

State of Wisconsin \ Elections Board

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DATE: November 22, 2005

TO: Elections Board Members

FROM: Kevin J. Kennedy, Executive Director
Kristofer A. Frederick, Elections Director and HAVA Coordinator

SUBJECT: Approval of Electronic Voting Equipment

The State Elections Board staff has received requests from three vendors of electronic voting equipment, Diebold Election Systems, Election Systems and Software (ES&S) and AccuPoll, to have equipment approved for use in Wisconsin. No electronic voting equipment may be utilized in Wisconsin unless the Elections Board approves it, S. 5.91 Wis. Stats. The State Elections Board has adopted administrative rules that detail the approval process, EIBd 7.01 et. seq. Wis. Adm. Code. The complete text of S. 5.91 Wis. Stats., and Chapter EIBd 7 Wis. Adm. Code are attached.

The State Elections Board staff scheduled voting equipment evaluation and demonstrations for Diebold and ES&S during the week of October 10th at the Risser Justice Building in Madison. Diebold submitted its AccuVote-TSX DRE (Direct Recording Electronic) Touch Screen and AccuView Printer Module with firmware version 4.6.3, AccuVote-OS (model D) Optical Scan with firmware version 1.96.6, and the Global Elections Management System (GEMS) software version 1.18.24. All of the systems, products and versions have been qualified under the 2002 federal voluntary Voting System Standards and are contained under the NASED system number N-1-06-22-22-001.

ES&S submitted its Unity Election Management System version 2.4.3 and the AutoMARK Voter Assist Terminal version 1.0. The Optech 3PE Eagle optical scan ballot tabulator was also included in the test, although this machine has previously been approved for use in Wisconsin. Chapter EIBd 7.01(1)(e) Wis. Adm. Code requires that all electronic voting equipment approved for use be qualified against the voluntary standards set by the Federal Election Commission (FEC) and the National Association of State Election Directors (NASED). The United States Election Assistance Commission recently began overseeing the qualification process. The Elections Board and staff has established that this requirement refers exclusively to the most recent standards, in this case those set in 2002. The Unity v. 2.4.3 has been qualified against the standards set by the FEC in 1990. The AutoMARK Voter Assist Terminal, however, has been qualified as a stand-alone unit under the 2002 federal Voting System Standards.

Although they are currently not using the system, a number of municipalities have entered into agreements to purchase Unity Suite version 2.4.3. Therefore, ES&S is requesting an exception to Chapter EIBd 7.01(1)(e) Wis. Adm. Code for the Unity Suite version 2.4.3 as is allowed under Chapter EIBd 7.03(5) Wis. Adm. Code. In addition, the design of version 2.4.3 interfaces with the Statewide Voter Registration System program better than ES&S' existing election management software.

The State Elections Board staff scheduled voting equipment evaluation and demonstrations for AccuPoll during the week of November 14th at the Risser Justice Building and the GEF 1 Building in Madison. AccuPoll submitted its DRE Voting System, v. 2.5, which includes the AccuPoll AVS 1000 DRE Touch Screen. This system and related components have been qualified under the 2002 federal Voting System Standards and are contained under the NASED system number N-2-13-22-22-001.

Staff conducted three mock elections with each component of the voting systems, a Spring Election with Presidential Preference, a Partisan Primary, and a Fall General Election with Governor/Lt. Governor contest. The mock elections offer an opportunity for staff to use the voting equipment in a practical application. Staff attempted to ensure that the system could handle multiple political party primaries, more than one reporting unit and ballot style, and gauge what polling place procedures, including the processing of absentee ballots, are needed for the equipment to function in a Wisconsin election. Following the mock elections, the Election Administration Council, which is made up of municipal and county clerks, representatives of disability advocacy groups, and members of the public, participated in a demonstration by the vendor and evaluated the equipment. Evening public demonstrations of each voting system were also conducted.

