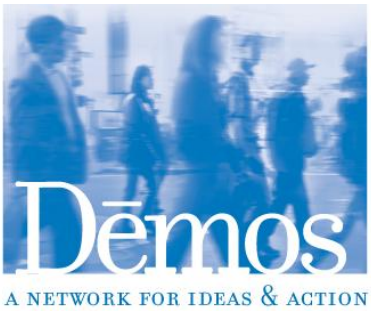

U. S. Election Assistance Commission Public Hearing on the Use, Security, and Reliability of Electronic Voting Systems

Statement of Dēmos: A Network for Ideas and Action

May 5, 2004

220 Fifth Avenue, 5th fl. New York, NY 10001 T. 212.633.1405 F. 212.633.2015 www.demos-usa.org

EXECUTIVE SUMMARY

Providing every citizen an equal opportunity to register to vote, equal access to the polls, and assurance that every ballot cast is counted is a complex and daunting task. Success requires a broad range of reforms, some structural and some administrative. They include the repeal of felon disfranchisement laws, the elimination of pre-election day voter registration requirements, expanded language assistance for language minority voters, extensive voter education initiatives, comprehensive poll worker training, *and* the replacement of often antiquated and inaccessible voting machines with new electronic equipment.

The broiling debate over computerized voting systems and so-called "voter verified paper trails" (VVPTs) is at once important and distracting. While central concerns about ballot security and voter confidence must be resolved, that resolution must neither preempt consideration of other serious flaws in current election administration, nor obscure the promise of modern voting technology. Punch card, lever and other traditional voting systems must be replaced by new machines that overcome physical, cognitive and linguistic barriers to voting.

The current debate over VVPTs frequently conflates three fundamental issues: accessible voting systems, transparent electoral processes, and accurate vote tallying. Any solution to the voting machine controversy must simultaneously address all three issues at once. The most creative solutions will enable maximum accessibility to voting systems while preserving the transparency and integrity of the vote casting and vote counting processes.

Recommendations
Demos offers the following suggestions for resolving the controversy over computer voting systems and voter verified paper trails:

- Choose Direct Record Electronic Machines.
- Use voter verified paper trails with data-to-voice capabilities to boost public confidence and restore transparency to the election process.
- Use computerized voting systems that separate the voting casting from the vote counting functions.
- Require open source code systems.
- Provide strong federal guidance.

Back to Basics
It should be emphasized that the issue of accurately counting ballots is only one of many structural barriers to voting. Other barriers:

- Affect ***who*** is eligible to ***register*** to vote
- Affect ***when*** a person can ***register***
- Affect ***who can vote*** in practice
- Affect ***who wants to vote***

The most fruitful approach to creating a healthy electoral democracy would be a holistic one – attending to the question of VVPTs in conjunction with these and other structural barriers to

participation and representation. Unless we rise to this challenge, our electoral democracy will remain impoverished and continue to exclude millions from participating in political life.

Dēmos: A Network for Ideas & Action, is a nonprofit research and advocacy organization established in 1999. Since the 2000 election, Dēmos has been promoting a broad agenda of democracy reforms, including major new efforts to bolster voter registration and participation, and the elimination of all barriers and discrimination that prevent voting. Dēmos welcomes this opportunity to share its views on the security and reliability of electronic voting systems.

The Florida 2000 debacle marked a watershed in our nation's electoral history, sharply revealing systemic flaws and weakening public trust in the electoral process. With enactment of the Help America Vote Act (HAVA) in 2002, Congress aimed to improve election administration and voting equipment and prevent another Florida-like fiasco. Many now worry that the half-implemented new federal election law will complicate rather than resolve the situation. Concerns mount that many of the problems that afflicted the nation in the last general election – from hanging chads to disenfranchised voters – will recur.

Providing every citizen an equal opportunity to register to vote, equal access to the polls, and assurance that every ballot cast is counted is a complex and daunting task. Success requires a broad range of reforms, some structural and some administrative. They include the repeal of felon disfranchisement laws, the elimination of pre-election day voter registration requirements, expanded language assistance for language minority voters, extensive voter education initiatives, comprehensive poll worker training, functioning state-wide databases, *and* the replacement of often antiquated and inaccessible voting machines with new electronic equipment.

