

a program to expedite the use, in goods and services acquired by the General Services Administration, of advanced materials technologies. Such program shall include a demonstration of the use of advanced materials technologies as may be necessary to establish technical and economic feasibility. The Secretary shall transfer funds to the General Services Administration for carrying out this subsection.

**(e) Authorization of appropriations**

There are authorized to be appropriated to the Secretary for carrying out this section such sums as may be necessary, to be derived for energy efficient applications from section 13451(e) of this title and for renewable applications from section 13471(c) of this title, including Department of Energy national laboratory participation in proposals submitted under subsection (c), and including transferring funds to the General Services Administration.

(Pub. L. 102-486, title XXII, §2201, Oct. 24, 1992, 106 Stat. 3085.)

**Statutory Notes and Related Subsidiaries**

**TERMINATION OF REPORTING REQUIREMENTS**

For termination, effective May 15, 2000, of provisions in subsec. (b) of this section relating to the biennial resubmittal of the program plan to Congress, see section 3003 of Pub. L. 104-66, as amended, set out as a note under section 1113 of Title 31, Money and Finance, and the 1st item on page 86 of House Document No. 103-7.

**§ 13502. National Advanced Manufacturing Technologies Program**

**(a) Program direction**

The Secretary shall establish a 5-year National Advanced Manufacturing Technologies Program, in accordance with sections 13541 and 13542 of this title. Such program shall foster the commercialization of advanced manufacturing technologies to improve energy efficiency and productivity in manufacturing. At a minimum, the Program shall expedite the private sector deployment of advanced manufacturing technologies to improve productivity, quality, and control in manufacturing processes that can foster economic growth, energy efficiency, and competitiveness. The program<sup>1</sup> shall include field demonstrations of sufficient scale and number to prove technical and economic feasibility.

**(b) Program plan**

Within 180 days after October 24, 1992, the Secretary, in consultation with appropriate representatives of industry, institutions of higher education, Department of Energy national laboratories, and professional and technical societies, shall prepare and submit to the Congress a 5-year program plan to guide activities under this section. The Secretary shall biennially update and resubmit the program plan to Congress.

**(c) Proposals**

**(1) Solicitation**

Within 1 year after October 24, 1992, the Secretary shall solicit proposals for conducting

activities consistent with the 5-year program plan. Such proposals may be submitted by one or more parties.

**(2) Contents of proposals**

Proposals submitted under this subsection shall include—

(A) an explanation of how the proposal will expedite the commercialization of advanced manufacturing technologies to improve energy efficiency in the building, industry, and transportation sectors;

(B) evidence of consideration of whether the unique capabilities of Department of Energy national laboratories warrants collaboration with such laboratories, and the extent of such collaboration proposed;

(C) a description of the extent to which the proposal includes collaboration with relevant industry or other groups or organizations; and

(D) evidence of the ability of the proposers to undertake and complete the proposed project.

**(d) Authorization of appropriations**

There are authorized to be appropriated to the Secretary for carrying out this section such sums as may be necessary, to be derived from sums authorized under section 13451(e) of this title, including Department of Energy national laboratory participation in proposals submitted under subsection (c).

(Pub. L. 102-486, title XXII, §2202, Oct. 24, 1992, 106 Stat. 3086.)

**Statutory Notes and Related Subsidiaries**

**TERMINATION OF REPORTING REQUIREMENTS**

For termination, effective May 15, 2000, of provisions in subsec. (b) of this section relating to the biennial resubmittal of the program plan to Congress, see section 3003 of Pub. L. 104-66, as amended, set out as a note under section 1113 of Title 31, Money and Finance, and the 2nd item on page 86 of House Document No. 103-7.

**§ 13503. Supporting research and technical analysis**

**(a) Basic energy sciences**

**(1) Program direction**

The Secretary shall continue to support a vigorous program of basic energy sciences to provide basic research support for the development of energy technologies. Such program shall focus on the efficient production and use of energy, and the expansion of our knowledge of materials, chemistry, geology, and other related areas of advancing technology development.

**(2) User facilities**

(A) As part of the program referred to in paragraph (1), the Secretary shall carry out planning, construction, and operation of user facilities to provide special scientific and research capabilities, including technical expertise and support as appropriate, to serve the research needs of our Nation's universities, industry, private laboratories, Federal laboratories, and others. Research institutions or individuals from other nations shall be accom-

<sup>1</sup> So in original. Probably should be capitalized.

modated at such user facilities in cases where reciprocal accommodations are provided to United States research institutions and individuals or where the Secretary considers such accommodation to be in the national interest.

