

Open Source Election  
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Tuesday, 19<sup>th</sup> February 2019

Rep. Alan Powell, Chair      Rep. Barry Fleming, Vice Chair  
Rep. Rhonda Burnough      Rep. Joseph Gullett  
Rep. Mary Frances Williams      Rep. Rick Williams  
Rep. Bruce Williamson      Rep. Jay Powell, Ex-Officio  
Rep. Micah Gravley, Ex-Officio

**Subcommittee on Voting Technology of Government Affairs Committee  
Georgia House of Representatives**

18 Capitol Square SW  
Atlanta, Georgia 30334

RE:    [HB316, Electronic Ballot Marking Devices](#)

**Greetings Chairman Powell, Vice Chair Fleming, and  
Members of the Voting Technology Subcommittee:**

My name is [Gregory Miller](#), co-founder and Chief Operating Officer of the OSET Institute, a 501.c.3 non-profit, non-partisan election technology research, development and education organization founded in 2006 in the Silicon Valley. I write today together with our Global Director of Technology Research & Development, [Edward Perez](#). Our Board has authorized us to offer the following comments on certain election technology in hopes that it may help inform your important decision making, particularly with regard to [HB316](#) under your current consideration.

We believe its important to clarify an *essential point* concerning current federally-certified ballot marking devices, and more specifically the manner by which certain design features common to those devices prevent voter-verifiability of paper records, *which is a requirement of HB316 as currently drafted*. We are not, and cannot be lobbyists; our comments are simply offered to help advance the goals and objectives of ensuring verifiable, accurate, and secure elections in Georgia, and nationwide.

The OSET Institute is comprised of 60 individuals of which nearly two-thirds are in technology research and development, and the balance in technology public policy. We offer 30+ years of subject matter expertise in cyber-security, and several of us have served in advisory capacities to various elements of the national security apparatus focused on the security of voting technology.

We're writing today to highlight recent research the Institute has conducted, which explains a key point:

**[No current EAC-certified ballot marking device \(BMD\) that produces a “summary” vote record allows direct voter-verification of choices tabulated by the voting system.](#)**



These voting machines print the voter's choices in two (2) ways on the “ballot;”

1. First, ordinary text that the voter *can* read, but the scanner ignores;
2. Second, a barcode that the voter *cannot* read, but which scanner *does* read to record whatever vote choices are encoded in it.

There is no guarantee that the barcode's content is the same as the plain text that the voter can read. The barcode is truly the “ballot” that the tabulator reads, whereas the plain text is not used for purposes of automated tabulation.

The obstacle to voter-verifiability in all of these devices stems from the fact that current commercial offerings embed voter choices in non-transparent barcodes or QR-codes for purposes of automated tabulation. As a result, contrary to the manufacturers’ claims,

**These devices cannot support elector-verifiable ballots in their current form.**

For details, we refer you to the OSET Institute’s recently published *Principles and Guidelines for Machine-Marked Printed Vote Records*,<sup>1</sup> which includes a detailed review of the capabilities of current EAC-certified commercial offerings, including:

1. The ES&S ExpressVote,
2. The Dominion ImageCast X, and
3. The Unisyn FreedomVote Tablet.

All of these devices share a design flaw of non-transparent, embedded voter choices, which means that:

**No currently-available hybrid ballot marking device can meet HB316’s definition of an “electronic ballot marker”**

This is because HB316’s definition of a ballot marker includes the capability to print “an elector-verifiable paper ballot”—candidly, as it should. (HB316, Sec. 1, 7.1, Page 2, Line 43)

Despite the fact that the devices described above produce a paper record (*or so-called “ballot”*), the paper *cannot* be said to be “elector-verifiable” in any meaningful way, because irrespective of whether a voter takes time to verify his/her choices on the paper record that is produced by the marking device,

**It is impossible for the voter to verify the information on the paper record that the tabulation device uses to count the votes.**

Again, this is because the voter’s choices are stored in a format that *cannot* be reviewed by the human eye. As a result,

**All currently-available “summary format” BMDs are incapable of supporting voter-verifiability.**

In contrast to the fact that current commercial hybrid BMDs *cannot* meet HB316’s requirement for an elector-verifiable ballot, the OSET Institute observes that hand-marked paper ballots and traditional ballot-marking devices (BMDs) for those who need assistive technology (*but not for all voters*) *can* meet these requirements.

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<sup>1</sup> See: <https://bit.ly/OSET19pvr> for this OSET Institute White Paper



Furthermore, in addition to deficiencies in verifiability, the voting model of “touchscreen BMDs for all voters” carries several other liabilities in terms of cost, maintenance, and continuity of operations. These concerns are summarized in a second OSET Institute Position Paper that we hope you will also find valuable: “*A Tale of Two Paper Trails: A Perspective on the Georgia SAFE Commission Final Report and Its Unlikely Outcome.*”<sup>2</sup>

Both *A Tale of Two Paper Trails* and *Principles and Guidelines for Machine-Marked Printed Vote Records* state the OSET Institute’s recommendation for hand-marked paper ballots, with traditional-format accessible BMDs for voters with disabilities.

It is our professional opinion as technology researchers seeking the very best in digital innovations to increase security, lower costs, and improve usability of election administration thechnology, that this is the most secure, auditable, usable, and cost-effective voting method.

On behalf of the OSET Institute, Edward and I appreciate the opportunity to offer our subject matter expertise in the technology and security of election administration, including best practices and processes, principles, technical standards, and the like in a nonpartisan manner without agenda or lobbying intent. Our mission is to be a resource for the advancement and innovation of critical election technology infrastructure in the defense of democracy.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Gregory A. Miller', written over a blue circular stamp.

**Gregory A. Miller**

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**Edward Perez**

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<sup>2</sup> See: [https://trustthevote.org/wp-content/uploads/2019/01/17Jan\\_PositionPaper-ATaleOf2PaperTrails-v4.pdf](https://trustthevote.org/wp-content/uploads/2019/01/17Jan_PositionPaper-ATaleOf2PaperTrails-v4.pdf)