Testimony
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Before the
U.S. Election Assistance Commission
Proposed Voluntary Voting System Guidelines
Denver, Colorado
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The Electronic Privacy Information Center (EPIC) and its project the National Committee for Voting Integrity (NCVI) would like to thank the U.S. Election Assistance Commission (EAC) for the opportunity to participate in a hearing regarding the proposed Voluntary Voting System Guidelines. The EAC's promulgation of the final document is greatly anticipated by states, election officials, technologists, and especially the voting public.

I am the Associate Director of the Electronic Privacy Information Center (EPIC) located in Washington, DC. EPIC is a public interest research center established in 1994 to focus public attention on emerging civil liberties issues as they relate to information technology and to protect privacy, the First Amendment, and constitutional values.

Although, I am testifying before you today, this testimony is a collaborative effort of the members of the National Committee for Voting Integrity. This statement will focus on the importance of election administration to successfully meet the challenge of creating in practice: reliable, secure, accessible, transparent, accurate, and auditable public elections.

Thomas Jefferson wrote that, "The first principle of republicanism is that the lex majoris parties [the will of the society] is the fundamental law of every society of individuals of equal rights [.] [T]o consider the will of the society enounced by the majority of a single vote as sacred as if unanimous is the first of all lessons in importance, yet the last which is thoroughly learnt."

Although it has always been within Congressional authority to regulate federal elections, it has rarely done so.[1] The Presidential Election of 2000, made it publicly

[1] U.S. Constitution, Section 4, Clause 1,

- "The Times, Places and Manner of holding Elections for Senators and Representatives, shall be prescribed in each State by the Legislature thereof; but the Congress may at any time by Law make or alter such Regulations, except as to the Places of chusing Senators."

U.S. Constitution, Section 5, Clause 1,

- "Each House shall be the Judge of the Elections, Returns and Qualifications of its own Members, and a Majority of each shall constitute a Quorum to do Business; but a smaller Number may adjourn from day to day, and may be authorized to

known that the mechanisms of democratic elections within this nation were in desperate need of repair. As a result, Congress passed the Help America Vote Act of 2002 (HAVA), in response to the breakdown in the vote tabulation process during Florida's recount conducted at the conclusion of the 2000 Presidential Election.[2]

Post election analysis of 2000 and 2004, and legal challenges, which followed these presidential elections have identified many obstacles to reliable public election, which include problems with: voter registration,[3] voter roll purges,[4] poll place practices,[5] accessible polling locations, and voting technology,[6] usability of voting mechanisms, absentee ballot problems,[7] and vote tabulation.[8] Between 4 and 6 million voters were disenfranchised by the public election process in 2000.[9] In short--voters are the ultimate victims of failed election systems, but the least prepared to protect their interest in the public election process.

The bar for voting technology and election administration should not be set artificially low by the final guidance produced by the Commission. Voters need an advocate for their interests before, during, and after public elections. They need voting

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- compel the Attendance of absent Members, in such Manner, and under such Penalties as each House may provide."

In 1845 added to the U.S. Code Title 3, Chapter 1, § 1

> "The electors of President and Vice President shall be appointed, in each State, on the Tuesday next after the first Monday in November, in every fourth year succeeding every election of a President and Vice President."

[2] Help America Vote Act of 2002 (HAVA), Public Law Number 107-252, October 29, 2002

[3] David Baltimore and Charles M. Vest, Caltech/MIT report, "Voting: What is What Could Be" July 2001

People for the American Way, NAACP, Lawyers Committee for Civil Rights Under the Law, Special Report, "Shattering the Myth: An Initial Snapshot of Voter Disenfranchisement in the 2004 Elections" December 2004.

Lillie Coney, Testimony, Election Assistance Commission's Technical Guidelines Development Committee, September 22, 2004

[4] ACLU, Right to Vote, Demos, Report, "Purged" October 2004

[5] David Baltimore and Charles M. Vest, Caltech/MIT report, "Voting: What is What Could Be" July 2001

Lillie Coney, Testimony, Election Assistance Commission's Technical Guidelines Development Committee, September 22, 2004

[6] David Baltimore and Charles M. Vest, Caltech/MIT report, "Voting: What is What Could Be" July 2001

[7] *id*.

