

119TH CONGRESS
2D SESSION

S. _____

To require the Secretary of Energy to establish a program to strengthen the domestic science and engineering workforce through partnerships among institutions of higher education, National Laboratories, other Federal science agencies, and industry to support accelerated doctoral programs, and for other purposes.

IN THE SENATE OF THE UNITED STATES

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

A BILL

To require the Secretary of Energy to establish a program to strengthen the domestic science and engineering workforce through partnerships among institutions of higher education, National Laboratories, other Federal science agencies, and industry to support accelerated doctoral programs, 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 “Promoting High-skilled
5 Doctoral Talent Act of 2026” or the “PHD Talent Act
6 of 2026”.

1 **SEC. 2. FINDINGS.**

2 Congress finds the following:

3 (1) A persistent shortfall in the number of do-
4 mestic students entering and completing science,
5 technology, engineering, and mathematics doctoral
6 programs impedes the capacity of the United States
7 for global leadership in research excellence and tech-
8 nology innovation.

9 (2) Artificial intelligence, quantum information
10 science, advanced computing, biotechnology, ad-
11 vanced energy systems, and other critical or emerg-
12 ing technologies are transforming scientific discovery
13 and national competitiveness.

14 (3) A robust domestic science, technology, engi-
15 neering, and mathematics talent pipeline capable of
16 preparing scientists and engineers with expertise
17 both within their scientific discipline and in the ap-
18 plication of artificial intelligence and advanced com-
19 putational methods is critical for maintaining a
20 strong workforce across the United States research
21 and technology development ecosystem, including the
22 National Laboratories, other Federal science agen-
23 cies, institutions of higher education, and industry.

24 (4) The Department of Energy maintains a
25 unique scientific enterprise, including the National
26 Laboratories, user facilities, advanced computing in-

1 frastructure, and partnerships with institutions of
2 higher education and industry, positioning the De-
3 partment of Energy to strengthen the domestic
4 science and engineering workforce of the United
5 States.

6 **SEC. 3. DEFINITIONS.**

7 In this Act:

8 (1) ACCELERATED DOCTORAL PROGRAM.—The
9 term “accelerated doctoral program” means a pro-
10 gram offered by an institution of higher education
11 that—

12 (A) provides 1 or more pathways through
13 which a student may complete a doctoral degree
14 in a critical or emerging technology area in an
15 accelerated timeframe that is at least 1 aca-
16 demic year shorter than the average timeframe
17 ordinarily required to complete comparable doc-
18 toral programs at that institution of higher
19 education, while maintaining applicable stand-
20 ards of academic excellence, research quality,
21 accreditation, dissertation oversight, and degree
22 completion;

23 (B) may include an integrated bacca-
24 laurate-to-doctorate pathway that—

(i) enables students participating in the program, while completing the baccalaureate degree portion of the program, to complete graduate-level coursework that—

(I) may be credited toward both the baccalaureate and graduate degree requirements, consistent with applicable accreditation requirements;

(II) makes a student's progression into the doctoral degree portion of the program contingent upon successful completion of specified milestones and admission into a graduate program of study;

(III) upon a participating student's successful completion of the baccalaureate degree portion of the program and the student's acceptance and transition into the doctoral degree portion of the program, provides funding to the student, which may be through a variety of opportunities, that covers not less than 3 years of the doctoral portion of the program; and

1 (IV) enables a student who is not
2 accepted into, or does not complete,
3 the doctoral degree portion of the pro-
4 gram to earn a baccalaureate degree
5 or a master's degree, based on the
6 student's level of completion of the
7 program; and

8 (ii) supports timely progression into
9 the doctoral degree portion of the program;
10 and

11 (C) incorporates structured professional
12 development for each student participating in
13 the program that includes—

14 (i) evidence-based research mentorship
15 practices;

16 (ii) career development support;

17 (iii) opportunities for engagement and
18 real-world experience through research ro-
19 tations; and

20 (iv) education, training, and research
21 rotations designed to develop dual com-
22 petency.

23 (2) CRITICAL OR EMERGING TECHNOLOGY
24 AREA.—The term “critical or emerging technology
25 area” means any of the following areas:

6

1 (A) Advanced computing.

2 (B) Advanced engineering materials.

3 (C) Advanced gas turbine engine tech-
4 nologies.

5 (D) Advanced and networked sensing and
6 signature management.

7 (E) Advanced manufacturing.

8 (F) Artificial intelligence.

9 (G) Biotechnologies.

10 (H) Clean energy generation and storage.

11 (I) Data privacy, data security, and cyber-
12 security technologies.

13 (J) Directed energy.

14 (K) Highly automated, autonomous, and
15 uncrewed systems and robotics.

16 (L) Human-machine interfaces.

17 (M) Hypersonics.

18 (N) Integrated communication and net-
19 working technologies.

20 (O) Positioning, navigation, and timing
21 technologies.

22 (P) Quantum information and enabling
23 technologies.

24 (Q) Semiconductors and microelectronics.

25 (R) Space technologies and systems.

