

## NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY ACT

(ACT OF MARCH 3, 1901)

[As Amended Through P.L. 111–358, Enacted January 4, 2011]

**CHAP. 872.**—AN ACT To establish the National Bureau of Standards.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,*

### FINDINGS AND PURPOSES

SECTION 1. **[15 U.S.C. 271]** (a) The Congress finds and declares the following:

(1) The future well-being of the United States economy depends on a strong manufacturing base and requires continual improvements in manufacturing technology, quality control, and techniques for ensuring product reliability and cost-effectiveness.

(2) Precise measurements, calibrations, and standards help United States industry and manufacturing concerns compete strongly in world markets.

(3) Improvements in manufacturing and product technology depend on fundamental scientific and engineering research to develop (A) the precise and accurate measurement methods and measurement standards needed to improve quality and reliability, and (B) new technological processes by which such improved methods may be used in practice to improve manufacturing and to assist industry to transfer important laboratory discoveries into commercial products.

(4) Scientific progress, public safety, and product compatibility and standardization also depend on the development of precise measurement methods, standards, and related basic technologies.

(5) The National Bureau of Standards since its establishment has served as the Federal focal point in developing basic measurement standards and related technologies, has taken a lead role in stimulating cooperative work among private industrial organizations in efforts to surmount technological hurdles, and otherwise has been responsible for assisting in the improvement of industrial technology.

(6) The Federal Government should maintain a national science, engineering, and technology laboratory which provides measurement methods, standards, and associated technologies

and which aids United States companies in using new technologies to improve products and manufacturing processes.

(7) Such national laboratory also should serve industry, trade associations, State technology programs, labor organizations, professional societies, and educational institutions by disseminating information on new basic technologies including automated manufacturing processes.

(b) It is the purpose of this Act—

(1) to rename the National Bureau of Standards as the National Institute of Standards and Technology and to modernize and restructure that agency to augment its unique ability to enhance the competitiveness of American industry while maintaining its traditional function as lead national laboratory for providing the measurements, calibrations, and quality assurance techniques which underpin United States commerce, technological progress, improved product reliability and manufacturing processes, and public safety;

(2) to assist private sector initiatives to capitalize on advanced technology;

(3) to advance, through cooperative efforts among industries, universities, and government laboratories, promising research and development projects, which can be optimized by the private sector for commercial and industrial applications; and

(4) to promote shared risks, accelerated development, and pooling of skills which will be necessary to strengthen America's manufacturing industries.

#### ESTABLISHMENT, FUNCTIONS, AND ACTIVITIES

SEC. 2. [15 U.S.C. 272] (a) There is established within the Department of Commerce a science, engineering, technology, and measurement laboratory to be known as the National Institute of Standards and Technology (hereafter in this Act referred to as the "Institute").

(b) The Secretary of Commerce (hereafter in this Act referred to as the "Secretary") acting through the Director of the Institute (hereafter in this Act referred to as the "Director") is authorized to take all actions necessary and appropriate to accomplish the purposes of this Act, including the following functions of the Institute—

(1) to assist industry in the development of technology and procedures needed to improve quality, to modernize manufacturing processes, to ensure product reliability, manufacturability, functionality, and cost-effectiveness, and to facilitate the more rapid commercialization, especially by small- and medium-sized companies throughout the United States, of products based on new scientific discoveries in fields such as automation, electronics, advanced materials, biotechnology, and optical technologies;

(2) to develop, maintain, and retain custody of the national standards of measurement, and provide the means and methods for making measurements consistent with those standards;

(3) to compare standards used in scientific investigations, engineering, manufacturing, commerce, industry, and edu-

cational institutions with the standards adopted or recognized by the Federal Government and to coordinate the use by Federal agencies of private sector standards, emphasizing where possible the use of standards developed by private, consensus organizations;

(4) to enter into contracts, including cooperative research and development arrangements, and grants and cooperative agreements, in furtherance of the purposes of this Act;

(5) to provide United States industry, Government, and educational institutions with a national clearinghouse of current information, techniques, and advice for the achievement of higher quality and productivity based on current domestic and international scientific and technical development;

(6) to assist industry in the development of measurements, measurement methods, and basic measurement technology;

(7) to determine, compile, evaluate, and disseminate physical constants and the properties and performance of conventional and advanced materials when they are important to science, engineering, manufacturing, education, commerce, and industry and are not available with sufficient accuracy elsewhere;

(8) to develop a fundamental basis and methods for testing materials, mechanisms, structures, equipment, and systems, including those used by the Federal Government;

(9) to assure the compatibility of United States national measurement standards with those of other nations;

(10) to cooperate with other departments and agencies of the Federal Government, with industry, with State and local governments, with the governments of other nations and international organizations, and with private organizations in establishing standard practices, codes, specifications, and voluntary consensus standards;

(11) to advise government and industry on scientific and technical problems;

(12) to invent, develop, and (when appropriate) promote transfer to the private sector of measurement devices to serve special national needs; and

(13) to coordinate Federal, State, and local technical standards activities and conformity assessment activities, with private sector technical standards activities and conformity assessment activities, with the goal of eliminating unnecessary duplication and complexity in the development and promulgation of conformity assessment requirements and measures.

(c) In carrying out the functions specified in subsection (b), the Secretary, acting through the Director may, among other things—

(1) construct physical standards;

(2) test, calibrate, and certify standards and standard measuring apparatus;

(3) study and improve instruments, measurement methods, and industrial process control and quality assurance techniques;

(4) cooperate with the States in securing uniformity in weights and measures laws and methods of inspection;

(5) cooperate with foreign scientific and technical institutions to understand technological developments in other countries better;

(6) prepare, certify, and sell standard reference materials for use in ensuring the accuracy of chemical analyses and measurements of physical and other properties of materials;

(7) in furtherance of the purposes of this Act, accept research associates, cash donations, and donated equipment from industry, and also engage with industry in research to develop new basic and generic technologies for traditional and new products and for improved production and manufacturing;

(8) study and develop fundamental scientific understanding and improved measurement, analysis, synthesis, processing, and fabrication methods for chemical substances and compounds, ferrous and nonferrous metals, and all traditional and advanced materials, including processes of degradation;

(9) investigate ionizing and nonionizing radiation and radioactive substances, their uses, and ways to protect people, structures, and equipment from their harmful effects;

(10) determine the atomic and molecular structure of matter, through analysis of spectra and other methods, to provide a basis for predicting chemical and physical structures and reactions and for designing new materials and chemical substances, including biologically active macromolecules;

(11) perform research on electromagnetic waves, including optical waves, and on properties and performance of electrical, electronic, and electromagnetic devices and systems and their essential materials, develop and maintain related standards, and disseminate standard signals through broadcast and other means;

(12) develop and test standard interfaces, communication protocols, and data structures for computer and related telecommunications systems;

(13) study computer systems (as that term is defined in section 20(d) of this Act) and their use to control machinery and processes;

(14) perform research to develop standards and test methods to advance the effective use of computers and related systems and to protect the information stored, processed, and transmitted by such systems and to provide advice in support of policies affecting Federal computer and related telecommunications systems;

(15) determine properties of building materials and structural elements, and encourage their standardization and most effective use, including investigation of fire-resisting properties of building materials and conditions under which they may be most efficiently used, and the standardization of types of appliances for fire prevention;

(16) undertake such research in engineering, pure and applied mathematics, statistics, computer science, materials science, and the physical sciences as may be necessary to carry out and support the functions specified in this section;

(17) compile, evaluate, publish, and otherwise disseminate general, specific and technical data resulting from the perform-

ance of the functions specified in this section or from other sources when such data are important to science, engineering, or industry, or to the general public, and are not available elsewhere;

(18) collect, create, analyze, and maintain specimens of scientific value;

(19) operate national user facilities;

(20) evaluate promising inventions and other novel technical concepts submitted by inventors and small companies and work with other Federal agencies, States, and localities to provide appropriate technical assistance and support for those inventions which are found in the evaluation process to have commercial promise;

(21) demonstrate the results of the Institute's activities by exhibits or other methods of technology transfer, including the use of scientific or technical personnel of the Institute for part-time or intermittent teaching and training activities at educational institutions of higher learning as part of and incidental to their official duties; and

(22) undertake such other activities similar to those specified in this subsection as the Director determines appropriate.

(d) In carrying out the extramural funding programs of the Institute, including the programs established under sections 25, 26, and 28 of this Act, the Secretary may retain reasonable amounts of any funds appropriated pursuant to authorizations for these programs in order to pay for the Institute's management of these programs.

**SEC. 3. [15 U.S.C. 273]** The Institute is authorized to exercise its functions for the Government of the United States and for international organizations of which the United States is a member; for governments of friendly countries; for any State or municipal government within the United States; or for any scientific society, educational institution, firm, corporation, or individual within the United States or friendly countries engaged in manufacturing or other pursuits requiring the use of standards or standard measuring instruments: *Provided*, That the exercise of these functions for international organizations, governments of friendly countries and scientific societies, educational institutions, firms, corporations, or individuals therein shall be in coordination with other agencies of the United States Government, in particular the Department of State in respect to foreign entities. All requests for the services of the Institute shall be made in accordance with the rules and regulations herein established.

