

116TH CONGRESS
1ST SESSION

S. 2732

To amend the Department of Agriculture Reorganization Act of 1994 to establish the Advanced Research Projects Agency–Terra, and for other purposes.

IN THE SENATE OF THE UNITED STATES

OCTOBER 29, 2019

Mr. BENNET introduced the following bill; which was read twice and referred to the Committee on Agriculture, Nutrition, and Forestry

A BILL

To amend the Department of Agriculture Reorganization Act of 1994 to establish the Advanced Research Projects Agency–Terra, 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 “ARPA–Terra Act of
5 2019”.

6 **SEC. 2. ADVANCED RESEARCH PROJECTS AGENCY–TERRA.**

7 (a) IN GENERAL.—Subtitle A of the Department of
8 Agriculture Reorganization Act of 1994 (7 U.S.C. 6911
9 et seq.) is amended by adding at the end the following:

1 **“SEC. 224B. ADVANCED RESEARCH PROJECTS AGENCY-**
2 **TERRA.**

3 “(a) DEFINITIONS.—In this section:

4 “(1) ARPA–TERRA.—The term ‘ARPA–Terra’
5 means the Advanced Research Projects Agency–
6 Terra established by subsection (b).

7 “(2) DIRECTOR.—The term ‘Director’ means
8 the Director of ARPA–Terra appointed under sub-
9 section (d).

10 “(3) FUND.—The term ‘Fund’ means the Agri-
11 culture Transformation Acceleration Fund estab-
12 lished under subsection (l)(1).

13 “(b) ESTABLISHMENT.—There is established the Ad-
14 vanced Research Projects Agency–Terra in the Depart-
15 ment—

16 “(1) to overcome the long-term and high-risk
17 technological barriers in the development of agricul-
18 tural technologies that enhance export competitive-
19 ness, environmental sustainability, and resilience to
20 extreme weather and infectious disease; and

21 “(2) to ensure that the United States maintains
22 a technological lead in developing and deploying ad-
23 vanced agricultural technologies that increase eco-
24 nomic opportunities for farmers, ranchers, and rural
25 communities.

1 “(c) MEANS.—To achieve the goals described in sub-
2 section (b), ARPA–Terra shall carry out agriculture tech-
3 nology projects that—

4 “(1) identify and promote revolutionary ad-
5 vances in fundamental sciences;

6 “(2) translate scientific discoveries and cutting-
7 edge inventions into technological innovations; and

8 “(3) accelerate transformational technological
9 advances in areas that, due to technical and finan-
10 cial uncertainty, industry is not likely to undertake
11 without Federal assistance.

12 “(d) DIRECTOR.—

13 “(1) APPOINTMENT.—There shall be in the De-
14 partment a Director of ARPA–Terra, who shall be
15 appointed by the President, by and with the advice
16 and consent of the Senate.

17 “(2) QUALIFICATIONS.—The Director shall be
18 an individual who, by reason of professional back-
19 ground and experience, is especially qualified to ad-
20 vise the Secretary on, and manage research pro-
21 grams addressing, matters pertaining to long-term
22 and high-risk technological barriers to the develop-
23 ment of agricultural technologies.

24 “(3) RELATIONSHIP TO SECRETARY.—The Di-
25 rector shall report to the Secretary.

1 “(4) RELATIONSHIP TO CHIEF SCIENTIST.—In
2 carrying out the responsibilities of the Director, the
3 Director shall coordinate with the Chief Scientist to
4 identify relevant scientific priorities and future
5 trends relating to agricultural technologies.

6 “(5) RELATIONSHIP TO OTHER PROGRAMS.—
7 No other programs within the Department shall re-
8 port to the Director.