The broiling debate over computerized voting systems and so-called "voter verified paper trails" (VVPTs) is at once important and distracting. While central concerns about ballot security and voter confidence must be resolved, that resolution must neither preempt consideration of other serious flaws in current election administration, nor obscure the promise of modern voting technology. Punch card, lever and other traditional voting systems must be replaced by new machines that overcome physical, cognitive and linguistic barriers to voting.

The current debate over VVPTs frequently conflates three fundamental issues: accessible voting systems, transparent electoral processes, and accurate vote tallying. Any solution to the voting machine controversy must simultaneously address all three issues at once. The most creative solutions will enable maximum accessibility to voting systems while preserving the transparency and integrity of the vote casting and vote counting processes.

Voting System Options

The move away from old voting systems has led to consideration of two primary options: optical scan voting systems and Direct Record Electronic (DRE) machines. Both voting systems are already in use in various jurisdictions.

Matching one against the other, DREs have clear advantages, particularly for persons with disabilities and language minority citizens. They include the following:

> *Access for people with disabilities.* DRE machines can be specially outfitted with devices to enable people with impaired mobility to cast a secret ballot without assistance. The

fonts on DRE machines can be enlarged and the machines can be equipped with text-to-voice technology in order to guide sight-impaired citizens through the voting process.

Access for language minority voters. DRE technology can readily display ballots in different languages, enabling people to vote in their first language.

Access for citizens who cannot read. DREs can offer audio ballot choices or juxtapose pictures of candidates with text, enabling citizens with limited literacy to vote.

Flexibility. DREs are flexible enough to accommodate different forms of voting, such as Instant Runoff Voting.

Better outcomes for people of color. Precincts located in communities of color historically discard a relatively high percentage of the ballots cast there. Studies reveal that DREs reduce the number of voided ballots in these jurisdictions.[1]

All voters can check final votes and reject wrong entries. DREs allow voters to confirm their choices on a separate screen at the end of the voting process, and give them the opportunity to correct erroneous entries. Text-to-voice and other electronic technology makes the vote checking process available to sight impaired and language minority voters. The DRE can be programmed to prevent voters from entering both "yes" and "no" to a ballot question.

[1] Michael Tomz and Robert P. Van Houweling, "How Does Voting Equipment Affect the Racial Gap in Voided Ballots?" 6/12/02. Available on the World Wide Web at: http://www.stanford.edu/~tomz/pubs/gap.pdf

While many election observers have championed DRE machines as the new voting systems of choice, others have preferred optical scan machines. This is largely because optical scan machines automatically generate a paper audit trail while DREs, at least as they are commonly configured, do not – raising a host of potential problems. Despite the fact that they provide a paper trail, optical scan machines do not offer the accessibility or flexibility of DREs.

Voter Verified Paper Trails

Arguments for and against a VVPT requirement turn on several interrelated concerns: computer reliability, computer security, and fear of fraud; and corporate accountability, privacy and the democratic process.

Computer Reliability, Computer Security, and Fear of Fraud

Election observers have raised consistent concerns about the susceptibility of DRE machines to undetectable errors and systemic election fraud.[2] The biggest problem that critics associate with DREs is that the voter leaves the polling place without knowing if her vote will actually be recorded as she intended. Furthermore, as election officials in Broward County recently learned, there is no way to conduct a meaningful recount on touch screen machines without the capacity to examine physical copies of ballots that accurately reflect voters' intent.[3]

[2] As Kim Alexander from the California Voter Foundation puts it, without a VVPT, "Voters who cast ballots on touch screens have no way of knowing whether the machine captured their votes as the voter intended. Software can have bugs. Software can contain malicious code. Software can be incorrectly programmed. Systems crash." Remarks at the Forum for Newly Elected Women Legislators, sponsored by the Center for American Women and Politics, November 20, 2003. Available on the World Wide Web at: http://www.calvoter.org/issues/votingtech/pub/1103KAremarks.html.

