

111TH CONGRESS
2^D SESSION

H. R. 4502

To strengthen the capacity of eligible institutions to provide instruction in nanotechnology.

IN THE HOUSE OF REPRESENTATIVES

JANUARY 26, 2010

Mr. WU (for himself and Mr. LIPINSKI) introduced the following bill; which was referred to the Committee on Science and Technology

A BILL

To strengthen the capacity of eligible institutions to provide instruction in nanotechnology.

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 “Nanotechnology Edu-
5 cation Act”.

6 **SEC. 2. NANOTECHNOLOGY IN SCHOOLS.**

7 (a) FINDINGS.—The Congress makes the following
8 findings:

9 (1) The rapidly growing field of nanotechnology
10 is generating scientific and technological break-

1 throughs that will benefit society by improving the
2 way many things are designed and made.

3 (2) Nanotechnology is likely to have a signifi-
4 cant, positive impact on the security, economic well-
5 being, and health of Americans as fields related to
6 nanotechnology expand.

7 (3) In order to maximize the benefits of nano-
8 technology to individuals in the United States, the
9 United States must maintain world leadership in the
10 field, including nanoscience and microtechnology, in
11 the face of determined competition from other na-
12 tions.

13 (4) According to the National Science Founda-
14 tion, foreign students on temporary visas earned 33
15 percent of all science and engineering doctorates
16 awarded in the United States in 2007, the last year
17 for which data are available. Foreign students
18 earned 63 percent of the engineering doctorates.

19 (5) To maintain world leadership in nanotech-
20 nology, the United States must make a long-term in-
21 vestment in educating United States students in sec-
22 ondary schools and institutions of higher education,
23 so that the students are able to conduct nanoscience
24 research and develop and commercialize nanotech-
25 nology applications.

1 (6) Preparing United States students for ca-
2 reers in nanotechnology, including nanoscience, re-
3 quires that the students have access to the necessary
4 scientific tools, including scanning electron micro-
5 scopes designed for teaching, and requires training
6 to enable teachers and professors to use those tools
7 in the classroom and the laboratory.

8 (b) PURPOSE.—The purpose of this section is to
9 strengthen the capacity of United States secondary
10 schools and institutions of higher education to prepare
11 students for careers in nanotechnology by providing grants
12 to those schools and institutions to provide the tools nec-
13 essary for such preparation.

14 (c) DEFINITIONS.—In this section:

15 (1) DIRECTOR.—The term “Director” means
16 the Director of the National Science Foundation.

17 (2) ELIGIBLE INSTITUTION.—The term “eligi-
18 ble institution” means an institution that is—

19 (A) a public, private, parochial, or charter
20 secondary school that offers 1 or more ad-
21 vanced placement science courses or inter-
22 national baccalaureate science courses;

23 (B) a community college, as defined in sec-
24 tion 3301 of the Elementary and Secondary
25 Education Act of 1965 (20 U.S.C. 7011);

1 (C) a 4-year institution of higher education
2 or a branch, within the meaning of section
3 498(j) of the Higher Education Act of 1965
4 (20 U.S.C. 1099c(j)), of such an institution; or

5 (D) a informal learning science and tech-
6 nology center.

7 (3) QUALIFIED NANOTECHNOLOGY EQUIP-
8 MENT.—The term “qualified nanotechnology equip-
9 ment” means equipment, instrumentation, or hard-
10 ware that is—

11 (A) used for teaching nanotechnology in
12 the classroom; and

13 (B) manufactured in the United States at
14 least 50 percent from articles, materials, or
15 supplies that are mined, produced, or manufac-
16 tured, as the case may be, in the United States.

17 (d) PROGRAM AUTHORIZED.—

18 (1) PROGRAM AUTHORIZED.—The Director
19 shall establish a nanotechnology in the schools pro-
20 gram to strengthen the capacity of eligible institu-
21 tions to provide instruction in nanotechnology. In
22 carrying out the program, the Director shall award
23 grants of not more than \$400,000 to eligible institu-
24 tions to provide such instruction.

25 (2) ACTIVITIES SUPPORTED.—

1 (A) IN GENERAL.—An eligible institution
2 shall use a grant awarded under this section—

3 (i) to acquire qualified nanotechnology
4 equipment and software designed for
5 teaching students about nanotechnology in
6 the classroom;

7 (ii) to develop and provide educational
8 services, including carrying out faculty de-
9 velopment, to prepare students or faculty
10 seeking a degree or certificate that is ap-
11 proved by the State, or a regional accred-
12 iting body recognized by the Secretary of
13 Education; and

14 (iii) to provide teacher education and
15 certification to individuals who seek to ac-
16 quire or enhance technology skills in order
17 to use nanotechnology in the classroom or
18 instructional process.

