ELECTION SECURITY UPDATE

Top 18 Most Vulnerable States

COMMITTEE ON HOUSE ADMINISTRATION - DEMOCRATS
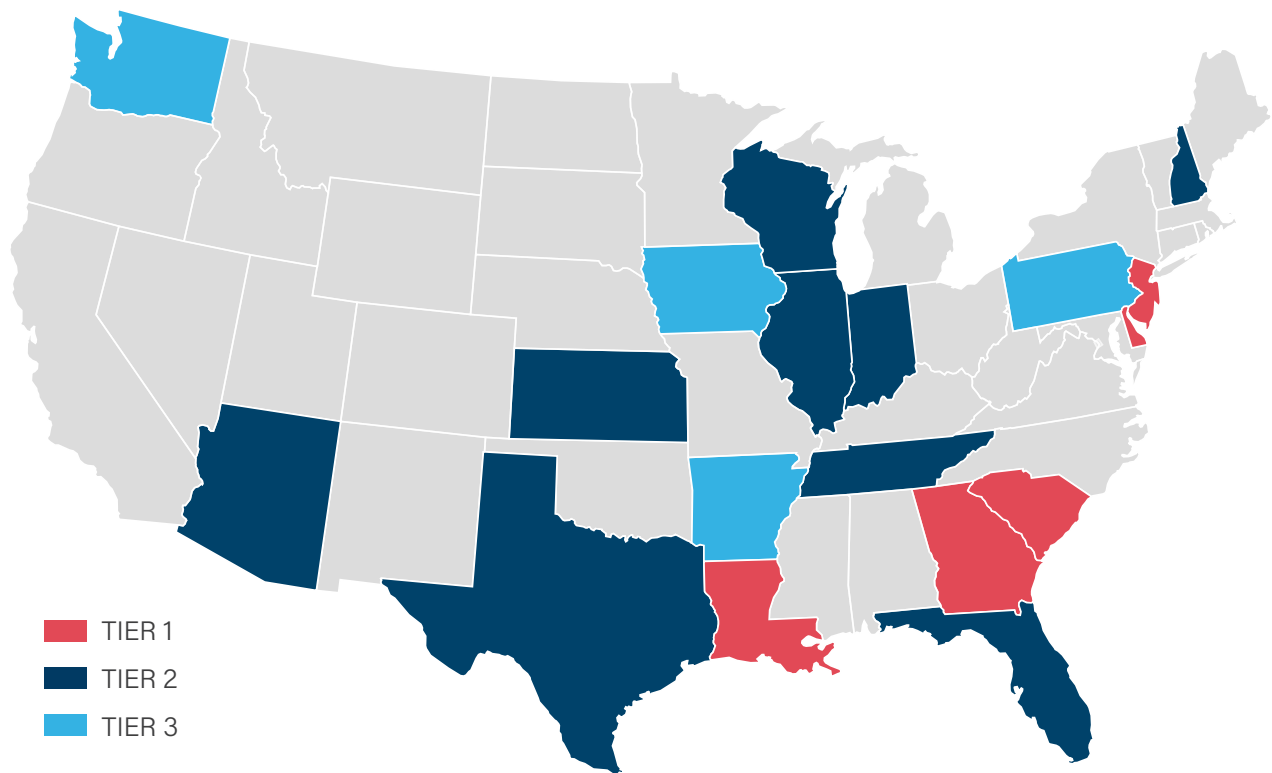
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TOP 18 MOST VULNERABLE STATES

TIER 1
TIER 2
TIER 3

INTRODUCTION

It is now well-known that Russian hackers targeted voter registration databases in at least 21 states and attempted to access credentials of election technology vendors and election officials.[1] If these attacks had succeeded, hackers could have deleted voter registration records, altered poll books, caused chaos on Election Day, and potentially swayed the results of the election. Moreover, the Intelligence Community has warned that foreign actors will likely continue to seek to interfere in our elections.[2] In May, Secretary of Homeland Security, Kirstjen Nielsen said, "We see [Russia] continuing to conduct foreign influence campaigns."[3] In June, Robert Mueller echoed this finding, stating in a court filing that foreign "individuals and entities" are continuing to "engage in interference operations." [4]

