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### NEW YORK STATE BOARD OF ELECTIONS ELECTION OPERATIONS UNIT

#### RECOMMENDATION TO CERTIFY PRECINCT-BASED OPTICAL SCAN VOTING SYSTEMS

In 2007, the New York State Board of Elections adopted state voting system requirements (NYCRR Part 6209), in which compliance with the US Election Assistance Commission's 2005 Voluntary Voting System Guidelines was incorporated. Subsequent thereto, the State Board entertained requests from multiple voting system vendors for a system certification that would legally authorize their systems for sale and use in New York State. In furtherance of developing our certification process, in 2007, the New York State Board of Elections procured the services of an independent testing lab, SysTest Labs Inc. which would conduct the actual system testing, as well as, the services of the New York State Technology Enterprise Corporation (NYSTEC), which would be responsible for and act as an independent security advisor with regard to the voting systems security testing.

In 2008, several vendors sought a New York certification of their voting systems. After the County Boards of Elections made their initial voting system choice, it was clear that two of the five companies were preferred and only two systems remained in the certification program, through completion. The two firms which completed the certification process are Dominion Voting Systems, which submitted their ImageCast, a precinct-based optical scan system available with or without an attached ballot marking device, and Election Systems and Software (ES & S), which submitted their DS-200 precinct-based optical scan system and its companion AutoMark ballot marking device.

Also in 2008, New York had to meet new obligations, in implementing an updated federal court order which required New York's compliance with the Help America Vote Act (HAVA) via the placement of a minimum of one ballot marking device in each polling place in New York, to serve all voters including those with disabilities. In order to comply with the order of the court in a manner which provided a high level of confidence in using uncertified ballot marking devices, a preliminary and baseline HAVA test protocol was implemented, to help ensure the systems could be deployed with a high degree of accuracy. A component of that baseline testing was a review of the systems under consideration at that time, by New York's Citizens' Election Modernization Advisory Committee (CEMAC). The committee is statutorily charged with assisting the state in the evaluation of voting systems, particularly with an eye toward the manner in which voters with disabilities are served by new voting technologies.

Begun in 2008, the certification testing process has been an unexpectedly long one, with a high learning curve and numerous obstacles. As New York is the first state in the nation to adopt the EAC's voluntary federal guidelines as regulations, it necessarily subjects any voting system submitted for certification in New York to the most rigorous testing protocols in the nation. Testing voting systems to these never-before tested requirements comes at a cost, in effort, time and money that is unavoidable with the breaking of this new ground. The interpretation of new requirements by vendors as they built systems, and by New York State as we determined the applicability of the requirements in our own elections realm, added to the testing entities' constant need for interpretations of the many vague requirements, in order to develop appropriate test cases. This significant coordination of effort required the constant monitoring and combining of oftentimes very different skill sets. The lessons learned in New York will be reflected in the systems we and others ultimately consider for certification.

The process itself began with the development of a fully-articulated requirements matrix, reflecting the 1,524 requirements of New York's statute, regulations, and the EAC's 2005 voluntary voting system guidelines. From this matrix, 26 unique test cases were created for each vendor, and within those test cases, 6,730 test steps were developed, to ensure testing to each requirement. A dry-run of test steps was conducted, to identify that the test cases would test all of our requirements. This process was followed by the run-for-record, and test reports were produced.

The documents which accompany this recommendation include report findings of both SysTest Labs and NYSTEC, each with compensating controls appended to them, as well as summary reports from both firms. Also for the consideration of the board is the resolution of New York's Citizens' Election Modernization Advisory Committee, in which certification is recommended.

The evaluations of any voting system must take into consideration all of the technological reviews and tests that we conducted, however, it is critical that such technological findings be reviewed with a "real world" functional perspective. There must be a harmony that connects these two aspects of whether or not voting systems can be used securely and accurately.

The two systems before the Board for consideration today have been tested harder and against more requirements than any other system in the nation. The review of test findings has been extensive, and centered on the ability to determine whether these voting systems are in substantial and material compliance with statute and regulations. A review of the documentation of over 13,000 individual test steps has revealed that a handful of minor requirements may require some remediation as we go forward with these systems. While our report must demonstrate that systems may have issues with particular requirements, we must note that these systems are the most robust voting systems on the market today, and incorporate a significant number of positive features totally lacking in any other system on the market.