**SEC. 4. [15 U.S.C. 273a] UNDER SECRETARY OF COMMERCE FOR STANDARDS AND TECHNOLOGY.**

(a) **ESTABLISHMENT.**—There shall be in the Department of Commerce an Under Secretary of Commerce for Standards and Technology (in this section referred to as the "Under Secretary").

(b) **APPOINTMENT.**—The Under Secretary shall be appointed by the President by and with the advice and consent of the Senate.

(c) **COMPENSATION.**—The Under Secretary shall be compensated at the rate in effect for level III of the Executive Schedule under section 5314 of title 5, United States Code.

(d) DUTIES.—The Under Secretary shall serve as the Director of the Institute and shall perform such duties as required of the Director by the Secretary under this Act or by law.

(e) APPLICABILITY.—The individual serving as the Director of the Institute on the date of enactment of the National Institute of Standards and Technology Authorization Act of 2010 shall also serve as the Under Secretary until such time as a successor is appointed under subsection (b).

SEC. 5. [15 U.S.C. 274] The Director shall report directly to the Secretary and shall have the general supervision of the Institute, its equipment, and the exercise of its functions. The Director shall make an annual report to the Secretary of Commerce. The Director may issue, when necessary, bulletins for public distribution, containing such information as may be of value to the public or facilitate the exercise of the functions of the Institute.

SEC. 6. [15 U.S.C. 275] That the officers and employees provided for by this Act, except the director, shall be appointed by the Secretary of the Treasury, at such time as their respective services may become necessary.

SEC. 7. [15 U.S.C. 275a] The Secretary shall charge for services performed under the authority of section 3 of this Act, except in cases where he determines that the interest of the Government would be best served by waiving the charge. Such charges may be based upon fixed prices or cost. The appropriation or fund bearing the cost of the services may be reimbursed, or the Secretary may require advance payment subject to such adjustment on completion of the work as may be agreed upon.

SEC. 8. [15 U.S.C. 276] In the absence of specific agreement to the contrary, additional facilities, including equipment, purchased pursuant to the performance of services authorized by section 3 of this Act shall become the property of the Department of Commerce.

SEC. 9. [15 U.S.C. 277] That the Secretary of the Treasury shall, from time to time, make regulations regarding the payment of fees, the limits of tolerance to be attained in standards submitted for verification, the sealing of standards, the disbursement and receipt of moneys, and such other matters as he may deem necessary for carrying this Act into effect.

#### VISITING COMMITTEE ON ADVANCED TECHNOLOGY

SEC. 10. [15 U.S.C. 278] (a) There is established within the Institute a Visiting Committee on Advanced Technology (hereafter in this Act referred to as the "Committee"). The Committee shall consist of 15 members appointed by the Director, at least 10 of whom shall be from United States industry. The Director shall appoint as original members of the Committee any final members of the National Bureau of Standards Visiting Committee who wish to serve in such capacity. In addition to any powers and functions otherwise granted to it by this Act, the Committee shall review and make recommendations regarding general policy for the Institute, its organization, its budget, and its programs within the framework of applicable national policies as set forth by the President and the Congress.

(b) The persons appointed as members of the Committee—

(1) shall be eminent in fields such as business, research, new product development, engineering, labor, education, management consulting, environment, and international relations;

(2) shall be selected solely on the basis of established records of distinguished service;

(3) shall not be employees of the Federal Government; and

(4) shall be so selected as to provide representation of a cross-section of the traditional and emerging United States industries.

The Director is requested, in making appointments of persons as members of the Committee, to give due consideration to any recommendations which may be submitted to the Director by the National Academies, professional societies, business associations, labor associations, and other appropriate organizations.

(c)(1) The term of office of each member of the Committee, other than the original members, shall be 3 years; except that any member appointed to fill a vacancy occurring prior to the expiration of the term for which his predecessor was appointed shall be appointed for the remainder of such term. Any person who has completed two consecutive full terms of service on the Committee shall thereafter be ineligible for appointment during the one-year period following the expiration of the second such term.

(2) The original members of the Committee shall be elected to three classes of three members each; one class shall have a term of one year, one a term of two years, and the other a term of three years.

(d) The Committee shall meet at least twice each year at the call of the Chairman or whenever one-third of the members so request in writing. A majority of the members of the Committee not having a conflict of interest in the matter being considered by the Committee shall constitute a quorum. Each member shall be given appropriate notice, whenever possible, not less than 15 days prior to any meeting, of the call of such meeting.

(e) The Committee shall have an executive committee, and may delegate to it or to the Secretary such of the powers and functions granted to the Committee by this Act as it deems appropriate. The Committee is authorized to appoint from among its members such other committees as it deems necessary, and to assign to committees so appointed such survey and advisory functions as the Committee deems appropriate to assist it in exercising its powers and functions under this Act.

(f) The election of the Chairman and Vice Chairman of the Committee shall take place at each annual meeting occurring in an even-numbered year. The Vice Chairman shall perform the duties of the Chairman in his absence. In case a vacancy occurs in the chairmanship or vice chairmanship, the Committee shall elect a member to fill such vacancy.

(g) The Committee may, with the concurrence of a majority of its members, permit the appointment of a staff consisting of not more than four professional staff members and such clerical staff members as may be necessary. Such staff shall be appointed by the Director, after consultation with the Chairman of the Committee, and assigned at the direction of the Committee. The professional members of such staff may be appointed without regard to the pro-

visions of title 5, United States Code, governing appointments in the competitive service and the provisions of chapter 51 of title 5 of such Code relating to classification, and compensated at a rate not exceeding the appropriate rate provided for individuals in grade GS-18 of the General Schedule under section 5332 of title 5 of such Code, as may be necessary to provide for the performance of such duties as may be prescribed by the Committee in connection with the exercise of its powers and functions under this Act.

(h)(1) The Committee shall render an annual report to the Secretary for submission to the Congress not later than 30 days after the submittal to Congress of the President's annual budget request in each year. Such report shall deal essentially, though not necessarily exclusively, with policy issues or matters which affect the Institute, including the Program established under section 28, or with which the Committee in its official role as the private sector policy advisor of the Institute is concerned. Each such report shall identify areas of research and research techniques of the Institute of potential importance to the long-term competitiveness of United States industry, in which the Institute possesses special competence, which could be used to assist United States enterprises and United States industrial joint research and development ventures. Such report also shall comment on the programmatic planning document and updates thereto submitted to Congress by the Director under subsections (c) and (d) of section 23.

(2) The Committee shall render to the Secretary and the Congress such additional reports on specific policy matters as it deems appropriate.

**【Section 11 (15 U.S.C. 278a) was repealed.】**

SEC. 12. **【15 U.S.C. 278b】** (a) The Institute is authorized to utilize in the performance of its functions the Working Capital Fund established by the Act of June 29, 1950 (64 Stat. 275).

(b) The working capital of the fund shall be available for obligation and payment for any activities authorized by this Act, as amended, and for any activities for which provision is made in the appropriations which reimburse the fund.

(c) In the performance of authorized activities, the Working Capital Fund shall be available and may be reimbursed for expenses of hire of automobile, hire of consultants, and travel to meetings, to the extent that such expenses are authorized for the appropriations of the Department of Commerce.

(d) The fund may be credited with advances and reimbursements, including receipts from non-Federal sources, for services performed under the authority of section 3 of this Act.

(e) As used in this Act the term "cost" shall be construed to include directly related expenses and appropriate charges for indirect and administrative expenses.

(f) The amount of any earned net income resulting from the operation of the fund at the close of each fiscal year shall be paid into the general fund of the Treasury: *Provided*, That such earned net income may be applied to restore any prior impairment of the fund, and to ensure the availability of working capital necessary to replace equipment and inventories.

SEC. 13. **【15 U.S.C. 278c】** To the extent that funds are specifically appropriated therefor, the Secretary of Commerce is author-



ized to acquire land for such field sites as are necessary for the proper and efficient conduct of the activities authorized herein.

SEC. 14. [15 U.S.C. 278d] (a) IN GENERAL.—Within the limits of funds which are appropriated for the Institute, the Secretary of Commerce is authorized to undertake such construction of buildings and other facilities and to make sure improvements to existing buildings, grounds, and other facilities occupied or used by the Institute as are necessary for the proper and efficient conduct of the activities authorized herein.

(b) RETENTION OF FEES.—The Director is authorized to retain all building use and depreciation surcharge fees collected pursuant to OMB Circular A-25. Such fees shall be collected and credited to the Construction of Research Facilities Appropriation Account for use in maintenance and repair of the Institute's existing facilities.

