Voting at Risk 2008

A report by Common Cause and Verified Voting

January 30, 2008

Executive Summary

Horry County, South Carolina made headlines on Jan. 19 when Republican voters in that state's presidential primary were turned away or sent to other precincts to vote because the paperless electronic voting machines weren't operative.

With Super Tuesday around the corner, that is probably not the last time voters will run into problems with electronic voting machines, which have a proven history of occasional malfunctioning. In fact, six of the 23 states[1] holding presidential primaries or caucuses on Feb. 5 are considered at "high risk" for having election results affected by machine malfunction or tampering, according to research conducted by Common Cause and the Verified Voting Foundation.

Common Cause and the Verified Voting Foundation evaluated the states based on whether they had safeguards on voting machines deployed for the presidential primaries. The states were classified as states as "high," "medium" or "low" risk. The classifications were based on whether the states have two safeguards in place, requiring that voting machines produce paper ballots or records and requiring random post-election audits on the voting machines.

The ratings for the 15 states holding presidential primaries on voting machines on Super Tuesday are below.

State	Risk Level
Arkansas	HIGH
Delaware	HIGH
Georgia	HIGH
New Jersey	HIGH
New York	HIGH
Tennessee	HIGH
Alabama	MID
Arizona	MID
Massachusetts	MID
Utah	MID
Oklahoma	MID
California	LOW
Connecticut	LOW
Illinois	LOW
Missouri	LOW

Note: Caucuses are conducted in the remaining 8 Super Tuesday states and therefore voting machines are not used.

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[1] This list does not include Guam which would bring the total to 24.

When reviewing the presidential primary season in total, the Verified Voting Foundation and Common Cause found that a troubling 17 states, including two that have already voted -- South Carolina and Florida -- received a "high" risk rating, based on the fact that those states use voting systems that don't produce an independent, voter-verifiable paper record that could be used if necessary in a recount or an audit.

The report found an additional 17 states at "medium" risk of having election results affected by machine malfunction or tampering. States in this category are not at the highest risk because the voting systems in these states produce paper records or paper ballots, which can be used for recounts or audits. But they are not low risk because mandatory, routine audits of these machines <u>do not</u> occur.

Six states were deemed at "low" risk. Voting systems in these states produce a voter-verifiable paper record or ballot, and audits are conducted on the voting machines. Because these two safeguards are in place there is a lower risk that a miscount caused by machine malfunction or tampering could alter the outcome of an election.

Common Cause and Verified Voting call on Congress, state governments, election officials and voters to take action to mitigate the risks and improve the integrity of our elections.

- Congress should immediately pass HR 5036, the Emergency Election Assistance for Secure Elections Act. This legislation authorizes critically needed funding for states that wish to convert from paperless systems to paper-based systems by the general election in November. The legislation also authorizes funding for audits and emergency paper ballots.

- State governments in "high risk" states should immediately adopt and implement plans to convert to voting systems that deploy paper ballots or produce voter verifiable paper records as soon as possible.

- State governments that do not currently require audits should immediately begin plans to conduct post-election audits.

- Election jurisdictions that do not use paper ballots should have sufficient emergency paper ballots on hand, and deploy them in the event of voting machine failure.

- Election officials in every voting jurisdiction should properly train poll workers on the voting equipment available and on the use of emergency paper ballots.

- Citizens should check paper ballots or paper record print outs when voting.

- Citizens should exercise their hard won right to vote The one way to be certain that a vote won't count is to refuse to go to the polls.

Introduction

Before the presidential general election in November, the major political parties in all 50 states and the District of Columbia will have held primaries or caucuses to choose a presidential nominee. Thirty-nine states and the District of Columbia conduct primaries on voting machines for one or both parties, including 15 of the states that hold a selection process on Super Tuesday, Feb. 5. (Eight states use a caucus process on Super Tuesday that does not involve voting machines.) The performance of and safeguards for the voting machines used in the presidential primaries are the subject of this brief report.

Voting machines, like all machines, fail some of the time. But only some states have adequate systems in place – audits and paper records - to handle those failures so that the will of the voters is preserved.