(B) The construction of the Advanced Photon Source at the Argonne National Laboratory is hereby authorized.

(C) The Secretary shall not change the user fee practice in effect as of October 1, 1991, with respect to user facilities unless the Secretary notifies Congress 90 days before the effective date of any change.

(D) The Secretary shall expedite the design for construction of the Advanced Neutron Source at the Oak Ridge National Laboratory, in order to provide critical research capabilities in support of our national research initiatives for advanced materials and biotechnology, as well as a broad range of research. Such action shall be consistent with the Basic Energy Sciences Advisory Committee's Technical Evaluation of accelerator and reactor neutron source technologies. Within 90 days after October 24, 1992, the Secretary shall submit to the Congress a plan for such design, including a schedule for construction.

### (3) Cost sharing

The Secretary shall not require cost sharing for research and development pursuant to this subsection, except—

(A) as otherwise provided for in cooperative research and development agreements or other agreements entered into under existing law;

(B) for fees for user facilities, as determined by the Secretary; or

(C) in the case of specific projects, where the Secretary determines that the benefits of such research and development accrue to a specific industry or group of industries, in which case cost sharing under section 13542 of this title shall apply.

## (b) University and science education

### (1) University research reactors

The Secretary shall support programs for improvements and upgrading of university research reactors and associated instrumentation and equipment. Within 1 year after October 24, 1992, the Secretary shall submit to the Congress a report on the condition and status of university research reactors, which includes a 5-year plan for upgrading and improving such facilities, instrumentation capabilities, and related equipment.

### (2) Method to evaluate effectiveness of education programs

The Secretary shall develop a method to evaluate the effectiveness of science and mathematics education programs provided by the Department of Energy and its laboratories, including specific evaluation criteria.

### (3) Established program to stimulate competitive research

#### (A) Definitions

In this paragraph:

#### (i) Eligible jurisdiction

The term “eligible jurisdiction” means a State that is determined to be eligible for

a grant under this paragraph in accordance with subparagraph (D).

#### (ii) EPSCoR

The term “EPSCoR” means the Established Program to Stimulate Competitive Research operated under subparagraph (B).

#### (iii) National Laboratory

The term “National Laboratory” has the meaning given the term in section 15801 of this title.

#### (iv) State

The term “State” means—

(I) a State;

(II) the District of Columbia;

(III) the Commonwealth of Puerto Rico;

(IV) Guam; and

(V) the United States Virgin Islands.

## (B) Program operation

The Secretary shall operate an Established Program to Stimulate Competitive Research.

## (C) Objectives

The objectives of EPSCoR shall be—

(i) to increase the number of researchers in eligible jurisdictions, especially at institutions of higher education, capable of performing nationally competitive science and engineering research in support of the mission of the Department of Energy in the areas of applied energy research, environmental management, and basic science;

(ii) to improve science and engineering research and education programs at institutions of higher education in eligible jurisdictions and enhance the capabilities of eligible jurisdictions to develop, plan, and execute research that is competitive, including through investing in research equipment and instrumentation; and

(iii) to increase the probability of long-term growth of competitive funding to eligible jurisdictions.

## (D) Eligible jurisdictions

### (i) In general

The Secretary may establish criteria for determining whether a State is eligible for a grant under this paragraph.

### (ii) Requirement

Except as provided in clause (iii), in establishing criteria under clause (i), the Secretary shall ensure that a State is eligible for a grant under this paragraph if the State, as determined by the Secretary, is a State that—

(I) historically has received relatively little Federal research and development funding; and

(II) has demonstrated a commitment—

(aa) to develop the research bases in the State; and

(bb) to improve science and engineering research and education programs at institutions of higher education in the State.

### (iii) Eligibility under NSF EPSCoR

At the election of the Secretary, or if the Secretary declines to establish criteria

under clause (i), the Secretary may continue to use the eligibility criteria in use on January 1, 2021, or any successor criteria.