SEC. 15. [15 U.S.C. 278e] In the performance of the functions of the Institute the Secretary of Commerce is authorized to undertake the following activities: (a) The purchase, repair, and cleaning of uniforms for guards; (b) the care, maintenance, protection, repair, and alteration of Institute buildings and other plant facilities, equipment, and property.<sup>1</sup> (c) the rental of field sites and laboratory, office, and warehouse space; (d) the purchase of reprints from technical journals or other periodicals and the payment of page charges for the publication of research papers and reports in such journals; (e) the furnishing of food and shelter without repayment therefor to employees of the Government at Arctic and Antarctic stations; (f) for the conduct of observations on radio propagation phenomena in the Arctic or Antarctic regions, the appointment of employees at base rates established by the Secretary of Commerce which shall not exceed such maximum rates as may be specified from time to time in the appropriation concerned, and without regard to the civil service and classification laws and titles II and III of the Federal Employees Pay Act of 1945; (g) the erection on leased property of specialized facilities and working and living quarters when the Secretary of Commerce determines that this will best serve the interests of the Government; and (h) the provision of transportation services for employees of the Institute between the facilities of the Institute and nearby public transportation, notwithstanding section 1344 of title 31, United States Code.

SEC. 16. [15 U.S.C. 278f] (a) There is hereby established within the Department of Commerce a Fire Research Center which shall have the mission of performing and supporting research on all aspects of fire with aim of providing scientific and technical knowledge applicable to the prevention and control of fires. The content and priorities of the research program shall be determined in consultation with the Administrator of the United States Fire Administration. In implementing this section, the Secretary is authorized to conduct, directly or through contracts or grants, a fire research program, including—

(1) basic and applied fire research for the purpose of arriving at an understanding of the fundamental processes underlying all aspects of fire. Such research shall include scientific investigations of—

<sup>1</sup> So in law.

- (A) the physics and chemistry of combustion processes;
  - (B) the dynamics of flame ignition, flame spread, and flame extinguishment;
  - (C) the composition of combustion products developed by various sources and under various environmental conditions;
  - (D) the early stages of fires in buildings and other structures, structural subsystems and structural components in all other types of fires, including, but not limited to, forest fires, brush fires, fires underground, oil blowout fires, and waterborne fires, with the aim of improving early detection capability;
  - (E) the behavior of fires involving all types of buildings and other structures and their contents (including mobile homes and highrise buildings, construction materials, floor and wall coverings, coatings, furnishings, and other combustible materials), and all other types of fires, including forest fires, brush fires, fires underground, oil blowout fires, and waterborne fires;
  - (F) the unique fire hazards arising from the transportation and use, in industrial and professional practices, of combustible gases, fluids, and materials;
  - (G) design concepts for providing increased fire safety consistent with habitability, comfort, and human impact in buildings and other structures;
  - (H) such other aspects of the fire process as may be deemed useful in pursuing the objectives of the fire research program; and
  - (I) methods, procedures, and equipment for arson prevention, detection, and investigation;
- (2) research into the biological, physiological, and psychological factors affecting human victims of fire, and the performance of individual members of fire services, including—
- (A) the biological and physiological effects of toxic substances encountered in fires;
  - (B) the trauma, cardiac conditions, and other hazards resulting from exposure to fire;
  - (C) the development of simple and reliable tests for determining the cause of death from fires;
  - (D) improved methods of providing first aid to victims of fires;
  - (E) psychological and motivational characteristics of persons who engage in arson, and the prediction and cure of such behavior;
  - (F) the conditions of stress encountered by firefighters, the effects of such stress, and the alleviation and reduction of such conditions; and
  - (G) such other biological, psychological, and physiological effects of fire as have significance for purposes of control or prevention of fires; and
- (3) operation tests, demonstration projects, and fire investigations in support of the activities set forth in this section. The Secretary shall insure that the results and advances arising from the work of the research program are disseminated broad-

ly. He shall encourage the incorporation, to the extent applicable and practicable, of such results and advances in building codes, fire codes, and other relevant codes, test methods, fire service operations and training, and standards. The Secretary is authorized to encourage and assist in the development and adoption of uniform codes, test methods, and standards aimed at reducing fire losses and costs of fire protection.

(b) AUTHORIZATION OF APPROPRIATIONS.—For purposes of this section, there are authorized to be appropriated an amount not to exceed \$5,650,000 for the fiscal year ending September 30, 1980, which amount includes—

(1) \$525,000 for programs which are recommended in the report submitted to the Congress by the Administrator of the United States Fire Administration pursuant to section 24(b)(1) of the Federal Fire Prevention and Control Act of 1974 (15 U.S.C. 2220(b)(1)); and

(2) \$119,000 for adjustments required by law in salaries, pay, retirement, and employee benefits.

SEC. 17. [15 U.S.C. 278g] (a) The Secretary is authorized, notwithstanding any other provision of law, to expend such sums, within the limit of appropriated funds, as the Secretary may deem desirable, through the grant of fellowships or any other form of financial assistance, to defray the expenses of foreign nationals not in service to the Government of the United States while they are performing scientific or engineering work at the Institute or participating in the exchange of scientific or technical information at the Institute.

(b) The Congress consents to the acceptance by employees of the Institute of fellowships, lectureships, or other positions for the performance of scientific or engineering activities or for the exchange of scientific or technical information, offered by a foreign government, and to the acceptance and retention by an employee of the Institute of any form of financial or other assistance provided by a foreign government as compensation for or as a means of defraying expenses associated with the performance of scientific or engineering activities or the exchange of scientific or technical information, in any case where the acceptance of such fellowship, lectureship, or position or the acceptance and retention of such assistance is determined by the Secretary to be appropriate and consistent with the interests of the United States. For the purposes of this subsection, the definitions appearing in section 7342(a) of title 5 of the United States Code apply. Civil actions may be brought and penalties assessed against any employee who knowingly accepts and retains assistance from a foreign government not consented to by this subsection in the same manner as is prescribed by section 7342(h) of title 5 of the United States Code.

(c) Provisions of law prohibiting the use of any part of any appropriation for the payment of compensation to any employee or officer of the Government of the United States who is not a citizen of the United States shall not apply to the payment of compensation to scientific or engineering personnel of the Institute.

(d) For any scientific and engineering disciplines for which there is a shortage of suitably qualified and available United States citizens and nationals, the Secretary is authorized to recruit

and employ in scientific and engineering fields at the Institute foreign nationals who have been lawfully admitted to the United States for permanent residence under the Immigration and Nationality Act and who intend to become United States citizens. Employment of a person under this paragraph shall not be subject to the provisions of title 5, United States Code, governing employment in the competitive service, or to any prohibition in any other Act against the employment of aliens, or against the payment of compensation to them.

SEC. 18. [15 U.S.C. 278g-1] (a) IN GENERAL.—The Director is authorized to expend funds appropriated for activities of the Institute in any fiscal year, as the Director may deem desirable, for awards of research fellowships and other forms of financial assistance to students at institutions of higher learning within the United States who show promise as present or future contributors to the mission of the Institute, and to United States citizens for research and technical activities on Institute programs. The selection of persons to receive such fellowships and assistance shall be made on the basis of ability and of the relevance of the proposed work to the mission and programs of the Institute.

(b) MANUFACTURING FELLOWSHIP PROGRAM.—

(1) ESTABLISHMENT.—To promote the development of a robust research community working at the leading edge of manufacturing sciences, the Director shall establish a program to award—

(A) postdoctoral research fellowships at the Institute for research activities related to manufacturing sciences; and

(B) senior research fellowships to established researchers in industry or at institutions of higher education who wish to pursue studies related to the manufacturing sciences at the Institute.

(2) APPLICATIONS.—To be eligible for an award under this subsection, an individual shall submit an application to the Director at such time, in such manner, and containing such information as the Director may require.

(3) STIPEND LEVELS.—Under this subsection, the Director shall provide stipends for postdoctoral research fellowships at a level consistent with the National Institute of Standards and Technology Postdoctoral Research Fellowship Program, and senior research fellowships at levels consistent with support for a faculty member in a sabbatical position.

(c) UNDERREPRESENTED MINORITIES.—In evaluating applications for fellowships under this section, the Director shall give consideration to the goal of promoting the participation of underrepresented minorities in research areas supported by the Institute.

SEC. 19. [15 U.S.C. 278g-2] The Institute shall establish and conduct a post-doctoral fellowship program, subject to the availability of appropriations, which shall be organized and carried out in substantially the same manner as the National Academy of Sciences/National Research Council Post-Doctoral Research Associate Program that was in effect prior to 1986, and which shall include not less than twenty nor more than 120 new fellows per fiscal year. In evaluating applications for fellowships under this section,

the Director shall give consideration to the goal of promoting the participation of underrepresented minorities in research areas supported by the Institute.

SEC. 19A. [15 U.S.C. 278g-2a] (a) The Director shall establish within the Institute a teacher science and technology enhancement program to provide for professional development of mathematics and science teachers of elementary, middle, and secondary schools (as those terms are defined by the Director), including providing for the improvement of those teachers with respect to the understanding of science and the impacts of science on commerce.

(b) In carrying out the program under this section, the Director shall focus on the areas of—

- (1) scientific measurements;
- (2) tests and standards development;
- (3) industrial competitiveness and quality;
- (4) manufacturing;
- (5) technology transfer; and
- (6) any other area of expertise of the Institute that the Director determines to be appropriate.

(c) The Director shall develop and issue procedures and selection criteria for participants in the program. The Director shall give special consideration to an application from a teacher from a high-need school, as defined in section 200 of the Higher Education Act of 1965 (20 U.S.C. 1021).

(d) The program under this section shall be conducted on an annual basis during the summer months, during the period of time when a majority of elementary, middle, and secondary schools have not commenced a school year.

