

**Testimony on “A Look Back at 2010 Election Year”
Before the Committee on House Administration
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Thank you Chairman Lungren, Ranking Member Brady, and members of the Committee on House Administration for inviting me to testify on behalf of Election Systems & Software (ES&S) at today’s Hearing. My name is Ken Carbullido and I serve as the Senior Vice President of Systems at ES&S. My responsibilities include oversight of all hardware and software design, development, manufacturing, testing, and certification of all ES&S voting systems and software.

Your topic today is “**The 2010 Election: A Look Back At What Went Right and Wrong.**” My comments today are centered on both things that went right as well as things that could have been improved. Specifically, I am here to address the recent actions taken by the EAC to open a formal investigation of ES&S system version Unity 3.2.0.0 which obtained EAC federal certification approval on July 7, 2009. My goal is to address this from a voter confidence and system integrity point of view. I have a deep understanding of the issues, root causes, and solutions. I also have knowledge and understanding of the processes and communications surrounding the first observations of these issues in Cuyahoga County, Ohio, the ES&S diagnostic and resolution efforts, and the involvement of the EAC. Because of such understandings, I also have some additional observations and recommendations that I would like to share that I hope this Committee will consider in its capacity as a governing authority.

What were the issues? The initial issue which was first identified by Cuyahoga County Ohio, during pre-election testing, was the potential for a freeze/shutdown to occur in limited and random instances on the DS200 optical precinct scanner. This freeze/shutdown condition was documented to occur in extremely low instances of only approximately once per thousands of ballots cast. When an interruption did occur, it is critical to note that this situation was recoverable by merely re-starting the unit, much like you would a laptop that may lock up while in use. Voting was never interrupted and votes were not lost. ES&S takes very seriously all system issues, including this operational interruption of service and while the interruption itself is not an accuracy issue, ES&S recognized that it could be potentially concerning to voters that might witness or encounter such an event. For this reason locating and correcting the issue became a top priority for ES&S. In addition to correcting this issue ES&S also improved the logging functionality of the software to ensure that all actions (including the freeze/shutdown) were properly documented.

Two low level software issues were the root cause of the freeze/shutdown issue. Because the occurrence was infrequent, random, and not always reproducible, and because there were two separate low level software issues, and especially since one of the software issues was born in complex commercial off the shelf software (COTS), it took a significant effort to test and identify the root causes and to confirm that the software corrections and COTS updates completely resolved the freeze/shutdown issues.

Prior to the completion of the final test report at Wyle laboratories there were a series of additional events which transpired. Additional software issues were identified and addressed during the lengthy test campaign. We also were forced to transfer our testing of this improved version of software to a new Voting System Test Laboratory (VSTL) when our original laboratory dropped out of the federal testing program. A fix was introduced to correct a previously reported issue when processing ballots that may have either been printed out of specification or inserted into the DS200 scanner in an overly skewed manner. Issues related to the system event log, such as logging of time changes, operator password entry errors, or unintentional system shutdowns were identified. Another issue was an occurrence of a ballot drop issue when a ballot dropped into the box without the counter being incremented. This last issue was never identified or reported in a live election but rather exhibited itself in a final round of lab testing.

I am pleased to report that all of the above issues have been resolved. The EAC has provided an initial certification approval decision for Unity 3.2.1.0, which contains an updated version of the DS200 software with improvements that correct all of the above noted issues as well as including a number of other enhancements. This updated DS200 software version will be used to amend the Unity 3.2.0.0 release, which will provide the required "cure", outlined within the EAC's formal investigation policy and procedures.

Relatively speaking, each software solution was found and created rather quickly. Getting these corrections and improvements approved and into the field in a timely manner is where ES&S believes that the process could be improved.

The skewed ballot issue was initially reported to ES&S engineers on October 8th, 2009. The software was corrected by October 15th, 2009. The first approval of this correction was granted by the EAC on July 22, 2010. It took seven days to correct the problem and nine months to obtain an EAC approval.