Verified Voting and Common Cause have reviewed the voting systems available to citizens in the 39 states and District of the Columbia for the presidential primaries and have developed a simple and straightforward "risk" assessment system. The organizations define risk as "the possibility that a miscount caused by machine malfunction or tampering could alter the outcome of an election." States have been classified as "high risk," "medium risk" and "low risk" depending on the safeguards and voting machine requirements state governments have instituted to guard against machine failure.

High Risk: States that deploy paperless voting systems that produce no separate independent voter-verifiable paper record of the voters' marked ballot. In essence, recovery from voting machine malfunction or tampering is very difficult if not impossible.

Medium Risk: States that deploy paper ballot voting systems or systems that produce a separate, independent paper record of the voters' marked ballot, but <u>do not</u> use those records to audit the machine tallies of the vote. In the event of a machine malfunction or tampering, some recovery is possible but is by no means assured. [2]

Low Risk: States that deploy paper ballot voting systems or systems that produce an independent paper record of the voters marked ballot and require election officials to

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[2] An election with voter-verified paper ballots or records, tallied electronically and unaudited, represents just as high a risk of incorrect results as an election with paperless systems that cannot be audited. However, where independent paper records of the vote exist, *some* recovery from most election malfunctions is possible. Such elections are also re-countable, unlike paperless elections. For the purposes of this report, such mitigation slightly reduces the threat level. It should be noted that Verified Voting Foundation, one of the co-authors of the report, recommends, in the strongest possible terms, the use of paper-ballot based systems over systems which merely produce a voter verifiable paper record along with mandatory random manual audits of every election.

conduct an audit. In the event of a machine malfunction or tampering, recovery of the votes is probable.

Risk Levels of States in the Presidential Primaries

High Risk States

	State	Risk Level	Democratic Primary	Republican Primary
1	**South Carolina**	**HIGH**	26-Jan	19-Jan
2	**Florida**	**HIGH**	29-Jan	29-Jan
3	**Arkansas**	**HIGH**	5-Feb	5-Feb
4	**Delaware**	**HIGH**	5-Feb	5-Feb
5	**Georgia**	**HIGH**	5-Feb	5-Feb
6	**New Jersey**	**HIGH**	5-Feb	5-Feb
7	**New York**	**HIGH**	5-Feb	5-Feb
8	**Tennessee**	**HIGH**	5-Feb	5-Feb
9	**Louisiana**	**HIGH**	9-Feb	9-Feb
10	**District of Columbia**	**HIGH**	12-Feb	12-Feb
11	**Maryland**	**HIGH**	12-Feb	12-Feb
12	**Virginia**	**HIGH**	12-Feb	12-Feb
13	**Texas**	**HIGH**	4-Mar	4-Mar
14	**Mississippi**	**HIGH**	11-Mar	11-Mar
15	**Pennsylvania**	**HIGH**	22-Apr	22-Apr
16	**Indiana**	**HIGH**	6-May	6-May
17	**Kentucky**	**HIGH**	20-May	20-May

In the presidential primaries, citizens in 16 states and the District of Columbia will be voting on paperless voting systems. That means voters' ballots are recorded inside the voting machine on software or hardware.[3] There is no separate record of voter intent that the voter has either seen or marked. So if the voting system crashes – as computers are known to do – votes can be lost forever. If the software or hardware of the machine malfunctions, as sometimes occurs – votes can be lost forever. If the security of the voting system is breached, votes can be changed or lost forever. In short, because there is no separate independent paper record that the voter has marked or printed out and reviewed, there is no hope of recreating voter intent if and when the machine fails. The voter is disenfranchised and robbed of his or her basic right to vote.

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[3] New York primaries will be conducted on lever machines which do not run on software. However, the lever machines also create no separate record of voter intent, and thus meaningful recounts and audits cannot be conducted on these machines.

These issues are not hypothetical. There have been a number of highly publicized incidents where voting machines have malfunctioned and the outcome of the election has been altered or thrown into doubt. The contest for Florida's 13th Congressional District in November 2006 is a recent example. In the final tally of this election, an extraordinarily high number of ballots in Sarasota County - 17,846 - showed no vote cast. But the race itself was decided by 369 votes. In other words, the undervotes could have changed the outcome of the race if they had been registered. The high undervote rate is all the more striking because it was approximately five times higher than the undervote rate in surrounding counties. The cause of this extraordinarily high undervote is not known for certain, but the evidence points to machine-related failure. Two lawsuits have ensued and the Government Accountability Office is conducting an investigation. Other similar machine malfunctions that have cast doubt on election outcomes are detailed at the following link: http://wwww.commoncause.org/PaperlessMachineFailures..