In light of the ongoing threat of foreign interference in our nation's elections, Congress appropriated $380 million in March 2018 to the Election Assistance Commission (EAC) for distribution to states to enhance election security. While this money is a useful down payment, we have found that it will cost an additional $1.4 billion over ten years for states to be able to take all the steps required to secure their election systems. In addition, at a hearing in June held by the Senate Rules and Administration Committee, state election officials told lawmakers that they needed additional federal funds to be able to fully secure their election infrastructure. Despite this, the appropriations bills currently being considered in the House of Representatives do not contain additional funding for election security.[5]

This report looks at the eighteen states with the most vulnerable election infrastructure and assesses: 1) whether they have requested the EAC grant money; 2) how the state plans on spending the grant money; and 3) whether the state's response is sufficient given the threats and vulnerabilities it is facing. The states are organized in three tiers:

TIER 1: States that have the most serious election security vulnerabilities. These states rely exclusively on electronic voting machines that do not have a paper record. It is nearly impossible to determine if paperless voting machines have been hacked and if vote tallies have been altered.

TIER 2: States that have significant election security vulnerabilities but may not be planning on using federal assistance to address their biggest vulnerabilities.

TIER 3: States that have significant election security vulnerabilities and are using their federal funds to address those issues, though they need additional assistance to fully upgrade their election infrastructure.

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1   Callum Borchers, *What We Know About the 21 States Targeted by Russian Hackers*, Washington Post (Sept. 23, 2017) https://www.washingtonpost.com/news/the-fix/wp/2017/09/23/what-we-know-about-the-21-states-targeted-by-russian-hackers/?utm_term=.c62a48d0b4dd

2   United States Cong. House. House Permanent Select Committee on Intelligence. *Open Hearing on Russian Active Measures Investigation*, March 20, 2017. 115th Congress. 1st session, 2017. Morgan Chalfant, Homeland Security Cyber Unit Alert for Election Day, The Hill (Nov. 4, 2017) http://thehill.com/policy/cybersecurity/358710-homeland-security-cyber-unit-on-alert-for-election-day

3   David Shepardson, *U.S. Officials Warn Congress on Election Hacking Threats*, Reuters (May 22, 2018) https://www.reuters.com/article/usa-election-security/u-s-officials-warn-congress-on-election-hacking-threats-idUSL2N1ST0YP

4   Alex Johnson, *Foreign Interference in U.S. Elections is Still Going On*, Mueller Tells Judge NBC News (Jun. 12, 2018) https://www.nbcnews.com/news/us-news/foreign-interference-u-s-elections-still-going-mueller-tells-judge-n882601

5   Sarah Zimmerman, *Federal Cybersecurity Funds Aimed at Preventing Another Russian Hack Into Illinois' Elections*, Chicago Tribune (Jun. 23, 2018) http://www.chicagotribune.com/news/local/breaking/ct-illinois-election-russian-hackers-20180623-story.html

SECURING ELECTION INFRASTRUCTURE – BEST PRACTICES

In response to Republican inaction on election security, Leader Pelosi announced the formation of the Congressional Task Force on Election Security (the Task Force), led by Committee on Homeland Security Ranking Member Bennie G. Thompson and Committee on House Administration Ranking Member Robert Brady.

Over a period of six months, the Task Force met with state election officials, cybersecurity experts, computer scientists, advocacy groups and election technology vendors. The Task Force also held two public forums. The first, entitled, "Securing America's Elections: Understanding the Threat," featured former Secretary of Homeland Security, Jeh Johnson, and former Under Secretary of the National Protection and Programs Directorate at DHS, Suzanne Spaulding. At the second forum, "Securing America's Elections: Preparing for 2018 and Beyond," Members heard from EAC Commissioner Tom Hicks, Rhode Island Secretary of State Nellie Gorbea, and then - Virginia Elections Commissioner, Edgardo Cortés. Through this work, the Task Force developed a set of recommendations on how to secure our elections going forward.