[3] The January 2004 special election for a House seat in Broward County, Florida, was conducted exclusively on DRE machines without paper trails. The election was won by 12 votes, but 134 voters mysteriously failed to select

These concerns are compounded by mounting evidence of serious security lapses and systems flaws on equipment manufactured by leading voting machine companies.

In *Black Box Voting*, author Bev Harris reported the January 2003 discovery of a public internet site where Diebold, one of the three main companies creating DRE machines, stored their system's source code – a code, she claimed, that hackers could easily corrupt.[4] A Johns Hopkins study issued in late July also alleged serious security problems with Diebold systems.[5]

On April 30, 2004, California Secretary of State Kevin Shelley decertified more than 14,000 DRE machines manufactured by Diebold Inc., ruling that they cannot be used in the November 2004 presidential election. Shelley's decision was a response to a set of recommendations issued earlier in the month by the state's Voting Systems and Procedures Panel. The panel found that Diebold had broken state election law in the March primaries by fitting the machines with unapproved software and installing systems that had not been federally tested or state certified.[6]

---

a candidate. Election officials found themselves completely unable to re-examine "votes trapped in cyberspace" (Florida Sun Sentinel, 1/10/04).

[4] See Bev Harris with David Allen *Black Box Voting: Ballot Tampering in the 21st Century* (High Point, NC: Plan Nine Publishing). Available free on the World Wide Web at http://www.blackboxvoting.com

[5] See Kohno, T., Stubblefield, A., Rubin, A., and Wallach, D. "Analysis of an Electronic Voting System." *IEEE Symposium on Security and Privacy* (IEEE Computer Society Press), May 2004.
Available on the World Wide Web at http://avirubin.com/vote.pdf

[6] See John Schwartz "High Tech Voting System is Banned in California." *New York Times*, May 1, 2004.

On Super Tuesday – March 2, 2004 – Diebold machines did not display the whole Democratic primary ballot to voters, failing to show the U.S. Senate race that had incumbent Barbara Mikulski (D-MD) on the ballot.[7]

In a special election held on in Broward County, Florida on January 6, 2004, Ellyn Bogdanoff won a contested House seat by only 12 votes. Although the race between Bogdanoff and her opponent was the only one on the ballot, the ES&S voting machines reported 134 instances where voters did not choose candidates. When election results are extremely close and a candidate wins by less than a quarter of one percent, Florida law requires a recount. In this instance, however, a recount was impossible as there was no independent record to show the voters' intentions.[8]

At the end of October 2003, vote tabulation software for Sequoia systems was also found on an unprotected ftp site belonging to a company that provides election assistance to a California county. The programmer who discovered the site said that, "the files also contain Visual Basic script and code for voting system databases that could allow someone to learn how to rig voting results."[9]

On November 5, 2002, Sequoia voting machines in Bernadillo County, New Mexico had memory failures, resulting in a substantial undercount of the votes when first tallied – by

[7] See Viveca Novak "The Vexations of Voting Machines." *Time Magazine,* May 3, 2004.

[8] See Erika Bolstad, "New system no easy touch for 134 voters in Broward." *Miami Herald,* January 8, 2004 and also Florida Sun Sentinel, January 10, 2004

[9] See Kim Zetter, "E-Vote Software Leaked Online." *Wired News,* October 29, 2003. Available on the World Wide Web at: http://www.wired.com/news/evote/0,2645,61014,00.html

approximately 25%. The first results indicated that no more than about 36,000 votes were cast in any individual race – even though records revealed that about 48,000 citizens voted in the election.[10]

Corporate Accountability, Privacy and the Democratic Process

Those raising concerns about corporate accountability often maintain that unless voter verified paper trails are introduced, election outcomes are susceptible to corporate manipulation for partisan ends. At various times, the corporate leaders at three large DRE manufacturing firms – Diebold, Sequoia and ES&S – have been accused of overly partisan sympathies and improper public support for the Republican Party.[11] Critics suggest that overtly partisan corporate allegiance, the widespread usage of voting machines built by these firms, and the reliance on proprietary software could create an unacceptable risk of systemic election fraud for political ends. Without greater controls, such malfeasance could go undetected.