Additionally, security experts have confirmed in a growing number of studies that these machines are vulnerable to tampering and hacking. (An abridged list is posted at the following link: http://www.commoncause.org/PaperlessMachineStudies) As a result, an advisory committee to the U.S. Elections Assistance Commission has recommended that all voting systems developed in the future be "software independent," meaning votes also have to be recorded on something that is not software. The only "something else" that is available today is paper. In other words, there is a high degree of consensus among security experts that in the future no voting systems should be paperless.

Medium Risk States

	State	Risk Level	Democratic Primary	Republican Primary
1	New Hampshire	MID	8-Jan	8-Jan
2	Michigan	MID	15-Jan	15-Jan
3	Alabama	MID	5-Feb	5-Feb
4	Arizona	MID	5-Feb	5-Feb
5	Massachusetts	MID	5-Feb	5-Feb
6	Utah	MID	5-Feb	5-Feb
7	Oklahoma	MID	5-Feb	5-Feb
8	Wisconsin	MID	19-Feb	19-Feb
9	Ohio	MID	4-Mar	4-Mar
10	Vermont	MID	4-Mar	4-Mar
11	Rhode Island	MID	4-Mar	4-Mar
12	Oregon	MID	20-May	20-May
13	South Dakota	MID	3-Jun	3-Jun
14	Montana	MID	3-Jun	Caucus 5-Feb
15	Idaho	MID	Caucus 5-Feb	27-May
16	New Mexico	MID	Caucus 5-Feb	3-Jun
17	Nebraska	MID	Caucus 9-Feb	13-May

In 17 states, citizens will vote on equipment that uses a paper ballot or produces a paper record of the marked ballot that the voter can verify. This is a manifest improvement over paperless machines since a recount is possible if the results of an election are called into question. For example, in Clay County, Kansas in 2002, a computer glitch in an optical scan voting system showed that a challenger in a primary race for county commissioner seat had won. The results were challenged and a hand recount showed that the incumbent commissioner won by a landslide – 540 votes to 175. The computer had mistakenly reversed the totals for the candidates in one ward.

Because there was a separate record of voter intent, the winning candidate took office. But not every candidate can successfully call for a recount. That is why <u>mandatory post-election audits are so critical</u>.

Kansas is far from the only state to experience voting machine failure. There have been over 50 instances where machine tallies have been incorrect due to a software or hardware error. Most of these have <u>only</u> been corrected when an election official or a candidate has first noticed them and then called for a recount. The complete list is available at <u>http://www.commoncause.org/VotingMachineFailuresMasterList</u>.

The best practice occurs when machines are audited – that is the machine counts are checked for accuracy by comparison with a hand count of paper records or ballots. Not every machine has to be audited to see if a machine malfunction has altered the outcome of the election. States can require that a statistically significant number of machines be audited in order to assure the outcome of the election was not altered by a miscount.

States in this category are not at the highest risk because the voting systems in these states produce paper records or paper ballots. But they are not low risk because mandatory, routine audits of these machines <u>do not</u> occur.

Low Risk States

	State	Risk Level	Democratic Primary	Republican Primary
1	California	LOW	5-Feb	5-Feb
2	Connecticut	LOW	5-Feb	5-Feb
3	Illinois	LOW	5-Feb	5-Feb
4	Missouri	LOW	5-Feb	5-Feb
5	North Carolina	LOW	6-May	6-May
6	West Virginia	LOW	13-May	13-May

In six states, citizens will vote on equipment that uses a paper ballot or produces a paper record of the marked ballot that the voter can verify. Additionally, in these states, audits are required, including in the primary elections. Because these two safeguards are in place there is a lower risk that a miscount caused by machine malfunction or tampering could alter the outcome of an election. Some states have much more rigorous audits than others, though measures for improvement are underway in several of these states.