The Democrats on the Committee on House Administration also took steps to understand the issue and help states secure their elections. The Committee held a forum on election security in Rockville, MD featuring Representative Raskin, Representative Hoyer, and election security experts. In addition, Representatives Brady, Lofgren, and Raskin, and 25 other Democratic Members sent a letter to the EAC asking the agency to provide clear guidance to states on election security. Finally, along with our colleagues, we sent a letter urging the Appropriations Committee to provide the EAC with $400 million in grant funds to distribute to states.[6] We are proud to have secured $380 million and sought to get the additional $1.2 billion that is necessary in the Fiscal Year 2019 appropriations bills.[7]

We have found that one of the most significant steps a state can take to protect its voting system is to replace paperless voting machines with voting machines that provide a paper trail. Approximately 20% of voters cast their ballots on paperless Direct Recording Electronic (DRE) machines that do not have any paper backup, and have repeatedly been shown to be highly vulnerable to attack. Because these machines record votes on the internal memory of the machine, and do not leave any paper backup, it is near impossible to detect whether results have been tampered with.[8]

The Task Force also recommended that states that are currently using paperless machines switch to voting machines that provide a paper record, and then conduct a robust post-election audit of the paper ballots to confirm that the reported election outcome was correct. In addition, the Task Force recommended that states upgrade their IT infrastructure, including voter registration databases, and provide increased cybersecurity training.

Many of the states below are using at least some paperless voting machines, which we believe must be remedied as soon as possible. They also may need improvement in the areas of post-election audits, IT infrastructure, and cybersecurity training.

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6   Letter to the Appropriations Committee from 15 Members of Congress (Mar. 6, 2018) https://democrats-cha.house.gov/news/press-releases/democrats-request-funding-help-secure-elections-russian-interference
7   Letter to the Appropriations Committee from 33 Members of Congress (Mar. 19, 2018)
8   Lawrence Norden & Ian Vanderwalker, Brennan Center for Justice at NYU School of Law, *Securing Elections from Foreign Interference*, 11 (2017); Eric Geller, Virginia Bars Voting Machines Considered Top Hacking Target, POLITICO (Sept. 8, 2017) http://www.politico.com/story/2017/09/08/virginia-election-machines-hacking-target-242492.
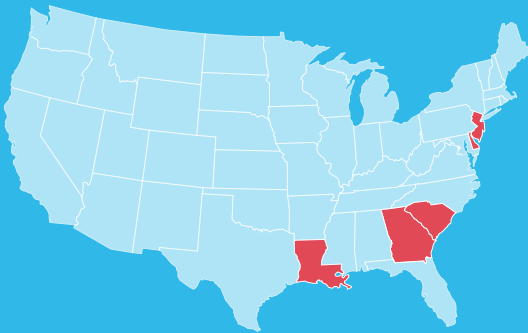
TIER 1

States that have the most serious election security vulnerabilities. These states rely exclusively on electronic voting machines that do not have a paper record. It is nearly impossible to determine if paperless voting machines have been hacked and if vote tallies have been altered.

DELAWARE

Current Vulnerabilities

- Delaware is one of five states that votes exclusively on machines that do not provide a paper record.[9]

- The state also does not require post-election audits.

Security Plan:

- Delaware has requested its $3 million in EAC funds.

- Delaware has issued a request for proposal to replace the state's paperless voting machines. However, it could cost as much as $20 million to replace all the state's machines, and the Governor's most recent budget proposal does not allocate any funds for new voting machines.[10]

Recommendation:

- Delaware needs an additional $17 million to be able to replace its paperless voting machines, and should replace all of its paperless machines before the November elections.

9   *Supra* note 2.
10 Rob Petree, *Delaware Gets a Failing Grade on Election Security in Nationwide Report*, Delaware 105.9 (Feb 15, 2018) https://www.delaware1059.com/news/delaware-gets-a-failing-grade-on-election-security-in-nationwide/article_1068a472-1265-11e8-9b5f-07139d2af05f.html

GEORGIA

Current Vulnerabilities:

- Georgia is one of five states that votes exclusively on machines that do not provide a paper record.[11]

- The state does not require post-election audits, making it impossible to verify if the counts produced by the electronic voting machines are accurate.

Security Plan:

- Georgia waited until July 10th to request its $10.3 million grant from the EAC.

- Secretary Kemp told Politico in September 2017 that he opposed financial assistance from Congress.[12]

- It will cost between $35 million and at least $100 million to replace the states 27,000 voting machines.[13]

Recommendation:

- Georgia needs to move with greater urgency to address its greatest vulnerability – paperless voting machines. The state will also need significantly more than the $13.5 million it was awarded by the EAC to take all necessary security steps.

LOUISIANA

Current Vulnerabilities:

- Louisiana is one of five states that votes exclusively on machines that do not provide a paper record.[14]

- The state does not require post-election audits.