**(E) Grants**

**(i) In general**

EPSCoR shall make grants to eligible jurisdictions to carry out and support applied energy research and research in all areas of environmental management and basic science sponsored by the Department of Energy, including—

(I) energy efficiency, fossil energy, renewable energy, nuclear energy, and other applied energy research;

(II) electricity delivery research;

(III) cybersecurity, energy security, and emergency response;

(IV) environmental management; and

(V) scientific research, including—

(aa) advanced scientific computing research;

(bb) basic energy sciences;

(cc) biological and environmental research;

(dd) fusion energy sciences;

(ee) high energy physics;

(ff) nuclear physics;

(gg) isotope research, development, and production;

(hh) accelerator research, development, and production; and

(ii) other areas of research funded by the Office of Science, as determined by the Secretary.

**(ii) Activities**

EPSCoR shall make grants under this subparagraph for activities consistent with the objectives described in subparagraph (C) in the areas of applied energy research, environmental management, and basic science described in clause (i), including—

(I) to support research that is carried out in partnership with the National Laboratories;

(II) to provide for undergraduate scholarships, graduate fellowships, and traineeships;

(III) to support research by early career faculty and staff;

(IV) to improve research capabilities through annual research implementation grants;

(V) to develop research clusters for particular areas of expertise; and

(VI) to diversify the future workforce.

**(iii) No cost sharing**

EPSCoR shall not impose any cost-sharing requirement with respect to a grant made under this subparagraph, but may require letters of commitment from National Laboratories.

**(F) Research capability enhancement**

**(i) Scholarships and fellowships**

**(I) In general**

Pursuant to subparagraph (E)(ii), the Secretary shall award grants to institu-

tions of higher education in eligible jurisdictions for those institutions of higher education to provide scholarships and fellowships.

**(II) Grant**

A scholarship or fellowship awarded by an institution of higher education in an eligible jurisdiction using a grant provided under subclause (I)—

(aa) in the case of an undergraduate scholarship—

(AA) shall be for a period of 1 year; and

(BB) may be competitively renewable on an annual basis; and

(bb) in the case of a graduate level fellowship, shall be for a period of not more than 5 years.

**(ii) Early career capacity development**

**(I) In general**

Pursuant to subparagraph (E)(ii), the Secretary shall award grants to early career faculty and staff at institutions of higher education in eligible jurisdictions—

(aa) to support investigator-initiated research, including associated research equipment and instrumentation;

(bb) to support activities associated with identifying and responding to funding opportunities;

(cc) to secure technical assistance for the pursuit of funding opportunities; and

(dd) to develop and enhance collaboration among National Laboratories, Department of Energy programs, the private sector, and other relevant entities.

**(II) Grants**

A grant awarded under subclause (I) shall be—

(aa) for a period of not more than 5 years; and

(bb) competitively renewable for an additional 5-year period.

**(iii) Research capacity development**

**(I) In general**

Pursuant to subparagraph (E)(ii), the Secretary shall award competitive grants to institutions of higher education in eligible jurisdictions for research capacity development and implementation, including—

(aa) developing expertise in key technology areas, including associated equipment and instrumentation;

(bb) developing and acquiring novel, state-of-the-art instruments and equipment that range in cost from \$500,000 to \$20,000,000;

(cc) enhancing collaboration with National Laboratories, the Department of Energy, and the private sector through faculty or staff placement programs; and

(dd) supporting formal partnership programs with institutions of higher education and National Laboratories.

**(II) Grants**

A grant awarded under subclause (I) shall be—

- (aa) for a period of not more than 5 years; and
- (bb) renewable for an additional 5-year period.

**(III) Equipment and instrumentation**

To the maximum extent practicable, the Secretary shall ensure that research equipment and instrumentation developed or acquired pursuant to a grant awarded under subclause (I) may sustain continued operation and be maintained without the need for additional or subsequent funding under this section.

**(G) Program implementation****(i) In general**

Not later than 270 days after January 1, 2021, the Secretary shall submit to the Committees on Energy and Natural Resources and Appropriations of the Senate and the Committees on Energy and Commerce and Appropriations of the House of Representatives a plan describing how the Secretary shall implement EPSCoR.