Comments on Individual State Ranking

High Risk

This "high risk" list includes <u>Arkansas</u> and <u>Mississippi</u>. Two counties in Mississippi and three counties in Arkansas lack voter verified paper records or ballots. Despite having voter-verifiable paper record systems in most jurisdictions, they are included as high risk because problems in those gap areas could jeopardize the whole state.

<u>New York</u> passed a voter-verified paper record and audit law, but has not yet replaced the lever machines used nearly statewide. Lever machines are mechanical, but can still malfunction, and deliberate tampering can occur. Since the system does not deploy voter-verified paper ballots, there's no way to confirm one's vote was accurately recorded. With no voter-verified paper records, no meaningful recount of the ballots or an audit of the machines can occur. In response to a lawsuit filed by the Department of Justice, New York State has chosen ballot marking devices that work with optical scan systems as the only state-certified voting machines thus far. They are expected to be phased in over the next two years and be in place by November 2009.

In <u>Florida</u>, approximately half the voters used paperless voting systems in the presidential primaries. However, those counties are transitioning to paper ballot systems and are expected to have them in place by the November general election. .

In <u>New Jersey</u>, a law requiring voter verified paper records was passed in 2005 and should have taken effect in January, but did not. The state's chief election official might have met that deadline by switching to available paper-based systems such as optical scan, but so far has opted instead to continue using paperless voting systems while waiting for vendors to produce and install working printers which will print out a paper record of the voters' ballot. The new deadline is June, after the state's February 5 primary.

In <u>Tennessee</u>, a bill that would require the state to replace existing paperless voting systems with systems that produce voter-verified paper ballots is moving quickly through the appropriate committees in the state legislature. The Tennessee Advisory Commission on Intergovernmental Relations, a respected research institute associated with the University of Tennessee has recommended that Tennessee replace its voting systems with systems that produce voter verifiable paper ballots, and conduct audits.

Medium Risk

Arizona has an audit requirement, but a loophole in the law enabled some counties to skip the audit in November 2006. Washington requires an audit but only for the voting systems used for disability access in vote centers. Audits of centrally scanned paper ballots are not required. Ohio is considering mandating audits but it is uncertain when such a provision might take effect. The Vermont secretary of state is empowered to call for audits, and did in November 2006, but they are not mandated in Vermont. Wisconsin, New Mexico and Oregon have mandatory post-election audit requirements, but they will not be used in the presidential primaries.

Conclusion and Recommendations

Nothing short of the integrity of our democratic process is at risk when our elections process isn't trustworthy. Paperless voting systems have proven reliability and security concerns. High profile voting machine failures on paperless voting systems have occurred in at least 8 states – throwing the election process into chaos and leaving voters feeling frustrated and cheated. The fact that 17 states are still using these systems during the presidential primary season is an affront to the voters in those states.

In 23 states, voters in the presidential primaries will be able to verify their ballots. This is a marked improvement over paperless machines since a recount may be possible if the results of an election are called into question. However, if the voting machine tallies remain unchecked either through a recount or an audit, election altering miscounts can and will still occur.

Common Cause and Verified Voting recommend that Congress and state governments take immediate action to bring integrity to this country's voting systems in time for the general election in November. Conversion from paperless systems can be done swiftly. Both North Carolina and New Mexico accomplished this task statewide in eight months. But heroic and strong leadership will be needed at every level of government to make it happen.

Common Cause and the Verified Voting Foundation recommend that:

- Congress should immediately pass HR 5036, the Emergency Election Assistance for Secure Elections Act. This legislation authorizes critically needed funding for states that wish to convert from paperless systems to paper-based systems by November. The legislation also authorizes funding for states that wish to conduct audits. It also authorizes funding for every qualifying jurisdiction to receive reimbursement for the deployment of emergency paper ballots.

- State governments in "high risk" states that deploy paperless voting systems should immediately adopt and implement plans to convert to voting systems that produce voter-verifiable paper records. Florida, New Jersey and Iowa are moving to verifiable voting systems by November. Other states governments should follow suit.

- State governments that currently deploy voting systems that produce paper ballots or paper records should immediately begin plans to conduct post-election audits. Although Wisconsin, Oregon and New Mexico will not conduct audits during the presidential primaries, these states do conduct them during the general election. However, nearly three quarters of all the states will lack this essential safeguard in November.

