

Inquiry into and report on all aspects of the conduct of the 2019 Federal Election and matters related thereto

Submission by

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Ian Brightwell: .. [REDACTED]

Date: 28 August 2019

Disclaimer

This submission is made in a personal capacity. The information contained in this submission has been prepared by the author and only reflects the views of the author.

Recommendations

The author commends the following recommendations for the inquiry's consideration.

Recommendation 1

Recommend to parliament that appropriate legislation be amended prior to the next federal election, giving effect to Recommendation 3¹ of the federal electoral matters committee report dated November 2018.

Recommendation 3 - The Committee recommends that a non-partisan independent expert scrutineer be appointed to each Central Senate Scrutiny Centre in each state and territory and be responsible for:

- *auditing the computer systems and processes used to capture and count votes;*
- *undertaking randomised checks between captured data and physical ballot papers throughout the count at a level that provides surety as to the accuracy of the system; and*
- *providing reports to candidate scrutineers about their findings on a regular basis during the count.*

Recommendation 2

The Commonwealth Electoral Act be amended to provide for the creation of a specialist Election Technology Review Board, to scrutinise technology used to capture and count votes. The Board should have access to sufficient information about the design, implementation, configuration and operation of electronic vote management systems to allow it to effectively assure that the systems are operated in accordance with legislation. The Board should report before and during the election only to the Electoral Commissioner, then post-election provides a publicly available assurance report to the Joint Standing Committee on Electoral Matters.

Recommendation 3

The Commonwealth Electoral Act be amended require an audit of a sample of voters' actual paper ballots cast against the electronic data used in the count process. The audit sample size should be chosen to ensure that the cross-check process provides adequate statistical confidence in the electoral outcome.

¹ Report on the conduct of the 2016 federal election and matters related thereto, November 2018, Recommendation 3.
https://www.aph.gov.au/Parliamentary_Business/Committees/Joint/Electoral_Matters/2016Election/2016_election_report/section?id=committees%2freportjnt%2f024085%2f26083#s26083rec3

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Appendix B - Senate count Workflow

1 Author Background

The author also has some 17 years' experience in the management of technology in the election process as CIO at the NSW Electoral Commission and has worked in the information technology area for over 30 years, with a particular emphasis on provision of technology within government agencies².

He is currently consultant and adjunct academic at the UNSW Faculty of Engineering school of Computer Science and Engineering with a practice and research focus in the area of cybersecurity and technology governance.

2 Current Senate Scrutiny

The senate count fundamentally changed at the 2016 federal election, due to legislative changes. These changes forced the AEC to use a computer at the 2016 election to both capture and count ALL senate ballots and undertake the distribution of preferences, which is required to determine the candidates to be elected.

Appendix B shows the workflow for the senate count process as implemented at the 2016 and 2019 elections. The diagram identifies the fully computerised count process on the last page under the heading "Scanning and counting workflow cutout". This is the part of the process where all ballots are entirely managed within the computer and the results determined by the computer.

3 JSCEM Recommendation from 2016 Election

As a result of moving to the new computer based process in 2016 some academics⁵ and psephologists identified that it was not possible to effectively scrutinise the counting of ballots using the procedures made available by the AEC. Academics including myself had made requests to the AEC for information about the count process⁴, which would allow a better understanding of the count processes accuracy and overall integrity. In particular we requested the AEC undertake testing of ballot samples to ensure the end to end ballot capture process was accurate. The AEC in 2016 declined to respond meaningfully to these requests.

As a result of the general inability to scrutinise the senate count submissions were made to the Joint Standing Committee on Electoral Matters (JSCEM) in relation to the 2016 election which resulted in the JSCEM, making Recommendation 3 below in its November 2018 report "Report on the conduct of the 2016 federal election and matters related thereto"¹. I strongly support this recommendation.

