
18 *of a foreign-owned company or State-sponsored*  
19 *entity in recent years; and*

20                   (B) *a review of any impact such funding*  
21 *has had on domestic service providers.*

22           (c) *REPORT.—The Administrator shall submit to the*  
23 *appropriate committees of Congress a report on the results*  
24 *of the review.*

1 **SEC. 689. REPORT ON USE OF COMMERCIAL SPACEPORTS**  
2 **LICENSED BY THE FEDERAL AVIATION AD-**  
3 **MINISTRATION.**

4 (a) *IN GENERAL.*—Not later than 1 year after the date  
5 of the enactment of this Act, the Administrator shall submit  
6 to the appropriate committees of Congress a report on the  
7 benefits of increased use of commercial spaceports licensed  
8 by the Federal Aviation Administration for NASA civil  
9 space missions and operations.

10 (b) *ELEMENTS.*—The report required by subsection (a)  
11 shall include the following:

12 (1) *A description and assessment of current use*  
13 *of commercial spaceports licensed by the Federal*  
14 *Aviation Administration for NASA civil space mis-*  
15 *sions and operations.*

16 (2) *A description and assessment of the benefits*  
17 *of increased use of such spaceports for such missions*  
18 *and operations.*

19 (3) *A description and assessment of the steps*  
20 *necessary to achieve increased use of such spaceports*  
21 *for such missions and operations.*

22 **SEC. 690. ACTIVE ORBITAL DEBRIS MITIGATION.**

23 (a) *SENSE OF CONGRESS.*—It is the sense of Congress  
24 that—



1           (1) *orbital debris, particularly in low-Earth*  
2 *orbit, poses a hazard to NASA missions, particularly*  
3 *human spaceflight; and*

4           (2) *progress has been made on the development*  
5 *of guidelines for long-term space sustainability*  
6 *through the United Nations Committee on the Peace-*  
7 *ful Uses of Outer Space.*

8           (b) *REQUIREMENTS.—The Administrator should—*

9           (1) *ensure the policies and standard practices of*  
10 *NASA meet or exceed international guidelines for*  
11 *spaceflight safety; and*

12           (2) *support the development of orbital debris*  
13 *mitigation technologies through continued research*  
14 *and development of concepts.*

15           (c) *REPORT TO CONGRESS.—Not later than 90 days*  
16 *after the date of the enactment of this Act, the Adminis-*  
17 *trator shall submit to the appropriate committees of Con-*  
18 *gress a report on the status of implementing subsection (b).*

19 **SEC. 691. STUDY ON COMMERCIAL COMMUNICATIONS SERV-**  
20 **ICES.**

21           (a) *SENSE OF CONGRESS.—It is the sense of Congress*  
22 *that—*

23           (1) *enhancing the ability of researchers to con-*  
24 *duct and interact with experiments while in flight*  
25 *would make huge advancements in the overall profit-*

1       *ability of conducting research on suborbit and low-*  
2       *Earth orbit payloads; and*

3               *(2) current NASA communications do not allow*  
4       *for real-time data collection, observation, or trans-*  
5       *mission of information.*

6       *(b) STUDY.—The Administrator shall conduct a study*  
7       *on the feasibility, impact, and cost of using commercial*  
8       *communications programs services for suborbital flight pro-*  
9       *grams and low-Earth orbit research.*

10       *(c) REPORT.—Not later than 18 months after the date*  
11       *of the enactment of this Act, the Administrator shall submit*  
12       *to Congress and make publicly available a report that de-*  
13       *scribes the results of the study conducted under subsection*  
14       *(b).*



**Calendar No. 58**

117<sup>TH</sup> CONGRESS  
1<sup>ST</sup> Session  
**S. 1260**

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**A BILL**

To establish a new Directorate for Technology and Innovation in the National Science Foundation, to establish a regional technology hub program, to require a strategy and report on economic security, science, research, innovation, manufacturing, and job creation, to establish a critical supply chain resiliency program, and for other purposes.

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MAY 13, 2021

Reported with an amendment