While arguments related to corporate accountability are often aimed at one of the two primary parties, these concerns need not be understood as merely partisan, election year posturing. An association of leading voting machine manufacturers with the Democratic Party would raise equally legitimate concerns about corporate accountability and the potential for malfeasance.

---

[10] See Elise Ackerman, "Electronic voting's hidden perils." *Mercury News*, February 2, 2004; Frank Zoretich "Election results certified after software blamed." *Albuquerque Tribune*, Available on the World Wide Web at http://www.abqtrib.com/archives/news02/111902_news_vote.shtml

[11] See Thom Hartmann, "The Theft of Your Vote Is Just a Chip Away," *Alternet*, July 23, 2003. Available on the World Wide Web at: http://www.alternet.org/print.html?StoryID=16474; Andrew Gumbel, "US voting system vulnerable to fraud - part 4." *New Zealand Herald*, October 19, 2003. Available on the World Wide Web at: http://www.nzherald.co.nz/storydisplay.cfm?storyID=3529550&thesection=news&thesubsection=world; and Democratic Party of Oregon Resolution in support of New Jersey Representative Rush Holt's VVPT bill H.R 2239 December 13, 2003. Available on the World Wide Web at: http://www.verifiedvoting.org/resources/documents/DPOregon_Resolution.pdf.

The debate about the partisan affiliations of voting system manufacturers obscures a larger and more threatening issue: the *de facto* privatization of election administration. Given that electronic voting machine technology and computer software is privately developed, complex, and protected as intellectual property, voting counting by DREs is inscrutable and protected from public review. Elections administrators, independent watchdogs, and average voters cannot see or be expected to understand the proprietary codes and software programming used to tally votes. Thus, government control over elections may in effect be trumped by corporate design and control over the hardware and software of elections machinery.

Yet democracy is by definition a public good – a transparent, participatory process that belongs to the people. So long as the mechanisms used to tally votes remain obscure, the transparency of our electoral democracy is compromised. It seems clear that restoring transparency to elections is necessary both to check corporate control of our democratic process and to ensure that it remains in the hands of the people.

Access and Equality

As stressed by lead congressional sponsors of the Help America Vote Act, "The goal of HAVA is to ensure that every eligible American has an equal opportunity to cast a vote and have that vote counted…. The proposals requiring a voter-verified paper record would force voters with disabilities to go back to using ballots that provide neither privacy nor independence, thereby subverting a hallmark of the HAVA legislation."[12]

[12] See March 3, 2004 letter from HAVA's sponsors, available on the World Wide Web at: http://www.lwv.org/join/elections/VOTE_NeyDoddHoyerMcConnellDREs.pdf

These legislators express one of the most overlooked arguments in the whole debate surrounding VVPTs. Individuals who are sight impaired cannot independently check a paper receipt without the provision of additional data-to-voice technology. Introducing VVPTs without this technology would effectively create new and inequitable barriers to voting for sight-impaired people. Furthermore, requiring voting machines to print out paper trails could cost between $400 and $1000 per printer. Under these circumstances, advocates for people with disabilities fear that states may be reticent to purchase DREs and more inclined to buy less accessible optical scan machines. This eventuality is increasingly likely as states face great time pressure to replace old voting machines by 2006 but have received no guidance from the federal government about how best to balance issues of security and accessibility.

The prospect of states being effectively coerced to buy optical scan machines instead of DREs is hugely problematic for persons with disabilities who, until the passage of HAVA, never had a real opportunity to cast a secret ballot. DREs are the only voting systems that offer millions of disabled Americans the ability to cast a secret, independent and verifiable vote by reading the ballot via earphones for the voter.[13]