Under terms of the Help America Vote Act, Section 301, the voting system used must permit all voters to vote privately and independently. Using federal funds accessed through HAVA, the State Elections Board is committed to providing one component of accessible voting equipment for each polling place in Wisconsin. Since funding is limited to a maximum of \$6,000 per polling place, many municipalities may have a hybrid voting system consisting of accessible voting terminals in combination with their existing paper or optical scan systems currently in use. Concerns have been raised by those municipalities already using electronic voting equipment regarding the programming of equipment and tabulating of election results. If a hybrid system is used and equipment is manufactured by more than one vendor, programming and labor costs may double for each election. In order to keep long-term costs under control State Elections Board staff have been actively working to evaluate voting equipment from several vendors and encouraging municipalities to coordinate voting system selection regionally, pursue election centers within municipalities, and consider merging polling places within municipalities and between municipalities.

Below is a description and assessment of the equipment including any concerns staff and the Council may have regarding the approval of the equipment.

Diebold Election Systems, AccuVote-TSX DRE Touch Screen with AccuView Printer Module

The Diebold system is a tablet PC based voting terminal that, at the municipality's discretion, produces an optional bar-coded paper ballot. The ballot as presented on the AccuVote differs from a paper ballot in that each office is presented sequentially, although a voter can scroll through the offices rapidly. When a voter checks in at a polling place the voter would be given a credit card size key to operate the terminal. The key cards must be reset by the election inspectors after each ballot is cast. A voter selects candidates for an office by using a touch screen (touching the screen with a finger or other pointing device) and on completion of voting, the terminal prints a ballot (with or without a bar code) on a roll of paper that scrolls into a secure cartridge. Overvotes and crossover votes cannot occur on this system and since the ballot is reviewed sequentially, a voter is warned about undervotes both at the time the office is presented on screen and prior to the completion of voting and the printing of the ballot. Write-in votes are typed into the system via an on-screen keyboard. As a DRE mechanism, the equipment tabulates the votes directly and prints a final vote summary print out. The paper ballots may also be accessed if a hand count is desired or a re-count is necessary. The ballot can be programmed in nine languages, including English and Spanish. Hmong is currently not a language option.

The voter is offered the opportunity to review their summarized ballot on the screen and on the paper roll before casting a final vote. There is also an audio version of the ballot for voters with visual impairments. The elector may review his or her selections both on screen before printing the ballot and on the paper print-out before casting his or her vote. The audio component reads back these selections before the vote is cast.

Staff Feedback

- ✓ During the mock election, the AccuVote did move into “time-out” mode on two separate instances. While moving back into “live” voting mode was easy for Elections staff (as Diebold representatives were available for assistance), this may prove to be unnerving and confusing for voters.
- ✓ The AccuVote is limited in the current number of accessibility components that are available. At the current time neither a sip-puff attachment nor a joystick component are available for the AccuVote. The AccuVote does have a standard serial port which allows third party devices, such as “sip-puff” component to be attached to the system.
- ✓ Concern has been expressed at the national level regarding privacy with any DRE machine, such as the AccuVote, that records votes sequentially. Because votes are recorded sequentially, the poll book could be used to match elector names with votes cast. Election Board staff, however, believes that this issue can be resolved through the use of multiple machines or through administrative rules.
- ✓ Although the AccuVote can print a bar code on each printed ballot, this is not required in Wisconsin and was not tested by staff. Staff therefore recommends that any approval exclude the bar code functionality aspect of the AccuVote.

Election Administration Council Feedback

- ✓ Because it is a fully electronic system, it may be difficult to troubleshoot the equipment if problems arise on election day. There was also concern expressed about the ability of poll inspectors to either identify when problems occur or if the system is malfunctioning. Each paper roll can handle approximately one hundred ballots, so, depending on the number of offices on the ballot, the paper roll may need to be changed during Election Day.
- ✓ It is difficult to ascertain which firmware is currently in use. The Board should require that this information be printed on the zero/morning and tally/ending reports.
- ✓ Depending on the length of the ballot, the system may require that a voter use the print ballot button several times before the ballot is actually cast. Some voters may only use the print ballot function once and therefore not actually cast a vote, thereby canceling their ballot.
- ✓ Several members of the Council expressed concerns regarding the additional costs beyond acquisition associated with this system, such as the key cards, paper, programming and accessibility keypads.
- ✓ Several accessibility concerns were expressed, especially concerning the stand used to support the AccuVote. Some members of the Council were concerned about the stability of the stand if a voter leaned on it for support, and that the current dimensions and configuration of the stand does not afford full privacy for voters. Concern was also expressed regarding wheelchair accessibility given the dimensions of the stand. Visually impaired individuals or individuals in a wheelchair may be unable to insert the key card into the system.
- ✓ The AccuVote utilizes an electronic ballot, so the system cannot be used for absentee voting. Municipalities using this system would be required to implement a hybrid system that includes the AccuVote and paper absentee ballots.
- ✓ Of the members of the Election Administration Council casting a vote, six members voted in favor of approving this system for use in Wisconsin, with one negative vote. Six members did not cast a vote.