(e) The program shall provide for teachers' participation in activities at the laboratory facilities of the Institute, or shall utilize other means of accomplishing the goals of the program as determined by the Director, which may include the Internet, video conferencing and recording, and workshops and conferences.

SEC. 20. [15 U.S.C. 278g-3] (a) The Institute shall—

(1) have the mission of developing standards, guidelines, and associated methods and techniques for information systems;

(2) develop standards and guidelines, including minimum requirements, for information systems used or operated by an agency or by a contractor of an agency or other organization on behalf of an agency, other than national security systems (as defined in section 3532(b)(2) of title 44, United States Code);

(3) develop standards and guidelines, including minimum requirements, for providing adequate information security for all agency operations and assets, but such standards and guidelines shall not apply to national security systems; and

(4) carry out the responsibilities described in paragraph (3) through the Computer Security Division.

(b) The standards and guidelines required by subsection (a) shall include, at a minimum—

(1)(A) standards to be used by all agencies to categorize all information and information systems collected or maintained by or on behalf of each agency based on the objectives of pro-

viding appropriate levels of information security according to a range of risk levels;

(B) guidelines recommending the types of information and information systems to be included in each such category; and

(C) minimum information security requirements for information and information systems in each such category;

(2) a definition of and guidelines concerning detection and handling of information security incidents; and

(3) guidelines developed in coordination with the National Security Agency for identifying an information system as a national security system consistent with applicable requirements for national security systems, issued in accordance with law and as directed by the President.

(c) In developing standards and guidelines required by subsections (a) and (b), the Institute shall—

(1) consult with other agencies and offices (including, but not limited to, the Director of the Office of Management and Budget, the Departments of Defense and Energy, the National Security Agency, the General Accounting Office, and the Secretary of Homeland Security) to assure—

(A) use of appropriate information security policies, procedures, and techniques, in order to improve information security and avoid unnecessary and costly duplication of effort; and

(B) that such standards and guidelines are complementary with standards and guidelines employed for the protection of national security systems and information contained in such systems;

(2) provide the public with an opportunity to comment on proposed standards and guidelines;

(3) submit to the Director of the Office of Management and Budget for promulgation under section 11331 of title 40, United States Code—

(A) standards, as required under subsection (b)(1)(A), no later than 12 months after the date of the enactment of this section; and

(B) minimum information security requirements for each category, as required under subsection (b)(1)(C), no later than 36 months after the date of the enactment of this section;

(4) issue guidelines as required under subsection (b)(1)(B), no later than 18 months after the date of the enactment of this Act;

(5) ensure that such standards and guidelines do not require specific technological solutions or products, including any specific hardware or software security solutions;

(6) ensure that such standards and guidelines provide for sufficient flexibility to permit alternative solutions to provide equivalent levels of protection for identified information security risks; and

(7) use flexible, performance-based standards and guidelines that, to the greatest extent possible, permit the use of off-the-shelf commercially developed information security products.

(d) The Institute shall—

(1) submit standards developed pursuant to subsection (a), along with recommendations as to the extent to which these should be made compulsory and binding, to the Director of the Office of Management and Budget for promulgation under section 11331 of title 40, United States Code;

(2) provide assistance to agencies regarding—

(A) compliance with the standards and guidelines developed under subsection (a);

(B) detecting and handling information security incidents; and

(C) information security policies, procedures, and practices;

(3) conduct research, as needed, to determine the nature and extent of information security vulnerabilities and techniques for providing cost-effective information security;

(4) develop and periodically revise performance indicators and measures for agency information security policies and practices;

(5) evaluate private sector information security policies and practices and commercially available information technologies to assess potential application by agencies to strengthen information security;

(6) evaluate security policies and practices developed for national security systems to assess potential application by agencies to strengthen information security;

(7) periodically assess the effectiveness of standards and guidelines developed under this section and undertake revisions as appropriate;

(8) solicit and consider the recommendations of the Information Security and Privacy Advisory Board, established by section 21, regarding standards and guidelines developed under subsection (a) and submit such recommendations to the Director of the Office of Management and Budget with such standards submitted to the Director; and

(9) prepare an annual public report on activities undertaken in the previous year, and planned for the coming year, to carry out responsibilities under this section.

(e) As used in this section—

(1) the term “agency” has the same meaning as provided in section 3502(1) of title 44, United States Code;

(2) the term “information security” has the same meaning as provided in section 3532(1) of such title;

(3) the term “information system” has the same meaning as provided in section 3502(8) of such title;

(4) the term “information technology” has the same meaning as provided in section 11101 of title 40, United States Code; and

(5) the term “national security system” has the same meaning as provided in section 3532(b)(2) of such title.

SEC. 21. [15 U.S.C. 278g-4] (a) There is hereby established a Information Security and Privacy Advisory Board within the Department of Commerce. The Secretary of Commerce shall appoint the chairman of the Board. The Board shall be composed of twelve

additional members appointed by the Secretary of Commerce as follows:

(1) four members from outside the Federal Government who are eminent in the information technology industry, at least one of whom is representative of small or medium sized companies in such industries;

(2) four members from outside the Federal Government who are eminent in the fields of information technology, or related disciplines, but who are not employed by or representative of a producer of information technology; and

(3) four members from the Federal Government who have information system management experience, including experience in information security and privacy, at least one of whom shall be from the National Security Agency.

(b) The duties of the Board shall be—

(1) to identify emerging managerial, technical, administrative, and physical safeguard issues relative to information security and privacy;

(2) to advise the Institute and the Director of the Office of Management and Budget on information security and privacy issues pertaining to Federal Government information systems, including through review of proposed standards and guidelines developed under section 20; and

(3) to report annually its findings to the Secretary of Commerce, the Director of the Office of Management and Budget, the Director of the National Security Agency, and the appropriate committees of the Congress.

(c) The term of office of each member of the Board shall be four years, except that—

(1) of the initial members, three shall be appointed for terms of one year, three shall be appointed for terms of two years, three shall be appointed for terms of three years, and three shall be appointed for terms of four years; and

(2) any member appointed to fill a vacancy in the Board shall serve for the remainder of the term for which his predecessor was appointed.

(d) The Board shall not act in the absence of a quorum, which shall consist of seven members.

(e) Members of the Board, other than full-time employees of the Federal Government, while attending meetings of such committees or while otherwise performing duties at the request of the Board Chairman while away from their homes or a regular place of business, may be allowed travel expenses in accordance with subchapter I of chapter 57 of title 5, United States Code.

(f) The Board shall hold meetings at such locations and at such time and place as determined by a majority of the Board.

(g) To provide the staff services necessary to assist the Board in carrying out its functions, the Board may utilize personnel from the Institute or any other agency of the Federal Government with the consent of the head of the agency.

(h) As used in this section, the terms “information system” and “information technology” have the meanings given in section 20.



SEC. 22. RESEARCH PROGRAM ON SECURITY OF COMPUTER SYSTEMS<sup>1</sup>

(a) ESTABLISHMENT.—The Director shall establish a program of assistance to institutions of higher education that enter into partnerships with for-profit entities to support research to improve the security of computer systems. The partnerships may also include government laboratories and nonprofit research institutions. The program shall—

- (1) include multidisciplinary, long-term research;
- (2) include research directed toward addressing needs identified through the activities of the Computer System Security and Privacy Advisory Board under section 20(f); and
- (3) promote the development of a robust research community working at the leading edge of knowledge in subject areas relevant to the security of computer systems by providing support for graduate students, post-doctoral researchers, and senior researchers.

(b) FELLOWSHIPS.—

(1) POST-DOCTORAL RESEARCH FELLOWSHIPS.—The Director is authorized to establish a program to award post-doctoral research fellowships to individuals who are citizens, nationals, or lawfully admitted permanent resident aliens of the United States and are seeking research positions at institutions, including the Institute, engaged in research activities related to the security of computer systems, including the research areas described in section 4(a)(1) of the Cyber Security Research and Development Act.

(2) SENIOR RESEARCH FELLOWSHIPS.—The Director is authorized to establish a program to award senior research fellowships to individuals seeking research positions at institutions, including the Institute, engaged in research activities related to the security of computer systems, including the research areas described in section 4(a)(1) of the Cyber Security Research and Development Act. Senior research fellowships shall be made available for established researchers at institutions of higher education who seek to change research fields and pursue studies related to the security of computer systems.

(3) ELIGIBILITY.—

(A) IN GENERAL.—To be eligible for an award under this subsection, an individual shall submit an application to the Director at such time, in such manner, and containing such information as the Director may require.

(B) STIPENDS.—Under this subsection, the Director is authorized to provide stipends for post-doctoral research fellowships at the level of the Institute's Post Doctoral Research Fellowship Program and senior research fellowships at levels consistent with support for a faculty member in a sabbatical position.

(c) AWARDS; APPLICATIONS.—

(1) IN GENERAL.—The Director is authorized to award grants or cooperative agreements to institutions of higher education to carry out the program established under subsection

<sup>1</sup> Style of heading so in law. The code citation for section 22 is section 278h of title 15, United States Code.

(a). No funds made available under this section shall be made available directly to any for-profit partners.