[8] *id*.

[9] David Baltimore and Charles M. Vest, Caltech/MIT report, "Voting: What is What Could Be" July 2001

systems and procedures that reflect the best that human factors, computer science, cryptography, data protection, security, computer architecture, and informatics can produce. If the best resources of these disciplines were brought together to create the perfect voting system, but poll workers still lack training, then the effort would be meaningless.

The quality of the work produced by the EAC is a direct result of the support that the agency has received from Congress in the form of maximum allowable staff, and the funds provided. HAVA requires that the EAC produce a number of reports and meet fixed deadlines, such as the one regarding promulgation of voluntary voting system guidelines. Therefore, our comments today are intended to assist the EAC with producing the best possible document to guide states in developing reliable, secure, accessible, transparent, accurate, and auditable election systems.

Dr. Peter Neumann expressed it best when he said, "Elections require an end-to-end concern for a wide variety of integrity requirements, beginning with the registration process and ballot construction, and continuing through vote tabulation and reporting."[10]

The EAC is limited to providing voluntary guidance to states on statewide-centralized voter registration databases, and voting systems.[11] This guidance may be used by some states as if they have the force of federal law. For this reason, it is important to offer clear and effective guidance to states on issues of functional capability, hardware, software, telecommunication, security, quality assurance, and configuration of voting systems. It is worth noting that four of the sections of Volume 1 of the draft Voluntary Voting System Guidelines are identified at "requirements" while other are not.[12]

General Comments

While the draft Voluntary Voting System Guidelines is an improvement in some respects over the standards under the Federal Election Commission process for 1990 and 2002. The increased attention to accessibility for voters with disabilities and language minorities is a step forward over previous voting technology standards. The document's treatment of security, transparency, and auditability reflects no improvement over

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[10] Peter Neumann, "Statement of Support for the LCCR/Brennan Center/Report, available at http://www.civilrights.org/issues/voting/lccr_brennan_support.pdf, June 29, 2004

[11] Help America Vote Act of 2002, (HAVA) Public Law 107-252, October 29, 2002

[12] Election Assistance Commission, Volume 1, Voluntary Voting System Guidelines:
Volume 1, Section 4, Software Requirements
Volume 1, Section 5, Telecommunications Requirements
Volume 1, Section 7, Quality Assurance Requirements
Volume 1, Section 8, Configuration Requirements

previous standards. Some sections of the draft pose serious challenges to election integrity and voter privacy.

Privacy

Technology that facilitates the right of citizens to participate in the public discourse may threaten privacy, especially when it is associated with the administration of elections and, under certain conditions, the very act of voting.[13] The use of technology in the online[14] and offline[15] voting process is growing in popularity around the world.[16] The Charter of Fundamental Rights of the European Union[17] and the United Nations Universal Declaration of Human Rights'[18] support the right of citizens to both privacy and self-governance. Democracies are universally defined as the most efficient means of supporting self-governance through citizen participation in the form of voting. The secret ballot has long been considered an integral requirement of democratic governance.

The balance between a state's right to ensure that intimidation and election fraud are not present in public elections, and the voter's right to privacy has resulted in the development of the secret ballot and restricted zones around voting compartments.[19] Because of the documented history of voter intimidation, coercion, and fraud associated with third-party knowledge of how individual voters cast their ballots, it is important not to underestimate the importance of voter privacy. No community is immune to the effects of voter manipulation, but some communities are more vulnerable than others—for example racial minorities; new citizens; language minorities; mobility and visually challenged; and the poor.

Federal and state courts as well as legislatures have historically taken steps to protect the right of voters to vote their conscience without fear of retaliation.[20] The Supreme Court in its majority opinion in *Buckley v. Valeo*, stated that, "Secrecy, like