9 “(e) RESPONSIBILITIES.—The responsibilities of the
10 Director shall include—

11 “(1) approving all new programs within ARPA-
12 Terra;

13 “(2) developing funding criteria and assessing
14 the success of programs through the establishment
15 of technical milestones;

16 “(3) administering the Fund through awards to
17 institutions of higher education, companies, research
18 foundations, trade and industry research collabora-
19 tions, or consortia of those entities, which may in-
20 clude land-grant institutions, federally funded re-
21 search and development centers, research stations,
22 and research laboratories, to achieve the goals de-
23 scribed in subsection (b) through targeted accelera-
24 tion of—

1 “(A) novel early-stage research with pos-
2 sible technology applications;

3 “(B) development of techniques, processes,
4 and technologies, and related testing and eval-
5 uation;

6 “(C) research and development of manu-
7 facturing processes for novel technologies; and

8 “(D) coordination with nongovernmental
9 entities for demonstration of technologies and
10 research applications to facilitate technology
11 transfer;

12 “(4) terminating programs carried out under
13 this section that are not achieving the goals of the
14 programs; and

15 “(5) to the maximum extent practicable, ensur-
16 ing that the Fund supports research that reflects di-
17 versity with respect to region, water quantity, and
18 agricultural practice.

19 “(f) PERSONNEL.—

20 “(1) PROGRAM MANAGERS.—

21 “(A) IN GENERAL.—The Director shall
22 designate employees to serve as program man-
23 agers for each of the programs established by
24 the Director pursuant to subsection (e).

1 “(B) RESPONSIBILITIES.—A program
2 manager of a program shall be responsible
3 for—

4 “(i) establishing research and develop-
5 ment goals for the program, including
6 through the convening of workshops and
7 conferring with outside experts, and publi-
8 cizing the goals of the program to the pub-
9 lic and private sectors;

10 “(ii) soliciting applications for specific
11 areas of particular promise, especially
12 areas that the private sector or the Federal
13 Government are not likely to undertake
14 alone;

15 “(iii) building research collaborations
16 for carrying out the program;

17 “(iv) selecting on the basis of merit,
18 after soliciting advice under subsection (j)
19 as appropriate, each of the projects to be
20 supported under the program after consid-
21 ering—

22 “(I) the novelty and scientific
23 and technical merit of the proposed
24 projects;

1 “(II) the demonstrated capabili-
2 ties of the applicants to successfully
3 carry out the proposed project;

4 “(III) the consideration by the
5 applicant of future commercial appli-
6 cations of the project, including the
7 feasibility of partnering with one or
8 more commercial entities; and

9 “(IV) any other criteria that the
10 Director determines to be appropriate;

11 “(v) preparing technologies for an
12 eventual transfer from lab to market;

13 “(vi) monitoring the progress of
14 projects supported under the program; and

15 “(vii) recommending program restruc-
16 ture or termination of research partner-
17 ships or whole projects.

18 “(C) TERM.—The term of a program man-
19 ager—

20 “(i) shall be 4 years; and

21 “(ii) may be renewed by the Director.

22 “(2) HIRING AND MANAGEMENT.—

23 “(A) IN GENERAL.—The Director shall
24 have the authority—

1 “(i) to make appointments of sci-
2 entific, engineering, and professional per-
3 sonnel without regard to the civil service
4 laws; and

5 “(ii) to fix the compensation of per-
6 sonnel described in clause (i) at a rate to
7 be determined by the Director.

8 “(B) PRIVATE RECRUITING FIRMS.—The
9 Secretary or the Director may contract with
10 private recruiting firms for the hiring of quali-
11 fied technical staff to carry out this section.

12 “(C) ADDITIONAL STAFF.—The Director
13 may use all existing authorities of the Secretary
14 to hire administrative, financial, and clerical
15 staff as necessary to carry out this section.

16 “(g) REPORTS AND ROADMAPS.—

17 “(1) ANNUAL REPORT.—As part of the annual
18 budget request submitted to Congress under section
19 1105 of title 31, United States Code, the Director
20 shall provide to the appropriate committees of Con-
21 gress a report that describes projects supported by
22 ARPA–Terra during the previous fiscal year.

23 “(2) STRATEGIC VISION ROADMAP.—Not later
24 than October 1, 2020, and October 1, 2023, the Di-
25 rector shall provide to the appropriate committees of

1 Congress a roadmap that describes the strategic vi-
2 sion that ARPA–Terra will use to guide the choices
3 of ARPA–Terra for future technology investments
4 over the following 3 fiscal years.