(2) ELIGIBILITY.—To be eligible for an award under this section, an institution of higher education shall submit an application to the Director at such time, in such manner, and containing such information as the Director may require. The application shall include, at a minimum, a description of—

(A) the number of graduate students anticipated to participate in the research project and the level of support to be provided to each;

(B) the number of post-doctoral research positions included under the research project and the level of support to be provided to each;

(C) the number of individuals, if any, intending to change research fields and pursue studies related to the security of computer systems to be included under the research project and the level of support to be provided to each; and

(D) how the for-profit entities, nonprofit research institutions, and any other partners will participate in developing and carrying out the research and education agenda of the partnership.

(d) PROGRAM OPERATION.—

(1) MANAGEMENT.—The program established under subsection (a) shall be managed by individuals who shall have both expertise in research related to the security of computer systems and knowledge of the vulnerabilities of existing computer systems. The Director shall designate such individuals as program managers.

(2) MANAGERS MAY BE EMPLOYEES.—Program managers designated under paragraph (1) may be new or existing employees of the Institute or individuals on assignment at the Institute under the Intergovernmental Personnel Act of 1970, except that individuals on assignment at the Institute under the Intergovernmental Personnel Act of 1970 shall not directly manage such employees.

(3) MANAGER RESPONSIBILITY.—Program managers designated under paragraph (1) shall be responsible for—

(A) establishing and publicizing the broad research goals for the program;

(B) soliciting applications for specific research projects to address the goals developed under subparagraph (A);

(C) selecting research projects for support under the program from among applications submitted to the Institute, following consideration of—

(i) the novelty and scientific and technical merit of the proposed projects;

(ii) the demonstrated capabilities of the individual or individuals submitting the applications to successfully carry out the proposed research;

(iii) the impact the proposed projects will have on increasing the number of computer security researchers;

(iv) the nature of the participation by for-profit entities and the extent to which the proposed projects address the concerns of industry; and

(v) other criteria determined by the Director, based on information specified for inclusion in applications under subsection (c); and

(D) monitoring the progress of research projects supported under the program.

(4) REPORTS.—The Director shall report to the Senate Committee on Commerce, Science, and Transportation and the House of Representatives Committee on Science annually on the use and responsibility of individuals on assignment at the Institute under the Intergovernmental Personnel Act of 1970 who are performing duties under subsection (d).

(e) REVIEW OF PROGRAM.—

(1) PERIODIC REVIEW.—The Director shall periodically review the portfolio of research awards monitored by each program manager designated in accordance with subsection (d). In conducting those reviews, the Director shall seek the advice of the Computer System Security and Privacy Advisory Board, established under section 21, on the appropriateness of the research goals and on the quality and utility of research projects managed by program managers in accordance with subsection (d).

(2) COMPREHENSIVE 5-YEAR REVIEW.—The Director shall also contract with the National Research Council for a comprehensive review of the program established under subsection (a) during the 5th year of the program. Such review shall include an assessment of the scientific quality of the research conducted, the relevance of the research results obtained to the goals of the program established under subsection (d)(3)(A), and the progress of the program in promoting the development of a substantial academic research community working at the leading edge of knowledge in the field. The Director shall submit to Congress a report on the results of the review under this paragraph no later than 6 years after the initiation of the program.

(f) DEFINITIONS.—In this section:

(1) COMPUTER SYSTEM.—The term “computer system” has the meaning given that term in section 20(d)(1).

(2) INSTITUTION OF HIGHER EDUCATION.—The term “institution of higher education” has the meaning given that term in section 101(a) of the Higher Education Act of 1965 (20 U.S.C. 1001(a)).

#### REPORTS TO CONGRESS

SEC. 23. [15 U.S.C. 278i] (a) The Director shall keep the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science, Space, and Technology of the House

of Representatives<sup>1</sup> fully and currently informed with regard to all of the activities of the Institute.

(b) The Director shall justify in writing all changes in policies regarding fees for standard reference materials and calibration services occurring after June 30, 1987, including a description of the anticipated impact of any proposed changes on demand for and anticipated revenues from the materials and services. Changes in policy and fees shall not be effective unless and until the Director has submitted the proposed schedule and justification to the Congress and 30 days on which both Houses of Congress are in session have elapsed since such submission, except that the requirement of this sentence shall not apply with respect to adjustments which are based solely on changes in the costs of raw materials or of producing and delivering standard reference materials or calibration services.

(c) **THREE-YEAR PROGRAMMATIC PLANNING DOCUMENT.**—Concurrent with the submission to Congress of the President's annual budget request in the first year after the date of enactment of this subsection, the Director shall submit to Congress a 3-year programmatic planning document for the Institute, including programs under the Scientific and Technical Research and Services, Industrial Technology Services, and Construction of Research Facilities functions.

(d) **ANNUAL UPDATE ON THREE-YEAR PROGRAMMATIC PLANNING DOCUMENT.**—Concurrent with the submission to the Congress of the President's annual budget request in each year after the date of enactment of this subsection, the Director shall submit to Congress an update to the 3-year programmatic planning document submitted under subsection (c), revised to cover the first 3 fiscal years after the date of that update.

#### STUDIES BY THE NATIONAL RESEARCH COUNCIL

SEC. 24. [15 U.S.C. 278j] The Director may periodically contract with the National Research Council for advice and studies to assist the Institute to serve United States industry and science. The subjects of such advice and studies may include—

(1) the competitive position of the United States in key areas of manufacturing and emerging technologies and research activities which would enhance that competitiveness;

(2) potential activities of the Institute, in cooperation with industry and the States, to assist in the transfer and dissemination of new technologies for manufacturing and quality assurance; and

(3) identification and assessment of likely barriers to widespread use of advanced manufacturing technology by the United States workforce, including training and other initiatives which could lead to a higher percentage of manufacturing jobs of United States companies being located within the borders of our country.

<sup>1</sup>In accordance with section 1(a)(10) of Public Law 104-14 (109 Stat. 187), "the Committee on Science, Space, and Technology of the House of Representatives shall be treated as referring to the Committee on Science of the House of Representatives".

REGIONAL CENTERS FOR THE TRANSFER OF MANUFACTURING  
TECHNOLOGY

SEC. 25. [15 U.S.C. 278k] (a) The Secretary, through the Director and, if appropriate, through other officials, shall provide assistance for the creation and support of regional centers for the transfer of manufacturing technology (hereafter in this Act referred to as the "Centers"). Such centers shall be affiliated with any United States-based nonprofit institution or organization, or group thereof, that applies for and is awarded financial assistance under this section in accordance with the description published by the Secretary in the Federal Register under subsection (c)(2). Individual awards shall be decided on the basis of merit review. The objective of the Centers is to enhance productivity and technological performance in United States manufacturing through—

(1) the transfer of manufacturing technology and techniques developed at the Institute to Centers and, through them, to manufacturing companies throughout the United States;

(2) the participation of individuals from industry, universities, State governments, other Federal agencies, and, when appropriate, the Institute in cooperative technology transfer activities;

(3) efforts to make new manufacturing technology and processes usable by United States-based small- and medium-sized companies;

(4) the active dissemination of scientific, engineering, technical, and management information about manufacturing to industrial firms, including small- and medium-sized manufacturing companies;

(5) the utilization, when appropriate, of the expertise and capability that exists in Federal laboratories other than the Institute; and

(6) providing to community colleges information about the job skills needed in small- and medium-sized manufacturing businesses in the regions they serve.

(b) The activities of the Centers shall include—

(1) the establishment of automated manufacturing systems and other advanced production technologies, based on research by the Institute, for the purpose of demonstrations and technology transfer;

(2) the active transfer and dissemination of research findings and Center expertise to a wide range of companies and enterprises, particularly small- and medium-sized manufacturers; and

(3) loans, on a selective, short-term basis, of items of advanced manufacturing equipment to small manufacturing firms with less than 100 employees.

(c)(1) The Secretary may provide financial support to any Center created under subsection (a) for a period not to exceed six years. The Secretary may not provide to a Center more than 50 percent of the capital and annual operating and maintenance funds required to create and maintain such Center.

(2) The Secretary shall publish in the Federal Register, within 90 days after the date of the enactment of this section, a draft description of a program for establishing Centers, including—

- (A) a description of the program;
- (B) procedures to be followed by applicants;
- (C) criteria for determining qualified applicants;
- (D) criteria, including those listed under paragraph (4), for choosing recipients of financial assistance under this section from among the qualified applicants; and
- (E) maximum support levels expected to be available to Centers under the program in the fourth through sixth years of assistance under this section.

The Secretary shall publish a final description under this paragraph after the expiration of a 30-day comment period.

(3)(A) Any nonprofit institution, or group thereof, or consortia of nonprofit institutions, including entities existing on August 23, 1988, may submit to the Secretary an application for financial support under this subsection, in accordance with the procedures established by the Secretary and published in the Federal Register under paragraph (2).

(B) In order to receive assistance under this section, an applicant for financial assistance under subparagraph (A) shall provide adequate assurances that non-Federal assets obtained from the applicant and the applicant's partnering organizations will be used as a funding source to meet not less than 50 percent of the costs incurred for the first 3 years and an increasing share for each of the last 3 years. For purposes of the preceding sentence, the costs incurred means the costs incurred in connection with the activities undertaken to improve the management, productivity, and technological performance of small- and medium-sized manufacturing companies.

