

115TH CONGRESS
2D SESSION

H. R. 6229

To authorize the programs of the National Institute of Standards and Technology, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

JUNE 26, 2018

Mrs. COMSTOCK (for herself, Mr. LIPINSKI, Mr. SMITH of Texas, Ms. EDDIE BERNICE JOHNSON of Texas, Mr. MARSHALL, Mr. LUCAS, Mr. KNIGHT, Mrs. LESKO, Mr. ROHRABACHER, Mr. WEBER of Texas, and Mr. BIGGS) introduced the following bill; which was referred to the Committee on Science, Space, and Technology

A BILL

To authorize the programs of the National Institute of Standards and Technology, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “National Institute of
5 Standards and Technology Reauthorization Act of 2018”.

6 **SEC. 2. AUTHORIZATION OF APPROPRIATIONS.**

7 (a) FISCAL YEAR 2018.—

8 (1) IN GENERAL.—There are authorized to be
9 appropriated to the Secretary of Commerce

1 \$1,198,500,000 for the National Institute of Stand-
2 ards and Technology for fiscal year 2018.

3 (2) SPECIFIC ALLOCATIONS.—Of the amount
4 authorized by paragraph (1)—

5 (A) \$724,500,000 shall be for scientific
6 and technical research and services laboratory
7 activities;

8 (B) \$319,000,000 shall be for the con-
9 struction and maintenance of facilities; and

10 (C) \$155,000,000 shall be for industrial
11 technology services activities, of which
12 \$140,000,000 shall be for the Manufacturing
13 Extension Partnership program under sections
14 25 and 26 of the National Institute of Stand-
15 ards and Technology Act (15 U.S.C. 278k and
16 278I) and \$15,000,000 shall be for the Net-
17 work for Manufacturing Innovation Program
18 under section 34 of the National Institute of
19 Standards and Technology Act (15 U.S.C.
20 278s).

21 (b) FISCAL YEAR 2019.—

22 (1) IN GENERAL.—There are authorized to be
23 appropriated to the Secretary of Commerce
24 \$1,115,000,000 for the National Institute of Stand-
25 ards and Technology for fiscal year 2019.

1 (2) SPECIFIC ALLOCATIONS.—Of the amount
2 authorized by paragraph (1)—

3 (A) \$850,000,000 shall be for scientific
4 and technical research and services laboratory
5 activities, of which—

6 (i) \$109,900,000 shall be for the ad-
7 vanced communications, networks, and sci-
8 entific data systems mission area;

9 (ii) \$103,200,000 shall be for the cy-
10 bersecurity and privacy mission area;

11 (iii) \$234,000,000 shall be for the
12 fundamental measurement, quantum
13 science and measurement dissemination
14 mission area; and

15 (iv) \$89,800,000 shall be for the
16 physical infrastructure and resilience mis-
17 sion area;

18 (B) \$120,000,000 shall be for the con-
19 struction and maintenance of facilities; and

20 (C) \$145,000,000 shall be for industrial
21 technology services activities, of which—

22 (i) \$140,000,000 shall be for the
23 Manufacturing Extension Partnership pro-
24 gram under sections 25 and 26 of the Na-
25 tional Institute of Standards and Tech-

1 nology Act (15 U.S.C. 278k and 278I);
2 and

3 (ii) \$5,000,000 shall be for the Net-
4 work for Manufacturing Innovation Pro-
5 gram under section 34 of the National In-
6 stitute of Standards and Technology Act
7 (15 U.S.C. 278s).

8 **SEC. 3. QUANTUM INFORMATION SCIENCE.**

9 (a) RESEARCH ACTIVITIES AND ENGAGEMENT.—The
10 Secretary, acting through the Director, shall—

11 (1) continue to support and expand basic quan-
12 tum information science and technology research
13 and development of measurement and standards in-
14 frastructure necessary to advance commercial devel-
15 opment of quantum applications;

16 (2) use the programs of the Institute, in col-
17 laboration with other relevant Federal agencies, as
18 appropriate, to train scientists in quantum informa-
19 tion science and technology to increase participation
20 in the quantum fields;

21 (3) establish or expand collaborative ventures or
22 consortia with other public or private sector entities,
23 including other Federal agencies engaged in quan-
24 tum information science research and development,
25 institutions of higher education, National Labora-

1 tories, and industry, for the purpose of advancing
2 the field of quantum information science and engi-
3 neering; and

4 (4) have the authority to enter into and per-
5 form such contracts on such terms as the Secretary,
6 acting through the Director, considers appropriate,
7 including cooperative research and development ar-
8 rangements and grants and cooperative agreements
9 or other transactions, as may be necessary in the
10 conduct of the work of the Institute with respect to
11 quantum information science and technology.