Recommendation 3 - The Committee recommends that a non-partisan independent expert scrutineer be appointed to each Central Senate Scrutiny Centre in each state and territory and be responsible for:

- *auditing the computer systems and processes used to capture and count votes;*

² LinkedIn profile

<https://www.linkedin.com/in/ian-brightwell-a038573/>

- *undertaking randomised checks between captured data and physical ballot papers throughout the count at a level that provides surety as to the accuracy of the system; and*
- *providing reports to candidate scrutineers about their findings on a regular basis during the count.*

4 ANAO Report

The ANAO reported on the integrity of the AEC's senate count processes in their report "Australian Electoral Commission's Procurement of Services for the Conduct of the 2016 Federal Election" in January 2018³. In this report the ANAO concluded:

7. *The AEC addressed risks to the security and integrity of ballot paper data through the design and testing of the Senate scanning system. The AEC accepted IT security risk above its usual tolerance. Insufficient attention was paid to ensuring the AEC could identify whether the system had been compromised.*

8. *The Senate scanning and transport suppliers delivered the services as contracted. The AEC had limited insight into whether its contractual and procedural risk treatments were effective. Going forward, the AEC needs to be better able to verify and demonstrate the integrity of its electoral data.*

The ANAO audit found:

5.46 *The feedback to the Joint Standing Committee on Electoral Matters indicated that scrutineers generally found it more difficult to confirm the integrity of the Senate count when conducted by the semi-automated system than by the previous manual process.*

This resulted in Recommendation no. 4 of the report (Paragraph 5.47):

When the Australian Electoral Commission uses computer assisted scrutiny in future federal electoral events, the integrity of the data is verified and the findings of the verification activities are reported.

The Australian Electoral Commission's response was to agree with the recommendation with qualification. They said:

5.48 *The AEC remains confident that the range of measures put in place for the 2016 federal election ensured the integrity of the Senate count. For future events, the AEC will continue to evaluate and if appropriate, implement additional verification mechanisms to maintain the integrity of the count. The results of verification activities undertaken at future electoral events may be reported in support of the scrutineering process.*

³ Australian Electoral Commission's Procurement of Services for the Conduct of the 2016 Federal Election, 22 January 2018.
<https://www.anao.gov.au/work/performance-audit/aec-procurement-services-conduct-2016-federal-election>

5 Scrutineering at 2019 Senate Count

Notwithstanding, recommendation of the ANAO cited in section 4 of this submission and the AEC's suggestion they may provide information to scrutineers about verification activities, I can now confirm **the AEC did not provided any requested information about the "results of verification activities undertaken" to scrutineers at the 2019 election.** Unfortunately, the government did not respond to the November 2018 report and as such the AEC did not believe it was obligated to act on Recommendation 3 the JSCEM report¹ and also given no regard to the ANAO report's³ recommendations.

During the course of the 2016 JSCEM election the author and other researchers from the UNSW approached the AEC and requested information to assist with scrutiny of the senate count at the CSS. In general, it could be said the AEC was unresponsive to these requests. The results of this work was documented in our supplementary submission⁴ to the 2016 inquiry.

Subsequently the AEC made several representations in their testimony at hearings, that they would treat requests from scrutineers differently to those made from the public at future elections. They suggested that in future elections additional information would be provided to scrutineers and they would make available to scrutineers the results of end to end tests of ballots and information about the integrity of the CSS process. The author decided to test to see if these undertakings could be relied upon and arranged to be appointed as a NSW senate scrutineer for the Flux.org party.

I attended the North Sydney count centre and the NSW Central Senate Scrutiny (CSS) centre at Meadowbank. At both centres I was shown the ballots being handled and processed by polite and helpful staff. The North Sydney count centre processing was entirely manual and as such I could see the handling of the ballots by polling place and Division and how their tallies were determined. However, at the NSW CSS I could only observe the scanning of the ballots, all other processes were done by observing an individual ballot images on a screen. Each ballot viewed on a screen was part of a batch which in practical terms was difficult to relate to all other ballots for a polling place or Division. This meant it was not possible to assess if the tally of the ballot scan marks for a polling place matched with election night results or results from the respective regional count centres. This meant scrutiny at the CSS was purely reduced to an image by image interpretation of markings without an ability to know if all ballot papers were captured or counted correctly. The information required to determine if the overall process was operating as planned was only available to AEC staff and was not given to scrutineers even when requested.