19 (B) LIMITATIONS.—

20 (i) USES.—Not more than $\frac{1}{4}$ of the
21 amount of the funds made available
22 through a grant awarded under this sec-
23 tion may be used for software, educational
24 services, or teacher education and certifi-
25 cation as described in this paragraph.

1 (ii) PROGRAMS.—In the case of a
2 grant awarded under this section to an in-
3 stitution of higher education, equipment
4 purchased using funds made available
5 through the grant shall be used primarily
6 by undergraduate programs.

7 (3) APPLICATIONS AND SELECTION.—

8 (A) IN GENERAL.—To be eligible to receive
9 a grant under this section, an eligible institu-
10 tion shall submit an application to the Director
11 at such time, in such manner, and accompanied
12 by such information as the Director may rea-
13 sonably require.

14 (B) PROCEDURE.—Not later than 180
15 days after the date of enactment of this Act,
16 the Director shall establish a procedure for ac-
17 cepting such applications and publish an an-
18 nouncement of such procedure, including a
19 statement regarding the availability of funds, in
20 the Federal Register.

21 (C) SELECTION.—In selecting eligible in-
22 stitutions to receive grants under this section,
23 and encouraging eligible institutions to apply
24 for such grants, the Director shall, to the great-
25 est extent practicable—

1 (i) select eligible entities in geographi-
2 cally diverse locations;

3 (ii) encourage the application of his-
4 torically Black colleges and universities
5 (meaning part B institutions, as defined in
6 section 322 of the Higher Education Act
7 of 1965 (20 U.S.C. 1061)) and minority
8 institutions (as defined in section 365 of
9 such Act (20 U.S.C. 1067k)); and

10 (iii) select eligible institutions that in-
11 clude institutions located in States partici-
12 pating in the Experimental Program to
13 Stimulate Competitive Research (com-
14 monly known as “EPSCoR”).

15 (4) MATCHING REQUIREMENT AND LIMITA-
16 TION.—

17 (A) IN GENERAL.—

18 (i) REQUIREMENT.—The Director
19 may not award a grant to an eligible insti-
20 tution under this section unless such insti-
21 tution agrees that, with respect to the
22 costs to be incurred by the institution in
23 carrying out the program for which the
24 grant was awarded, such institution will
25 make available (directly or through dona-

1 tions from public or private entities) non-
2 Federal contributions in an amount equal
3 to $\frac{1}{4}$ of the amount of the grant.

4 (ii) WAIVER.—The Director shall
5 waive the matching requirement described
6 in clause (i) for any institution with no en-
7 dowment, or an endowment that has a dol-
8 lar value lower than \$5,000,000, as of the
9 date of the waiver.

10 (B) LIMITATION.—

11 (i) BRANCHES.—If a branch described
12 in subsection (c)(1)(C) receives a grant
13 under this section that exceeds \$100,000,
14 that branch shall not be eligible, until 2
15 years after the date of receipt of the grant,
16 to receive another grant under this section.

17 (ii) OTHER ELIGIBLE INSTITU-
18 TIONS.—If an eligible institution other
19 than a branch referred to in clause (i) re-
20 ceives a grant under this section that ex-
21 ceeds \$100,000, that institution shall not
22 be eligible, until 2 years after the date of
23 receipt of the grant, to receive another
24 grant under this section.

25 (5) ANNUAL REPORT AND EVALUATION.—

1 (A) REPORT BY INSTITUTIONS.—Each in-
2 stitution that receives a grant under this sec-
3 tion shall prepare and submit a report to the
4 Director, not later than 1 year after the date of
5 receipt of the grant, on its use of the grant
6 funds.

7 (B) REVIEW AND EVALUATION.—

8 (i) REVIEW.—The Director shall an-
9 nually review the reports submitted under
10 subparagraph (A).

11 (ii) EVALUATION.—At the end of
12 every third year, the Director shall evalu-
13 ate the program authorized by this section
14 on the basis of those reports. The Director,
15 in the evaluation, shall describe the activi-
16 ties carried out by the institutions receiv-
17 ing grants under this section and shall as-
18 sess the short-range and long-range impact
19 of the activities carried out under the
20 grants on the students, faculty, and staff
21 of the institutions.

22 (C) REPORT TO CONGRESS.—Not later
23 than 6 months after conducting an evaluation
24 under subparagraph (B)(ii), the Director shall
25 prepare and submit a report to Congress based

1 on the evaluation. In the report, the Director
2 shall include such recommendations, including
3 recommendations concerning the continuing
4 need for Federal support of the program car-
5 ried out under this section, as may be appro-
6 priate.

7 (e) AUTHORIZATION OF APPROPRIATIONS.—There
8 are authorized to be appropriated to the Director to carry
9 out this section \$40,000,000 for fiscal year 2011, and
10 such sums as may be necessary for fiscal years 2012
11 through 2014.

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