12 (b) QUANTUM WORKSHOP.—

13 (1) IN GENERAL.—Not later than 1 year after
14 the date of the enactment of this Act, the Secretary,
15 acting through the Director, shall convene a work-
16 shop of stakeholders to discuss the future measure-
17 ment, standards, cybersecurity, and other issues that
18 relate to development of quantum information
19 science in the United States. The goals of the work-
20 shop shall be—

21 (A) assessment of the Institute’s quantum
22 information science and technology research
23 work, including areas that may need additional
24 Institute investment in order to support devel-

1 opment of quantum information science and
2 technology in the United States; and

3 (B) consideration of recommendations and
4 priority issues for the Institute’s participation
5 in the proposed National Quantum Initiative
6 Program.

7 (2) REPORT TO CONGRESS.—Not later than 2
8 years after the date of enactment of this Act, the
9 Secretary, acting through the Director, shall trans-
10 mit to the Committee on Science, Space, and Tech-
11 nology and the Committee on Appropriations of the
12 House of Representatives and the Committee on
13 Commerce, Science, and Transportation and the
14 Committee on Appropriations of the Senate a sum-
15 mary report containing the findings of the workshop
16 convened under this subsection.

17 (c) FUNDING.—The Secretary of Commerce shall de-
18 vote \$80,000,000 to carry out this section for fiscal year
19 2019, subject to the availability of appropriations, to come
20 from amounts made available pursuant to section
21 2(b)2(A)(iii) of this Act. This section shall be carried out
22 using funds otherwise appropriated by law after the date
23 of enactment of this Act.

1 **SEC. 4. CYBERSECURITY.**

2 (a) ASSISTANCE TO FEDERAL AGENCIES.—The Sec-
3 retary, acting through the Director, shall enhance and ex-
4 pand the Institute’s guidance and assistance to Federal
5 agencies to help such agencies effectively use the Frame-
6 work, including by providing technical guidance and edu-
7 cation and training of—

8 (1) agency staff responsible for cybersecurity,
9 consultative services, and other assistance at such
10 agencies; and

11 (2) individual inspectors general and staff of
12 such agencies who are responsible for the annual
13 independent evaluation required under section 3555
14 of title 44, United States Code.

15 (b) REPORT.—Not later than 12 months after the
16 date of the enactment of this Act, the Secretary shall sub-
17 mit to the Committee on Science, Space, and Technology
18 of the House of Representatives and the Committee on
19 Commerce, Science, and Transportation of the Senate a
20 report describing the implementation of the activities de-
21 scribed in this section in as much detail as possible, includ-
22 ing the identification of Federal agencies assisted pursu-
23 ant to subsection (a) and the types of consultative services,
24 education, guidance, assistance, and training provided to
25 such agencies and inspectors general of such agencies pur-
26 suant to such subsection.

1 (c) RESEARCH.—The Secretary, acting through the
2 Director, shall expand the fundamental and applied re-
3 search carried out by the Institute to address key ques-
4 tions relating the measurement of privacy, security, and
5 vulnerability of software tools and communications net-
6 works, including through—

7 (1) the development of research and engineering
8 capabilities to provide practical solutions, including
9 measurement techniques and engineering toolkits, to
10 solve cybersecurity challenges such as human fac-
11 tors, identity management, network security, pri-
12 vacy, and software;

13 (2) investment in tools to help private and pub-
14 lic sector organizations measure their cybersecurity,
15 manage their risks and ensure workforce prepared-
16 ness for new cybersecurity challenges; and

17 (3) investment in programs to prepare the
18 United States with strong cybersecurity and
19 encryption technologies to apply to emerging tech-
20 nologies such as artificial intelligence, the internet of
21 things, and quantum computing.

22 (d) AUTHORITY.—The Secretary, acting through the
23 Director, shall have the authority to enter into and per-
24 form such contracts on such terms as the Secretary con-
25 siders to be appropriate, including cooperative research

1 and development arrangements, grants, and cooperative
2 agreements or other transactions, as may be necessary in
3 the conduct of the work of the Institute with respect to
4 cybersecurity.

