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(Original Signature of Member)

116TH CONGRESS  
1ST SESSION

# H. R. 4990

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

Ms. SHERRILL (for herself and [see ATTACHED LIST of cosponsors]) introduced the following bill; which was referred to the Committee on

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## 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  
5 Research Act of 2019”.

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

3 (a) VOTING SYSTEMS RESEARCH.—The Director of  
4 the National Institute of Standards and Technology, in  
5 collaboration with the National Science Foundation as ap-  
6 propriate, shall carry out a program of research on voting  
7 systems, including—

8 (1) the cybersecurity of different components of  
9 such systems;

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

11 (3) Internet-enabled voting;

12 (4) the accessibility and usability of different  
13 components of such systems;

14 (5) voter privacy and data protection;

15 (6) methods for auditing elections;

16 (7) the interoperability of system technologies;

17 (8) means for providing voters with the ability  
18 to easily check whether a ballot sent by mail has  
19 been dispatched to the voter and whether the voter's  
20 marked ballot has been received and accepted by the  
21 appropriate election official;

22 (9) the reliability of various approaches to voter  
23 authentication; and

24 (10) such other areas of research as the Direc-  
25 tor of the National Institute of Standards and Tech-  
26 nology determines to be appropriate and related to

1 the security and integrity of elections for Federal of-  
2 fice.

3 (b) ELECTIONS SYSTEMS CENTER OF EXCEL-  
4 LENCE.—

5 (1) IN GENERAL.—The Director of the National  
6 Institute of Standards and Technology shall make  
7 an award to an institution of higher education or an  
8 eligible nonprofit organization (or a consortium  
9 thereof) to establish a Center of Excellence in Elec-  
10 tion Systems.

11 (2) COLLABORATIONS.—The Director shall en-  
12 sure that the Center of Excellence includes a col-  
13 laboration of institutions of higher education, non-  
14 profit organizations, private sector entities, and  
15 State and local election officials.

16 (3) PURPOSE.—The purpose of the Center of  
17 Excellence shall be to—

18 (A) conduct measurement research and  
19 statistical analyses to inform the development  
20 of standards for technologies and processes that  
21 contribute to more secure, fair, and accessible  
22 elections;

23 (B) test and evaluate the security,  
24 usability, and accessibility of the technologies of  
25 voting systems;

1 (C) research testing methods that could be  
2 used for the certification of voting system tech-  
3 nologies;

4 (D) educate and train students studying in  
5 science, technology, engineering, and mathe-  
6 matics fields to conduct measurement science  
7 and standards research relevant to such sys-  
8 tems; and

9 (E) foster collaboration among academic  
10 researchers, private sector vendors of election  
11 technology, and State and local election offi-  
12 cials.

13 (4) REQUIREMENTS.—

14 (A) IN GENERAL.—An institution of higher  
15 education or an eligible nonprofit organization  
16 (or a consortium thereof) seeking funding under  
17 this subsection shall submit an application to  
18 the Director at such time, in such manner, and  
19 containing such information as the Director  
20 may require.

21 (B) APPLICATIONS.—Each application  
22 under subparagraph (A) shall include a descrip-  
23 tion of—

24 (i) how the Center will work with  
25 other research institutions, industry part-

1           ners, and State or local election officials to  
2           identify the measurement, testing, and  
3           standards needs of voting systems and to  
4           leverage the expertise of election practi-  
5           tioners; and

6                   (ii) how the Center will promote active  
7           collaboration among researchers in mul-  
8           tiple disciplines involved in ensuring the se-  
9           curity and integrity of such systems.

10           (C) SELECTION AND DURATION.—Each  
11           Center established under this section is author-  
12           ized to carry out activities for a period of 5  
13           years, renewable for an additional 5 years at  
14           the discretion of the Director.

15           (e) AUTHORIZATION OF APPROPRIATIONS.—There  
16           are authorized to be appropriated to carry out this section  
17           \$12,000,000 for each of the fiscal years 2020 through  
18           2024.

19   **SEC. 3. NATIONAL SCIENCE FOUNDATION.**

20           (a) RESEARCH GRANTS.—The Director of the Na-  
21           tional Science Foundation, in collaboration with the Na-  
22           tional Institute of Standards and Technology and other  
23           relevant agencies, as appropriate, shall award basic re-  
24           search grants to increase the understanding of cyber and  
25           other threats to voting systems and to inform the develop-

1 ment of technologies, processes, and policies that con-  
2 tribute to more secure, fair, and accessible elections, in-  
3 cluding research on—

4 (1) the cybersecurity of different components of  
5 such systems;

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

7 (3) the risks and benefits of Internet-enabled  
8 voting;

9 (4) the human-technology interface, including  
10 the usability, accessibility, and comprehensibility of  
11 ballot design, ballot marking devices, and other com-  
12 ponents of such systems;

13 (5) voter privacy and data protection;

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

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

22 (b) ELECTIONS SYSTEMS RESEARCH CENTER.—

23 (1) IN GENERAL.—The Director of the National  
24 Science Foundation, in consultation with the Direc-  
25 tor of the National Institute of Standards and Tech-

1 nology and the Secretary of Homeland Security, as  
2 appropriate, shall award grants to institutions of  
3 higher education or eligible nonprofit organizations  
4 (or consortia thereof) to establish at least 1 multi-  
5 disciplinary center for elections systems research and  
6 education.