---

[13] As Jim Dickson from the American Association of People with Disabilities writes: "DREs are the only voting systems that offer millions of disabled Americans the ability to cast a secret, independent and verifiable vote by reading the ballot via earphones for the voter. I am blind, and I have never cast a secret ballot. According to the census there are 11.5 million Americans who, because of blindness or hand-arm disabilities, have had to use third-party assistance. After the 2000 election many Americans, for the first time, asked themselves, 'Was my ballot marked properly?' Those of us with disabilities ask ourselves this question every time we vote." See Jim Dickson, "Voter Verified Paper Ballots a Solution in Search of a Problem." Available on the World Wide Web at: http://www.aapd.com/dvpmain/votemachines/vvpbsolution.html

There are more than 56 million American citizens with disabilities, approximately 40 million of whom are of voting age. Many of these individuals are effectively disenfranchised by inaccessible polling places and voting machines. Yet for electoral democracy to work, *all* U.S. citizens must have an equal opportunity to cast an independent and secret ballot. As noted legal scholar Dan Ortiz writes, a debate about technology that focuses exclusively on the need for accurate vote counting and merely "calls for a technology that accurately registers voter preferences and resists attempts at manipulation … leaves out a great deal. It ignores concerns about the relative accessibility and ease-of-use of a particular technology for different voting populations."[14] In other words, in a truly functional electoral democracy, access to the franchise must be non-discriminatory.

The Way Forward?

There are several different ways to move forward. The challenge in terms of the voting machine controversy is to think about creative ways to ensure maximum accessibility to voting interfaces while preserving the integrity of the voting, and especially the vote counting process. Those who call for voter verified paper trails are demanding a transparent and accountable electoral process that simultaneously eschews corporate control and prevents the possibility of systemic fraud in the service of partisan gain. The larger challenge, of course, is to achieve these ends while also reducing the numerous barriers to electoral participation that people encounter before even setting foot in the polling place.

[14] See Daniel R. Ortiz "Democratic Values." *Boston Review: A Political and Literary Forum.* October/November 2001. Available on the World Wide Web at: http://bostonreview.net/BR26.5/ortiz.html

Two further considerations are worth noting. First, issues related to election security need to be approached broadly. For elections to be truly secure, attention must be paid to a wide variety of issues ranging from secure voter registration lists to machine maintenance to poll-worker training.

Second, paper ballots alone are not a viable alternative. Although suggested by some as a means to ensure total transparency in elections, a return to an earlier era of exclusively paper balloting would represent a significant retreat for many historically marginalized voters. Voting by paper would continue to deny secret, unassisted balloting to people with visual disabilities and those with limited upper-body mobility. It would also make voting less accessible to voters with limited English literacy. Given these restrictions and HAVA's mandates, paper ballots are not a viable alternative to computerized voting machines.

Recommendations

Demos offers the following suggestions for resolving the controversy over computer voting systems and voter verified paper trails:

1. Choose Direct Record Electronic Machines. DREs offer persons with disabilities, language minority citizens, and others historically marginalized voters their first real opportunity for full access to a secret ballot. Adoption of this voting system fulfills a core purpose of the Help America Vote Act.

2. Use voter verified paper trails with data-to-voice capabilities to boost public confidence and restore transparency to the election process. New voting machines should be equipped with a VVPT. A separate scanner, laser pen or similar technology should be introduced simultaneously with paper audit trails so that people who are visually impaired or have low literacy levels can verify their votes concurrently with sighted voters. Vote counting should remain in public hands. These changes should be made without a diversion from HAVA's disability access funding stream.

3. Use computerized voting systems that separate the voting casting from the vote counting functions. Several approaches have been suggested that separate the vote casting from the vote counting functions. Precincts could use DREs as an interface for voting, but hand tally, or scan the results, thereby separating the interface and vote tallying functions of the machines. There are at least three types of computerized voting machines currently on the market that would facilitate this possibility – the Vogue Automark, a hybrid DRE/OS machine with a touch screen interface that produces a scan-able ballot, the Avante VOTE-TRAKKER and the Populex Digital Paper Ballot system.

