

# Union Calendar No. 318

116TH CONGRESS  
2D SESSION

# H. R. 4990

**[Report No. 116-396, Part I]**

To direct the National Institute of Standards and Technology and the National Science Foundation to carry out research and other activities to promote the security and modernization of voting systems, and for other purposes.

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## IN THE HOUSE OF REPRESENTATIVES

NOVEMBER 8, 2019

Ms. SHERRILL (for herself, Mr. GONZALEZ of Ohio, Ms. JOHNSON of Texas, and Mr. LUCAS) introduced the following bill; which was referred to the Committee on Science, Space, and Technology, and in addition to the Committee on House Administration, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned

FEBRUARY 13, 2020

Additional sponsors: Mr. BALDERSON, Ms. KENDRA S. HORN of Oklahoma, Mr. PERLMUTTER, Mr. LIPINSKI, Mr. VAN DREW, Mr. CASE, Mr. HARDER of California, Ms. SLOTKIN, and Ms. KUSTER of New Hampshire

FEBRUARY 13, 2020

Reported from the Committee on Science, Space, and Technology with an amendment

[Strike out all after the enacting clause and insert the part printed in *italic*]

FEBRUARY 13, 2020

Committee on House Administration discharged; committed to the Committee of the Whole House on the State of the Union and ordered to be printed

[For text of introduced bill, see copy of bill as introduced on November 8, 2019]

# **A BILL**

To direct the National Institute of Standards and Technology and the National Science Foundation to carry out research and other activities to promote the security and modernization of voting systems, 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 “Election Technology Re-*  
5 *search Act of 2019”.*

6 **SEC. 2. NATIONAL INSTITUTE OF STANDARDS AND TECH-**  
7 **NOLOGY.**

8        *(a) VOTING SYSTEMS RESEARCH.—The Director of the*  
9 *National Institute of Standards and Technology, in collabo-*  
10 *ration with the National Science Foundation as appro-*  
11 *priate, shall carry out a program of research on voting sys-*  
12 *tems, including—*

13            *(1) the cybersecurity of different components of*  
14 *such systems;*

15            *(2) end-to-end verifiable systems;*

16            *(3) Internet-enabled voting;*

17            *(4) the accessibility and usability of different*  
18 *components of such systems;*

19            *(5) voter privacy and data protection;*

20            *(6) methods for auditing elections;*

21            *(7) the interoperability of system technologies;*

22            *(8) means for providing voters with the ability*  
23 *to easily check whether a ballot sent by mail has been*  
24 *dispatched to the voter and whether the voter’s*

1 *marked ballot has been received and accepted by the*  
2 *appropriate election official;*

3 *(9) the reliability of various approaches to voter*  
4 *authentication; and*

5 *(10) such other areas of research as the Director*  
6 *of the National Institute of Standards and Technology*  
7 *determines to be appropriate and related to the secu-*  
8 *rity and integrity of elections for Federal office.*

9 *(b) ELECTIONS SYSTEMS CENTER OF EXCELLENCE.—*

10 *(1) IN GENERAL.—The Director of the National*  
11 *Institute of Standards and Technology shall make an*  
12 *award to an institution of higher education or an eli-*  
13 *gible nonprofit organization (or a consortium thereof)*  
14 *to establish a Center of Excellence in Election Sys-*  
15 *tems.*

16 *(2) COLLABORATIONS.—The Director shall en-*  
17 *sure that the Center of Excellence includes a collabo-*  
18 *ration of institutions of higher education, nonprofit*  
19 *organizations, private sector entities, and State and*  
20 *local election officials.*

21 *(3) PURPOSE.—The purpose of the Center of Ex-*  
22 *cellence shall be to—*

23 *(A) conduct measurement research and sta-*  
24 *tistical analyses to inform the development of*  
25 *standards for technologies and processes that*

1           *contribute to more secure, fair, and accessible*  
2           *elections;*