1 (S) Any additional area of study that the
2 Secretary, based on existing Federal workforce
3 data and after consultation with the heads of
4 relevant Federal science and other agencies, de-
5 termines—

6 (i) is important to the national secu-
7 rity, economic competitiveness, scientific
8 leadership, or energy security of the
9 United States; and

10 (ii) has a demonstrated need for addi-
11 tional domestic workers with doctoral-level
12 expertise.

13 (3) DUAL COMPETENCY.—The term “dual com-
14 petency” means the demonstrated competency of a
15 student in—

16 (A) the student’s primary science, tech-
17 nology, engineering, or mathematics discipline;
18 and

19 (B) the application of artificial intelligence,
20 advanced computing, data science, machine
21 learning, or related computational methods to
22 research in that discipline.

23 (4) ELIGIBLE STUDENT.—The term “eligible
24 student” means an individual who is—

1 (A) a citizen or national of the United
2 States; or

3 (B) an alien lawfully admitted for perma-
4 nent residence in the United States.

5 (5) NATIONAL LABORATORY.—The term “Na-
6 tional Laboratory” has the meaning given the term
7 in section 2 of the Energy Policy Act of 2005 (42
8 U.S.C. 15801).

9 (6) PARTICIPATING INSTITUTION.—The term
10 “participating institution” means an institution of
11 higher education (as defined in section 101(a) of the
12 Higher Education Act of 1965 (20 U.S.C. 1001(a)))
13 that enters into an agreement with the Secretary to
14 participate in the Program.

15 (7) PROGRAM.—The term “Program” means
16 the Department of Energy Strategic Scientific
17 Workforce Pilot Program established under section
18 4(a).

19 (8) RESEARCH ROTATION.—The term “research
20 rotation” means a structured research experience at
21 a National Laboratory, Department of Energy user
22 facility, other Federal research facility, or partici-
23 pating industry research facility.

1 (9) SECRETARY.—The term “Secretary” means
2 the Secretary of Energy, acting through the Under
3 Secretary for Science.

4 **SEC. 4. DEPARTMENT OF ENERGY STRATEGIC SCIENTIFIC**
5 **WORKFORCE PILOT PROGRAM.**

6 (a) IN GENERAL.—Not later than 1 year after the
7 date of enactment of this Act, the Secretary shall establish
8 a 5-year pilot program, to be known as the “Department
9 of Energy Strategic Scientific Workforce Pilot Program”,
10 to strengthen the domestic science and engineering work-
11 force through grants awarded on a competitive basis to
12 participating institutions to enable the participating insti-
13 tutions to establish, carry out, or support—

- 14 (1) accelerated doctoral programs;
15 (2) partnerships with National Laboratories;
16 (3) partnerships with industry; and
17 (4) other activities authorized under this section
18 that directly support eligible students participating
19 in accelerated doctoral programs supported under
20 the Program.

21 (b) AWARD DETERMINATIONS.—The Secretary may
22 make an award under the Program only if the Secretary
23 determines, based on existing Federal workforce data, in-
24 formation submitted by the applicant, and consultation

1 with relevant National Laboratories, Federal agencies,
2 and industry partners, that—

3 (1) there is a demonstrated need for additional
4 domestic workers with doctoral-level expertise in the
5 critical or emerging technology area to be supported;

6 (2) the proposed program addresses an identi-
7 fied barrier to the recruitment, enrollment, reten-
8 tion, or completion of domestic doctoral students;

9 (3) the award is reasonably likely to increase
10 the number of domestic students completing doctoral
11 degrees in that area;

12 (4) doctoral-level training is appropriate for the
13 workforce need identified by the applicant; and

14 (5) the proposed activities would not unneces-
15 sarily duplicate an existing Federal program.

16 (c) APPLICATION.—A participating institution desir-
17 ing a grant under the Program shall submit to the Sec-
18 retary an application at such time, in such manner, and
19 containing such information as the Secretary may require.

20 (d) SUPPORT AND ASSISTANCE.—Under the Pro-
21 gram, the Secretary shall—

22 (1) provide technical assistance to help partici-
23 pating institutions—

1 (A) design the curriculum for an acceler-
2 ated doctoral program supported under the
3 Program; and

4 (B) develop institutional processes to align
5 course credit mechanisms, financial aid, and
6 academic policies for students in accelerated
7 doctoral programs supported under the Pro-
8 gram with relevant Federal guidelines and pro-
9 gram and institution accreditation require-
10 ments; and

11 (2) identify best practices for supporting the
12 sustainability of the accelerated doctoral programs
13 supported under the Program.