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[13] Associated Press, "Widow with Visible Vote Gets No Help," Los Angeles Times, March 12, 1992, Part A, at 15.
[14] Parliamentary Office of Science and Technology Post Notes, May 2001 Number 155 Online Voting, available at <http://www.parliament.uk/post/pn155.pdf>.
[15] European Commission Cybervote Project Report, Chapter 2: The History of the Internet, available at <http://www.eucybervote.org/Reports/KUL-WP2-D4V1-v1.0-01.htm>.
[16] *See generally* EPIC's Voting Page web page <http://www.epic.org/privacy/voting/>.
[17] Charter of Fundamental Rights of the European Union Article 39, available at <http://www.europarl.eu.int/comparl/libe/elsj/charter/art39/default_en.htm>.
[18] UN Declaration of Human Rights General Assembly resolution 217 A (III). 10 December 1948, available at <http://www.un.org/Overview/rights.html>.
[19] Burson v. Freeman, 504 U.S. 191, 207-208 (1992)
[20] Lillie Coney, Testimony before the U.S. Election Assistance Commission's Technical Guidelines Development Committee, September 22, 2004

privacy, is not per se criminal. On the contrary, secrecy and privacy as to political preferences and convictions are fundamental in a free society. Chief among the election reforms of the 1800s was the adoption of the secret ballot."[21] The Supreme Court in Burson v. Freeman, found that "the very purpose of the secret ballot is to protect the individual's right to cast a vote without explaining to anyone for whom, or for what reason, the vote is cast." 504 U.S. 191, 206 (1992), quoting Rogers v. Lodge, 458 U.S. 613, 647 n.30 (1982) (Stevens, J., dissenting)

These cases along with others demonstrate the inseparable nature of voting and privacy.[22] The Voluntary Voting System Guidelines would serve the needs of the voter best by linking the privacy of voters to the integrity of public elections. The Sequoia AVC Edge touch-screen voting system, used in Nevada in 2004, seriously compromised voter privacy, by the introduction of a paper ballot system that records votes on a single continuous roll of paper. Section 6.8.5.2 of the Commission's draft to provide guidance to states is correct to disallow this type of ballot recording system. It is important that this document make as strong a statement as possible regarding the importance of voter privacy and the secret ballot. The guidance regarding the voter privacy found in Volume 1, Appendix C Best Practices for Election Officials should be part of the sections on functionality, hardware, software, and security.

The privacy of voters who cast ballots by absentee methods or during early voting are just as important as votes cast on Election Day. The guidance should address the need to minimize and wherever possible eliminate the threat to absentee voter privacy. It would be beneficial to direct states to follow the example of those states that require a double envelope and only include mailing information on the exterior envelope. References to party affiliation and other election related information should be placed on the interior envelope. Internal election administration procedures should as soon as it is practical, separate the returned voted ballot from the exterior envelopes. The importance of assuring that all ballots are cast in secret and remain secret cannot be overstressed.

Transparency

Transparency is a key component of a functioning healthy democracy. It can be translated into public policy decisions that allow citizens, policymakers, and the media to assure themselves that a local, state or federal government agency is functioning as intended. In this context, the process of providing transparency is referred to as "open government." Open government can be accomplished in a number of ways, which may include: public meetings, public rulemaking notices, reasonable public comment periods, access to rulemaking proceedings, official reports, and open records laws. The

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[21] Dennis R. Judd and Todd Swanstrom, pg. 86, Second Edition, City Politics: Private Power and Public Policy

[22] Lillie Coney, Testimony, US Election Assistance Commission's Technical Guidelines Development Committee, September 22, 2004

application of technology intended to provide a government service should not be excluded from open government objectives. In addition to the methods described, the adoption of technology may require additional opportunities for public comment that facilitate the participation of those members of the public with relevant skills and training.

The guidance to states on the administration of elections should include strong support of open government procedures that allow public access to the election administration process. Historically, the election administration community, voting rights community, media, and partisan efforts looked closely at how elections were managed. Today, that list of constituencies has grown to include technologists, election reform advocates, and concerned citizens.

Guidance to states should make them aware of the challenges to transparency posed by barcodes on voted ballots, and non-disclosure agreements as a condition for purchase of voting systems. Implementation of voting systems should included transparency at every phase of the process.

Audit

In the draft version of voting system guidelines, too little focus is placed on the importance of conducting audits of election results. Post-election evaluation of the results is fundamental to election integrity. For audits to be credible, the same vendor that supplied the voting system being audited should not perform the audit. It is important to know when election systems perform as expected, and when they do not. For this reason, independent, verifiable, and transparent audits of election results should be routine.[23] California, Colorado, Connecticut, Hawaii, Illinois, Minnesota, New Mexico, New York, North Carolina, Washington, and West Virginia all have laws addressing election audits.[24] For example, California's audit law requires a 1% manual recount of voted ballots.