3                   *(B) test and evaluate the security, usability,*  
4                   *and accessibility of the technologies of voting sys-*  
5                   *tems, including the accessibility of poll book data*  
6                   *by voters;*

7                   *(C) research testing methods that could be*  
8                   *used for the certification of voting system tech-*  
9                   *nologies;*

10                   *(D) educate and train students studying in*  
11                   *science, technology, engineering, and mathe-*  
12                   *matics fields to conduct measurement science*  
13                   *and standards research relevant to such systems;*  
14                   *and*

15                   *(E) foster collaboration among academic re-*  
16                   *searchers, private sector vendors of election tech-*  
17                   *nology, and State and local election officials.*

18           *(4) REQUIREMENTS.—*

19                   *(A) IN GENERAL.—An institution of higher*  
20                   *education or an eligible nonprofit organization*  
21                   *(or a consortium thereof) seeking funding under*  
22                   *this subsection shall submit an application to the*  
23                   *Director at such time, in such manner, and con-*  
24                   *taining such information as the Director may*  
25                   *require.*

1           (B) *APPLICATIONS.*—*Each application*  
2           *under subparagraph (A) shall include a descrip-*  
3           *tion of—*

4                   (i) *how the Center will work with other*  
5                   *research institutions, industry partners,*  
6                   *and State or local election officials to iden-*  
7                   *tify the measurement, testing, and stand-*  
8                   *ards needs of voting systems and to leverage*  
9                   *the expertise of election practitioners; and*

10                   (ii) *how the Center will promote active*  
11                   *collaboration among researchers in multiple*  
12                   *disciplines involved in ensuring the security*  
13                   *and integrity of such systems.*

14           (C) *SELECTION AND DURATION.*—*Each Cen-*  
15           *ter established under this section is authorized to*  
16           *carry out activities for a period of 5 years, re-*  
17           *newable for an additional 5 years at the discre-*  
18           *tion of the Director.*

19           (c) *AUTHORIZATION OF APPROPRIATIONS.*—*There are*  
20           *authorized to be appropriated to carry out this section*  
21           *\$12,000,000 for each of the fiscal years 2020 through 2024.*

22   **SEC. 3. NATIONAL SCIENCE FOUNDATION.**

23           (a) *RESEARCH GRANTS.*—*The Director of the National*  
24           *Science Foundation, in collaboration with the National In-*  
25           *stitute of Standards and Technology and other relevant*

1 agencies, as appropriate, shall award basic research grants  
2 to increase the understanding of cyber and other threats to  
3 voting systems and to inform the development of tech-  
4 nologies, processes, and policies that contribute to more se-  
5 cure, fair, and accessible elections, including research on—

6           (1) the cybersecurity of different components of  
7 such systems;

8           (2) end-to-end verifiable systems;

9           (3) the risks and benefits of Internet-enabled vot-  
10 ing;

11           (4) the human-technology interface, including the  
12 usability, accessibility, and comprehensibility of bal-  
13 lot design, ballot marking devices, and other compo-  
14 nents of such systems;

15           (5) voter privacy and data protection;

16           (6) voter practices regarding the verification of  
17 ballots generated by ballot marking devices and the  
18 likelihood that voters, both with and without disabil-  
19 ities, will recognize errors or omissions with respect  
20 to such ballots; and

21           (7) such other topics as the Director determines  
22 to be appropriate and related to the integrity of elec-  
23 tions.

24           (b) *ELECTIONS SYSTEMS RESEARCH CENTER.*—

1           (1) *IN GENERAL.*—*The Director of the National*  
2           *Science Foundation, in consultation with the Director*  
3           *of the National Institute of Standards and Technology*  
4           *and the Secretary of Homeland Security, as appro-*  
5           *priate, shall award grants to institutions of higher*  
6           *education or eligible nonprofit organizations (or con-*  
7           *sortia thereof) to establish at least 1 multidisciplinary*  
8           *center for elections systems research and education.*

