

# **Part 1**

## **Introduction**



## **1.1 About this Report**

### ***Interim Report***

As described in the *Preface*, this report contains material which was not included in the interim report presented by the Commission on 30 April 2004.

At the time of presentation of its interim report, the Commission refrained from presenting the full details of its completed work, including the public submissions, until the legislation putting the Commission on a statutory footing was in place. The interim report thus contained only the observations, conclusion and recommendations of the Commission at that time, together with a list of the public submissions received.

### ***Context***

Believing that the information gathered in the course of its work can contribute to the information about the chosen system that is available generally in the context of the public debate, the Commission has decided to present this full report of its work in the period up to 30 April 2004.

The period since the presentation of the interim report has also provided additional time that was not available within the Commission's original reporting timeframe to obtain the views of the manufacturers of the chosen system and other persons and bodies referred to in its work. This process has now been completed and the comments of these persons and bodies in relation to specific points, insofar as they have not been accommodated within the report, are set out at *Appendix 4*. In addition to the comments set out at *Appendix 4*, a number of persons and bodies whose views were invited by the Commission either made no reply to the Commission or replied to the effect that they had no specific comment to make or made only general comments on the report.

### ***Structure***

While the introduction to this report (*Part 1*) and the overall conclusion and recommendations in this report (*Part 6*) correspond to Parts 1 and 4 respectively of the Commission's interim report already presented, *Parts 2 to 5* of this report, together with the related appendices have not been presented previously. This newly-presented material describes the work of the Commission (*Part 2* and *Appendix 2*), reviews the public submissions (*Part 3* and *Appendix 3*) and sets out the Commission's analysis and conclusions in relation to testing, accuracy and secrecy (*Parts 4* and *5*).

### ***Content***

It should be noted that, with the exception of the observations set out in *Appendix 4* and those observations which have been incorporated in the report arising from the views of the manufacturers and others obtained in the meantime, the content of this report remains essentially as it would have been published at the time of the Commission's interim report in April 2004.

This report therefore does not take account of the further, and continuing, work of the Commission in the meantime.

## **1.2 Background and Scope**

### ***Establishment***

The Commission on Electronic Voting was established by the Government on 1 March 2004 to report to the Ceann Comhairle (the Chairman of Dáil Éireann) not later than 1 May 2004 on the secrecy and accuracy of the Nedap/Powervote electronic voting system chosen by the Government for use at elections and referenda in Ireland – “the chosen system”. It was also open to the Commission to review the tests already undertaken to validate the chosen system, to have further tests undertaken and to invite and consider submissions.

Five persons were invited by the Government to become members of the Commission which held its first meeting on 5 March.

The terms of reference of the Commission were amended by the Government on 9 March to provide that its report due not later than 1 May could comprise recommendations on the application or non-application of the chosen system for use at the local and European elections on 11 June 2004.

Details of the terms of reference and membership of the Commission are set out earlier in this report.

### ***Legislation***

Although the Commission was established on an ad-hoc basis, the Government indicated its intention to place the Commission on a statutory footing. The Electoral (Amendment) Act 2004 enacted on 18 May 2004 accordingly contains provisions relating to the Commission as well as in relation to electronic voting generally.

### ***General***

In accordance with its terms of reference, the Commission considered the secrecy and accuracy of the chosen system and reviewed the tests that had been undertaken to validate it. The Commission decided that further tests should be carried out and these were undertaken insofar as possible. Procedures for the use of the system at elections were also examined.

Submissions were invited from the public and these were considered by the Commission, together with other documents and materials made available to it.

The work of the Commission in this regard is described in *Parts 2 and 3* of this report.

### ***Definitions***

For the purposes of its work, the Commission has adopted the following interpretations of the terms “secrecy”, “accuracy” and “tests”:

“secrecy” is as defined in *McMahon v Attorney General*<sup>3</sup>, namely, that the secret ballot must be secret to the voter, i.e. it relates to matters concerning the possible disclosure of how a voter has voted. In this context, the concept of secrecy does not relate to the disclosure of the intentions or actions of a person intending not to vote either by abstaining or deliberately spoiling their vote;

“accuracy” relates to matters concerning the demonstrable integrity and consistency of the methods for the gathering of the votes at polling stations, the methods for the translocation of the votes from polling stations to count centres, the process of disaggregating groups of votes for counting in different types of elections, and the methods for counting and distributing votes;

“tests” includes subjecting the hardware and software elements of the voting and counting system equipment to physical and functional examinations and trials as regards their effectiveness and suitability for purpose. Testing of individual components may be carried out separately from combined testing of some or all of them together. As regards software, testing may include the inspection or examination of algorithms, pseudo-code or source code as well as the running of programs and applications using sample data. As regards hardware, testing may include examination of its physical and electronic properties as well as its operation in live or simulated test conditions. System documentation and designs may also be subjected to testing.