**(ii) Contents of plan**

The plan described in clause (i) shall include a description of—

- (I) the management structure of EPSCoR, which shall ensure that all research areas and activities described in this paragraph are incorporated into EPSCoR;
- (II) efforts to conduct outreach to inform eligible jurisdictions and faculty of changes to, and opportunities under, EPSCoR;
- (III) how EPSCoR plans to increase engagement with eligible jurisdictions, faculty, and State committees, including by holding regular workshops, to increase participation in EPSCoR; and
- (IV) any other issues relating to EPSCoR that the Secretary determines appropriate.

**(iii) Update**

Not later than 270 days after August 9, 2022, the Secretary shall—

- (I) update the plan submitted under clause (i); and
- (II) submit the updated plan to the committees described in that clause.

**(H) Program evaluation****(i) In general**

Not later than 5 years after January 1, 2021, the Secretary shall contract with a federally funded research and development center, the National Academy of Sciences, or a similar organization to carry out an assessment of the effectiveness of EPSCoR, including an assessment of—

- (I) the tangible progress made towards achieving the objectives described in subparagraph (C);
- (II) the impact of research supported by EPSCoR on the mission of the Department of Energy; and

(III) any other issues relating to EPSCoR that the Secretary determines appropriate.

**(ii) Limitation**

The organization with which the Secretary contracts under clause (i) shall not be a National Laboratory.

**(iii) Report**

Not later than 6 years after January 1, 2021, the Secretary shall submit to the Committee on Energy and Natural Resources and the Committee on Appropriations of the Senate and the Committee on Science, Space and Technology and the Committee on Appropriations of the House of Representatives a report describing the results of the assessment carried out under clause (i), including recommendations for improvements that would enable the Secretary to achieve the objectives described in subparagraph (C).

**(iv) Annual report**

At the end of each fiscal year, the Secretary shall submit to the Committee on Energy and Natural Resources and the Committee on Appropriations of the Senate and the Committee on Energy and Commerce and the Committee on Appropriations of the House of Representatives a report that includes—

- (I) the total amount of expenditures made by the Department to carry out EPSCoR in each eligible jurisdiction for each of the 3 most recent fiscal years for which such information is available;
- (II)(aa) the number of EPSCoR awards made to institutions of higher education located in eligible jurisdictions; and
- (bb) the amount and type of each award;
- (III) the number of awards that are not EPSCoR awards made by the Secretary to institutions of higher education located in eligible jurisdictions;
- (IV)(aa) the number of representatives of institutions of higher education in eligible jurisdictions serving on each Office of Science advisory committee; and
- (bb) for each such advisory committee, the percentage of committee membership that those individuals constitute; and
- (V) the number of individuals from institutions of higher education in eligible jurisdictions serving on peer review committees.

**(I) Funding****(i) Authorization of appropriations**

There are authorized to be appropriated to the Secretary to carry out EPSCoR, to remain available until expended—

- (I) \$50,000,000 for fiscal year 2023;
- (II) \$50,000,000 for fiscal year 2024;
- (III) \$75,000,000 for fiscal year 2025;
- (IV) \$100,000,000 for fiscal year 2026; and
- (V) \$100,000,000 for fiscal year 2027.

**(ii) Grants to consortia**

In the case of an EPSCoR grant awarded to a consortium that contains institutions

of higher education that are not located in eligible jurisdictions, the Secretary may count—

(I) the full amount of funds expended to provide the grant towards meeting the funding requirement in clause (iii) if the lead entity of the consortium is an institution of higher education located in an eligible jurisdiction; and

(II) only the funds provided to institutions of higher education located in eligible jurisdictions towards meeting the funding requirement in clause (iii) if the lead entity of the consortium is an institution of higher education that is not located in an eligible jurisdiction.

**(iii) Additional funds for eligible jurisdictions**

In addition to funds authorized to be appropriated under clause (i), the Secretary, to the maximum extent practicable while maintaining the competitive, merit-based award processes of the Office of Science, shall ensure that, of the research and development funds of the Office of Science that are awarded by the Secretary each year to institutions of higher education, not less than 10 percent is awarded to institutions of higher education in eligible jurisdictions pursuant to the evaluation and selection criteria in section 605.10 of title 10, Code of Federal Regulations (or successor regulations).

**(iv) Additional funds for equipment and instrumentation**

In addition to funds authorized to be appropriated under clause (i), there is authorized to be appropriated to the Secretary to award grants under subparagraph (F)(iii)(I) for the purpose described in item (bb) of that subparagraph \$25,000,000 for each of fiscal years 2023 through 2027, to remain available until expended.

