



# **NSW Electoral Commission iVote Voting System**

## **Industry engagement**

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## 1 Introduction

The NSW Electoral Commission (NSWEC) is the statutory body that manages elections in NSW.

The iVote® System<sup>1</sup> is the NSW Electoral Commission's system for remote electronic voting, first used in the State General Election in 2011, and significantly enhanced for the State General Election in 2015 (SGE 2015). The iVote System has also been used on eight occasions for NSW State By-elections and at the March 2017 Western Australian State General Election.

Due to the upcoming NSW State General Elections in 2019, the NSWEC has initiated a process of understanding the current market in the field of electronic voting, focused on exploring existing solutions and understanding the possible improvements that could be brought to the iVote system for the 2019 NSW State General Election and future election needs.

This industry engagement process is the first step in a procurement strategy published on our website.<sup>2</sup>

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<sup>1</sup> iVote is a registered trademark of the NSW Electoral Commission. However, the registration symbol will not be used throughout the rest of this document.

<sup>2</sup> [http://www.elections.nsw.gov.au/\\_\\_data/assets/pdf\\_file/0005/245975/iVoteRefresh\\_Procurement\\_Strategy.pdf](http://www.elections.nsw.gov.au/__data/assets/pdf_file/0005/245975/iVoteRefresh_Procurement_Strategy.pdf)

## 2 Principles

NSWEC is establishing guiding principles for electronic voting that potential suppliers should be aware of. These principles are derived so they are not specific to any voting equipment, process, or protocol. The following draft principles are not finalised, but should still be useful to potential suppliers.

### Enfranchisement

1. **Accessibility** – all eligible people should be able to vote regardless of any disabilities or differences of language or culture
2. **Useability** – the process of voting should be sufficiently easy for all people and not present impediments to voting
3. **‘One person, one vote’** – the ability to identify the voter and their eligibility to vote, together with the capability to ensure each voter casts only one vote

### Integrity

4. **Security** – prevention of loss, corruption or tampering of votes (esp. undetectably)
5. **Robustness** – election processes are not subject to significant interruption or failure
6. **Transparency** – audit, scrutiny and openness to provide public confidence
7. **Trust** – public confidence is supported by limitations on commercial or partisan involvement and independent, public control over the election
8. **Equitable** – impartial, does not influence the outcome of the election

### Privacy

9. This is particularly concerned with the prevention of **coercion** or **vote-buying**.
10. No obstacles to maintaining **privacy** within the **voting process**.
11. **Privacy** of **cast votes** is maintained.

These principles are in a process of review and amendment. They will be expanded in more detail over time and then published. The Council of Europe (COE) has recently published new recommendations on standards for electronic voting<sup>3</sup> which will also be taken into consideration by NSWEC.

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<sup>3</sup> <http://www.coe.int/en/web/electoral-assistance/-/council-of-europe-adopts-new-recommendation-on-standards-for-e-voting>

### 3 Functional areas

NSWEC currently considers the existing iVote platform in three key operational areas, as follows:

1. Registration and credential management (Pre voting process)
2. Voting system (Voting process)
3. Ballot Assurance (cast as intended, and recorded as cast, referred to as Verification in iVote 2015) and audit system (Post voting process)

NSWEC expects to procure vendor software for the voting system only, though verification and audit may also become part of a vendor solution. Registration and credential management is currently owned by NSWEC and is currently expected to be enhanced internally.

NSWEC is interested in learning about supplier capabilities for both remote electronic voting and electronic voting at polling places, as we are currently considering the possibility of a trial of electronic voting at polling places in the 2019 State General Election.

### 4 Research interests

NSWEC would like to receive information on available and planned supplier offerings and is particularly keen to learn supplier perspectives and capabilities in regards to the following areas:

1. Election configuration and roll out (administration by NSWEC staff)
  - Efficient set up and preparation of the elections using automated processes to minimise the risk of human error
  - Capability for running multiple overlapping elections simultaneously
  - Provision for multiple votes<sup>4</sup> for voters who are eligible to vote in multiple jurisdictions
  - Improving access to eligible voters by provision of support for multiple languages
2. Registration and identification protocols and processes (public)
  - Identification of voters through integration with other external authorities or via use of other mechanisms such as digital certificates
  - Authentication of voters using conventional methods as well as possibility of using other means such as biometric

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<sup>4</sup> For example, NSW local Government elections are run as a single event and an elector could vote in their council of residence as well as for a different council where they own a property (note that there is still only one vote per person within a single jurisdiction).

