June 25, 2013

President's Commission on Election Administration
1600 Pennsylvania Ave.
Washington, D.C. 20500

Dear Commissioners;

Verified Voting is a non-partisan, non-profit organization founded and governed by leading technologists in the U.S. working to safeguard elections in the digital age. Verified Voting is the nation's leading advocate for the use of secure, reliable and accessible voting systems and the election administration practice that support them. We write with recommendations vetted by this nation's expert technologists from academia, business and government for the Commission's consideration concerning three areas of election administration: 1) contingency planning and eliminating long lines; 2) protecting elections from security risks and 3) ensuring accurate vote tallies.

I. Contingency Planning and Eliminating Long Lines

On Election Day, long lines were produced in many cases due to voting systems that malfunctioned in multiple locations across the country. As stated in a joint letter we signed sent to President Obama last November, "While insufficient voting equipment was not the only cause for long wait times, it no doubt contributed to the problems we saw on Election Day. The need to improve our voting systems is urgent. Much of the voting equipment in use today is nearing the end of its life cycle, making equipment attrition and obsolescence a serious and growing threat."[1]

In our "Counting Votes 2012: A State By State Look At Election Preparedness" report2, about the 50 states' preparedness for this major election cycle, we identified key areas of concern. We predicted many states could have problems due to:

- aging voting systems,
- dependence on machine interface for voting for the majority of voters, and
- thoroughness of policies and regulations for emergency back-up provisions in case polling place problems occur and lines start to form.

There were few surprises. As one of our technology expert recruits for the OurVoteLive (OVL) Election Protection hotline indicated:

> What's most interesting is that if you divide things into "easy to solve" and "hard to solve", the "easy to solve" ones tend to be in places using optical scan [ballots], and the "hard to solve" in places using machines [DREs].

Machine voting (direct recording electronic, or DREs). Long lines were most pronounced in locations with DREs where there was no alternative for a working machine and little or no access to emergency paper ballots. Yet, even in DRE polling stations that had emergency paper ballots on hand, in some instances, poll workers had not been trained to use paper ballots in the event of machine failures or long lines. Other difficult to solve problems reported included:

> Machines that don't boot, or crash; ballot display and ballot set up problems; poll worker error in assisting voters when equipment problems occurred; and of course, long lines. The lines seemed to be caused by voters waiting for machines, though not exclusively. But these were most pronounced in locations with DREs - if you've got paper ballots, you just hand out more pencils. In some cases, poll workers were turning voters away, telling them to come back later - for whatever reason, they weren't using the emergency paper ballots that were intended for this case.

Paper Ballot voting (Ballot Scanners). Despite having paper ballots, some jurisdictions also had long lines, notably in Florida, with multi-page ballots, and Michigan, where in some instances where a scanner had broken down, poll workers had not been trained to instruct voters to deposit voted ballots in the auxiliary bin to be scanned later – a preventable error.

Other easier to solve problems reported included:

> *Voters confused about why ballots were being put into a side bin in a malfunctioning scanner (to be scanned later), and concerned they would not count;*
>
> *not enough emergency paper ballots – some jurisdictions solved this by photocopying ballots to use;*
>
> *voters using markers that bleed through a two-sided ballot, causing undesired marks and potential miscounts;*
>
> *poll workers asking voters to wait or turning them away while a scanner was broken, instead of asking them to mark their ballots to be scanned later – a training problem.*

A significant number of reports came in which were potentially preventable, including insufficient contingency preparation for equipment malfunctions. Other reports of shortages of equipment were in some instances drastic:

> *… one call indicated that the polling place had "many fewer machines than usual;" three others reported that a polling place that usually had "8 machines . . . only had 3 in 2012" and only two were working; a polling place that previously had "12 machines only has 4" and two were broken, and another polling place that "usually has 20 machines only [has] 4" and one of the four was broken.*

Even where contingency plans call for emergency paper ballots, with this kind of failure rate, ballots can quickly run out.

Recommendations for Eliminating Long Lines

Fortunately, sensible and straightforward steps can be taken to eliminate most long lines. We recommend the following five best practices:

1. Replace existing DREs with paper ballot/scan systems.

Deploying voting systems that do not require most voters to use a machine interface in order to cast their ballots saves time in the event of machine failure. Many jurisdictions have

already eliminated DREs and replaced them with paper ballot/scan systems. It can be cost effective to replace rather than to continue maintaining DREs for a variety of reasons.

We recommend for DRE jurisdictions that have not yet replaced their DREs:

a. Compare the costs associated with owning, maintaining, storing, updating, and replenishing DREs with the cost of replacing DREs with ballot scanners/accessible ballot marking devices.

b. If current funding is available only for maintenance, as opposed to new purchases, jurisdictions should modify rules so that funding can be rendered fungible and can be used where it can have the most impact, namely in replacing DREs with scanners.

2. Require emergency paper ballots in jurisdictions that continue to use DREs.

Emergency paper ballots should be deployed whenever long lines begin to develop or in the event that a machine breaks down. Poll worker training is critical (see below). In developing procedures for emergency paper ballots, states should also require that emergency paper ballots be treated as regular ballots (rather than absentee or provisional ballots, which are subject to scrutiny before being counted).