Audits should include a representative hand count of ballots or ballot images; documentation of the chain of custody of all voting technology; and a chain of custody on all unmarked, and marked ballots. States are well within their prerogative to determine how the results of audits will be treated, however, they should be strongly encouraged to incorporated audits into every aspect of election administration, and make the results public. States should be encouraged to engage the technology community in the decision-making process to help meet the unique needs of state or local governments to routinely audit their elections.

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[23] David Dill, Testimony, Election Assistance Commission, July 28, 2005

[24] Verified Voting, Manual Audit Requirements, August 20, 2005, available at < http://verifiedvoting.org/article.php?id=5816>

Today it is not enough that vendors assure states that paperless voting systems retain vote information, those systems must be proven to do so. The record of systems failures that resulted in lost votes cannot be ignored. Ballots lost from electronic voting systems used in North Carolina and Florida in 2004 attest to the need for more rigorous voting technology standards.[25] There is also a need to ensure routine access to ballot images for recount and election audit purposes. Last year's California Primary election resulted in a legal challenge, *Soubirous v. County of Riverside*, when a candidate lost an election contest by 45 votes. The candidate was denied access to the memory and audit logs of the Sequoia electronic voting machines purchased the Riverside County Board of Supervisors, which resulted in a court challenge.[26]

Security

Security can be defined as a series of tradeoffs.[27] For example, interior airbags in cars were initially aggressively opposed by automobile manufacturers as being too costly. The government made the decision that their inclusion in cars would save lives, and that the increased cost for the purchase of an automobile was worth the tradeoff.

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[25] Voters Unite, Report, Myth Breakers: Facts About Electronic Elections, available at http://www.votersunite.org/MB2.pdf

> "Electronic Voting Machines Lose Ballots Carteret County, North Carolina. November, 2004. Unilect Patriot DRE A memory limitation on the DRE caused 4,438 votes to be permanently lost. Unilect claimed their paperless voting machines would store 10,500 votes, but they only store 3,005. After the first 3,005 voters, the machines accepted -- but did not store -- the ballots of 4,438 people in the 2004 Presidential election. Jack Gerbel, president and owner of Dublin-Calif.-based UniLect, told The Associated Press that there is no way to retrieve the missing data. Since the agriculture commissioner's race was decided by a 2,287-vote margin, there was no way to determine the winner. The State Board of Elections ordered a new election,10 but that decision is being challenged in the court.
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> Palm Beach County, Florida. November 2004. Sequoia DRE Battery failure causes DREs to lose about 37 votes. Nine voting machines ran out of battery power and nearly 40 votes may have been lost. ... The nine machines at a Boynton Beach precinct weren't plugged in properly, and their batteries wore down around 9:30 a.m., said Marty Rogol spokesman for Palm Beach County Supervisor of Elections Theresa LePore. Poll clerk Joyce Gold said 37 votes appeared to be missing after she compared the computer records to the sign-in sheet. Elections officials won't know exactly how many votes were lost until after polls close."

[26] Soubirous v. County of Riverside, http://www.verifiedvoting.org/downloads/legal/california/soubirous-v-countyofriverside/

[27] Bruce Schneier, pg. 7, "Beyond Fear: Thinking Sensibly About Security in an Uncertain World"

The EAC is in the position to make decisions regarding tradeoffs to establishing in practice reliable, secure, accessible, transparent, accurate, and auditable public election systems. If the result of the Commission's actions is more reliable, secure, accessible, transparent, accurate, and auditable, public elections in this nation then the Commission has done its job.

Electronic voting systems create unique challenges to privacy, reliability, security, accessibility, transparency, accuracy, and auditability. Accessible voting that allows the independent casting of ballots by voters should be universal. The ability of voting technology to record, retain, and reproduce voter choices accurately should be a minimum requirement for voting systems. The proof of the ability of voting systems to accomplish this task, while at the same time protecting voter privacy is of critical importance to election integrity. Before voting systems are used in public elections, they should undergo testing by independent, federally certified laboratories.