Appendix A contains an email trail between the author and the AEC's NSW AEO's designated staff member. This trail clearly shows that the AEC believed that scrutineers should not be provided "statistics relating to the different workflow paths" which would allow an independent assessment of the CSS processes' integrity. They considered such information to be "for internal use only". It is difficult to comprehend why the AEC would not share this type of information with scrutineers. This

⁴ Submission 56, Questions on Notice – Hearing 16/11/16, Joint Standing Committee on Electoral Matters (JSCEM), INQUIRY INTO AND REPORT ON ALL ASPECTS OF THE CONDUCT OF THE 2016 FEDERAL ELECTION AND MATTERS RELATED THERETO
<https://www.aph.gov.au/DocumentStore.ashx?id=44eac9f0-f3fe-47cc-84e1-d34453285981&subId=459558>

information has not sensitivity other than it may reveal issues related to the integrity of the count process.

A very limited cross check was undertaken by the AEC some months after the 2016 election with results provided to the JSCem. A staff member at the NSW CSS stated they would be doing a more extensive check at the 2019 election after the count was completed, but the NSW AEO would not confirm this to myself as a scrutineer.

Notwithstanding, the AEC suggested in Appendix A they may be conducting cross checks of ballots with results from the capture process by saying:

The integrity and accuracy of outputs is tested before, during, and after the election to provide assurance that preference data correctly matches ballot papers

They refused to provide any further information about the results of these tests or when they had or would be conducted. They would not even advise if they were going to undertake a cross check of a statistically significant sample of ballots to verify the integrity of their process.

6 New Scrutiny Approach

The author recommends the following changes be made to legislation to improve transparency, scrutiny and integrity of elections which use technology to directly manage ballots.

- Establish and Election Technology Review Board (Recommendation 2)
- Conduct End to end audits of a statistically significant sample of senate ballots (Recommendation 3)

More detail on these points is provided in the recommendations section with background information provided in a previous JSCem submission⁵ to the 2016 election inquiry.

7 Conclusion

This submission does NOT intend to suggest that the AEC as an organisation cannot be trusted. I personally have complete confidence in the integrity of the AEC's management and staff. However, this does not mean error or external undetected influences on systems cannot occur.

The purpose of this submission is to improve transparency of the election process for future elections, thus reducing the potential for undetected errors or system interference occurring undetected at future elections.

⁵ Submission 56 - Brightwell - Buckland - Wen – Rye, Submission to the Federal Joint Standing Committee on Electoral Matters, INQUIRY INTO AND REPORT ON ALL ASPECTS OF THE CONDUCT OF THE 2016 FEDERAL ELECTION AND MATTERS RELATED THERETO, October 2016.
<https://www.aph.gov.au/DocumentStore.ashx?id=fc1aa59b-f4f7-408d-acfd-0f312793e59a&subld=459558>

Appendix A – Email trail between Ian Brightwell and NSW AEO Staff

From: <AEC Staff>

Sent: Friday, 7 June 2019 5:13 PM

To: Ian Brightwell

Subject: FW: Here is my signed form for Scrutineer [SEC=UNCLASSIFIED]

Dear Mr Brightwell,

On behalf on the Australian Electoral Officer NSW please find below a response to your inquiries.

The AEC has undertaken extensive analysis and testing to determine the workflow of ballot papers through the Senate scrutiny process. It is designed to ensure that all preferences are correctly recorded, including matching human interpretation with data recognition and capture.

Statistics relating to the different workflow paths will not be released, as they are for internal use only. However, I can confirm that all preferences are entered by a human operator.

The AEC performs a range of reconciliation processes, both manual and automatic, on every polling place and declaration count at multiple stages including at the polling place, divisional out-posted centre, and Senate scrutiny centre. This may involve comparisons between different counts, and against House of Representatives ballot papers.

The integrity and accuracy of outputs is tested before, during, and after the election to provide assurance that preference data correctly matches ballot papers.

The AEC has resources available to scrutineers to assist them in understanding their role, rights, and responsibilities which can be found on the [AEC website](#). The [Scrutineers](#) page lists what scrutineers may and may not do during polling and the [scrutiny of ballot papers](#), which is further detailed in the [Scrutineers Handbook](#). Additionally, I am aware that you watched a briefing video at the scrutiny centre.

Kind regards

<AEC Staff> | <Position>

NSW State Office | NSW State Office
Australian Electoral Commission



From: Ian Brightwell
Sent: Monday, 3 June 2019 12:50 PM
To: <AEC Staff>
Subject: RE: Here is my signed form for Scrutineer [SEC=UNCLASSIFIED]

<AEC Staff>

Thank you for your prompt response below.