3. Improve poll worker training.

Mandate and provide poll workers the tools they need to prevent long lines, including:

a. Clear instructions to deploy emergency paper ballots in the event that any machine breaks down or if lines begin to form;

b. In DRE jurisdictions, provide marking stations and a supply of pencils or pens together with emergency paper ballots. Instruct poll on how and when to deploy these items.

c. In optical scan jurisdictions, instruct poll workers to utilize scanner auxiliary bins where voted ballots can be deposited for later scanning in the event of scanner malfunctions. Provide poll workers with training to inform voters about this standard practice to assure voters their ballots will be counted if they are deposited in the auxiliary bin.

4. Design ballots to make it easy to vote and to reduce potential errors; mail and provide online sample ballots to all voters before Election Day.

There were long lines in Florida in 2012 because the ballot was many pages in length, in many jurisdictions, and it took voters a long time simply to mark their ballots. The length was caused in part by the requirement that the full statement of every ballot initiative, rather than a summary, be printed on each ballot – often in multiple languages. Also, many jurisdictions in Florida did not send out sample ballots beforehand. Had they done so, voters would have had the opportunity to read the ballot at home and to determine what their selections would be beforehand.

5. To improve future elections, support efforts to measure and publicly report poll wait-times, vote count accuracy, and incidents that interfere with the conduct of a free and fair election.

II. Protecting Elections from Cyber security Risks

Cyber security concerns are rising with a relatively new practice in these elections – voting in federal elections over the Internet – fraught with security problems and vulnerable to disruption from anywhere on the globe.

The FBI, White House and even Google have been hacked. In 2010, when the District of Columbia operated its own pilot Internet voting project, it too was hacked -- the system was corrupted remotely by white hat hackers who were able to alter votes, obtain codes to individuals' voting pin numbers and principally change the system in a matter of hours. They also observed intruders with IP addresses from China and Iran. Thus far, this is the only jurisdiction that has even enabled such testing to identify vulnerabilities, but Internet return of voted ballots occurs in 31 states today, with fewer security precautions than DC's experimental system. We need to protect that nation's vote from cyber security risks that could allow international entities and others to impact U.S. elections.

The National Institute of Standards and Technology (NIST)[3], a cyber security expert from the U.S. Department of Homeland Security[4] and 32 of the nation's most pre-eminent computer technology experts[5] have indicated that the Internet is not sufficiently mature to be employed as a platform for something as important as voting at this time.

Recommendation to Protect Elections from Cyber security Risks

1. **Prohibit return of voted ballots over the Internet. In addition, protect military and overseas voters by ensuring that marked ballots are not cast online.**

   Currently, 20 states protect voters by prohibiting electronic return of marked ballots over the Internet and instead require the voter's original paper ballot to be returned. New Jersey permits electronic return of votes for military and overseas voters, but requires the physical ballot to be returned as well. But 24 states permit electronic return of votes for military and overseas voters without restrictions, subjecting the ballots and voting systems to the risk of corruption: Alaska, Arizona, California, Delaware, District of Columbia, Florida, Idaho, Indiana, Kansas, Louisiana, Massachusetts, Mississippi, Montana, Nebraska, Nevada, New Mexico, North Carolina, North Dakota, Oklahoma, Oregon, Rhode Island, South Carolina, Washington and West Virginia. There are 6 states that make electronic return of voted ballots available to restricted groups of voters (e.g., military voters in combat zones): Colorado, Hawaii, Iowa, Maine, Missouri and Texas, but these votes are still at risk.

III. Ensuring Accurate Vote Tallies

Currently, 16 states use voting machines on which no verification of the vote is possible -- in some or all counties. These machines produce no independent record of the vote cast, which is necessary to verify that the machines are working properly. An independent record of the vote cast -- such as a paper ballot – is critical also in case of the need for a recount. These states are: Arkansas,

Colorado, Delaware, Georgia, Indiana, Kansas, Kentucky, Louisiana, Maryland, Mississippi, New Jersey, Pennsylvania, South Carolina, Tennessee, Texas and Virginia. The other 35 states use systems that either use or produce a paper record or ballot, and thus are capable of auditing vote counts. In key swing states including Pennsylvania and Virginia, votes will not be fully re-countable**.**

Recommendations to Ensure Accurate Vote Tallies.

1. **Deploy voter-verified paper ballots.**

2. **Mandate robust post-election audits that can determine whether electronically reported outcomes are correct.**

   A mandatory comparison of a random sample of the paper ballots to electronic totals is one of the best ways to ensure that the reported outcomes are correct. A well-designed audit should use statistical sampling methods tied to the margin of victory and should be used to correct the outcome if it is wrong.

3. **Require robust ballot reconciliation and tabulation practices, including risk-limiting audits.**

   These basic procedures help ensure that no ballots are lost or added as the votes are tallied and aggregated from the local up to the state level, and are a necessary pre-requisite to strong audits.

One final recommendation: the Election Assistance Commission should be fully constituted with its full measure of commissioners, and should continue its important work in improving election administration.

Thank you for the opportunity to provide comment to the Commission, and thank you for your work on this important topic.

Respectfully,

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[1] http://www.calvoter.org/issues/votingtech/pub/Election_verification_letter_to_Obama_11-20-
[2] http://countingvotes.org
[3] http://www.nist.gov/itl/vote/uocava.cfm
[4] http://www.npr.org/blogs/itsallpolitics/2012/03/29/149634764/online-voting-premature-warns-government-cybersecurity-expert
[5] https://www.verifiedvoting.org/projects/internet-voting-statement/