Security Plan:

- Louisiana has requested the $5.9 million available from the EAC, and is planning on using these funds to begin to replace its 10,000 paperless voting machines by 2020.[15] However replacing all of these machines will cost between $40 and $60 million.

Recommendation:

- The state is currently engaged in a request for proposals process to replace 10,000 voting machines,[16] but additional financial assistance, either from the federal government or the state legislature, will be required in order to replace all machines. In addition, Louisiana should conduct post-election audits.

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11   Verified Voting, *The Verifier – Polling Place Equipment – November 2018*, https://www.verifiedvoting.org/verifier/

12   Cory Bennett et al, *Cash-Strapped States Brace for Russian Hacking Fight*, POLITICO (Sept. 3, 2017) https://www.politico.com/story/2017/09/03/election-hackers-russia-cyberattack-voting-242266

13   Maya T. Prabhu, *Georgia Moves to Secure Federal Grant to Improve Election System*, Politically Georgia (Jul. 10, 2017) https://politics.myajc.com/news/state--regional-govt--politics/georgia-moves-secure-federal-grant-im-prove-election-system/BwL4GG6DycCMDXeLKdbDEK/

14   *Supra* note 2.

15   Tony Pugh, *Big Chunks of Election Security Grants Will Go Toward New Voting Machines That Won't Be Ready for 2018 Midterms*, McClatchy (Jun 26, 2018) http://www.govtech.com/security/Big-Chunks-of-Election-Security-Grants-Will-Go-Toward-New-Voting-Machines-That-Wont-be-Ready-for-2018-Midterms.html

16   Louisiana Secretary of State, *Secretary of State Kyle Ardoin Address Press Club* [Press Release] http://wwwcfprd.doa.louisiana.gov/LaNews/PublicPages/Dsp_PressRelease_Display.cfm?PressReleaseID=5584&Rec_ID=6

NEW JERSEY

Current Vulnerabilities:

- New Jersey is one of five states that votes exclusively on machines that do not provide a paper record.[17]

- Without a paper record, the state is unable to conduct meaningful post-election audits.

- The voter registration system needs to be upgraded.

Security Plan:

- New Jersey has requested its $9.8 million in EAC grant funds.

- The state voter registration system has been upgraded and modernized.[18]

- New Jersey is considering legislation that would require all voting machines to have a paper trail.[19]

Recommendation:

- New Jersey's previous Republican Governor failed to prioritize election security, instead focusing on the myth of voter fraud and vetoing a bipartisan bill in New Jersey on automatic voter registration.[20]

- While the new administration appears to be prioritizing cybersecurity, it must move with greater urgency to replace its voting machines in advance of the 2018 elections.

- The $9.8 million it has received in federal grants is not nearly enough to replace voting machines throughout the state, but the state must begin to purchase new machines and conduct audits.

SOUTH CAROLINA

Current Vulnerabilities:

- South Carolina is one of five states that votes exclusively on machines that do not provide a paper record.[21]

- South Carolina is unable to conduct post-election audits as all votes are cast on paperless machines.

Security Plan:

- South Carolina has requested the $6 million available from the EAC.

- However, it will cost the state nearly $50 million to replace its voting machines.[22]

- In addition, the state has other cybersecurity priorities including improving security features on the state's voter registration databases and improving training for election officials.[23]

- The South Carolina Election Commission has requested $20 million from the Legislature to replace voting machines.

Recommendation:

- The state has the right cybersecurity priorities but needs additional financial assistance to be able to fully fortify its election infrastructure.

17 *Supra* note 2.
18 David Wildstein, *State Moves Forward on Election Security Plans*, New Jersey Globe (Apr 12, 2018) https://newjersey-globe.com/section-2/state-moves-forward-on-election-security-plans/
19 Steven Rosenfeld, *These States are Poised to Risk Eliminating Secure Votes with Electronic Voting Machines*, Alternet (Jun 22, 2018) https://www.alternet.org/election-03918/some-states-are-verge-making-bad-decisions-they-purchase-new-electronic-voting
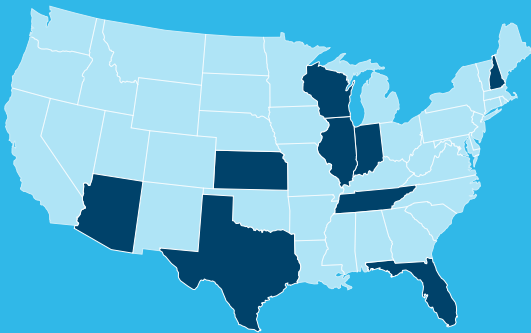20 https://www.brennancenter.org/blog/faulty-logic-chris-christies-automatic-voter-registration-veto

21 *Supra* note 2.
22 Bristow Marchant, *SC Will Need a Lot More Money to Secure Its Elections*, The State (May 11, 2018) https://www.thestate.com/news/politics-government/article210613149.html
23 *Id.*

TIER 2

States that have significant election security vulnerabilities but may not be planning on using federal assistance to address their biggest vulnerabilities.

