

## 1 INTRODUCTION

The national grid is a high voltage system of networks which transports power from generators to demand centres. The flow of power is determined by the levels of demand at all parts of the system and by the size and location of generation supplying that demand. Interconnection with other systems can be a source of generation or a demand for power.

*Forecast Statement 2005-2011* presents factual information on, and projections of the grid, electricity demand, generation, and on interconnection with other electricity systems. Details of these forecasts and assumptions are included in the appendices. It provides customers with enough information to carry out their own power flow analysis, if desired.

In addition, the statement includes the results of analyses that indicate the most suitable locations for the connection of new generation or customer demand. The analyses were based on the forecasts and assumptions described in the statement. This is the most accurate information at the time. When considering the results of the various analyses, customers are advised to review carefully the assumptions on which the Forecast Statement is based.

ESB National Grid, in its capacity as the Transmission System Operator (TSO), has prepared this Forecast Statement, covering the period early 2005 to end 2011, in accordance with Section 38 of the Electricity Regulation Act, 1999 (the Act).

The TSO published its *Generation Adequacy Report 2005-2011* (GAR) in November 2004. That document deals with the requirement for additional generation capacity to meet forecast demand over the seven-year period to 2011. The GAR complements the information presented in *Forecast Statement 2005-2011*.

### 1.1 OUTLINE OF THE FORECAST STATEMENT

Chapter 2 describes the existing transmission network and the TSO's network development plans. These plans may be refined in light of more up-to-date information and should, therefore, be confirmed with the TSO before any business decisions are taken based on the content of this document. Maps, schematic diagrams and network details are included in Appendix A and Appendix B. Geographical maps of the transmission system are provided in A3 format in Appendix K.

Chapter 3 describes the demand forecasts and Chapter 4 describes the generation projections. Details of the forecasts and assumptions are in Appendix C and Appendix D.

Chapter 5 describes the interconnector with Northern Ireland and discusses the planned new interconnection with Britain.

The assumptions presented in these chapters form the basis of the analyses of power flows and short circuit levels presented in Chapter 6 and the analysis of transfer capabilities reported in Chapter 7 to Chapter 10. Appendix E presents forecast short circuit levels at all grid stations.

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Appendix F provides details of analysis methods used in the preparation of this statement. Appendix H contains a glossary of terms used in the statement and Appendix I is a list of reference documents. Diagrams are presented in Appendix J of the document which show typical power flows on all the circuits of the grid for a number of different conditions.

While the assumptions represent a reasonable view of the future, customers should note that variations in these assumptions are likely and could significantly alter the available opportunities as reported. In particular, the connection of any large new 400 MW generator, in the context of the 4,500-6,000 MW Irish system, will have a major impact on network power flows and available capacity in the network for other use.

The results of the analyses and opportunity for generation, demand and interconnection are presented for three specific years, each incorporating the summer and following winter:

- 2005 (the first year of the seven-year period),
- 2008 (the middle year),
- 2011 (the final year of the seven-year period).

## **1.2 IMPROVEMENTS IN THIS FORECAST STATEMENT**

Following feedback received from a customer survey issued in January 2005, and regular contact with customers, a number of enhancements have been made to make this Forecast Statement more useful and meaningful:

- The stations analysed for generation and demand opportunities have been carefully reviewed based on feedback from industry sources. The chosen stations have been tailored to match more closely the needs of customers. The TSO believes the increased number of stations selected this year reflect more realistic locations for possible future demand and generation connections and as such will provide more useful information to customers.
- Sensitivity analyses were carried out where the opportunity at a particular station could be improved by a short lead time development.
- In Chapter 8 and Chapter 9, new sections on how to use the information for generation and demand, with a worked example in each, are included.
- Opportunity has been examined at potential connection points for the proposed new interconnection with Britain.
- The short circuit levels include the peak make duty in addition to the RMS break duty. This is explained further in Chapter 6 and Appendix E.
- More information has been provided on factors limiting opportunities.

- Appendix B has been improved to display projected network changes on an annual basis. In addition, the tables of parameter changes are cross referenced to descriptions of network developments for greater clarity.
- The schematics in Appendix A have been improved to show new projects more clearly.
- Additional geographical network maps have been included in A3 format in Appendix K for greater legibility.
- Generator capacity and generator dispatch tables are presented with area subtotals.
- In addition to full station names, short codes are included in Table C-1 in Appendix C for ease of reference.

### 1.3 DATA MANAGEMENT

System development is continuously evolving. In order to carry out the analyses in the Forecast Statement, the TSO froze all data relating to demand, generation and the grid at the end of December 2004.

Since the data freeze date, a number of changes in projections have emerged.

- Connection agreements were signed for the Carriggannon (20 MW), Dunmore (1.7 MW), Mullananalt (7.5 MW), Moneypoint (21.9 MW) and Richfield 2 (6.75 MW) wind farms.
- The following developments have been initiated as projects and are being progressed:
  - Cushaling-Thornsberry 110 kV line;
  - Athlone-Shannonbridge 2 110 kV line;
  - Castlebar-Tonroe 110 kV line;
  - Gorman-Navan 3 110 kV line;
  - upgrading Knockearagh-Oughtragh-Tralee 110 kV line;
  - Reactors on 220 / 110 kV transformer neutrals at Tarbert.

The impact of these developments on opportunity is discussed in Chapters 8, 9 and 10.

### 1.4 PUBLICATION

This Forecast Statement is available in hard-copy paper format and in pdf format on the ESB National Grid website ([www.eirgrid.com](http://www.eirgrid.com)). For a hard-copy version, please send a request to [info@eirgrid.com](mailto:info@eirgrid.com). Network data is also available on the website in electronic format.