**(v) Accounting**

To the maximum extent practicable, the Secretary shall ensure that each program within the Department of Energy that endorses an EPSCoR grant awardee shall contribute funding to the award to acknowledge the research benefits to the mission of that program.

**(c) Technology transfer**

The Secretary shall support technology transfer activities conducted by the National Laboratories. Within 1 year after October 24, 1992, the Secretary shall submit to the Congress a report on the adequacy of funding for such activities, along with a proposal recommending ways to reduce the length of time required to consummate cooperative research and development agreements.

**(d) Facilities support for multiprogram energy laboratories**

**(1) Facility policy**

The Secretary shall develop and implement a least cost strategy for correcting facility problems, closing unneeded facilities, making

facility modifications, and building new facilities at multiprogram energy laboratories.

**(2) Facility plan**

Within 1 year after October 24, 1992, the Secretary shall prepare and submit to the Congress a comprehensive plan for conducting future facility maintenance, making repairs, modifications, and new additions, and constructing new facilities at multiprogram energy laboratories. Such plan shall provide for facilities work in accordance with the following priorities, listed in descending order of priority:

(A) Providing for the safety and health of employees, visitors, and the general public with regard to correcting existing structural, mechanical, electrical, and environmental deficiencies.

(B) Providing for the repair and rehabilitation of existing facilities to keep them in use and prevent deterioration.

(C) Providing engineering design and construction services for those facilities which require modification or additions in order to meet the needs of new or expanded programs.

Such plan shall include plans for new facilities and facility modifications which will be required to meet the Department of Energy's changing missions of the twenty-first century, including schedules and estimates for implementation, and including a section outlining long-term funding requirements consistent with anticipated budgets and annual authorization of appropriations. Such plan shall address the coordination of modernization and consolidation of facilities in order to meet changing mission requirements, and shall provide for annual reports to Congress on accomplishments, conformance to schedules, commitments, and expenditures.

**(e) Authorization of appropriations**

There are authorized to be appropriated to the Secretary for Supporting Research and Technical Analysis, including Basic Energy Sciences, Energy Research Analysis, University and Science Education, Technology Transfer, Advisory and Oversight Program Direction, and Facilities Support for Multiprogram Energy Laboratories, \$966,804,000 for fiscal year 1993 and such sums as may be necessary for fiscal year 1994.

(Pub. L. 102-486, title XXII, §2203, Oct. 24, 1992, 106 Stat. 3087; Pub. L. 105-245, title III, §309(b)(2)(F), Oct. 7, 1998, 112 Stat. 1853; Pub. L. 116-260, div. Z, title IX, §9011, Dec. 27, 2020, 134 Stat. 2606; Pub. L. 116-283, div. H, title XCIV, §9411, Jan. 1, 2021, 134 Stat. 4815; Pub. L. 117-167, div. B, title I, §10113(a)-(e), (g), Aug. 9, 2022, 136 Stat. 1464-1468.)

**Editorial Notes**

**AMENDMENTS**

2022—Subsec. (b)(1), (2). Pub. L. 117-167, §10113(g), inserted headings.

Subsec. (b)(3)(E). Pub. L. 117-167, §10113(a)(1), struck out “in areas of applied energy research, environmental management, and basic science” after “Grants” in heading.

Subsec. (b)(3)(E)(i)(I). Pub. L. 117-167, § 10113(a)(2)(A), inserted “nuclear energy,” before “and”.

Subsec. (b)(3)(E)(i)(V). Pub. L. 117-167, § 10113(a)(2)(B), added subcl. (V) and struck out former subcl. (V) which read as follows: “basic science research.”

Subsec. (b)(3)(E)(ii)(II). Pub. L. 117-167, § 10113(a)(3)(A), substituted “undergraduate scholarships, graduate fellowships, and” for “graduate”.

Subsec. (b)(3)(E)(ii)(III). Pub. L. 117-167, § 10113(a)(3)(B), substituted “and staff;” for “; and”.

Subsec. (b)(3)(E)(ii)(IV). Pub. L. 117-167, § 10113(a)(3)(C), substituted “annual” for “biennial” and semicolon for period at end.

Subsec. (b)(3)(E)(ii)(V), (VI). Pub. L. 117-167, § 10113(a)(3)(D), added subcls. (V) and (VI).