ARIZONA

Current Vulnerabilities:

- Arizona's post-election audit law counts a fixed number of ballots instead of looking to audit a statistically significant number of ballots, thereby making it ineffective at confirming an election result.[24]

- Arizona does not require electronic poll books to undergo pre-election testing, and does not require backup paper voter registration lists at polling places.[25]

- In 2016, a hacker gained access to a computer connected to the voter registration database in Arizona, forcing the state to shut down its voter registration system for several days.[26]

Security Plan:

- Arizona has requested its $7.5 million in EAC funds.

- It is not clear how the state plans on spending these funds.

Recommendation:

- Arizona should continue to work to strengthen its voter registration systems. In particular, the state should test all electronic poll books prior to Election Day and each polling place should have a paper backup of the voter registration list.

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24 *Supra* note 2.
25 *Supra* note 2.
26 Morgan Chalfant, *States Ramping Up Defenses Against Election Hacks*, The Hill (Aug. 6, 2017) http://thehill.com/policy/cybersecurity/345410-states-ramping-up-defenses-against-election-hacks

FLORIDA

Current Vulnerabilities:

- Florida is using some voting machines that do not have a paper trail.[27]

- Florida does not mandate post-election audits.

- The state does not require newly purchased voting machines to meet federal guidelines.

Security Plan:

- While Florida has requested the $19.2 million in EAC funds available to the state, Secretary of State Ken Detzner is making it difficult for counties to effectively use the money. The state is requiring counties to submit a plan by July 18, and insisting that any money that is unspent after this election cycle must be returned to the state.[28]

Recommendation:

- The Secretary of State's office should work with the counties to make it as easy as possible for them to utilize the EAC funds for the pressing election security needs. In particular, Florida should focus on replacing its paperless voting machines and requiring post-election audits.

ILLINOIS

Current Vulnerabilities:

- Post-election audits are permitted to be conducted electronically, which leaves the audit itself vulnerable to a hacker.[29]

- Illinois used to require cybersecurity training for election officials.[30]

- In 2016, hackers penetrated Illinois' voter registration system and were able to access 76,000 voter records.[31]

Security Plan:

- Illinois has requested its $13.2 million in EAC funds.

- Beginning this year, state employees are required to undergo annual cybersecurity training.[32]

- Illinois is in the process of determining how to spend the EAC funds.[33]

Recommendation:

- Illinois should continue to prioritize cybersecurity training, upgrade their IT infrastructure, and conduct robust post-election audits.

27 *Supra* note 2.
28 Steve Bousquet, *Counties Fault Rick Scott's Staff Over Voting Money Conditions*, Tampa Bay Times (Jun. 29, 2018) http://www.tampabay.com/florida-politics/buzz/2018/06/29/counties-fault-rick-scotts-staff-over-voting-money-restrictions/

29 *Supra* note 2.
30 *Supra* note 2.
31 Associated Press and Alexandra Arriaga, *Federal Funds to Bolster Election Security May Fall Short in Chicago, Cook*, Chicago Sun Times (Apr. 9, 2018) https://chicago.suntimes.com/news/federal-funds-to-bolster-election-security-may-fall-short-in-illinois-elsewhere/
32 Sarah Zimmerman, *Illinois Protecting Against Russian Election Tampering*, Chicago Tribune (Mar. 4, 2018) http://www.chicagotribune.com/news/sns-bc-us--election-security-illinois-20180228-story.html
33 Ryan Voyles, *Why Illinois Counties are Getting $13.2 million to Safeguard Voting Information*, The Pantagraph (Jun. 18, 2018) https://www.pantagraph.com/news/local/why-illinois-counties-are-getting-m-to-safeguard-voting-information/article_7e295421-91fa-5fb9-8e19-c96b6cabb39b.html

INDIANA

Current Vulnerabilities:

- Indiana uses a mix of voting machines that have a paper record and others that do not.[34]

- Indiana also does not require robust post-election audits, and does not require pre-election logic and accuracy testing on all voting machines.