(C) In meeting the 50 percent requirement, it is anticipated that a Center will enter into agreements with other entities such as private industry, universities, and State governments to accomplish programmatic objectives and access new and existing resources that will further the impact of the Federal investment made on behalf of small- and medium-sized manufacturing companies. All non-Federal costs, contributed by such entities and determined by a Center as programmatically reasonable and allocable under MEP program procedures are includable as a portion of the Center's contribution.

(D) Each applicant under subparagraph (A) shall also submit a proposal for the allocation of the legal rights associated with any invention which may result from the proposed Center's activities.

(4) The Secretary shall subject each such application to merit review. In making a decision whether to approve such application and provide financial support under this subsection, the Secretary shall consider at a minimum (A) the merits of the application, particularly those portions of the application regarding technology transfer, training and education, and adaptation of manufacturing technologies to the needs of particular industrial sectors, (B) the quality of service to be provided, (C) geographical diversity and extent of service area, and (D) the percentage of funding and amount of in-kind commitment from other sources.

(5) Each Center which receives financial assistance under this section shall be evaluated during its third year of operation by an evaluation panel appointed by the Secretary. Each such evaluation panel shall be composed of private experts, none of whom shall be connected with the involved Center, and Federal officials. An official of the Institute shall chair the panel. Each evaluation panel shall measure the involved Center's performance against the objectives specified in this section. The Secretary shall not provide funding for the fourth through the sixth years of such Center's operation unless the evaluation is positive. If the evaluation is positive, the Secretary may provide continued funding through the sixth year at declining levels. A Center that has not received a positive evaluation by the evaluation panel shall be notified by the panel of the deficiencies in its performance and shall be placed on probation for one year, after which time the panel shall reevaluate the Center. If the Center has not addressed the deficiencies identified by the panel, or shown a significant improvement in its performance, the Director shall conduct a new competition to select an operator for the Center or may close the Center. After the sixth year, a Center may receive additional financial support under this section if it has received a positive evaluation through an independent review, under procedures established by the Institute. Such an independent review shall be required at least every two years after the sixth year of operation. Funding received for a fiscal year under this section after the sixth year of operation shall not exceed one third of the capital and annual operating and maintenance costs of the Center under the program.

(6) The provisions of chapter 18 of title 35, United States Code, shall (to the extent not inconsistent with this section) apply to the promotion of technology from research by Centers under this section except for contracts for such specific technology extension or transfer services as may be specified by statute or by the Director.

(7)<sup>1</sup> Not later than 90 days after the date of enactment of the National Institute of Standards and Technology Authorization Act of 2010, the Comptroller General shall submit to Congress a report on the cost share requirements under the program. The report shall—

(A) discuss various cost share structures, including the cost share structure in place prior to such date of enactment, and the effect of such cost share structures on individual Centers and the overall program; and

(B) include recommendations for how best to structure the cost share requirement to provide for the long-term sustainability of the program.

(8)<sup>1</sup> If consistent with the recommendations in the report transmitted to Congress under paragraph (7), the Secretary shall alter the cost structure requirements specified under paragraph (3)(B) and (5) provided that the modification does not increase the cost share structure in place before the date of enactment of the America COMPETES Reauthorization Act of 2010, or allow the Secretary to provide a Center more than 50 percent of the costs incurred by that Center.

<sup>1</sup>Margin for paragraphs (7) and (8) so in law.

(d) ACCEPTANCE OF FUNDS.—

(1) IN GENERAL.—In addition to such sums as may be appropriated to the Secretary and Director to operate the Centers program, the Secretary and Director also may accept funds from other Federal departments and agencies and under section 2(c)(7) from the private sector for the purpose of strengthening United States manufacturing.

(2) ALLOCATION OF FUNDS.—

(A) FUNDS ACCEPTED FROM OTHER FEDERAL DEPARTMENTS OR AGENCIES.—The Director shall determine whether funds accepted from other Federal departments or agencies shall be counted in the calculation of the Federal share of capital and annual operating and maintenance costs under subsection (c).

(B) FUNDS ACCEPTED FROM THE PRIVATE SECTOR.—Funds accepted from the private sector under section 2(c)(7), if allocated to a Center, shall not be considered in the calculation of the Federal share under subsection (c) of this section.

(e) MEP ADVISORY BOARD.—

(1) ESTABLISHMENT.—There is established within the Institute a Manufacturing Extension Partnership Advisory Board (in this subsection referred to as the “MEP Advisory Board”).

(2) MEMBERSHIP.—

(A) IN GENERAL.—The MEP Advisory Board shall consist of 10 members broadly representative of stakeholders, to be appointed by the Director. At least 2 members shall be employed by or on an advisory board for the Centers, and at least 5 other members shall be from United States small businesses in the manufacturing sector. No member shall be an employee of the Federal Government.

(B) TERM.—Except as provided in subparagraph (C) or (D), the term of office of each member of the MEP Advisory Board shall be 3 years.

(C) CLASSES.—The original members of the MEP Advisory Board shall be appointed to 3 classes. One class of 3 members shall have an initial term of 1 year, one class of 3 members shall have an initial term of 2 years, and one class of 4 members shall have an initial term of 3 years.

(D) VACANCIES.—Any member appointed to fill a vacancy occurring prior to the expiration of the term for which his predecessor was appointed shall be appointed for the remainder of such term.

(E) SERVING CONSECUTIVE TERMS.—Any person who has completed two consecutive full terms of service on the MEP Advisory Board shall thereafter be ineligible for appointment during the one-year period following the expiration of the second such term.

(3) MEETINGS.—The MEP Advisory Board shall meet not less than 2 times annually, and provide to the Director—

(A) advice on Manufacturing Extension Partnership programs, plans, and policies;

(B) assessments of the soundness of Manufacturing Extension Partnership plans and strategies; and



(C) assessments of current performance against Manufacturing Extension Partnership program plans.

(4) FEDERAL ADVISORY COMMITTEE ACT APPLICABILITY.—

(A) IN GENERAL.—In discharging its duties under this subsection, the MEP Advisory Board shall function solely in an advisory capacity, in accordance with the Federal Advisory Committee Act.

(B) EXCEPTION.—Section 14 of the Federal Advisory Committee Act shall not apply to the MEP Advisory Board.

(5) REPORT.—The MEP Advisory Board shall transmit an annual report to the Secretary for transmittal to Congress within 30 days after the submission to Congress of the President's annual budget request in each year. Such report shall address the status of the program established pursuant to this section and comment on the relevant sections of the programmatic planning document and updates thereto transmitted to Congress by the Director under subsections (c) and (d) of section 23.

(f) COMPETITIVE GRANT PROGRAM.—

(1) ESTABLISHMENT.—The Director shall establish, within the Centers program under this section and section 26 of this Act, a program of competitive awards among participants described in paragraph (2) for the purposes described in paragraph (3).

(2) PARTICIPANTS.—Participants receiving awards under this subsection shall be the Centers, or a consortium of such Centers.

(3) PURPOSE.—The purpose of the program under this subsection is to add capabilities to the MEP program, including the development of projects to solve new or emerging manufacturing problems as determined by the Director, in consultation with the Director of the Hollings MEP program, the Manufacturing Extension Partnership Advisory Board, and small and medium-sized manufacturers. One or more themes for the competition may be identified, which may vary from year to year, depending on the needs of manufacturers and the success of previous competitions. Centers may be reimbursed for costs incurred under the program. These themes—

(A) shall be related to projects designed to increase the viability both of traditional manufacturing sectors and other sectors, such as construction, that increasingly rely on manufacturing through the use of manufactured components and manufacturing techniques, including supply chain integration and quality management;

(B) shall be related to projects related to the transfer of technology based on the technological needs of manufacturers and available technologies from institutions of higher education, laboratories, and other technology producing entities; and

(C) may extend beyond these traditional areas to include projects related to construction industry modernization.

(4) APPLICATIONS.—Applications for awards under this subsection shall be submitted in such manner, at such time, and containing such information as the Director shall require, in consultation with the Manufacturing Extension Partnership Advisory Board.

(5) SELECTION.—

(A) IN GENERAL.—Awards under this section shall be peer reviewed and competitively awarded. The Director shall endeavor to select at least one proposal in each of the 9 statistical divisions of the United States (as designated by the Bureau of the Census). The Director shall select proposals to receive awards that will—

(i) create jobs or train newly hired employees;

(ii) promote technology transfer and commercialization of environmentally focused materials, products, and processes;

(iii) increase energy efficiency; and

(iv) improve the competitiveness of industries in the region in which the Center or Centers are located.

(B) ADDITIONAL SELECTION CRITERIA.—The Director may select proposals to receive awards that will—

(i) encourage greater cooperation and foster partnerships in the region with similar Federal, State, and locally funded programs to encourage energy efficiency and building technology; and

(ii)<sup>1</sup> collect data and analyze the increasing connection between manufactured products and manufacturing techniques, the future of construction practices, and the emerging application of products from the green energy industries.