The voter is the only person who should know how votes are cast on his or her ballot. That person should not be able to prove to anyone how they voted, nor should a ballot be associated with that voter.[28] The votes cast by voters should be recorded and retained free from error or manipulation. The ballots and votes cast should be secured from tampering, damage, machine failure, or loss. Voters should be able to cast votes and verify vote choices unassisted. Accuracy should be maintained and authenticated through a post-election audit process. State and local election contingency planning should detail what should be done in the event of a natural disaster or if a polling location unexpectedly becomes unavailable. Once an election has begun, contingency plans should cover what should take place to complete the election. For example, what should be done if a power outages occur that exceed battery life of voting or ballot tabulation technology, voter turnout exceeds expectations, or unexpected shortages of Election Day poll workers occur, which threaten the conclusion of an election once begun.[29]

Comments on Sections of the Draft Guidelines

The draft Voluntary Voting System Guidelines draft creates new threats to voting system security by recommending the use of telecommunication systems to transmit the election information over public telecommunication networks. Public telecommunication networks, especially the Internet, are insecure. [30] It is important to note that HAVA

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[28] Coney, Hall, Vora, and Wagner, "Towards a Privacy Measurement Criterion for Voting Systems,

[29] Ace Project, Voting Operation: Contingency Plans, available at http://www.aceproject.org/main/english/po/poh01d.htm

[30] David Jefferson, Aviel D. Rubin, Barbara Simons, David Wagner, Report, "A Security Analysis of the Secure Electronic Registration and Voting Experiment (SERVE)", January 2004.

Section 245 directs that the EAC conduct a study and report on Electronic Voting and Electoral Process in federal elections.[31] The study, when completed, would assess the safe use of the Internet and other communication technology's use in voting.

Volume 1, Section 5 Telecommunications Requirements for accuracy, durability, reliability, maintenance, and availability should make mention of the section on security. Further, Volume 1, Section 6 Security, should offer strong caution against the use of telecommunications systems to transmit information related to critical components of voting systems before, during, or after an election. The section on security should address denial of service attacks, spoofing, viruses, worms, and power outages that exceed battery life of voting systems.

Another important factor to consider is a stronger section 3.2.2.8 Electrostatic Disruption (ESD) under guidance regarding Hardware. The effects of ESD can be devastating to the operation of electrical equipment. The recommendations to states should reflect the humidity and other conditions in which voting systems will operate. The current recommendations for ESD reflect conditions of less than twenty-five percent humidity, which is unrealistic for many regions of the nation. States should be directed to use a sliding scale for conditions, where machines will be used that may pose a threat of ESD.

It is our strong recommendation that the final guidance issued to states direct them to prepare realistic contingency plans in the event of electronic voting system failures that jeopardize the completion of the election process.[32] Appendix C's sections 6.7.2 Controlling Usage; and 6.8.7 Equipment Security and Reliability should be part of Section 6 Security.

The Voluntary Voting Systems Guidelines should encourage state and local election administrators not to limit their thinking to what can be done, but to consider what can be done safely to establish reliable, secure, accessible, transparent, accurate, and auditable public elections.

Volume 1, Section 6 Security, recommends the incorporation of infrared (IR) technology in voting systems. We strongly recommend that IR technology not be allowed in voting systems. The Voluntary Voting System Guidelines should place the strong language regarding the risks associated with IR technology found in Volume 1, Appendix C Best Practices for Election Officials in the telecommunications and security section. Although IR technology is commonplace in remote control systems for televisions, DVDs, VHS, and other consumer products that does not mean it should be trusted in

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[31] Help America Vote Act of 2002 (HAVA), Public Law 107-252, October 29, 2002. SEC. 245. 42 USC 15385, available at <http://www.fec.gov/hava/law_ext.txt>

[32] Ace Project, Report on Physical Security, available at < http://www.aceproject.org/main/english/et/ete01a.htm>

voting systems. States considering IR technology as an option should be strongly encouraged to enumerate the need for it, and evaluate the potential risks. Manufacturers of voting systems should not incorporate IR technology as a standard offering in voting systems used in public elections because it poses serious security risks. The only way to be sure that the risk is not present is not to include the IR capability. If states insist on having IR capability on voting systems, the next best security option is the ability to physically remove the device from voting systems before their use in public elections, or at the minimum cover the IR port with "opaque" material to block visible light.