5 **SEC. 5. COMPOSITES RESEARCH.**

6 (a) RESEARCH.—The Secretary, acting through the
7 Director, shall implement the recommendations contained
8 in the December 2017 report entitled “Road Mapping
9 Workshop Report on Overcoming Barriers to Adoption of
10 Composites in Sustainable Infrastructure”, as appro-
11 priate, to help facilitate the adoption of composite tech-
12 nology in infrastructure in the United States. In imple-
13 menting such recommendations, the Secretary, acting
14 through the Director shall, with respect to the use of com-
15 posite technology in infrastructure—

16 (1) not later than 6 months after the date of
17 enactment of this Act, establish a design data clear-
18 inghouse to identify, gather, validate, and dissemi-
19 nate existing design criteria, tools, guidelines, and
20 standards; and

21 (2) develop methods and resources required for
22 testing an evaluation of safe and appropriate uses of
23 composite materials for infrastructure, including—

24 (A) conditioning protocols, procedures and
25 models;

1 (B) screening and acceptance tools; and

2 (C) minimum allowable design data sets

3 that can be converted into design tools.

4 (b) STANDARDS COORDINATION.—The Secretary,
5 acting through the Director, shall assure that the appro-
6 priate Institute staff consult regularly with standards de-
7 velopers, members of the composites industry, institutions
8 of higher education, and other stakeholders in order to fa-
9 cilitate the adoption of standards for use of composite ma-
10 terials in infrastructure that are based on the research and
11 testing results and other information developed by the In-
12 stitute.

13 (c) FUNDING.—The Secretary of Commerce shall de-
14 vote \$11,000,000 to carry out this section for fiscal year
15 2019, subject to the availability of appropriations, to come
16 from amounts made available pursuant to section
17 2(b)(2)(A)(iv) of this Act. This section shall be carried out
18 using funds otherwise appropriated by law after the date
19 of enactment of this Act.

20 **SEC. 6. ARTIFICIAL INTELLIGENCE AND DATA SCIENCE.**

21 The Secretary, acting through the Director, shall con-
22 tinue to support the development of artificial intelligence
23 and data science, including through—

24 (1) the expansion of the Institute’s capabilities,
25 including scientific staff and research infrastructure;

1 (2) the implementation of rigorous scientific
2 testing to support the development of trustworthy
3 and safe artificial intelligence and data systems; and

4 (3) the development of machine learning and
5 other artificial intelligence applications to support
6 measurement science research programs and take
7 steps to modernize the Institute’s research infra-
8 structure.

9 **SEC. 7. INTERNET OF THINGS.**

10 The Secretary, acting through the Director, shall con-
11 tinue to conduct research with respect to and support the
12 expanded connectivity, interoperability, and security of
13 interconnected systems and other aspects of the internet
14 of things, including through—

15 (1) the development of new tools and meth-
16 odologies for cybersecurity of the internet of things;

17 (2) the development of technologies to address
18 network congestion and device interference, such as
19 the development of testing tools for next generation
20 wireless communications, internet of things proto-
21 cols, coexistence of wireless communications systems,
22 and spectrum sharing;

23 (3) convening experts in the public and private
24 sectors to develop recommendations for accelerating
25 the adoption of sound interoperability standards,

1 guidelines, and best practices for the internet of
2 things; and

3 (4) the development and publication of new cy-
4 bersecurity tools, encryption methods, and best prac-
5 tices for internet of things security.

6 **SEC. 8. HIRING AND MANAGEMENT.**

7 (a) APPOINTMENTS.—The Secretary, acting through
8 the Director shall have the authority to—

9 (1) make appointments of scientific, engineer-
10 ing, and professional personnel without regard to the
11 civil service laws as the Secretary, acting through
12 the Director determines necessary for carrying out
13 research and development functions which require
14 the services of specially qualified personnel relating
15 to cybersecurity and quantum information science
16 and technology and such other areas of national re-
17 search priorities as the Secretary, acting through the
18 Director may determine; and

19 (2) fix the basic pay of such personnel at a rate
20 to be determined by the Secretary, acting through
21 the Director at rates not in excess of the basic rate
22 of pay of the Vice President under section 104 of
23 title 3, United States Code, without regard to the
24 civil service laws.

1 (b) LIMITATION.—The Director may appoint not
2 more than 10 individuals under this section.

3 **SEC. 9. DEFINITIONS.**

4 In this Act:

5 (1) The term “Director” means the Director of
6 the National Institute of Standards and Technology.

7 (2) The term “Framework” means the Frame-
8 work for Improving Critical Infrastructure Cyberse-
9 curity developed by the National Institute of Stand-
10 ards and Technology and referred to in Executive
11 Order 13800 issued on May 11, 2017 (82 Fed. Reg.
12 22391 et seq.).

13 (3) The term “Institute” means the National
14 Institute of Standards and Technology.

15 (4) The term “institution of higher education”
16 has the meaning given such term in section 101 of
17 the Higher Education Act of 1965 (20 U.S.C.
18 1001).

19 (5) The term “Secretary” means the Secretary
20 of Commerce.

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