14 (e) PARTICIPATING INSTITUTIONS.—As a condition
15 of participation in the Program, each participating institu-
16 tion shall—

17 (1) retain responsibility for admissions deci-
18 sions, academic supervision, degree requirements,
19 dissertation oversight, and the conferral of doctoral
20 degrees;

21 (2) provide participating students with an aca-
22 demically rigorous doctoral education designed to re-
23 duce unnecessary time-to-degree while maintaining
24 standards of academic excellence and research qual-
25 ity;

1 (3) provide education and training to develop
2 dual competency;

3 (4) provide faculty mentorship, academic advis-
4 ing, and research support;

5 (5) facilitate research rotations, as appropriate;;

6 (6) ensure that each student whose tuition, re-
7 quired fees, stipend, fellowship, research expenses,
8 research rotation, or other individual costs are paid
9 in whole or in part with funds under the Program
10 is an eligible student;

11 (7) provide direct financial assistance under the
12 Program only to eligible students participating in, or
13 selected to participate in, accelerated doctoral pro-
14 grams supported under the Program; and

15 (8) ensure that funds provided under the Pro-
16 gram supplement and do not supplant Federal,
17 State, institutional, philanthropic, or private funds
18 otherwise available for doctoral education or re-
19 search.

20 (f) PARTNERSHIP AUTHORITY.—

21 (1) IN GENERAL.—In carrying out the Pro-
22 gram, the Secretary may enter into grants, coopera-
23 tive agreements, memoranda of understanding, or
24 other agreements with—

25 (A) participating institutions;

- 1 (B) National Laboratories;
2 (C) industry;
3 (D) nonprofit organizations;
4 (E) States; and
5 (F) such other entities as the Secretary de-
6 termines to be appropriate.

7 (2) FINANCIAL AND IN-KIND CONTRIBU-
8 TIONS.—The Secretary may encourage and accept fi-
9 nancial or in-kind contributions to support activities
10 carried out under the Program from—

- 11 (A) States;
12 (B) institutions of higher education;
13 (C) industry; and
14 (D) philanthropic organizations.

15 (g) PILOT FELLOWSHIP PROGRAMS.—

16 (1) IN GENERAL.—In order to facilitate the es-
17 tablishment or expansion of the Program, the Sec-
18 retary may establish and administer 1 or more pilot
19 fellowship programs to strengthen the domestic
20 science and engineering workforce in critical or
21 emerging technology areas in which there is a dem-
22 onstrated need for additional domestic workers with
23 doctoral-level expertise, as determined by the Sec-
24 retary under subsection (b).

1 (2) ACTIVITIES.—A pilot fellowship program es-
2 ablished under this subsection may—

3 (A) support eligible students participating
4 in, or selected to participate in, accelerated doc-
5 toral programs at participating institutions;

6 (B) provide financial assistance—

7 (i) directly to eligible students de-
8 scribed in subparagraph (A); or

9 (ii) through participating institutions
10 for the purpose of providing direct finan-
11 cial support to eligible students described
12 in that subparagraph;

13 (C) support the development of dual com-
14 petency;

15 (D) facilitate research rotations;

16 (E) support mentorship and professional
17 development; and

18 (F) include such other activities as the
19 Secretary determines appropriate to carry out
20 the purposes of this section, subject to the con-
21 dition that those activities—

22 (i) directly support eligible students
23 described in subparagraph (A); and

1 (ii) do not unnecessarily duplicate an
2 existing Federal fellowship or graduate re-
3 search program.

4 (3) ELIGIBILITY.—Financial assistance or any
5 other direct assistance pursuant to a pilot fellowship
6 program under this subsection shall be awarded only
7 to eligible students described in paragraph (2)(A).

8 (4) INSTITUTIONAL ADMINISTRATION.—A par-
9 ticipating institution may receive funds under this
10 subsection only—

11 (A) to administer assistance on behalf of
12 an eligible student described in paragraph
13 (2)(A); or

14 (B) to carry out an activity described in
15 paragraph (2) that directly supports an eligible
16 student described in paragraph (2)(A).

17 (5) PRESERVATION OF EXISTING SUPPORT.—A
18 participating institution may not reduce financial
19 support that otherwise would have been provided to
20 a student because the student receives a fellowship
21 under this subsection.

22 (h) REPORTS.—Not later than 1 year after the date
23 of enactment of this Act, and annually thereafter, the Sec-
24 retary shall submit to Congress a report regarding the
25 Program, including longitudinal tracking of the students

1 participating in accelerated doctoral programs supported
2 under the Program to identify trends and analyze develop-
3 ments in such programs across the United States.

4 (i) AUTHORIZATION OF APPROPRIATIONS.—There is
5 authorized to be appropriated to carry out this Act
6 \$250,000,000 for the period of fiscal years 2028 through
7 2032, to remain available until expended.

8 (j) SUNSET.—

9 (1) IN GENERAL.—The Secretary may not
10 make a new award under the Program after the date
11 that is 5 years after the date on which the first
12 award under the Program is made.

13 (2) CONTINUED PAYMENTS.—The Secretary
14 may continue payments after the date described in
15 paragraph (1) only—

16 (A) to fulfill commitments made to eligible
17 students before that date; and

18 (B) to complete required evaluations and
19 reports.

20 (3) CONGRESSIONAL AUTHORIZATION RE-
21 QUIRED.—The Program may not be continued be-
22 yond the date described in paragraph (1) or ex-
23 panded beyond the scope authorized by this Act
24 without prior authorization by Congress.