An integral component of this review is the practical perspective garnered by monitoring the use of these voting systems in live elections. In 2009, the Commissioners of the State Board authorized the use of these two voting systems in pilot projects in both the primary elections conducted on September 15 and in the General Election on November 3. Forty-seven of the State's sixty-two counties participated in the pilot project, to varying degrees. Some counties opted to pilot the systems in a single town or city, some in multiple sites, and perhaps most importantly, nineteen counties opted to pilot the systems countywide. The pilot project was a resounding success, as was the post-election audit process, which overwhelmingly confirmed that these scanners accurately record and report the ballot selections made by voters. It is important to note that the opportunity to participate in the pilot project was not offered lightly.

Prior to the approval of the pilot project by the Commissioners of the State Board, Unit staff conducted significant functional testing of these two systems. The report of this round of functional testing has been provided to the Board, to augment the documentation the Commissioners will consider in making their decision on certification.

This pilot implementation provided an opportunity for the systems to be exercised outside of pristine lab conditions, and ensured feedback not just on the technology's use, but how that system was implemented using new security procedures and data integrity protocols. Reports on a myriad of real-world election scenarios and experiences must be considered hand-in-hand with the technological reviews submitted, so that the Board can consider multiple aspects of voting system operations in order to make its decision. The reports of the on-site observations of Election Operations Unit staff are provided for the Board to so consider, and include comments from voters, poll site workers and elections administrators.

A review of the various procedures provided to the County Boards which used only the ballot marking devices, as well the versions provided to those who participated in the pilot project will also enable the Board to understand the safeguards and processes that help to ensure the integrity of the election process, from end to end. This list reflects a sampling of the processes we have developed to date:

- Pre-election testing – requiring the testing of ballot configurations using live ballots while the system is in election mode and not in test mode
- Quarterly maintenance test protocols, to ensure system integrity and battery readiness
- Security protocols for voting system storage sites and office spaces, to ensure no unauthorized access to systems or databases
- Chain-of-custody and documented travel manifests, to track unit deployments both to and from poll sites
- Ballot accountability and reconciliation, from receipt of ballot shipments from printers, through delivery to poll sites, and the return of all election day materials

- Web-based poll site worker training, to compliment in-person training sessions, so workers can refresh lessons and materials delivered by election trainers
- The conduct of a 3% random audit of voting systems used, to validate system accuracy

As with any procedures, those listed here and those to be drafted in the weeks to come, are living documents, meant to be reconsidered regularly, to reflect useful changes stemming from the impact of their use in a variety of election settings. The implementation of all procedures related to the maintenance and use of optical scan technology will also contribute greatly to the standardization of election administration and Election Day services across New York.

This recommendation of the Election Operations Unit was arrived at in a deliberative and reflective manner, considering the voting systems themselves, the sum of certification testing, and perhaps most importantly, functional testing which encompasses tests performed by unit staff, lessons learned in the centralized acceptance testing process and the actual use of these systems in the 2009 election cycle. There will always be room for voting system improvements, for as long as elections administrators and voters continue to contribute constructive suggestions for the care and use of scanners and ballot marking devices. In general, vendors must continue to upgrade their systems, to provide even more security features which will further enhance the suite of protections for election data, as well as provide enhanced access for more and more of New York's voters. County Boards of Elections must implement these new systems in as seamless a way as possible, to ensure voter confidence and ease of use. The State Board must continue to provide support and oversight to all County Boards of Elections, so that all that has come before this Board and from this Board, throughout this process, is realized.

This road has been a long one, and most certainly a hard one, but in the end, after an extensive review of the testing materials submitted by SysTest and NYSTEC, we have no doubt these systems can be used safely and properly by voters at elections under the conditions prescribed in Election Law, the requirements of HAVA, and with the compensating controls properly implemented. We are confident in recommending that the Commissioners of the New York State Board of Elections vote to certify the ImageCast optical scanner and ballot marking

device, as submitted by Dominion Voting Systems, and the DS-200 optical scanner with its companion AutoMark ballot marking device, as submitted by Election Systems and Software.