### ***Scope***

The work of the Commission for the purposes of this report concentrated primarily on the operation of the chosen system as it may be used at Irish elections, with particular emphasis on the local and European elections due to be held on 11 June 2004.

While the holding of a constitutional referendum on the same day as these elections was announced after the Commission was established and was therefore not included in its terms of reference, the Commission considers that its conclusions in this report would be applicable to the referendum also but that this would of course be a matter for the Government and the Oireachtas, as the case may be.

In addition to the voting and counting operations at elections which are proposed to be carried out by electronic means, the Commission has also determined that, while they are not central to its terms of reference in the context of this report, the administrative and other procedures surrounding the design, manufacture, transportation and custody of the system and its deployment and use at and between elections are also important factors which can have a bearing on secrecy and accuracy.

### ***Exclusions***

Although the public and parliamentary debates on the issue of electronic voting that took place both prior to and following the establishment of the Commission included a broad range of issues, not all of these issues fell within the scope of the Commission’s work in accordance with its terms of reference.

In particular, issues such as the existence of a voter verifiable audit trail, the removal of the possibility of abstaining or spoiling a vote, voter acceptance of the system, alternative electronic voting systems and issues surrounding the procurement of the chosen system and the procurement

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<sup>3</sup> *McMahon v Attorney General* [1972] IR 69, (1972) 106 ILTR 89.

of previous testing of the system were outside the Commission's terms of reference.

Insofar as it was feasible and appropriate for it to do so, the Commission nonetheless endeavoured to give due consideration to any issue coming to its attention which had a bearing on its work in relation to the secrecy and accuracy of the chosen system and the tests carried out to validate it.

### ***Constraints***

One of the main constraints on the work of the Commission was the limitation imposed by the very tight deadline within which it had to prepare and present its report. From its establishment on 1 March to the due reporting date of 1 May, there were just nine weeks in which to examine and report on the chosen system.

The Commission recognises that this was a limitation necessitated in turn by the prior announcement that the polls for the local and European elections would take place on 11 June.

A further constraint on the work of the Commission arose specifically in the context of the presentation of its report due on 1 May. While the Commission had intended to present the full details of its work, it was considered prudent to refrain from doing this until the legislation putting the Commission on a statutory footing was in place and until further steps had been taken by the Commission, including as regards obtaining the views of the manufacturers of the chosen system and other persons and bodies referred to in the work of the Commission. The Commission accordingly presented an interim report on 30 April as described above.

## **1.3 Approach and Methodology**

### ***Expert Assistance***

Having decided at an early stage that further tests of the system were required and to that end, given the complexity and specialised nature of certain aspects of the subject matter, the Commission decided that expert assistance should be sought to carry out the work in the first instance in accordance with parameters set out by the Commission and subject to its approval, direction and control.

Individual persons and organisations having expertise in the areas of political science, computer science, public administration, audit, security and statistics were identified and were invited to submit proposals as to the approach and activities they would recommend to the Commission as being appropriate in the context of its terms of reference. These proposals were considered by the Commission and were agreed subject to modifications. Thereafter, the reports presented by such experts were considered by the Commission.

On this basis, a substantial part of the work that underpins this report was carried out by expert persons for and on behalf of the Commission and the results are accordingly represented in this report with appropriate credit being given to the author or authors in each case. The views expressed in the course of this work are those of the individual authors in each case and are not necessarily those of the Commission.

### ***Privacy and Confidentiality***

The Commission considered it necessary and appropriate that its work should be carried out in a manner that was free from interruption, influence or interference and accordingly determined that it would meet and work in private. Persons engaged by the Commission were requested to observe confidentiality in their work and to declare any material interest they may have in the work of the Commission or in the outcome thereof. The Commission intends to maintain this confidentiality in respect of matters and materials not specifically presented in this report.

### ***Meetings***

The Commission met on 20 occasions for the purposes of its work in connection with the preparation of this report and its interim report already presented.

### ***Acknowledgements***

The Commission would like to thank all the parties who co-operated with it in the preparation of this report including, in particular, the Department of the Environment, Heritage and Local Government.

## **1.4 Description of the Electronic Voting System**

It may be useful to describe at the outset the main components of the chosen system of electronic voting and how they may be used at elections in Ireland. A brief overview of the system is set out at *Appendix 1A*.

