



April 12, 2005

Dear Lawmakers of Hawaii:

The Association for Computing Machinery (ACM) is the premier scientific and technical society for computing professionals, worldwide. We have nearly 80,000 members worldwide who are scientists, engineers, educators, lawyers, students, and practicing professionals, including many who are citizens of Hawaii. Last year, ACM members overwhelmingly indicated that they harbored serious reservations about electronic voting machines. ACM then adopted an official policy statement (enclosed) in support of voter-verified audit trails.

We write to offer you our technical and policy input as electronic voting legislation works its way through your legislature. As this process continues, we would ask that you consider a number of critical technical and procedural issues.

As you will see from our enclosed statement, ACM recommends that all voting systems -- particularly computer-based electronic voting systems -- embody careful engineering, strong safeguards, and rigorous testing in both their design and operation. In addition, voting systems should enable each voter to inspect a physical (e.g., paper) record to verify that his or her vote has been accurately cast and to serve as an independent check on the result produced and stored by the system.

Unfortunately, many of the electronic voting machines currently being offered for sale do not provide a voter-verifiable audit trail. Using such machines is particularly risky, for when problems or unusual results leave an election in doubt, the only available options will be to accept the results, regardless, or conduct a revote. Worse, undetected errors or tampering may alter the outcomes of elections.

It is, therefore crucial that any computerized voting system provide a voter-verifiable audit trail that can be checked for accuracy by the voter when the vote is cast. These records are also vital to preserve the option of doing a recount in the case of possible errors or fraud and on a random basis to assess the accuracy of electronic counts.

Other equally important provisions that should be part of any new electronic voting system implementation include best practices or other means to establish regular and random inspections, audits, and experimental testing of software and hardware by qualified individuals or observers before, during, and after voting occurs.

The design and management of e-voting systems should be held to the highest possible standards, for ensuring the reliability, security, and verifiability of public elections is fundamental to a stable democracy.

Sincerely,

Eugene H. Spafford, Ph.D  
USACM Chair

Barbara Simons, Ph.D.  
Chair of USACM E-voting Subcommittee

Enclosure: ACM Statement on E-Voting



## ACM RECOMMENDS INTEGRITY, SECURITY, USABILITY IN E-VOTING

### *Cites Risks of Computer-based Systems*

**New York, September 27, 2004** -- Seeking to bolster the security, accessibility, and public confidence in the voting process, ACM's elected leadership has approved a public statement on the deployment and use of computer-based electronic voting (e-voting) systems for public elections.

#### **ACM Statement on E-voting**

Virtually all voting systems in use today (punch-cards, lever machines, hand counted paper ballots, etc.) are subject to fraud and error, including electronic voting systems, which are not without their own risks and vulnerabilities. In particular, many electronic voting systems have been evaluated by independent, generally-recognized experts and have been found to be poorly designed; developed using inferior software engineering processes; designed without (or with very limited) external audit capabilities; intended for operation without obvious protective measures; and deployed without rigorous, scientifically-designed testing.

To protect the accuracy and impartiality of the electoral process, ACM recommends that all voting systems – particularly computer-based electronic voting systems – embody careful engineering, strong safeguards, and rigorous testing in both their design and operation. In addition, voting systems should enable each voter to inspect a physical (e.g., paper) record to verify that his or her vote has been accurately cast and to serve as an independent check on the result produced and stored by the system. Making those records permanent (i.e., not based solely in computer memory) provides a means by which an accurate recount may be conducted. Ensuring the reliability, security, and verifiability of public elections is fundamental to a stable democracy. Convenience and speed of vote counting are no substitute for accuracy of results and trust in the process by the electorate.