



Appendix E

Electronic vote counting at the 2001 ACT election

- 1.1 The Australian Capital Territory's Legislative Assembly election of October 2001 is understood to represent a watershed in the conduct of Australian elections. Not only was electronic voting introduced for the first time, but the counting of all votes was done electronically.¹
- 1.2 The Elections ACT (the ACT Electoral Commission) review of the 2001 election recommended that 'electronic vote counting using the Electronic Voting and Counting System (EVACS) computer system be made standard practice at ACT elections'.²
- 1.3 According to the Elections ACT Report, this electronic counting system:
 - effectively limited errors such as incorrectly sorting or counting ballot papers;
 - increased the accuracy of the election count;
 - reduced the time needed to accurately count the votes and announce the election result; and

1 Australian Capital Territory Elections. 2002. *The 2001 ACT Legislative Assembly Election: Electronic Voting and Counting System Review*, p. 1.

2 ACT Elections. 2002. *The 2001 ACT Legislative Assembly Election*, p. 4.

- increased the amount of information available about errors made on paper ballots by electors.³
- 1.4 Elections ACT acknowledged concerns were raised publicly about the accuracy of the electronic count, however was satisfied with the methodology. Post-election verification found that the concerns were unfounded.
- 1.5 Elections ACT considered the testing and auditing of the electronic vote counting system to be comprehensive. As indicated in the report the following steps were taken:
- Various testing methods of the software were employed including:
 - ⇒ Conducting structured test cases in controlled situations (used to ensure individual modules perform as expected);
 - ⇒ Conducting scrutines in parallel, using EVACS and manual counting of known sets of ballot papers, comparing the results obtained by EVACS and ACT Elections' Excel spreadsheet Hare-Clark program (used to ensure that EVACS was correctly applying the Hare-Clark system, using a variety of test election outcomes to test specific cases);
 - ⇒ 'Real user' testing, whereby large numbers of users cast electronic votes in a mock polling place and data-entry operators entered the results from paper ballots (used to test useability and to simulate realistic loads on the system);
 - ⇒ Load testing, where large quantities of ballot data was simulated and loaded into the counting system; and
 - ⇒ 'Whole of life' testing, where the entire process was simulated, taking test electronic votes from a polling place, loading it into the counting server, adding data-entered results from paper ballots, and using the counting system to generate a Hare-Clark result.
 - A software auditing firm, BMM International, was then contracted to audit the software code of the system (to ensure the software did not contain code that would affect the result of the election);
 - BMM International certified that the code for EVACS:
 - ⇒ appeared to neither gain nor lose votes;
 - ⇒ appeared to faithfully implement the Hare-Clark algorithm for vote counting provided to BMM by Elections ACT; and

3 ACT Elections. 2002. *The 2001 ACT Legislative Assembly Election*, pp. 1-2.

- ⇒ was written in a consistent, structured and maintainable style.
- BMM International also checked the final version of the code containing the candidate information after the close of nominations that was used in the election, against the audited code, to ensure that any changes that had occurred in the interim would not affect the outcome of the election.
 - This was confirmed by BMM International.⁴

4 Elections ACT. 2002. *The 2001 ACT Legislative Assembly Election*, pp. 7-8.