Security Plan:

- Unclear. Indiana only formally requested its allotted $7.6 million in grant money from the EAC on June 28th, and it's not clear from publicly available sources how they plan on spending these funds.

Recommendation:

- The state desperately needs to replace its paperless voting machines.

- According to the Brennan Center for Justice, the total cost to replace paperless voting machines in Indiana would be $22.7 million. Using the $7.6 million in EAC funds to replace paperless machines would be a significant step towards securing the state's elections.[35]

KANSAS

Current Vulnerabilities:

- Kansas uses a mix of some voting machines that have a paper record and others that do not.[36]

- In addition, the state does not conduct post-election audits, even in jurisdictions where voting machines do leave a paper trail.

Security Plan:

- Unclear. Kansas waited until June 28th to formally request the $4.4 million available to the state, and has not indicated how they plan on spending these funds.

Recommendation:

- The Secretary of State, Kris Kobach, has recently been embroiled in litigation as he sought to require "proof of citizenship" before allowing an individual to register to vote.[37]

- Last year, while other states were working to secure their elections, Secretary Kobach was leading President Trump's Presidential Advisory Commission on Election Integrity. The Commission sought to promote the myth of voter fraud and use that myth to create restrictive voting laws. The Commission was embroiled in controversy from its inception when it sought private voter data from all 50 states, and ultimately it disbanded in January 2018.[38]

- Instead of searching for new ways to disenfranchise voters, Kansas should take election security seriously and prioritize addressing its election infrastructure vulnerabilities.

34 *Supra* note 2.
35 Maureen Groppe, *Indiana May Need Millions of Dollars to Prevent Election Hacking by Russia and Others*, IndyStar (Jun 25, 2018) https://www.indystar.com/story/news/politics/2018/06/25/indiana-voting-system-susceptible-russian-election-hacking/725514002/

36 *Supra* note 2.
37 Julie Bosman, *Judge Rejects Kansas Law Requiring Voters to Show Proof of Citizenship*, New York Times (Jun. 18, 2018) https://www.nytimes.com/2018/06/18/us/kris-kobach-voting-fraud-lawsuit.html
38 John Wagner, T*rump Abolishes Controversial Commission Studying Alleged Voter Fraud*, Washington Post (Jan 4, 2018) https://www.washingtonpost.com/politics/trump-abolishes-controversial-commission-studying-voter-fraud/2018/01/03/665b1878-f0e2-11e7-b3bf-ab90a706e175_story.html?utm_term=.73b8536d73ee

NEW HAMPSHIRE

Current Vulnerabilities:

- New Hampshire does not require its voting machines to be tested and certified under the EAC Voluntary Voting System Guidelines.[39]

- The state does not require post-election audits.

Security Plan:

- New Hampshire has requested its $3.1 million in EAC funds.

- Secretary of State Bill Gardner has said that New Hampshire's system "doesn't need a major security overhaul" and suggested using the new EAC funds for general election administration.[40]

Recommendation:

- New Hampshire should spend its EAC funds on its security vulnerabilities. The state should begin conducting post-election audits and replace any aging voting machines with equipment tested and certified by the EAC.

TENNESSEE

Current Vulnerabilities:

- Some jurisdictions in Tennessee use paperless voting machines while others use machines with a paper trail.[41]

- Only jurisdictions that use paper ballots are required to conduct a post-election audit.

Security Plan:

- Tennessee has requested its $7.6 million from the EAC.

- In response to receiving an "F" grade by a Center for American Progress report grading states on their election security, Secretary of State Tre Hargett said, "I don't believe our system is vulnerable" and that misinformation, not security, is the biggest threat to elections.[42]

Recommendation:

- Tennessee would be well served by acknowledging that there are threats facing its election systems, and by accepting federal funds to begin to address the state's election infrastructure vulnerabilities.

- The first step should be replacing paperless machines.

39 *Supra* note 2.
40 Capital Beat, *N.H. Secure Election Funds Generate Praise, Curiosity*, Concord Monitor (Mar 31, 2018)

41 *Supra* note 2.
42 Kyle Midura, *Tennessee Secretary of State Responds to 'F' Election Security Grade*, Gray DC (Feb 22, 2018) http://www.graydc.com/content/news/Tennessee-Secretary-of-State-responds-to-F-election-security-grade-474878203.html

TEXAS

Current Vulnerabilities:

- Texas uses some paperless voting machines.[43]

- The state does not require post-election audits in jurisdictions with paperless machines.