The freeze/shutdown issue was initially reported to ES&S engineers on April 6, 2010, and the software was confirmed corrected by ES&S on June 29, 2010. Last week, on March 22, 2011 the EAC provided an initial decision on approval to grant certification of the corrected software. ES&S devoted three months of intensive review and diagnostic testing to isolate and correct the

software. Once that critical part of the process was complete nine long additional months transpired while the EAC, the VSTL's and the EAC technical reviewers reviewed ES&S' analysis and corrections, developed a test plan, and validated the corrections.

The ballot drop issue was discovered by the VSTL, on November 11, 2010. The software was corrected by December 23, 2010. Approval for this correction was received from the EAC on March 22, 2011.

While much of the focus has been on the issues which surfaced, the test campaign and resulting investigation, it is imperative to take note of the fact that while awaiting the final completion of the testing and approval of these corrections that we worked diligently with the EAC and their staff to ensure that all of our affected customers were notified of the issue, and prepared to run their elections. ES&S posted technical bulletins for our customers on the ES&S customer portal. ES&S also provided extra support and equipment during the elections to help customers using the DS200s. As the EAC noted, it is not likely that any of the reported issues had any impact on past or present elections.

ES&S is fully committed to the Federal Voting System Test Program. Our mission at ES&S is to maintain voter confidence while enhancing the voter experience and we see the Federal Voting System Test Program as a vital part of that commitment. Our goal is to provide quality voting systems that met the highest level of security, accuracy and reliability. ES&S has always been and will continue to be supportive and committed to upholding the highest level of voting systems standards and the certification process. In fact, we have been at the forefront of the standards development and certification process. We were the first major manufacturer to achieve EAC certification on our products and have more EAC certified products deployed across the United States than any other manufacturer.

One of my primary concerns is the timing of advancing these often much needed corrections and enhancements to the field in a way that is beneficial and cost effective to not only the vendor but more importantly the local election official and the voters. My second concern is with the action taken by the EAC to open a formal investigation into these identified issues. At the time the formal investigation was instigated all of the research, development, root cause analysis and testing was in its final stages. ES&S is not opposed to an investigation when one is warranted but in this case we had exhibited total compliance in working with the EAC to ensure that these issues were corrected and the EAC was in full possession of all of the documentation and technical analysis of this fact. While we may respectfully disagree with the EAC on the length of time that transpired in moving these corrections through the process and while we may disagree with their decision to seek a formal investigation, we cannot overemphasize our willingness to be a part of this program. It is our belief that the EAC can provide a reliable, standardized, efficient and effective service that all States and customers can rely on.

Obviously, rather than having 50 different state testing processes, one single consistent, but efficient, method is much preferred.

We also commend one of our largest customers, Cuyahoga County, Ohio for their role in assisting us in with these issues. ES&S is very proud of the excellent elections that Cuyahoga County has enjoyed since deploying ES&S systems. Our M650 central scanners and both our M100 and DS200 precinct scanners have performed very well. We hold Jane Platten, Director of Elections at Cuyahoga County, and her staff in the highest regard. Cuyahoga County has a tremendous challenge, with the size and volume of their jurisdiction, and they run a very disciplined organization and election administration process.

The same can be said of all of our customers, both those who utilize this particular version of software and those that use other versions. Our goal and the goal of our customers, the election officials, is to ensure we maintain voter confidence. Since this is a hearing on what went right in 2010 I would be remiss if I did not applaud our customers who conducted over 8,500 elections in 2010 with polls opening on time, voters voting in confidence, results reported in a timely manner and system being maintained in a secure environment.

We stand committed to working with this esteemed body and the EAC to continue to find ways to improve the voting system testing program. It is not broken and it is on the right track but it does need some work and adjustments to keep it functioning at a level that is beneficial and timely for all. Once again, thank you for your time and the opportunity to speak here today.