EPIC obtained under a Freedom of Information Act (FOIA) request the final draft voting technology standards submitted to the Election Assistance Commission by the Technical Guidelines Development Committee (TGDC). Although the document produced by the TGDC with the assistance of the National Institute of Standards and Technology was to assist the EAC with developing the final standards document it is important to note differences between the two documents. The TGDC's Volume 1, Section 1.6.1, Qualification Tests, and the EAC's draft Volume 1, Section 1.6.1 National Certification Tests appear to suggest different methods for voting system testing and certification. The TGDC's version references independent testing authorities (ITAs) in a historical context, while the EAC's version seems to imply that the Commission would replace the role of NASED in the new HAVA certification process. If this is the intent of the EAC then it appears to be in conflict with the authorizing legislation of HAVA, Section 231 Certification and Testing of Voting Systems.[33] The law states that the EAC shall establish a list of federally accredited laboratories no later than 6 months after the EAC adopts voluntary voting system guidelines. The Director of the National Institute of Standards and Technology must conduct an evaluation of independent, non-Federal laboratories and submit to the EAC a list of those laboratories the Director proposes to be accredited to conduct test, certification, decertification, and recertification of voting systems. The EAC must then promulgate a list of testing laboratories that it certifies for testing and certification of voting systems.

Dr. Michael Shamos said, "The system that we have for testing and certifying voting equipment in this country is not only broken, but is virtually non-existent."[34] We

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[33] Help America Vote Act of 2002, Public Law 107-252, October 29, 2002

[34] Congressman William Clay, pg. 121, question to Dr. Michael Shamos, Official Hearing Serial No. 108-258, Subcommittee, House Government Reform Committee, Hearing The Science of Voting Machine Technology: Accuracy, Reliability, and Security, July 20, 2004

Michael Shamos, Testimony, Subcommittee on Environment Technology and Standards, House Science Committee, "Testing and Certification for Voting Equipment: How Can These Processes Be Improved?", available at
< http://www.house.gov/science/hearings/ets04/jun24/shamos.pdf>

> "I am here today to offer my opinion that the system we have for testing and certifying voting equipment in this country is not only broken, but is

strongly support this view of the current process for testing and certification of voting systems. Therefore, we would like to encourage the EAC to adhere to the directions provided by Congress and, to the extent your resources will allow, establish the strongest system of checks in the form of an improved federally certification process for voting systems.

Section 3.2.1 Accuracy Requirements references telecommunication data transmission for the initial tabulation of results, but it does not address the need to retain accurate information for audits or recount purposes. It should be noted in the final standards the inherent insecure nature of telecommunication systems and especially the Internet.[35]

Voting systems intended to be the sole source of recording, storing, and reproducing accurate list of qualified voters or ballots for use in public elections should have well defined critical requirements. These critical requirements should only include those systems that should they fail would result in eligible citizens who attempt to register or eligible voters who attempt to vote—being denied that right.[36] It should be made clear to states that the failure to meet these requirements would result in failures in the voter registration or voting processes. Statewide-centralized voter registration database critical requirements should include: adequate system reliability, data confidentiality, and system responsiveness during high volume periods.[37] For this reason, it will be important for each state to develop an effective security policy that rest on reliable, accurate, and auditable election systems.

Volume 1, Section 6.8 Requirements for Voter Verified Paper Audit Trail [(VVPAT)] (Optional), begs the question, why was this particular topic labeled as "Optional"? Further, why was the sentence "VVPAT is not mandatory" included. There are 24 states, which have VVPAT laws, and 13 with proposed legislation.[38] Independent voting by all voters regardless of physical condition, language of origin, literacy, or

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> virtually nonexistent. It must be re-created from scratch or we will never restore public confidence in elections. I believe that the process of designing, implementing, manufacturing, certifying, selling, acquiring, storing, using, testing and even discarding voting machines must be transparent from cradle to grave, and must adhere to strict performance and security guidelines that should be uniform for federal elections throughout the United States."

[35] David Jefferson, Aviel D. Rubin, Barbara Simons, David Wagner, Report, "A Security Analysis of the Secure Electronic Registration and Voting Experiment (SERVE)", January 2004.