- Texas does not currently require election officials to receive cybersecurity training.[44]

- The voter registration system needs to be upgraded so it can be certified as "secure, redundant, and accurate."[45]

Security Plan:

- Texas has requested its $23.3 million from the EAC.

- The Secretary of State's office has not yet indicated how they will spend these federal funds.

Recommendation:

- Texas should prioritize upgrading its voter registration system, replacing its paperless machines, and implementing post-election audits as soon as possible.

WISCONSIN

Current Vulnerabilities:

- Post-election audits are designed poorly and do not confirm the accuracy of the election outcome. In addition, the audits are conducted after the election is certified, so if an anomaly was detected, it wouldn't affect the election results.[46]

Security Plan:

- Wisconsin has requested its $7 million in EAC funds.

- In 2017, the Republican Governor actively undermined election security efforts by issuing a line-item veto of the budget that would have created five additional positions in the state's Elections Commission.[47] The Elections Commission has again requested additional funding for new positions, including one position dedicated to election security.[48] It remains to be seen whether this funding will come through.

- In Washington, Speaker Ryan has enabled Republican inaction on election security by refusing to immediately direct relevant committees to hold hearings on foreign interference in our elections.[49]

Recommendation:

- Wisconsin should issue a plan for its election security funds that includes robust post-election audits. In addition, the Governor should support the efforts of the Elections Commission and the Legislature to protect Wisconsin's elections.

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43 *Supra* note 2.
44 Center for American Progress, 170, *supra* note 12
45 Letter to Secretary Pablos and Director Ingram from Computer Scientists and Cybersecurity Experts, *Cybersecurity and Election Security Recommendations* (May 10, 2018) https://www.cs.rice.edu/~dwallach/voting-experts-letter-may-2018.pdf
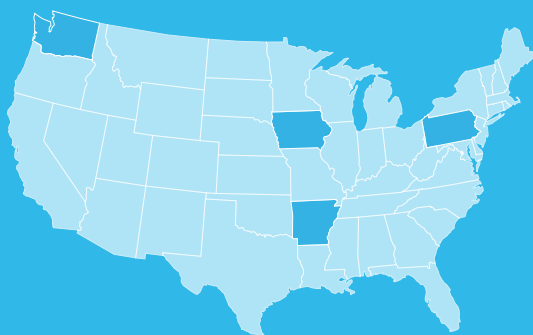
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46 *Supra* note 2.
47 Veto Message in Brief, Sept. 20, 2017, p.13 https://walker.wi.gov/press-releases/governor-walker-releases-final-budget-vetoes
48 Mark Sommerhauser, *For State Officials, Election Security a Concern Heading into 2018 Elections*, Wisconsin State Journal (Feb 27, 2018) https://host.madison.com/wsj/news/local/govt-and-politics/for-state-officials-election-security-a-concern-heading-into-elections/article_28e21a0b-76b9-54c2-85be-f4d698546d07.html
49 Letter to Speaker Ryan from 21 Members of Congress (Dec 18, 2017) https://democrats-cha.house.gov/news/press-releases/house-democrats-states-targeted-russian-hackers-call-speaker-ryan-take-action

TIER 3

States that have significant election security vulnerabilities and are using their federal funds to address those issues, though they need additional assistance to fully upgrade their election infrastructure.

ARKANSAS

Current Vulnerabilities:

- Arkansas uses a mix of paperless voting machines and voting machines that have a paper trail.[50]

- The state does not require post-election audits to verify the accuracy of the vote tallies.

Security Plan:

- Arkansas has requested its $4.4 million grant from the EAC.

- State election officials have indicated that they plan on using the federal funds to buy new voting equipment, and they are working to move quickly. The Secretary of State's office has said that they believe 2/3 of the state's counties will have new equipment by November.[51]

Recommendation:

- The state currently plans on replacing 2/3 of its equipment, but if it could find the funds to replace all of its paperless voting machines by the November elections, that would be a great step towards improving its election security.