9           (2) *CONSORTIA.*—*A consortia receiving an*  
10          *award under this subsection may include institutions*  
11          *of higher education, nonprofit organizations, private*  
12          *sector entities, and State and local election officials.*

13          (3) *PURPOSE.*—*The purpose of a center estab-*  
14          *lished with a grant awarded under this subsection*  
15          *shall be to—*

16                 (A) *conduct basic research to advance un-*  
17                 *derstanding of cyber and other threats to election*  
18                 *systems and the conduct of secure, fair, and ac-*  
19                 *cessible elections;*

20                 (B) *conduct research that may inform the*  
21                 *development of technologies, processes, and poli-*  
22                 *cies that contribute to more secure, fair, and ac-*  
23                 *cessible elections;*

24                 (C) *educate and train students studying in*  
25                 *science, technology, engineering, and mathe-*



1            *matics fields to conduct research relevant to elec-*  
2            *tion systems;*

3            *(D) design curricula that address the grow-*  
4            *ing organizational management and information*  
5            *technology needs of the election community; and*

6            *(E) foster collaboration among academic re-*  
7            *searchers, private sector vendors of election tech-*  
8            *nology, and State and local election officials.*

9            *(4) REQUIREMENTS.—*

10            *(A) IN GENERAL.—An institution of higher*  
11            *education or an eligible nonprofit organization*  
12            *(or a consortium thereof) seeking funding under*  
13            *this subsection shall submit an application to the*  
14            *Director of the National Science Foundation at*  
15            *such time, in such manner, and containing such*  
16            *information as the Director may require.*

17            *(B) APPLICATIONS.—Each application*  
18            *under subparagraph (A) shall include a descrip-*  
19            *tion of—*

20            *(i) how the center established with a*  
21            *grant awarded under this subsection will*  
22            *work with other research institutions, in-*  
23            *dustry partners, and State and local elec-*  
24            *tion officials to identify research needs and*

1           *leverage the expertise of election practi-*  
2           *tioners; and*

3                   *(ii) how the center will promote active*  
4           *collaboration among researchers in multiple*  
5           *disciplines involved in elections systems se-*  
6           *curity, including computer science, data*  
7           *science, and social and behavioral sciences.*

8           (5) *SELECTION AND DURATION.*—*Each center es-*  
9           *tablished with a grant awarded under this section is*  
10          *authorized to carry out activities for a period of 5*  
11          *years, renewable for an additional 5 years at the dis-*  
12          *cretion of the Director.*

13          (c) *AUTHORIZATION OF APPROPRIATIONS.*—*There are*  
14          *authorized to be appropriated to carry out this section*  
15          *\$10,000,000 for each of the fiscal years 2020 through 2024.*

16   **SEC. 4. OTHER ACTIVITIES OF NATIONAL INSTITUTE OF**  
17                   **STANDARDS AND TECHNOLOGY TO PROMOTE**  
18                   **SECURITY AND MODERNIZATION OF VOTING**  
19                   **SYSTEMS.**

20          (a) *COMMON DATA FORMAT.*—*The National Institute*  
21          *of Standards and Technology shall establish and make pub-*  
22          *licly available common data format specifications for audit-*  
23          *ing, voter registration, and other elements of voting systems,*  
24          *and provide the specifications to the Technical Guidelines*  
25          *Development Committee of the Election Assistance Commis-*

1 sion under section 221(e) of the Help America Vote Act of  
2 2002 (52 U.S.C. 20961(e)).

3 (b) *ELECTIONS SYSTEMS CERTIFICATIONS.*—The Na-  
4 tional Institute of Standards and Technology shall work in  
5 collaboration with the Election Assistance Commission to  
6 update the process under which voting systems are certified  
7 pursuant to the Help America Vote Act of 2002 so that  
8 State and local election officials will be better able to carry  
9 out updates and otherwise modernize such systems.