- Election jurisdictions that do not use paper ballots should have sufficient emergency paper ballots on hand, and deploy them in the event of voting machine failure. Even voting systems that produce voter verifiable paper records can fail to "boot up" or can crash in the middle of the election.

- Election officials in every voting jurisdiction should properly train poll workers on the voting equipment available and on the use of emergency paper ballots. Alert and educated poll workers can help voters if voting systems fail to work, paper record printers jam or other problems occur.

- Citizens should check paper ballots or paper record print outs when voting. The accuracy of the paper records is the lynchpin and first step to real voting system integrity.

- Citizens should exercise their hard won right to vote. The one way to be certain that a vote won't count is to refuse to go to the polls.

Sources:
Information regarding state primaries and caucuses is from the Federal Election Commission, The New York Times online election guide < http://politics.nytimes.com/election-guide/2008/results/index.html>, and state party committees. Information on state voting systems and audit requirements is from VerifiedVoting.org and state election officials.

State by State Risk Assessment of Voting Machines

State	Risk Level	Democratic Primary	Republican Primary
South Carolina	HIGH	26-Jan	19-Jan
Florida	HIGH	29-Jan	29-Jan
Arkansas	HIGH	5-Feb	5-Feb
Delaware	HIGH	5-Feb	5-Feb
Georgia	HIGH	5-Feb	5-Feb
New Jersey	HIGH	5-Feb	5-Feb
New York	HIGH	5-Feb	5-Feb
Tennessee	HIGH	5-Feb	5-Feb
Louisiana	HIGH	9-Feb	9-Feb
District of Columbia	HIGH	12-Feb	12-Feb
Maryland	HIGH	12-Feb	12-Feb
Virginia	HIGH	12-Feb	12-Feb
Texas	HIGH	4-Mar	4-Mar
Mississippi	HIGH	11-Mar	11-Mar
Pennsylvania	HIGH	22-Apr	22-Apr
Indiana	HIGH	6-May	6-May
Kentucky	HIGH	20-May	20-May
New Hampshire	MID	8-Jan	8-Jan
Michigan	MID	15-Jan	15-Jan
Alabama	MID	5-Feb	5-Feb
Arizona	MID	5-Feb	5-Feb
Massachusetts	MID	5-Feb	5-Feb
Utah	MID	5-Feb	5-Feb
Nebraska	MID	Caucus 9-Feb	13-May
Wisconsin	MID	19-Feb	19-Feb
Ohio	MID	4-Mar	4-Mar
Vermont	MID	4-Mar	4-Mar
South Dakota	MID	3-Jun	3-Jun
Oklahoma	MID	5-Feb	5-Feb
Rhode Island	MID	4-Mar	4-Mar
Oregon	MID	20-May	20-May
Idaho	MID	Caucus 5-Feb	27-May
Montana	MID	3-Jun	Caucus 5-Feb
New Mexico	MID	Caucus 5-Feb	3-Jun
California	LOW	5-Feb	5-Feb
Connecticut	LOW	5-Feb	5-Feb
Illinois	LOW	5-Feb	5-Feb
Missouri	LOW	5-Feb	5-Feb
North Carolina	LOW	6-May	6-May
West Virginia	LOW	13-May	13-May

State	Risk Level	Democratic Primary	Republican Primary
Iowa	N/A	Caucus 3-Jan	Caucus 3-Jan
Wyoming	N/A	Caucus 8-Mar	Caucus 5-Jan
Nevada	N/A	Caucus 19-Jan	Caucus 19-Jan
Maine	N/A	Caucus 10-Feb	Caucus 1-Feb
Alaska	N/A	Caucus 5-Feb	Caucus 5-Feb
Colorado	N/A	Caucus 5-Feb	Caucus 5-Feb
Kansas	N/A	Caucus 5-Feb	Caucus 9-Feb
Minnesota	N/A	Caucus 5-Feb	Caucus 5-Feb
North Dakota	N/A	Caucus 5-Feb	Caucus 5-Feb
Washington	N/A	Caucus 9-Feb	Caucus 9-Feb
Hawaii	N/A	Caucus 19-Feb	Caucus 25-Jan to 7-Feb

Note: N/A refers to Not Applicable. These states hold caucuses instead of primaries. They do not use voting machines to count votes during the process of selecting the parties' presidential candidates.