Subsec. (b)(3)(F). Pub. L. 117-167, § 10113(b), added subpar. (F) and struck out former subpar. (F). Prior to amendment, text read as follows: “EPSCoR may carry out such activities as may be necessary to meet the objectives described in subparagraph (C) in the areas of applied energy research, environmental management, and basic science described in subparagraph (E)(i).”

Subsec. (b)(3)(G)(iii). Pub. L. 117-167, § 10113(c), added cl. (iii).

Subsec. (b)(3)(H)(iv). Pub. L. 117-167, § 10113(d), added cl. (iv).

Subsec. (b)(3)(I). Pub. L. 117-167, § 10113(e), added subpar. (I).

2021—Subsec. (b)(3). Pub. L. 116-283 added par. (3) identical to the par. (3) appearing in the amendment by Pub. L. 116-260. See 2020 Amendment note below.

2020—Subsec. (b)(3). Pub. L. 116-260 added par. (3) and struck out former par. (3) which related to the operation of an Experimental Program to Stimulate Competitive Research (EPSCoR).

1998—Subsec. (b)(3)(A)(i). Pub. L. 105-245 substituted “Office of Science” for “Office of Energy Research”.

#### § 13504. Math and science education program

##### (a) Program

The Secretary shall enter into contracts with existing qualified entities to conduct science and mathematics education programs that supplement the Special Programs for Students from Disadvantaged Backgrounds carried out by the Secretary of Education under sections 1070d through 1070d-1d of title 20.<sup>1</sup>

##### (b) Purpose

(1) The purpose of the programs shall be to provide support to Federal, State, and private programs designed to promote the participation of low-income and first generation college students as defined in section 1070d of title 20<sup>1</sup> in post-secondary science and mathematics education.

(2) Support activities may include—

(A) the development of educational materials;

(B) the training of teachers and counselors;

(C) the establishment of student internships;

(D) the development of seminars on mathematics and science;

(E) tutoring in mathematics and science;

(F) academic counseling;

(G) the development of opportunities for research; and

(H) such other activities that may promote the participation of low-income and first generation college students in post-secondary science and mathematics education.

##### (c) Support

(1) In carrying out the purpose of this section, the entities may provide support under subsection (b)(2) to—

(A) low-income and first generation college students; and

(B) institutions of higher education, public and private agencies and organizations, and secondary and middle schools that principally benefit low-income students.

(2) The qualified entities shall, to the extent practicable, coordinate support activities under this section with the Secretary of Education and the Secretary.

##### (d) Cooperation with qualified entities

The Secretary shall cooperate with qualified entities and, to the extent practicable, make available to the entities such personnel, facilities, and other resources of the Department of Energy as may be necessary to carry out the duties of the entities.

##### (e) Report

Not later than October 1 of each year, the entities shall report to the Secretary, the Secretary of Education, and the Congress on—

(1) progress made to promote the participation of low-income and first generation college students in post-secondary science and mathematics education by—

(A) the qualified entities;

(B) other mathematics and science education programs of the Department of Energy; and

(C) the Special Programs for Students from Disadvantaged Backgrounds of the Department of Education; and

(2) recommendations for such additional actions as may be needed to promote the participation of low-income students in post-secondary science and mathematics education.

##### (f) Effect on existing programs

The programs in this section shall supplement and be developed in cooperation with the current mathematics and science education programs of the Department of Energy and the Department of Education but shall not supplant them.

##### (g) “Qualified entity” defined

For purposes of this section, the term “qualified entity” means a nonprofit corporation, association, or institution that has demonstrated special knowledge of, and experience with, the education of low-income and first generation college students and whose primary mission is the operation of national programs that focus on low-income students and provide training and other services to educators.

##### (h) Authorization of appropriations

There are authorized to be appropriated such sums as may be necessary, to be derived from section 13503(e) of this title and the Environmental Restoration and Waste Management program, to carry out the purposes of this section.

(Pub. L. 102-486, title XXII, § 2204, Oct. 24, 1992, 106 Stat. 3089.)

#### Editorial Notes

##### REFERENCES IN TEXT

Sections 1070d through 1070d-1d of title 20, referred to in subsec. (a), and section 1070d of title 20, referred to

<sup>1</sup> See References in Text note below.