- Secure management of personal information
- Prompt discovery and management of changes to personal information to ensure integrity of the registration process

### 3. Credential management and distribution

- Definition of credential structure and strength of credentials to ensure secure environment
- Use of different voting credentials for electronic voting and phone voting process – due to the limitation that only numerals can be used for phone voting
- Distribution of credentials to the voter using familiar methods (for example in person, letter to home, email, SMS, custom application, applications with secure communication channels such as WhatsApp and iMessage)
- Secure voter credential management alongside management of lost/forgotten credentials

### 4. Credential verification protocols

- Methods and practices for secure voter credentials verification
- Use of multi-factor authentication by integrating minimum of two categories from *knowledge* (something they know), *possession* (something they have) and *inherence* (something they are)
- Use of trusted devices for voter verification

### 5. Voting protocols and process

- Capability and practices around remote voting
- Capabilities around voting at a polling place in tandem with either electronic or ordinary paper mark off
- Vote casting processes
- Use of trusted devices in the process of casting a vote
- Views and experiences on votes being privately or publicly accessible through the use of verification channels such as web, phone or any other channels with or without provision for voter audit trail (VVPAT - Voter verifiable paper audit trail)
- Use of trusted devices, return codes or challenges in verification protocols
- Capabilities and opinions on vote in clear against encrypted vote either on client and/or server side

### 6. Security

- Practices around security engineering approach
- Disaster prevention and recovery
- Resilience of critical election components and interfaces to failure

- Availability of automated or manual system monitoring such as performance, system failure, irregularities
- Approaches for encrypting and decrypting the ballot box
- Maintaining integrity of the ballot and the ballot box
- Preventing linking of decrypted vote with the voter
- Protections against voting system corrupting the voting process
- Auditing
- Cryptographic techniques applied

#### 7. System infrastructure issues

- Views on use of cloud based infrastructure and dedicated infrastructure
- Clarification of system infrastructure requirements such as web servers, application servers, database management systems, server platforms, storage services, security services, network services, communication channels, datacentre services or any other services

#### 8. Integration (new or existing solutions)

- Ability to integrate with existing NSWEC systems such as the electoral roll and the registration system, ensuring secure and robust communication between the systems with the ability of pulling and pushing the data.

#### 9. Commercial voting capabilities

- Capabilities for commercial voting in respect to the lower risk profile than Government elections and expectations of a lower cost per vote solution

#### 10. Capabilities, support and transparency

- Resource availability and capabilities
- Delivery approaches (methods and methodologies)
- Core product implementation vs custom product delivery
- Ongoing support and system improvements
- Limited and/or public disclosure of system/project documentation and source code
- Practices for customer documents and release management

## 5 Characteristics of Elections

The majority of those using iVote in NSW for remote electronic voting will be out of the state or out of the country. Electors with a disability are also an important group for iVote to service.

There is a short period, usually 4 days for a NSW State election, from knowing which candidates will be on the ballot paper to the start of voting. Preferential voting is used and the upper house ballot paper can have a significant number of candidates (In 2007 there were 333 candidates).

More information can be found at the New South Wales Electoral Commission web site: [http://www.elections.nsw.gov.au/about\\_elections](http://www.elections.nsw.gov.au/about_elections).

NSWEC is liaising on electronic voting with other commissions within the Electoral Council of Australia and NZ (ECANZ). The following notes some characteristics of elections run by some other commissions that are members of ECANZ. In federal elections, each of the eight states and territories have a specific Senate paper, in the 2016 election there were 151 candidates on the NSW Senate ballot. In Victorian state elections, there is a ballot for each of the eight upper house electorates which have had up to 38 individual candidates. Tasmania and ACT employ Robson Rotation when listing the candidates on the ballot. In New Zealand a mix member proportional voting system is used. Further information can be found at the following sites:

- Australian Electoral Commission (AEC): <http://www.aec.gov.au/>
- Electoral Commission Queensland: <http://www.ecq.qld.gov.au/>
- Victorian Electoral Commission: <http://www.vec.vic.gov.au/>
- Electoral Commission SA: <http://www.ecsa.sa.gov.au/>
- Tasmanian Electoral Commission: <https://www.tec.tas.gov.au/>
- Western Australian Electoral Commission: <https://www.elections.wa.gov.au/>
- Northern Territory Electoral Commission: <http://www.ntec.nt.gov.au>
- ACT Electoral Commission: <http://www.elections.act.gov.au>
- New Zealand Electoral Commission: <http://www.elections.org.nz/>

## 6 Next steps

The NSWEC wishes to provide an opportunity for all those experienced in electronic voting applications to present their available capability. The intent is to capture information on different supplier offerings and their approaches. The NSWEC will utilise the information gained to complete a high level design process and any RFI and/or RFP that may eventuate from that design.

This industry engagement is open to all interested parties and any potential supplier may provide information to NSWEC. Workshop sessions will allow more detailed discussions and will be offered to suitable suppliers, at the sole discretion of NSWEC. These can be held in person at NSWEC facilities or via a video conference and should occur in the period from 3<sup>rd</sup> to 26<sup>th</sup> of July 2017. All inquiries are to be sent to NSWEC via email [ivote.enquiries@elections.nsw.gov.au](mailto:ivote.enquiries@elections.nsw.gov.au) or via phone +61 2 9290 5999.

Any existing documentation, brochures or affiliated items in respect to this industry engagement can be sent to NSWEC via email [ivote.enquiries@elections.nsw.gov.au](mailto:ivote.enquiries@elections.nsw.gov.au).