Diebold Election Systems, AccuVote-OS (model D) Optical Scan

The AccuVote-OS processes optical scan ballots that have either been marked by hand by a voter or by ballot marking equipment such as the AutoMARK ballot marker. Overvotes are rejected by the machine giving the voter an opportunity to correct the ballot. If a voter wishes to continue with the overvote, the system can be overridden to accept the ballot. The AccuVote-OS can also be programmed to reject undervotes and crossover votes. After processing, ballots are stored in a secure ballot box which is attached to the tabulator. If a voter has selected a write-in candidate, the ballot is sent to an auxiliary ballot bin to be hand counted by election inspectors after the close of the polls. The system is programmed using the Diebold GEMS software and tabulates votes as they are cast. After the close of the polls the election results may be printed on a paper receipt included as part of the machine and downloaded into the GEMS software for reporting and publication. Since each voter is given a ballot to mark, recounts may consist of re-processing ballots through the same equipment or hand counting all ballots by election inspectors or a board of canvassers.

Staff Feedback

- ✓ Due to the configuration of this component, it may be difficult for individuals with certain types of disabilities to insert a ballot without assistance.

Election Administration Council Feedback

- ✓ Because the override panel is locked, a voter cannot override the equipment to accept an overvote without assistance from a poll inspector, which can affect privacy.
- ✓ The slot for inserting the ballot requires a ballot that is 8.5x11 in size, which restricts a municipality's ability to print ballots of different size or print smaller ballots for elections with only a single race.
- ✓ Several accessibility concerns were expressed about the AccuVote-OS. Because of the restrictions on the size of the ballot, alternative (such as large type or Braille) ballots cannot be used. The dimensions of the equipment may also prevent individuals in a wheelchair from inserting their ballot without assistance.

Diebold Election Systems, Global Elections Management System (GEMS)

The GEMS software package provides ballot creation, programming functions for the AccuVote-TSX and OS models, election result management and various report functionality. GEMS can be used to develop ballot styles and audio ballots. Chapter EIBd 7.01(1)(e) Wis. Adm. Code requires that all electronic voting equipment approved for use be qualified against standards set by the Federal Election Commission (FEC) and the National Association of State Election Directors. The Elections Board and staff has established that this requirement refers exclusively to the most recent standards, in this case those set in 2002. GEMS complies with the 2002 standards.

Staff Feedback

- ✓ GEMS was used successfully to program all ballots used in the mock election, to program the smart card programmer, and to manage the election results.

Elections Systems and Software, Unity Election Management Suite v. 2.4.3

The Unity Suite includes election data management software, voting equipment programming utilities, and election results reporting programs. The suite is used to manage parties/candidates/offices and design ballot styles, configure and program voting equipment, and retrieve and publish election results.

Staff Feedback

- ✓ The Unity Suite was used successfully to program the AutoMARK ballot maker. The election results reporting function was not demonstrated.