10 (c) *TECHNICAL ASSISTANCE.*—The Director of the Na-  
11 tional Institute of Standards and Technology shall—

12 (1) provide technical assistance to State and  
13 local election officials on the implementation of cyber-  
14 security standards, privacy standards, risk assess-  
15 ments, risk-limiting audits, and technologies which  
16 are incorporated in the voluntary voting system  
17 guidelines issued under the Help America Vote Act of  
18 2002; and

19 (2) in collaboration with the Department of  
20 Homeland Security and the Election Assistance Com-  
21 mission, as appropriate, conduct outreach to State  
22 and local election officials in order to disseminate best  
23 practices for the implementation of such voluntary  
24 voting system guidelines.

1 **SEC. 5. GAO REPORT.**

2 *Not later than 18 months after the date of enactment*  
3 *of this Act, the Comptroller General shall submit a report*  
4 *to Congress that—*

5 *(1) addresses the extent to which efforts by the*  
6 *National Institute of Standards and Technology*  
7 *(NIST) to assist the Technical Guidelines Develop-*  
8 *ment Committee of the Election Assistance Commis-*  
9 *sion in the development of voluntary voting systems*  
10 *guidelines have resulted in market-ready standardized*  
11 *voting equipment and software, and addresses the re-*  
12 *sources made available to NIST to carry out these ac-*  
13 *tivities;*

14 *(2) addresses efforts by NIST to monitor and re-*  
15 *view the performance of laboratories accredited by the*  
16 *Elections Assistance Commission and to make rec-*  
17 *ommendations for continuing accreditation, increased*  
18 *voting technology reliability, and the number of ac-*  
19 *credited private laboratories, and addresses resources*  
20 *made available to NIST to carry out these activities;*  
21 *and*

22 *(3) addresses the extent to which the annual list*  
23 *of suggestions required to be submitted by NIST to the*  
24 *Election Assistance Commission for research issues for*  
25 *grants and pilot programs under section 271(d) of the*  
26 *Help America Vote Act of 2002 (52 U.S.C. 21041)*

1       *and the evaluation of grants and programs by NIST*  
2       *has improved voting technology and been successful in*  
3       *encouraging the implementation of new technologies*  
4       *in voting systems and equipment.*

5       **SEC. 6. AMENDMENTS TO THE HELP AMERICA VOTE ACT OF**  
6                               **2002.**

7       *Section 301(b) of the Help America Vote Act of 2002*  
8       *(52 U.S.C. 21081(b)) is amended—*

9                       *(1) in the matter preceding paragraph (1), by*  
10       *striking “this section” and inserting “this Act”;*

11                      *(2) by striking “and” at the end of paragraph*  
12       *(1);*

13                      *(3) by redesignating paragraph (2) as para-*  
14       *graph (6); and*

15                      *(4) by inserting after paragraph (1) the fol-*  
16       *lowing new paragraphs:*

17                      *“(2) any other paper or electronic technologies or*  
18       *processes for collecting, storing, or transmitting per-*  
19       *sonal information of voters for use in the administra-*  
20       *tion of elections for Federal office, including electronic*  
21       *poll books with respect to an election;*

22                      *“(3) voter registration databases and systems,*  
23       *including online interfaces;*

24                      *“(4) systems for carrying out post-election audit-*  
25       *ing;*

1           “(5) chain-of-custody procedures; and”.

2   **SEC. 7. DEFINITIONS.**

3       *In this Act—*

4           (1) the term “voting system” has the meaning  
5       *given such term in section 301(b) of the Help Amer-*  
6       *ica Vote Act of 2002 (52 U.S.C. 21081(b)), as amend-*  
7       *ed by section 6; and*

8           (2) the term “State” means each of the several  
9       *States, the District of Columbia, the Commonwealth*  
10       *of Puerto Rico, Guam, American Samoa, the United*  
11       *States Virgin Islands, and the Commonwealth of the*  
12       *Northern Mariana Islands.*



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116<sup>TH</sup> CONGRESS  
2<sup>D</sup> SESSION

**H. R. 4990**

[Report No. 116-396, Part I]

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**A BILL**

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