

3

GENERATION



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This chapter gives information about existing generation capacity and projections for the seven years from 2003 to 2009. The focus is primarily on transmission connected generation. However, embedded generation i.e., generation connected to the distribution system or at a customer's site, is also dealt with as it impacts on Grid power-flows.

All generation capacity figures in this Forecast Statement are expressed in exported terms i.e., generation unit output less the unit's own load.

3.1 EXISTING GRID-CONNECTED GENERATION

There is at present 5135MW of generation plant connected to the transmission system. This figure includes the following plant connected in 2002:

- The 392MW Dublin Bay Power generation station at Irishtown;
- The 343MW⁵ Huntstown Power generation station at Huntstown near Finglas.

The net capacity of both these generation plants has changed since the issue of the previous Forecast Statement. Huntstown Power sought and received a connection agreement for an increase in the net capacity of the generation station, bringing the maximum net capacity to 343MW. Dublin Bay Power advised that its installed capacity is lower than originally indicated in the connection agreement.

Table D-1 in Appendix D lists the existing grid-connected generation plant and their capacities. Most of this generation capacity is owned and operated by ESB. The exceptions are the peat-fired plant at Edenderry, the wind farm at Golagh, and the new Dublin Bay Power and Huntstown Power CCGT plants. With the exception of the wind farm at Golagh in Donegal, all transmission connected generation plants are centrally dispatched.

3.2 FUTURE GRID CONNECTIONS

A number of generators have applied for connection to the Grid. At the time of data-freeze, four generators had signed connection agreements, which commits them to connecting to the Grid. These generators are included at the maximum export capacities, as stated in their connection agreements.

- A 137MW(net) peat-fired generator, West Offaly Power, at Shannonbridge (Offaly), expected in 2004;
- A 91MW(net) peat-fired generator, Lough Ree Power, at Lanesboro (Roscommon), expected in 2004;
- A 23.5MW(net) wind farm, Kingsmountain, at Cunchill (Sligo), expected in 2004;

⁵ While the Huntstown unit has transmission access for 352MW, its maximum capacity under standard atmospheric conditions is 343MW.

- An 82.5MW(net) wind farm, Ratrussan, at Ratrussan (Cavan), expected in 2004.

3.3 ADDITIONAL GENERATION REQUIREMENT FOR 2009 STUDIES

Arising from the anticipated increase in demand, as outlined in Chapter 2, there will be a need for significant new generation capacity by 2009, in addition to existing and committed new generation. The TSO has highlighted this position in the recently published *Generation Adequacy Report 2003-2009* (GAR).

In order to carry out an analysis of the Grid capabilities in winter 2009/10, it was necessary to assume the addition of 400MW of generation capacity i.e., matching generation capacity with demand levels. Finglas was assumed as the location for the additional capacity, on the basis that this approach is conservative. If another location were assumed it would be likely to improve Grid performance in the rest of the country. This assumption is, therefore, less likely to bias the information for 2009 presented in this Forecast Statement.

The power flows and study models for winter 2009/10 include this assumed generator.

3.4 GENERATION UNIT RETIREMENTS

The closure or mothballing of generation plant could have a significant impact on the ability of the Grid to comply with standards. The TSO requires as much notice as possible to address the potential implications of such decisions.

ESB Power Generation has formally presented the TSO with its plan to retire all its existing peat-fired generation units and to replace them with two new peat-fired units at Lanesboro and Shannonbridge, referred to in Section 3.2 above. Table 3-1 shows the estimated retirement schedule for the existing peat units, in yearly quarters.

Table 3-1 ESB Power Generation Plans for Retirement of its Peat-Fired Units

Station	Unit	Export Capacity, MW	Retirement Date
Shannonbridge	Unit 1	37	Q2 2004
	Unit 2	37	Q2 2004
	Unit 3	40.5	Q1 2004
Lanesboro	Unit 2	37	Q1 2004
	Unit 3	40.5	Q3 2003
Bellacorick	Unit 1	18.4	Q4 2004
	Unit 2	18.4	Q4 2004
Cahirciveen (embedded)	Unit 1	4	Q4 2003

The peat-fired station at Rhode has ceased operations. The Cahirciveen plant has been closed since the data freeze date, almost a year earlier than planned.

In the absence of further notice of plant closures, all other existing generation capacity is assumed to remain in service.

3.5 EMBEDDED GENERATION

There is approximately 293MW of non-centrally dispatched generation plant, which is embedded i.e., connected to the distribution system or at a customer's site. This figure comprises Combined Heat and Power Schemes (CHP) and renewable generation i.e., wind, small hydro, and land fill gas (LFG). Table 3-2 lists the existing embedded generation capacity totals by generation type.

Table 3-2 Existing Embedded Generation (date of data freeze)

	CHP	Other Small Thermal	Wind	Small Hydro	LFG	TOTAL
Net Capacity (MW)	127	13	112	26	15	293

Notes on Table 3-2:

- 1) The Wind figure excludes the Barnesmore wind farm at Golagh, which is connected directly to the transmission system.
- 2) The Hydro figure includes the Clady (4MW), Leixlip (4MW) and Golden Falls (4MW) stations, which are owned and operated by ESB.
- 3) The Other Small Thermal figure includes the Cahirciveen peat-fired station (4MW), which is owned and operated by ESB.

Embedded generators reduce the demand supplied through the Transmission Interface Stations. Figure 3-1 illustrates this point. Forecasts of demand at the relevant Transmission Interface Stations take account of the contribution of the existing embedded generators.

Figure 3-1 Embedded Generation reduces Demand at Transmission Interface Station

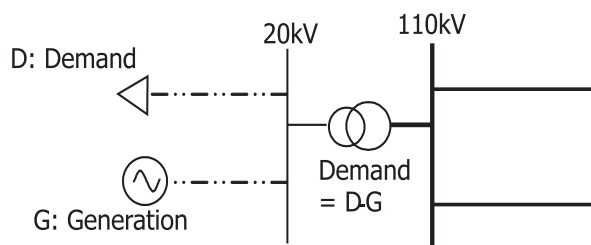


Table D-4 in Appendix D includes the projection of CHP and renewable energy schemes that are assumed in the Forecast Statement. These are consistent with the GAR figures.

A total of 194MW currently have signed connection agreements with either the TSO or the DSO. This additional amount will bring the total connected wind generation to 335MW in the near future.