Elections Systems and Software, AutoMARK ballot marker

The AutoMARK is a touchscreen terminal that marks an optical scan ballot for a voter. A voter is given an optical scan ballot and allowed to insert that ballot into the terminal. A voter then selects candidates for an office using a finger or pointer of the voter's choice on the touchscreen. Overvotes and crossover votes cannot occur on this system and a voter is warned about undervotes prior to the completion of voting. The voter is offered the opportunity to review their summarized ballot on the screen before casting a final vote. There is also an audio version of the ballot for voters with visual impairments, which reads back these selections before the vote is cast. Once an elector has completed voting, the machine marks and ejects the ballot, which can then be reviewed by the voter. The AutoMARK does not store or tabulate election totals. After being marked and ejected, the voter may review his or her ballot. The ballot may then be processed by the M150, the M550, the Optech 3PE Eagle (currently used in Wisconsin) or placed into a secure ballot box to be hand tabulated by election inspectors after the polls have closed. The system is programmed using the ES&S Unity software and several accessibility components are available, include audio, paddles and a sip-puff device. The AutoMARK can be programmed in multiple languages.

Staff Feedback

- ✓ While several accessibility components are available, Elections staff is concerned about several aspects of the AutoMARK. The touch screen required substantial pressure to register a selection, which could create an impediment for disabled or elderly voters. Similarly, the effort required to remove the ballot from the machine after printing could be problematic for individuals with disabilities or elderly persons.
- ✓ The AutoMARK often required a ballot to be inserted multiple times before it was accepted, which may cause delays in the voting process. This problem prevented the Elections staff from completing a full mock election. Many ballots were simply not accepted by the AutoMARK. The AutoMARK also requires time to read the ballot and print the ballot (average time for these operations was two to three minutes alone), which could cause individuals to exceed the five minute limit for casting a ballot when other voters are waiting. S. 6.80(3) Wis. Stats.
- ✓ Due to problems in ES&S' printing of the ballots for the mock elections, Elections staff was unable to conduct or test a November general election. Staff cannot, therefore, confirm that the AutoMARK performed successfully under this condition.

Election Administration Council Feedback

- ✓ The current tabletop configuration of the AutoMARK does raise privacy concerns, as individuals may not be able to insert or remove their ballot independently.

- ✓ Unlike DRE machines, the ballot is the same for individuals who use the AutoMARK and those who cast a paper ballot.
- ✓ The accessibility features, such as the sip-puff, paddles and ability to accept “plug-in” devices, appear very developed. These features, however, are not included with the “base” equipment and require an additional expenditure.
- ✓ Council members liked that an actual paper ballot was created, which could be inserted into an optical scanner, and that the same ballot could be used with the AutoMARK or completed by hand.
- ✓ Of the members of the Election Administration Council casting a vote, nine members voted in favor of approving this system for use in Wisconsin, with no negative votes. Two members did not cast a vote.

AccuPoll, AccuPoll DRE Voting System, v. 2.5

The AccuPoll DRE Voting System, v. 2.5 software package provides ballot creation, programming functions for the AVS 1000 DRE, in precinct election administration, election result management and various report functionality. This system can be used to develop ballot styles and audio ballots. Multiple languages can be programmed, though Hmong is currently not an option. This system relies heavily on third party equipment and peripherals. Chapter EIBd 7.01(1)(e) Wis. Adm. Code requires that all electronic voting equipment approved for use be qualified against standards set by the Federal Election Commission (FEC) and the National Association of State Election Directors. The Elections Board and staff has established that this requirement refers exclusively to the most recent standards, in this case those set in 2002. The AccuPoll DRE Voting System, v. 2.5 complies with the 2002 standards.

Staff Feedback

- ✓ The AccuPoll DRE Voting System, v. 2.5 software package was used successfully to program all ballots used in the mock election, reprogram the go vote cards, and to manage the election results.

AccuPoll, AVS 1000 DRE Touch Screen

The AVS 1000 is a touch screen voting terminal that produces a paper record that can be used as a ballot. The paper record includes all offices, the voter’s selections and a bar code, which is currently used with the audio component so that individuals with visual impairments can review their ballot. The ballot as presented on the AVS 1000 differs from a paper ballot in that each office is presented sequentially, although a voter can scroll through the offices rapidly. When a voter checks in at a polling place the voter would be given a credit card size key to operate the terminal. The key cards must be reset by the election inspectors after each ballot is cast. A voter selects candidates for an office by using a touch screen (touching the screen with a finger or other pointing device) and on completion of voting, the terminal prints a paper record on a 8.5x11 inch sheet of paper using a standard ink jet printer contained within the AVS 1000. The voter is offered the opportunity to review their summarized ballot on the screen before casting a final vote. There is also an audio version of the ballot for voters with visual impairments, which reads back the summary before the vote is cast. The voter can review his or her ballot after it is printed. The printed ballot also contains a bar code, which can be combined with headphones and a bar code scanner to provide an audio review of the ballot.

