



THE LEAGUE
OF WOMEN VOTERS
DENVER, COLORADO

Submitted to Colorado Secretary of State Mike Coffman, February 2007

The League of Women Voters of Denver supports the use of electronic voting machines and systems that are Secure, Accurate, Recountable, and Accessible (SARA) and for which the paper record is the official ballot of the voter. These two positions have been adopted by the national League of Women Voters in 2004 and 2006, respectively. After applying these principles to the equipment currently available, we oppose the use of Direct Recording Electronic voting machines. For the machines with VVPAT paper trails, it is our understanding that the PAT is not the official vote according to Colorado state law, and hence the machines fail our standards. To safeguard the integrity of elections in Colorado, systems other than DRE machines are the best choice.

We understand that the court order in fall of 2006 means that some voting equipment lost its certification after the November 2006 election. If the Secretary of State does not re-certify that equipment, local election authorities will not be able to use it in the future. A basis for the court decision, and a cause for our concerns, is the fact that the equipment has not been shown to be secure or accurate. Indeed, machines have been shown not to be secure against tampering. As long as the machines are not secure, then accuracy will always be in doubt. A machine that works perfectly in tests and in some elections can later be changed to one that does not count the votes as they are cast. The Brennan report on security analyzed various scenarios and quantified the threats to them, then recommended measures to reduce the threats. DREs without VVPATs lack a significant defense component. We are aware that optical scan machines have been hacked to change the outcome of a (sample, not actual) election, and therefore, well-designed audits are necessary for that equipment as well as for DRE machines. However, the votes that scanners count are software independent because they are marked paper ballots. They can be counted without using scanners if need be, to verify the results or when technology fails. This is a significant advantage. Redundant systems are more robust, and it is easy to show that the results are accurate.

We realize that many Colorado jurisdictions own DREs, with or without VVPATs. If the Secretary of State does not certify, or re-certify, those machines, election officials will have much work to prepare for elections in 2007 and later. The Secretary of State's office can help solve the ensuing problems by opening up the system and using its negotiating power with vendors of software and hardware. Also, the Secretary of State should encourage vendors to develop equipment that meets the SARA criteria and results in a paper ballot.

Ballot Marking Devices (BMDs) currently seem to be the best type of equipment. An ideal BMD machine would be a computer (touch screen or other interface) that offers a choice of languages, has assistive technology for various disabilities, includes privacy screens during the time the ballot is being marked, and then prints a paper ballot with the voter's choices marked that goes to the ballot box to be counted by machine or by hand as the local jurisdiction decides. This is the Minnesota system, in written descriptions. There should be a way for the ballot to reach the box privately, for voters who lack grasping ability or mobility. When these features are outlined, they don't seem impossible to fulfill, yet it seems that few companies are making machines that function this way. If the market works at all in voting machines, vendors will respond to growing demand by developing and perfecting their products. Colorado could help swell that demand. In a perfect situation our state would certify several such machines; currently that number may be one model or very few models.

If jurisdictions are not permitted to use their current DRE equipment, they may need to purchase other types of voting machines. It is difficult for them to open up their selection process to all vendors because the results need to be fed into their central tabulators. The tabulators have specific requirements developed by the manufacturer; they work smoothly with that vendor's products but generally do not accept results from other brands. If the data does not come out in a way that matches what the central computers want, then new programs need to be written to translate it. This can be an expensive project. On the other hand, being limited to one vendor eliminates the buyer's bargaining power on price and features. Voting machine companies have limited the interoperability of their systems, which creates a dedicated market for their own products. If the state did some of the work to allow different makers' equipment to communicate accurately and securely, that be a great help to local officials. Given that counties, cities, and towns in Colorado own a finite variety of voting equipment, it should be possible to determine what programming tasks need to be done, then to prioritize them, and to find some software companies to do it. Some of this work may have been done by counties already, for the 2006 election. At the state level Colorado can make certain that the companies supply the input and output specifications to allow the work to be done. It is also possible that other states are doing or planning to do similar projects, so groups may form to share the costs more widely.

It has been difficult for local officials to track and respond to all the changing legal and regulatory requirements of elections. If the state does more, we can retain local decision making and improve the quality of our elections by greatly reducing public concerns about the accuracy of the results. Colorado could become a good example for other states.

Until national standards and national certification procedures improve greatly, it is prudent to stick with systems that are recountable in a very transparent, public manner. We emphasize that requirement at this time because so much voting equipment has been demonstrated not to be secure. All of that equipment met the national standards and passed the national tests. It is possible that some DRE equipment is secure to a high level and will remain accurate, but our national and state testing has not been thorough enough to establish that. As a vendor testified

February 15, the company had to develop its own threat analysis because there was no national standard.

In summary, we advise you to certify only equipment that uses or produces a paper record which is the voter's ballot. We encourage you to help local officials develop and negotiate for high quality voting systems. Please also coordinate the development of software that makes it possible to have systems that include equipment from more than one vendor.

Enclosed are the four reports that we mentioned in our brief oral testimony February 15. Please contact Bonnie Clarke or Sarah McCarthy if you wish to discuss these comments. You may reach us by email at bclarke@mho.com or fairhillso@earthlink.net. By telephone, call the League of Women Voters office, (303) 321-7571, to have the message forwarded.

Submitted to Colorado Secretary of State Mike Coffman, February 2007

Four important reports on the weaknesses of Direct Recording Electronic voting machine. Together, they will give any interested person a good basic understanding.. There are many other sources of information. Printed copies of the reports are attached.

(1) *ELECTIONS – Federal Efforts to Improve Security and Reliability of Electronic Voting Systems are Under Way, but Key Activities Need to Be Completed.*

United States Government Accountability Office, September 2005, GAO-05-596, 107 pages, one-page abstract available. Find at www.gao.gov, enter report number in search field in upper right corner of web page. Or through Google, search GAO 05-956.

(2) *Written Testimony of David Wagner, Ph.D. – Computer Science Division University of California, Berkeley - Before the Committee on Science and Committee on House Administration U.S. House of Representatives July 19, 2006.*

7 pages. Find at www.house.gov/science. Choose House Committee web sites, then click on Committee on Science, then Hearings, then Full Committee, then July 19, 2006. In lower half of page under Witnesses choose Dr. David Wagner. Other witness testimony is interesting also.

(3) *The Machinery of Democracy: Protecting Elections in an Electronic World.*

Brennan Center Task Force on Voting System Security, Lawrence Norden, Chair, June 28, 2006, 162 pages, 32 page executive summary available. Find at www.brennancenter.org. Choose topic The Machinery of Democracy, Security in lower right of home page. For full report, choose Web Page; for summary choose Executive Summary.

(4) *Requiring Software Independence in VVSG 2007: STS Recommendations for the TGDC.*

William Burr, John Kelsey, Rene Peralta, and John Wack of the National Institute of Standards and Technology, November 2006. Find at vote.nist.gov/DraftWhitePaper ... as shown on the cover page, or by querying "software independence" in the Google search engine.