[36] Peter G. Neumann, pg 3, "Computer Related Risks," publisher Addison-Wesley, 1995.

[37] *Id*.

[38] Verified Voting, http://www.verifiedvoting.org/

mental capacity and voter verifiable elections are not incompatible objectives. Today there is no voting technology that will eliminate the need for paper's use in elections. For this reason, systems that produce paper ballots and/or VVPAT must be accessible by those who are language minorities or shoulder the challenge of disabilities. Voter verification should be unassisted verification of votes cast and recorded prior to the voter leaving the voting station. It is our belief that meaningful access to verification of physical ballots and VVPAT by members of the language minority and disabled communities is not an impossible task.

The discussions surrounding the issue of VVPAT have been passionate. The challenge for the Commission is listening to all of the competing voices on the many issues surround verifiable elections and pressing the case for states to pursue creative options to make elections universally reliable, secure, accessible, transparent, accurate, and auditable public elections.

Finally, there are other areas of weakness in the draft version of the voting system guidelines that in their totality would present serious complications for achieving reliable, secure, transparent, accurate, and auditable public elections. The topics outlined in all sections that are also listed in the security section should cross-reference each other. Further, states should be encouraged to act proactively to secure their elections when considering new election processes, or election technology.

Specific areas of concern are that optical scan precinct or central count ballot tabulation systems should document a chain of custody for optical scan marked and unmarked ballots, ballot markers, Precinct-count ballot readers, and automated central tabulating mechanisms. The voluntary guidelines should recommend that the Precinct-count ballot reader and central count tabulators can read to ballot marked with a number two soft lead pencil, which should include a dark stroke crossing the voting target on its long dimension and half the width of the target should register as a vote. In addition, precinct count systems should provide each polling location an optical ballot reader. The ballot reader should have its setting to detect overvotes turned on at the central county facility prior to being sent to polling locations.

Recommendations to election administration should include a directive to test all ballot marking devices to be sure that they meet specifications of the precinct tabulating facility and central tabulating technology. The precinct tabulator and central tabulator technology should be calibrated to read reasonable marks, which should include a dark stroke crossing the voting target on its long dimension and half the width of the target should register as a vote. Finally, all ballot tabulators should be tested and/or calibrated to ignore erasures made by a new gum eraser of a thoroughly blackened pencil mark.

Guidance to states regarding the use of paperless direct recording electronic voting systems should include strong recommendations that at least one poll worker at each polling location should be trained to check the calibration of DRE voting machines

and if necessary recalibrate them. Guidance to manufacturers should include criterion that these systems memory capacity is exceeded or a malfunction that threatens vote capture and retention is detected the voting system shall disallow the reinsertion of voter cards to disallow the appearance of continuing to record votes.

Although this document is only intended to provide "voluntary guidance" to states, it would serve the interest of voters by addressing the use of ballot marking devices and printers used to produce ballots and/or audit trails. We are offering to the Commission a set of recommendations that address these issues as they relate to optical scan and direct recording electronic voting machines.

It is our collective advice to the EAC that elections must require an end-to-end concern for a wide variety of integrity requirements, beginning with the registration process; ballot construction; voting recording and storage; and continuing through vote tabulation and reporting. We recommend that the final document be used to establish a floor and not a ceiling for voting systems. States should be encouraged to experiment on ways to create reliable, secure, accessible, transparent, accurate, and auditable public elections.

The United States is a society of equal rights. On Election Day, this nation must function as a society of equal rights, where a single vote is treated as important as the majority of votes cast.

Thank you,

MEMBERS

Peter G. Neumann, Chair * David Burnham * David Chaum * Cindy Cohn * Lillie Coney * David L. Dill * David Jefferson * Jackie Kane * Douglas W. Jones * Stanley A. Klein * Vincent J. Lipsio * Justin Moore * Jamin Raskin * Marc Rotenberg * Avi Rubin * Bruce Schneier * Paul M. Schwartz * Barbara Simons * Sam Smith

BACKGROUND

The National Committee on Voter Integrity (NCVI) was established to promote voter-verified balloting and to preserve privacy protections for elections in the United States. The Committee brings together experts on voting issues from across the country.