5 “(h) COORDINATION AND NONDUPLICATION.—

6 “(1) IN GENERAL.—To the maximum extent
7 practicable, the Director shall ensure that the activi-
8 ties of ARPA–Terra are coordinated with, and do
9 not duplicate the efforts of, programs and labora-
10 tories within the Department and other relevant re-
11 search agencies.

12 “(2) TECHNOLOGY TRANSFER COORDINATOR.—

13 To the extent appropriate, the Director may coordi-
14 nate technology transfer efforts—

15 “(A) with the Department; and

16 “(B) to increase the transfer of tech-
17 nologies to market, with outside entities, includ-
18 ing the Foundation for Food and Agricultural
19 Research.

20 “(3) LESSONS LEARNED.—In developing
21 ARPA–Terra, the Director shall build on lessons
22 learned from the Agriculture Advanced Research
23 and Development Authority pilot program estab-
24 lished under section 1473H of the National Agricul-

1 tural Research, Extension, and Teaching Policy Act
2 of 1977 (7 U.S.C. 3319k).

3 “(i) FEDERAL DEMONSTRATION OF TECH-
4 NOLOGIES.—The Secretary shall make available to pur-
5 chasing and procurement programs of Federal agencies in-
6 formation regarding the potential to demonstrate tech-
7 nologies resulting from activities funded through ARPA-
8 Terra.

9 “(j) ADVICE.—

10 “(1) ADVISORY COMMITTEES.—The Director
11 may seek advice on any aspect of ARPA-Terra
12 from—

13 “(A) an existing Department advisory com-
14 mittee; and

15 “(B) a new advisory committee organized
16 to support the programs of ARPA-Terra and to
17 provide advice and assistance on—

18 “(i) specific program tasks, including
19 transfer from lab to market; or

20 “(ii) overall direction of ARPA-Terra.

21 “(2) ADDITIONAL SOURCES OF ADVICE.—In
22 carrying out this section, the Director may seek ad-
23 vice and review from—

24 “(A) the President’s Council of Advisors
25 on Science and Technology;

1 “(B) the Foundation for Food and Agri-
2 culture Research;

3 “(C) the Advanced Research Projects
4 Agency–Energy;

5 “(D) the Defense Advanced Research
6 Projects Agency; and

7 “(E) any professional or scientific organi-
8 zation, or individual agricultural practitioner,
9 with expertise in specific processes or tech-
10 nologies under development by ARPA–Terra.

11 “(k) EXISTING AUTHORITIES.—The authority under
12 this section—

13 “(1) is in addition to existing authorities of the
14 Secretary; and

15 “(2) does not supersede or modify any existing
16 authorities.

17 “(l) FUNDING.—

18 “(1) FUND.—There is established in the Treas-
19 ury of the United States a fund, to be known as the
20 ‘Agriculture Transformation Acceleration Fund’,
21 which shall be administered by the Director for the
22 purposes of carrying out this section.

23 “(2) SEPARATE BUDGET AND APPROPRIA-
24 TION.—

1 “(A) BUDGET REQUEST.—The budget re-
2 quest for ARPA–Terra shall be separate from
3 the rest of the budget request of the Depart-
4 ment.

5 “(B) APPROPRIATIONS.—Appropriations to
6 the Fund shall be separate and distinct from
7 the rest of the appropriations for the Depart-
8 ment.”.

9 (b) CONFORMING AMENDMENTS.—

10 (1) The first section 225 of the Department of
11 Agriculture Reorganization Act of 1994 (relating to
12 Food Access Liaison) (7 U.S.C. 6925) is redesign-
13 nated as section 224A.

14 (2) Section 296(b) of the Department of Agri-
15 culture Reorganization Act of 1994 (7 U.S.C.
16 7014(b)) is amended by adding at the end the fol-
17 lowing:

18 “(11) The authority of the Secretary to estab-
19 lish in the Department the Advanced Research
20 Projects Agency–Terra under section 224B.”.

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