50 *Supra* note 2.
51 Michael Wickline, *State, Counties Working to Upgrade Election Gear*, Northwest Arkansas Democrat Gazette (Jun 2, 2018) http://www.nwaonline.com/news/2018/jun/02/state-counties-working-to-upgrade-elect/

IOWA

Current Vulnerabilities:

- Though Iowa requires post-election audits, the audits are conducted in a way that renders them ineffective. First, the audits are not required to look at a statistically significant number of ballots, and second, audit results are not binding on the official election outcome.[52]

Security Plan:

- Iowa has requested its $4.6 million in EAC funds.

- Secretary of State Paul Pate is conducting cybersecurity workshops with county auditors and their IT staff, and will begin requiring two-step authentication for access to Iowa's voter registration database.[53]

- Secretary Pate has asked the Iowa Legislature for $7 million to help upgrade the voter registration database.[54]

Recommendation:

- While the state is taking important steps towards upgrading its IT infrastructure and cybersecurity best practices, Iowa must also conduct more robust, binding, post-election audits.

PENNSYLVANIA

Current Vulnerabilities:

- Pennsylvania uses a mix of paperless voting machines as well as machines that provide a paper record.[55]

- The state does not conduct robust post-election audits.

- Pennsylvania does not currently have a statewide cybersecurity training program.[56]

Security Plan:

- Pennsylvania has requested its $13.5 million in EAC funds.

- However, the state needs to replace approximately 24,000 voting machines, and the federal grant money will not cover the cost of replacing these machines.[57]

- The state also plans on increasing training and resources for counties.[58]

- Pennsylvania is requiring that all counties must have voting machines with a paper trail by December 31, 2019. This is estimated to cost $147 million.[59]

Recommendation:

- Pennsylvania has set strong goals for cybersecurity but needs additional federal financial support to be able to replace all of its voting systems before the 2020 elections.

52 *Supra* note 2.
53 Rod Boshart, *Iowa Takes New Steps to Protect Voting*, The Gazette (Jun 5, 2018) http://www.thegazette.com/subject/news/government/iowa-state-elections-primaries-voting-cyberattack-20180605
54 Roseann Moring and Steve Jordan, *Nebraska, Iowa Work to Shore Up Election Security, Public's Confidence*, Omaha World-Herald (Mar 4, 2018) https://www.omaha.com/news/politics/nebraska-iowa-work-to-shore-up-election-security-public-s/article_970dfc64-8dd1-5484-94d3-3d85c1c89b0e.html

55 Supra note 2.
56 Center for American Progress, 154, *supra* note 12
57 Robert Torres, *It's Time to Bring PA's Voting Machines Up to Modern*, Secure Standards, The Morning Call (Apr 20, 2018) http://www.mcall.com/opinion/yourview/mc-voting-machines-pennsylvania-torres-0421-20180420-story.html
58 Sara Friedman, *Pennsylvania Plots Strategy for Election Security Funds*, GCN (Apr 17, 2018) https://gcn.com/articles/2018/04/17/pennsylvania-voting-machine-upgrades.aspx
59 Charles Thompson, *PA Says Counties Must Have New Voting Machines – With Paper Trails – for Next Presidential Election*, Penn Live (Apr 13, 2018) https://www.pennlive.com/news/2018/04/state_asks_counties_to_have_a.html

WASHINGTON

Current Vulnerabilities:

- Currently, Washington only required audits of ballots printed by electronic machines, and does not require audits of paper ballots counted by optical scanners.[60]

Security Plan:

- Washington has requested its $7.9 million in EAC funds.

- Secretary of State Kim Wyman has stated that her office is emphasizing training for state and local election officials. In addition, they are planning on partnering with the Washington National Guard to simulate cyberattacks and test for weaknesses in computer-based systems.[61]

- The Secretary of State's office will be working with county election officials to determine how best to spend the EAC money.[62]

Recommendation:

- Washington should require robust, post-election audits for paper ballots as well as ballots printed by electronic machines.

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60   *Supra* note 2.

61   Austin Jenkins, *Concerned About Election Security? Northwest Election Chiefs Say Have Confidence*, NW News Network (Mar 29, 2018) http://nwnewsnetwork.org/post/concerned-about-election-security-northwest-election-chiefs-say-have-confidence

62   Kevin Rounce, *Washington Receives Nearly $8 Million to Update Election System*, Newsradio 560 KPQ (Apr 2, 2018) http://www.kpq.com/washington-receives-nearly-8-million-update-election-system/