(6) PROGRAM CONTRIBUTION.—Recipients of awards under this subsection shall not be required to provide a matching contribution.

(7) GLOBAL MARKETPLACE PROJECTS.—In making awards under this subsection, the Director, in consultation with the Manufacturing Extension Partnership Advisory Board and the Secretary of Commerce, may—

(A) take into consideration whether an application has significant potential for enhancing the competitiveness of small and medium-sized United States manufacturers in the global marketplace; and

(B) give a preference to applications for such projects to the extent the Director deems appropriate, taking into account the broader purposes of this subsection.

(7)<sup>1</sup> DURATION.—Awards under this section shall last no longer than 3 years.

(8) ELIGIBLE PARTICIPANTS.—In addition to manufacturing firms eligible to participate in the Centers program, awards under this subsection may be used by the Centers to assist small- or medium-sized construction firms. Centers may be re-

<sup>1</sup>Margin of clause (ii) so in law.

<sup>1</sup>So in law. There are two paragraphs (7)s'. Section 703(c)(1) of Public Law 111-358 added the second paragraph (7) along with paragraphs (8) and (9).

imbursed under the program for working with such eligible participants.

(9) AUTHORIZATION OF APPROPRIATIONS.—In addition to any amounts otherwise authorized or appropriated to carry out this section, there are authorized to be appropriated to the Secretary of Commerce \$7,000,000 for each of the fiscal years 2011 through 2013 to carry out this subsection.

(g) INNOVATIVE SERVICES INITIATIVE.—

(1) ESTABLISHMENT.—The Director shall establish, within the Centers program under this section, an innovative services initiative to assist small- and medium-sized manufacturers in—

(A) reducing their energy usage, greenhouse gas emissions, and environmental waste to improve profitability;

(B) accelerating the domestic commercialization of new product technologies, including components for renewable energy and energy efficiency systems; and

(C) identification of and diversification to new markets, including support for transitioning to the production of components for renewable energy and energy efficiency systems.

(2) MARKET DEMAND.—The Director may not undertake any activity to accelerate the domestic commercialization of a new product technology under this subsection unless an analysis of market demand for the new product technology has been conducted.

(h) REPORTS.—

(1) IN GENERAL.—In submitting the 3-year programmatic planning document and annual updates under section 23, the Director shall include an assessment of the Director's governance of the program established under this section.

(2) CRITERIA.—In conducting the assessment, the Director shall use the criteria established pursuant to the Malcolm Baldrige National Quality Award under section 17(d)(1)(C) of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3711a(d)(1)(C)).

(i) DESIGNATION.—

(1) HOLLINGS MANUFACTURING EXTENSION PARTNERSHIP.—The program under this section shall be known as the “Hollings Manufacturing Extension Partnership”.

(2) HOLLINGS MANUFACTURING EXTENSION CENTERS.—The Regional Centers for the Transfer of Manufacturing Technology created and supported under subsection (a) shall be known as the “Hollings Manufacturing Extension Centers” (in this Act referred to as the “Centers”).

(j) COMMUNITY COLLEGE DEFINED.—In this section, the term “community college” means an institution of higher education (as defined under section 101(a) of the Higher Education Act of 1965 (20 U.S.C. 1001(a))) at which the highest degree that is predominately awarded to students is an associate's degree.

(k) EVALUATION OF OBSTACLES UNIQUE TO SMALL MANUFACTURERS.—The Director shall—

- (1) evaluate obstacles that are unique to small manufacturers that prevent such manufacturers from effectively competing in the global market;
- (2) implement a comprehensive plan to train the Centers to address such obstacles; and
- (3) facilitate improved communication between the Centers to assist such manufacturers in implementing appropriate, targeted solutions to such obstacles.

## ASSISTANCE TO STATE TECHNOLOGY PROGRAMS

SEC. 26. [15 U.S.C. 278l] (a) In addition to the Centers program created under section 25, the Secretary, through the Director and, if appropriate, through other officials, shall provide technical assistance to State technology programs throughout the United States, in order to help those programs help businesses, particularly small- and medium-sized businesses, to enhance their competitiveness through the application of science and technology.

(b) Such assistance from the Institute to State technology programs shall include, but not be limited to—

- (1) technical information and advice from Institute personnel;
- (2) workshops and seminars for State officials interested in transferring Federal technology to businesses; and
- (3) entering into cooperative agreements when authorized to do so under this or any other Act.

**[Section 27 repealed by Public Law 110–69]**

**SEC. 28. [15 U.S.C. 278n] TECHNOLOGY INNOVATION PROGRAM.**

(a) ESTABLISHMENT.—There is established within the Institute a program linked to the purpose and functions of the Institute, to be known as the “Technology Innovation Program” for the purpose of assisting United States businesses and institutions of higher education or other organizations, such as national laboratories and nonprofit research institutions, to support, promote, and accelerate innovation in the United States through high-risk, high-reward research in areas of critical national need.

(b) EXTERNAL FUNDING.—

(1) IN GENERAL.—The Director shall award competitive, merit-reviewed grants, cooperative agreements, or contracts to—

- (A) eligible companies that are small-sized businesses or medium-sized businesses; or
- (B) joint ventures.

(2) SINGLE COMPANY AWARDS.—No award given to a single company shall exceed \$3,000,000 over 3 years.

(3) JOINT VENTURE AWARDS.—No award given to a joint venture shall exceed \$9,000,000 over 5 years.

(4) FEDERAL COST SHARE.—The Federal share of a project funded by an award under the program shall not be more than 50 percent of total project costs.

(5) PROHIBITIONS.—Federal funds awarded under this program may be used only for direct costs and not for indirect costs, profits, or management fees of a contractor. Any busi-

ness that is not a small-sized or medium-sized business may not receive any funding under this program.

(c) AWARD CRITERIA.—The Director shall only provide assistance under this section to an entity—

(1) whose proposal has scientific and technical merit and may result in intellectual property vesting in a United States entity that can commercialize the technology in a timely manner;

(2) whose application establishes that the proposed technology has strong potential to address critical national needs through transforming the Nation's capacity to deal with major societal challenges that are not currently being addressed, and generate substantial benefits to the Nation that extend significantly beyond the direct return to the applicant;

(3) whose application establishes that the research has strong potential for advancing the state-of-the-art and contributing significantly to the United States science and technology knowledge base;

(4) whose proposal explains why Technology Innovation Program support is necessary, including evidence that the research will not be conducted within a reasonable time period in the absence of financial assistance under this section;

(5) whose application demonstrates that reasonable efforts have been made to secure funding from alternative funding sources and no other alternative funding sources are reasonably available to support the proposal; and

(6) whose application explains the novelty of the technology and demonstrates that other entities have not already developed, commercialized, marketed, distributed, or sold similar technologies.

(d) COMPETITIONS.—The Director shall solicit proposals at least annually to address areas of critical national need for high-risk, high-reward projects.

(e) INTELLECTUAL PROPERTY RIGHTS OWNERSHIP.—

(1) IN GENERAL.—Title to any intellectual property developed by a joint venture from assistance provided under this section may vest in any participant in the joint venture, as agreed by the members of the joint venture, notwithstanding section 202 (a) and (b) of title 35, United States Code. The United States may reserve a nonexclusive, nontransferable, irrevocable paid-up license, to have practice for or on behalf of the United States in connection with any such intellectual property, but shall not in the exercise of such license publicly disclose proprietary information related to the license. Title to any such intellectual property shall not be transferred or passed, except to a participant in the joint venture, until the expiration of the first patent obtained in connection with such intellectual property.

(2) LICENSING.—Nothing in this subsection shall be construed to prohibit the licensing to any company of intellectual property rights arising from assistance provided under this section.

(3) DEFINITION.—For purposes of this subsection, the term “intellectual property” means an invention patentable under

title 35, United States Code, or any patent on such an invention, or any work for which copyright protection is available under title 17, United States Code.

(f) PROGRAM OPERATION.—Not later than 9 months after the date of the enactment of this section, the Director shall promulgate regulations—

(1) establishing criteria for the selection of recipients of assistance under this section;

(2) establishing procedures regarding financial reporting and auditing to ensure that awards are used for the purposes specified in this section, are in accordance with sound accounting practices, and are not funding existing or planned research programs that would be conducted within a reasonable time period in the absence of financial assistance under this section; and

(3) providing for appropriate dissemination of Technology Innovation Program research results.

(g) ANNUAL REPORT.—The Director shall submit annually to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science and Technology of the House of Representatives a report describing the Technology Innovation Program's activities, including a description of the metrics upon which award funding decisions were made in the previous fiscal year, any proposed changes to those metrics, metrics for evaluating the success of ongoing and completed awards, and an evaluation of ongoing and completed awards. The first annual report shall include best practices for management of programs to stimulate high-risk, high-reward research.

(h) CONTINUATION OF ATP GRANTS.—The Director shall, through the Technology Innovation Program, continue to provide support originally awarded under the Advanced Technology Program, in accordance with the terms of the original award and consistent with the goals of the Technology Innovation Program.

(i) COORDINATION WITH OTHER STATE AND FEDERAL TECHNOLOGY PROGRAMS.—In carrying out this section, the Director shall, as appropriate, coordinate with other senior State and Federal officials to ensure cooperation and coordination in State and Federal technology programs and to avoid unnecessary duplication of efforts.