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

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

14 (A) conduct basic research to advance un-  
15 derstanding of cyber and other threats to elec-  
16 tion systems and the conduct of secure, fair,  
17 and accessible elections;

18 (B) conduct research that may inform the  
19 development of technologies, processes, and  
20 policies that contribute to more secure, fair,  
21 and accessible elections;

22 (C) educate and train students studying in  
23 science, technology, engineering, and mathe-  
24 matics fields to conduct research relevant to  
25 election systems;

1 (D) design curricula that address the  
2 growing organizational management and infor-  
3 mation technology needs of the election commu-  
4 nity; and

5 (E) foster collaboration among academic  
6 researchers, private sector vendors of election  
7 technology, and State and local election offi-  
8 cials.

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  
14 the Director of the National Science Founda-  
15 tion at such time, in such manner, and con-  
16 taining such information as the Director may  
17 require.

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

21 (i) how the center established with a  
22 grant awarded under this subsection will  
23 work with other research institutions, in-  
24 dustry partners, and State and local elec-  
25 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 mul-  
5 tiple disciplines involved in elections sys-  
6 tems security, including computer science,  
7 data science, and social and behavioral  
8 sciences.

9 (5) SELECTION AND DURATION.—Each center  
10 established with a grant awarded under this section  
11 is authorized to carry out activities for a period of  
12 5 years, renewable for an additional 5 years at the  
13 discretion of the Director.

14 (c) AUTHORIZATION OF APPROPRIATIONS.—There  
15 are authorized to be appropriated to carry out this section  
16 \$10,000,000 for each of the fiscal years 2020 through  
17 2024.

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

22 (a) COMMON DATA FORMAT.—The National Insti-  
23 tute of Standards and Technology shall establish and  
24 make publicly available common data format specifications  
25 for auditing, voter registration, and other elements of vot-

1 ing systems, and provide the specifications to the Tech-  
2 nical Guidelines Development Committee of the Election  
3 Assistance Commission under section 221(e) of the Help  
4 America Vote Act of 2002 (52 U.S.C. 20961(e)).

5 (b) ELECTIONS SYSTEMS CERTIFICATIONS.—The  
6 National Institute of Standards and Technology shall  
7 work in collaboration with the Election Assistance Com-  
8 mission to update the process under which voting systems  
9 are certified pursuant to the Help America Vote Act of  
10 2002 so that State and local election officials will be better  
11 able to carry out updates and otherwise modernize such  
12 systems.

13 (c) TECHNICAL ASSISTANCE.—The Director of the  
14 National Institute of Standards and Technology shall—

15 (1) provide technical assistance to State and  
16 local election officials on the implementation of cy-  
17 bersecurity standards, privacy standards, risk as-  
18 sessments, risk-limiting audits, and technologies  
19 which are incorporated in the voluntary voting sys-  
20 tem guidelines issued under the Help America Vote  
21 Act of 2002; and

22 (2) in collaboration with the Department of  
23 Homeland Security and the Election Assistance  
24 Commission, as appropriate, conduct outreach to  
25 State and local election officials in order to dissemi-

1       nate best practices for the implementation of such  
2       voluntary voting system guidelines.

3   **SEC. 5. GAO REPORT.**

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

7           (1) addresses the extent to which efforts by the  
8       National Institute of Standards and Technology  
9       (NIST) to assist the Technical Guidelines Develop-  
10      ment Committee of the Election Assistance Commis-  
11      sion in the development of voluntary voting systems  
12      guidelines have resulted in market-ready standard-  
13      ized voting equipment and software, and addresses  
14      the resources made available to NIST to carry out  
15      these activities;

16           (2) addresses efforts by NIST to monitor and  
17      review the performance of laboratories accredited by  
18      the Elections Assistance Commission and to make  
19      recommendations for continuing accreditation, in-  
20      creased voting technology reliability, and the number  
21      of accredited private laboratories, and addresses re-  
22      sources made available to NIST to carry out these  
23      activities; and

24           (3) addresses the extent to which the annual  
25      list of suggestions required to be submitted by NIST

1 to the Election Assistance Commission for research  
2 issues for grants and pilot programs under section  
3 271(d) of the Help America Vote Act of 2002 (52  
4 U.S.C. 21041) and the evaluation of grants and pro-  
5 grams by NIST has improved voting technology and  
6 been successful in encouraging the implementation  
7 of new technologies in voting systems and equip-  
8 ment.

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

11 Section 301(b) of the Help America Vote Act of 2002  
12 (52 U.S.C. 21081(b)) is amended—

13 (1) in the matter preceding paragraph (1), by  
14 striking “this section” and inserting “this Act”;

15 (2) by striking “and” at the end of paragraph  
16 (1);

17 (3) by redesignating paragraph (2) as para-  
18 graph (6); and

19 (4) by inserting after paragraph (1) the fol-  
20 lowing new paragraphs:

21 “(2) any other paper or electronic technologies  
22 or processes for collecting, storing, or transmitting  
23 personal information of voters for use in the admin-  
24 istration of elections for Federal office, including  
25 electronic poll books with respect to an election;

1           “(3) voter registration databases and systems,  
2 including online interfaces;

3           “(4) systems for carrying out post-election au-  
4 diting;

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

6 **SEC. 7. DEFINITIONS.**

7 In this Act—

8           (1) the term “voting system” has the meaning  
9 given such term in section 301(b) of the Help Amer-  
10 ica Vote Act of 2002 (52 U.S.C. 21081(b)), as  
11 amended by section 6; and

12           (2) the term “State” means each of the several  
13 States, the District of Columbia, the Commonwealth  
14 of Puerto Rico, Guam, American Samoa, the United  
15 States Virgin Islands, and the Commonwealth of the  
16 Northern Mariana Islands.