Overvotes and crossover votes cannot occur on this system and since the ballot is reviewed sequentially, a voter is warned about undervotes both at the time that office is presented on screen and prior to the completion of voting and the printing of the ballot. Write-in votes are typed into the system via an on-screen keyboard. As a DRE mechanism, the equipment tabulates the votes directly and prints a final vote summary print out. The paper records may be also be

collected in a ballot box if a hand count is desired or a re-count is necessary. Audio headphones and an accessibility button pad are provided with the system, and an accessibility port allows “sip-puff” and other components to be attached to the system.

Staff Feedback

- ✓ The ballot for the September partisan primary did not include a general write-in section at the end of the ballot as specified in the requirements submitted to the vendor. This ballot style was developed for optical scan ballots due to space considerations on these ballots. The AVS 1000 provides a write-in section for each office which utilizes a touch screen keypad. A general write-in section is thus not needed with this DRE system.
- ✓ The printed ballot also contains a bar code, which is not required in Wisconsin. Since the bar code is an accessibility component and is used to read back the ballot in conjunction with the audio headphones, it was tested by staff. This component performed successfully during the test.
- ✓ Once an individual selects a party in a partisan primary, the voter cannot change this selection without scrolling through the entire ballot and canceling his or her ballot. Similarly, if a voter does not choose a party in the presidential preference primary, the voter cannot return to the presidential contest without scrolling through the entire ballot and canceling his or her ballot.

Election Administration Council Feedback

- ✓ Because the AccuPoll uses a standard sheet of paper for the record, individuals voting absentee will use a different ballot. Curbside voting would also likely require the use of a separate ballot.
- ✓ Before casting a ballot, the voter can change his selections an unlimited number of times, which may lengthen the voting process.
- ✓ The speed of the audio cannot be adjusted (made faster or slower), and the screen cannot be blacked-out for additional privacy. Some individuals with disabilities would still require assistance when inserting the smart card into the system.
- ✓ Of the members of the Election Administration Council casting a vote, five members voted in favor of approving this system for use in Wisconsin, with no negative votes. Three members did not cast a vote.

Each of the systems submitted for approval has advantages and drawbacks in terms of providing access for individuals with disabilities. Because most municipalities will not be replacing their entire voting systems, but will rather be adding an accessibility component to the existing equipment, it is important to consider these three voting systems (Diebold, ES&S and AccuPoll) in terms of the entire voting system that may be used by a municipality. Therefore, Elections Board staff developed the following recommendations based upon two goals. First, can the voting system successfully run a Wisconsin election? Second, does the system enhance access to the electoral process for individuals with disabilities?

Using these questions as a guide, Elections Board staff recommends approval of the Diebold and AccuPoll voting systems. Each system completed the mock election and were able to accommodate the ballot style and voting requirements of the Wisconsin election process. In addition, each system includes several accessibility features which will allow individuals with disabilities to vote.

Elections Board staff cannot, however, recommend full approval of the ES&S system at this time. While this system includes several accessibility components, problems in ES&S' printing of the ballots for the mock elections prevented staff from conducting or testing a November general election. In addition, staff encountered problems when inserting the ballots, and the AutoMARK did not successfully read every ballot inserted. Therefore, staff is not confident that this system can successfully complete a November general election without problems. Since these problems with the AutoMARK may be tied to the problems with printing of the ballot for the November general election, Elections Board staff recommends approval of the system contingent on a successful staff test of the November general election.

Attachments

- ✓ Wisconsin Administrative Code, State Elections Board, Chapter 7
- ✓ Section 5.91, Wisconsin Statutes