(j) ACCEPTANCE OF FUNDS FROM OTHER FEDERAL AGENCIES.—In addition to amounts appropriated to carry out this section, the Secretary and the Director may accept funds from other Federal agencies to support awards under the Technology Innovation Program. Any award under this section which is supported with funds from other Federal agencies shall be selected and carried out according to the provisions of this section. Funds accepted from other Federal agencies shall be included as part of the Federal cost share of any project funded under this section.

(k) TIP ADVISORY BOARD.—

(1) ESTABLISHMENT.—There is established within the Institute a TIP Advisory Board.

(2) MEMBERSHIP.—

(A) IN GENERAL.—The TIP Advisory Board shall consist of 10 members appointed by the Director, at least 7 of

whom shall be from United States industry, chosen to reflect the wide diversity of technical disciplines and industrial sectors represented in Technology Innovation Program projects. No member shall be an employee of the Federal Government.

(B) TERM.—Except as provided in subparagraph (C) or (D), the term of office of each member of the TIP Advisory Board shall be 3 years.

(C) CLASSES.—The original members of the TIP Advisory Board shall be appointed to 3 classes. One class of 3 members shall have an initial term of 1 year, one class of 3 members shall have an initial term of 2 years, and one class of 4 members shall have an initial term of 3 years.

(D) VACANCIES.—Any member appointed to fill a vacancy occurring prior to the expiration of the term for which his predecessor was appointed shall be appointed for the remainder of such term.

(E) SERVING CONSECUTIVE TERMS.—Any person who has completed 2 consecutive full terms of service on the TIP Advisory Board shall thereafter be ineligible for appointment during the 1-year period following the expiration of the second such term.

(3) PURPOSE.—The TIP Advisory Board shall meet not less than 2 times annually, and provide the Director—

(A) advice on programs, plans, and policies of the Technology Innovation Program;

(B) reviews of the Technology Innovation Program's efforts to accelerate the research and development of challenging, high-risk, high-reward technologies in areas of critical national need;

(C) reports on the general health of the program and its effectiveness in achieving its legislatively mandated mission; and

(D) guidance on investment areas that are appropriate for Technology Innovation Program funding;

(4) ADVISORY CAPACITY.—In discharging its duties under this subsection, the TIP Advisory Board shall function solely in an advisory capacity, in accordance with the Federal Advisory Committee Act.

(5) ANNUAL REPORT.—The TIP Advisory Board shall transmit an annual report to the Secretary for transmittal to the Congress not later than 30 days after the submission to Congress of the President's annual budget request in each year. Such report shall address the status of the Technology Innovation Program and comment on the relevant sections of the programmatic planning document and updates thereto transmitted to Congress by the Director under subsections (c) and (d) of section 23.

(1) DEFINITIONS.—In this section—

(1) the term "eligible company" means a small-sized or medium-sized business that is incorporated in the United States and does a majority of its business in the United States, and that either—

- (A) is majority owned by citizens of the United States;
- or
- (B) is owned by a parent company incorporated in another country and the Director finds that—
- (i) the company's participation in the Technology Innovation Program would be in the economic interest of the United States, as evidenced by—
- (I) investments in the United States in research and manufacturing;
- (II) significant contributions to employment in the United States; and
- (III) agreement with respect to any technology arising from assistance provided under this section to promote the manufacture within the United States of products resulting from that technology; and
- (ii) the company is incorporated in a country which—
- (I) affords to United States-owned companies opportunities, comparable to those afforded to any other company, to participate in any joint venture similar to those receiving funding under this section;
- (II) affords to United States-owned companies local investment opportunities comparable to those afforded any other company; and
- (III) affords adequate and effective protection for intellectual property rights of United States-owned companies;
- (2) the term "high-risk, high-reward research" means research that—
- (A) has the potential for yielding transformational results with far-ranging or wide-ranging implications;
- (B) addresses critical national needs within the National Institute of Standards and Technology's areas of technical competence; and
- (C) is too novel or spans too diverse a range of disciplines to fare well in the traditional peer-review process;
- (3) the term "institution of higher education" has the meaning given that term in section 101 of the Higher Education Act of 1965 (20 U.S.C. 1001);
- (4) the term "joint venture" means a joint venture that—
- (A) includes either—
- (i) at least 2 separately owned for-profit companies that are both substantially involved in the project and both of which are contributing to the cost-sharing required under this section, with the lead entity of the joint venture being one of those companies that is a small-sized or medium-sized business; or
- (ii) at least 1 small-sized or medium-sized business and 1 institution of higher education or other organization, such as a national laboratory or nonprofit research institute, that are both substantially involved in the project and both of which are contributing to



the cost-sharing required under this section, with the lead entity of the joint venture being either that small-sized or medium-sized business or that institution of higher education; and

(B) may include additional for-profit companies, institutions of higher education, and other organizations, such as national laboratories and nonprofit research institutes, that may or may not contribute non-Federal funds to the project; and

(5) the term “TIP Advisory Board” means the advisory board established under subsection (k).

#### SAVINGS PROVISION

SEC. 29. [15 U.S.C. 271 note] All rules and regulations, determinations, standards, contracts, certifications, authorizations, delegations, results and findings of investigations, or other actions duly issued, made, or taken by or pursuant to this Act, or under the authority of any other statutes which resulted in the assignment of functions or activities to the Secretary, the Department, the Director, or the Institute, as are in effect immediately before the date of enactment of this section, and not suspended by the Secretary, the Director, the Institute or the courts, shall continue in full force and effect after the date of enactment of this section until modified or rescinded.

#### USER FEES

SEC. 30. [15 U.S.C. 278o] The Institute shall not implement a policy of charging fees with respect to the use of Institute research facilities by research associates in the absence of express statutory authority to charge such fees.

#### NOTICE

SEC. 31. [15 U.S.C. 278p] (a) NOTICE OF REPROGRAMMING.— If any funds authorized for carrying out this Act are subject to a reprogramming action that requires notice to be provided to the Appropriations Committees of the House of Representatives and the Senate, notice of such action shall concurrently be provided to the Committee on Science of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate.

(b) NOTICE OF REORGANIZATION.—

(1) REQUIREMENT.—The Secretary shall provide notice to the Committees on Science and Appropriations of the House of Representatives, and the Committees on Commerce, Science, and Transportation and Appropriations of the Senate, not later than 15 days before any major reorganization of any program, project, or activity of the Institute.

(2) DEFINITION.—For purposes of this subsection, the term “major reorganization” means any reorganization of the Institute that involves the reassignment of more than 25 percent of the employees of the Institute.

SEC. 32. [15 U.S.C. 278q] Appropriations to carry out the provisions of this Act may remain available for obligation and expendi-

ture for such period or periods as may be specified in the Acts making such appropriations.

**SEC. 33. [15 U.S.C. 278r] COLLABORATIVE MANUFACTURING RESEARCH PILOT GRANTS.**

(a) **AUTHORITY.**—

(1) **ESTABLISHMENT.**—The Director shall establish a pilot program of awards to partnerships among participants described in paragraph (2) for the purposes described in paragraph (3). Awards shall be made on a peer-reviewed, competitive basis.

(2) **PARTICIPANTS.**—Such partnerships shall include at least—

- (A) 1 manufacturing industry partner; and
- (B) 1 nonindustry partner.

(3) **PURPOSE.**—The purpose of the program under this section is to foster cost-shared collaborations among firms, educational institutions, research institutions, State agencies, and nonprofit organizations to encourage the development of innovative, multidisciplinary manufacturing technologies. Partnerships receiving awards under this section shall conduct applied research to develop new manufacturing processes, techniques, or materials that would contribute to improved performance, productivity, and competitiveness of United States manufacturing, and build lasting alliances among collaborators.

(b) **PROGRAM CONTRIBUTION.**—Awards under this section shall provide for not more than one-third of the costs of a partnership. Not more than an additional one-third of such costs may be obtained directly or indirectly from other Federal sources.

(c) **APPLICATIONS.**—Applications for awards under this section shall be submitted in such manner, at such time, and containing such information as the Director shall require. Such applications shall describe at a minimum—

- (1) how each partner will participate in developing and carrying out the research agenda of the partnership;
- (2) the research that the grant would fund; and
- (3) how the research to be funded with the award would contribute to improved performance, productivity, and competitiveness of the United States manufacturing industry.

(d) **SELECTION CRITERIA.**—In selecting applications for awards under this section, the Director shall consider at a minimum—

- (1) the degree to which projects will have a broad impact on manufacturing;
- (2) the novelty and scientific and technical merit of the proposed projects; and
- (3) the demonstrated capabilities of the applicants to successfully carry out the proposed research.

(e) **DISTRIBUTION.**—In selecting applications under this section the Director shall ensure, to the extent practicable, a distribution of overall awards among a variety of manufacturing industry sectors and a range of firm sizes.

(f) **DURATION.**—In carrying out this section, the Director shall run a single pilot competition to solicit and make awards. Each award shall be for a 3-year period.

SEC. 34. [15 U.S.C. 271 note] This Act may be cited as the National Institute of Standards and Technology Act.