Alternatively, precincts might also use two separate computerized systems – one for completing and verifying ballots, and another for collecting and counting them. This might be akin to the voting procedure suggested in the CalTech/MIT report, *Voting: What Is What Could Be*. The authors argue vehemently against the creation of sophisticated voting machines that both generate and cast/compute votes. Instead, they suggest a modular system whereby voters first record and verify their choices of candidates on a simple, accessible

electronic interface (vote generation), then switch to another machine (vote casting) to count and audit their votes. The vote casting machines must be especially secure to insure the integrity of the electoral process.[15]

4. Require open source code systems. States might transform the process of voting machine manufacturing itself, and call for open-source software that is available to public scrutiny. Brazil is now developing a second generation of DRE machines along these lines. According to a leading expert on voting,

> [Brazil's] machines were designed in a transparent, public process by two of the country's leading research institutions. The national government then accepted bids from different companies who competed to build machines according to the open design. Everything was above-board — extremely important for a nation that has a history of election fraud.[16]

> Similarly, Australia's Capital Territory has recently developed a computerized electoral system based on open-source software that was posted on the internet for evaluation.

> The Capital Territory electoral commissioner said,

[15] See CalTech/MIT Voting Technology Project report *Voting: What Is What Could Be*, July 2001. Available on the World Wide Web at: http://www.vote.caltech.edu/Reports/july01/July01_VTP_%20Voting_Report_Entire.pdf pages 58-64.

[16] See Simson Garfinkel "The Case for Computerized Voting." *MSNBC.com*, September 4, 2003. Available on the World Wide Web at: http://www.msnbc.com/news/961470.asp#BODY

> We'd been watching what had happened in America (in 2000), and we were wary of using proprietary software that no one was allowed to see…. We were very keen for the whole process to be transparent so that everyone – particularly the political parties and the candidates, but also the world at large – could be satisfied that the software was actually doing what it was meant to be doing.[17]

5. Provide strong federal guidance. The Elections Assistance Commission (EAC) was created by HAVA to provide guidance and technical assistance to the states on complex implementation challenges like those related to computerized voting machines. The EAC must play a strong and leading role in helping states update their voting systems. Similarly, the National Institute of Standards and Technology (NIST) – charged by Congress with providing technical support regarding new voting systems and computer security to the EAC – should aggressively and proactively move to resolve the controversy over VVPTs.

Back to Basics

Finally it should be emphasized that the issue of accurately counting ballots is only one of many structural barriers to voting.[18] Other barriers:

- Affect ***who*** is eligible to ***register*** to vote – laws disenfranchise millions of citizens with felony convictions in many states, misinformation discourage many other actually

[17] See Kim Zetter, "The Aussies Do It Right: E-Voting." *Wired News*, November 3, 2003. Available on the World Wide Web at: http://www.wired.com/news/ebiz/0,1272,61045,00.html

[18] Many of these barriers affect predominantly people of color, people with disabilities and youth; the issues surrounding VVPTs, however, also affect the majority white population. A cynic might observe that the magnitude of the VVPT controversy derives from who is impacted rather than the impact itself.

eligible citizens from registering or voting, and prevent non-citizens from registering to vote in most elections. Laws also restrict the franchise to citizens who are deemed mentally incapacitated.

- Affect ***when*** a person can ***register*** – registration deadlines of up to 30 days before election day are not uncommon, preventing unregistered citizens who become interested in a campaign in its last weeks from being eligible to vote.

- Affect ***who can vote*** in practice – physical barriers make polling places and voting machines inaccessible to many people with disabilities. Paper ballots in English or a limited variety of other languages and a lack of translators at the polls make voting impossible for many language minority citizens. Poorly trained poll workers can misdirect and sometimes intimidate voters. Illegal purges can remove eligible citizens from the voter rolls. Restrictive ID requirements place additional barriers to registered voters who actually make it to their polling site.

- Affect ***who wants to vote*** – partisan redistricting, non-competitive, winner-take-all elections, lackluster media coverage of elections and a campaign finance system skewed toward the wealthy leave many potential voters feeling that their interests cannot be represented in the current system.

The most fruitful approach to creating a healthy electoral democracy would be a holistic one – attending to the question of VVPTs in conjunction with these and other structural barriers to

participation and representation. Unless we rise to this challenge, our electoral democracy will remain impoverished and continue to exclude millions from participating in political life.