I understand the AEO may not have these statistics readily available but I would have thought these, or similar statistics, would be tracked in Canberra. If that is not the case then I would be interested to know what quality processes and statistics are being used by the AEC to ensure the AEO (as RO) is confident the data capture process is effectively converting ballot preference markings to a computer file for the DoP process.

Also, notwithstanding your response below I would be grateful if the AEO could provide a response to question 9/ which I believe is a policy issue and should currently be known.

Ian Brightwell

From: <AEC Staff>
Sent: Monday, 3 June 2019 10:54 AM
To: Ian Brightwell
Subject: RE: Here is my signed form for Scrutineer [SEC=UNCLASSIFIED]

Good morning Ian

Thank you for your email.

As you would appreciate we are still in process with the Senate and some queries cannot be answered immediately therefore we will provide a response as soon as practicable.

Kind regards

<AEC Staff> | <Position>
NSW State Office | NSW State Office
Australian Electoral Commission



From: Ian Brightwell

Sent: Friday, 31 May 2019 8:11 PM

To: <AEC Staff>

Subject: RE: Here is my signed form for Scrutineer [SEC=UNCLASSIFIED]

<AEC Staff>,

I have now had an opportunity to attend both the Lane Cove and Moorebank sites and have the following questions for the AEO about the senate process.

I understand the processing at Lane Cove checked and counted the ballots into batches of 50 ballots for each by formal and obviously informal for each polling place/dec voted type for a division. This means that a polling place of 920 formal ballots and 60 obviously informal ballots will have a total of 19 plus 2 batches for scanning. Also Lane Cove separated and held locally all the unused ballots for each polling place or division's dec votes by type.

The following questions have been framed using the terms used on the last page of the attached ballot paper workflow document. The purpose of the questions are to allow me, as a scrutineer, to better understand the effectiveness of the overall CSS process.

1/ What percentage of ballots scanned are streamed to "Data Entry #1", "Perfect Capture" and "Unmarked"?

2/ Please confirm all ballot's preferences are captured by keying in "Data Entry #2"?

3/ What percentage of the ballots that pass through the "Compare data entry" process are found to be "Mismatched"?

4/ What percentage of the "Mismatched" ballots are passed to the "Exception Check" process?

5/ What percentage of the "Exception Check" ballots are escalated to the "AEC Adjudication" queue?

6/ I understand and the "AEC Adjudication" queue is also feed from ballots that have a "shield" which cannot be detected or are blank but have been placed in a formal batch and these ballots are assessed only by an AEC staff member without further scrutiny. Is this correct and if so what percentage of all ballots processed are assessed in this manner?

7/ What is the variance threshold between the total number of HoR and senate ballots counted for a given polling place or dec vote type (for a given division) which head office requires before CSS staff and/or DRO staff are requested to recount ballots or search for missing ballots?

8/ Where discrepancy between HoR and senate are outside tolerance and the discrepancies can be attributed to ballots being moved between polling places are these discrepancies addressed by ballots being moved between polling places and batches rescanned?

9/ Will the AEC be undertaking cross checking of a statistically significant sample of paper ballots against the corresponding preference data in the CSS's output file? If so will this happen before the declaration of the poll and will scrutineers be able to witness this process?

Ian Brightwell

From: <AEC Staff>
Sent: Monday, 27 May 2019 1:50 PM
To: Ian Brightwell
Subject: RE: Here is my signed form for Scrutineer [SEC=UNCLASSIFIED]

Good afternoon Ian

In answer to your questions yes you can just turn up with your completed form you do not need to contact in advance and, in regards to any other questions you may have you can submit them to me in writing.

Kind regards

<AEC Staff> | <Position>
NSW State Office | NSW State Office
Australian Electoral Commission



From: Ian Brightwell
Sent: Thursday, 23 May 2019 10:27 AM
To: <AEC Staff>
Subject: Fwd: Here is my signed form for Scrutineer

<AEC Staff>

Please find attached my application to scrutineer the senate at NSW CCS

Could you advise I this form is completed correctly. I understand I would need to sign it when I arrive with photo ID.

Could you advise where and when I need to go to see the following:

- 1/ north SYDNEY count centre
- 2/ CCS Moorebank processes including reconciliation process

Ian Brightwell

Federal Election Senate digital ballot paper workflow



Scanning and counting workflow cutout

