

# Department of Communications, Marine and Natural Resources

- Compliance with Directive 2001/77/EC  
Period 2003 - 2005  
- supplementing

*“Report on a proposed national programme to increase the gross consumption of  
green electricity\*<sup>1</sup> as supplemented\*<sup>2</sup> (2001 - 2003)*

## 1 Introduction

1.1 “DIRECTIVE 2001/77/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 September 2001 on the promotion of electricity produced from renewable energy sources in the internal electricity market”, (“the RES-E Directive”), *inter alia*, requires the publication of a report by member states in accordance with the requirements of Article 3.

1.2 Article 3.3 of the RES-E Directive reads -

*“Member States shall publish, for the first time not later than 27 October 2003 and thereafter every two years, a report which includes an analysis of success in meeting the national indicative targets taking account, in particular, of climatic factors likely to affect the achievement of those targets and which indicates to what extent the measures taken are consistent with the national climate change commitment”.*

1.3 This report updates the position on promoting RES-E within the internal electricity market in Ireland.

## 2 Issues considered

### 2A Benchmarking the target.

2.1 The target addressed to Ireland in the RES-E Directive is to increase the contribution of renewable energy powered electricity to 13.2% of total gross national electricity consumption\*<sup>3</sup> by 2010.

2.2 Historically, Ireland’s island status precluded the development of any significant interconnection capacity. Accordingly, if Ireland is to increase the contribution from RES-E, within the internal electricity market, by 2010, it can only be achieved, under a realistic assumption, in the absence of sufficient interconnection capacity, by increasing the indigenous RES-E generating capacity.

---

<sup>1</sup> <http://www.dcmnr.gov.ie/NR/rdonlyres/A7A8BB51-A7F5-47F8-B890-ABCDB5EA490/0/CompliancewithDirective2001.doc>

<sup>2</sup> <http://www.dcmnr.gov.ie/NR/rdonlyres/545DC0CE-4171-4DD6-847D-B0EB99B1477D/0/Directivereport2003.doc>

<sup>3</sup> Directive 2001/77/EC Article 2 definition of “consumption of electricity”.

- 2.3 The targets addressed to member states in the RES-E Directive are measured by consumption. It is demonstrated in 2.2 above that the RES-E target addressed to Ireland (13.2%) can only be achieved by the 2010 timeline if indigenous generating capacity increases proportionally, notwithstanding the (EU) internal electricity market. The 13.2% consumption target must therefore be converted to a proportionate target of RES-E generating capacity. This is examined further in Chapter 3.

## **2B Climatic impacts.**

- 2.4 The RES-E Directive also requires member states to consider “*climatic factors likely to affect the achievement of the target*”. Climatic factors will only have an appreciable effect if the available annual resource diminishes as a continuing trend over a period. The preceding 2002 report predicted output or capacity factors by technology as set out below –

Wind large and small scale -	34%
Wind offshore -	38%
Hydro -	50%
Biomass landfill gas -	90%
Biomass anaerobic digestion -	90%
Biomass CHP -	90%.

- 2.5 Nothing has come to notice since the previous report was published in accordance with Article 3 of the RES-E Directive, to suggest climatic conditions have had any negative impacts in the intervening period and therefore climatic conditions have not adversely impacted on the programme to deliver the RES-E target. It is more likely in the short term, in the wind category in particular, that corrections to the assumed output levels, quantified in 2.4, will be required to accommodate an assumption that as optimum wind-sites are occupied new builds will occur, of necessity, at sub-optimal sites.

## **2C National Climate Change Strategy**

- 2.6 The RES-E Directive also requires member states to consider the “*extent the measures taken are consistent with the national climate change commitment*”. The measure implementing the national climate change commitment in Ireland is the “*National Climate Change Strategy Ireland*”, (October 2000) addressing all sectors. This strategy addressed a target of 1 M. tonnes of additional CO<sub>2</sub> savings above the business as usual case, from the use of RES-E for the first Kyoto Protocol commitment period (2008-2012). In aggregate, the case stated in the *National Climate Change Strategy Ireland*, is now 500 MWs. Progress to date, which includes large hydro, is quantified in 4.1 below.

## **3 Quantifying the national indicative target.**

- 3.1 The indicative target addressed to Ireland is 13.2% of electricity consumed in 2010. It is necessary therefore, in the first instance, to predict electricity demand in 2010. Thereafter it is necessary to convert the volume of RES-E required in 2010 to an RES-E generating capacity value for the reasons set out in 2.2 above.

- 3.2 The Department of Communications Marine and Natural Resources established a Renewable Energy Development Group (“REDG”) representative of academia, the electricity grid, the regulatory authority, representative bodies of RES-E operators and the Department and other Government Departments to progress several aspects arising from the RES-E Directive.
- 3.3 The REDG has yet to publish its final report. However interim findings of a Working Group established by the REDG predicts product demand in 2010 as set out in 3.4 and the associated converted RES-E generating capacity requirement set out in 3.6.
- 3.4 The Working Group decided to rely on the Grid Operators “Grid Adequacy Report for 2010” to quantify predicted consumer demand in 2010. This report listed three scenarios of low, medium and high growth forecasts. The Grid Operators predictions of 2010 consumer demand were (i) 30,898 GWh (low), (ii) 33,158 GWh (medium) and (iii) 34,123 GWh (high). The Working Group decided to adopt the high forecast in order to apply the most rigorous assumption to predict the RES-E generating requirement for 2010.
- 3.5 It is shown in 2.5 above that there is good reason to reduce the predicted output from planned future wind-powered RES-E generating plants, the dominant new technology until 2010, in order to ensure the programme delivers the RES-E target under the most reasonable assumptions. The Working Group decided therefore to use a capacity factor of 32.5%, in place of the historical factor of c34% in the wind category to determine the cumulative RES-E generating capacity required.
- 3.6 On the basis of the assumptions set out in 3.4 and 3.5 and perceived market interest by technology, the Working Group predicted that a total RES-E generating capacity of 1433 MWs (including existing RES-E plant) will be required assuming market interest delivers (i) biomass 92 MWs, (ii) hydro 240 MWs, (iii) ocean 1 MW and (iv) wind 1,100 MWs.
- 3.7 On the basis of this data, the Minister decided to establish a target to increase RES-E generating capacity to 1450 MWs, at least, by 2010.
- 3.8 In the period 2003-2005 the Commission for Energy Regulation commenced consultations with industry representatives in the wind technology sector and interactions with turbine manufacturers. The consultation was required to address technical challenges inherent in intermittent wind powered RES-E generations if the technology is to achieve measurable additional growth without compromising system security. The associated studies and subsequent grid code changes are necessary to maintain the reliability and safety of the grid<sup>4</sup> (system security) if the penetration of wind-powered RES-E is to increase as predicted on a national electricity grid with –
- a) a total current generation portfolio of c. 5,500 MWs and
  - b) minimal interconnection to/from an island based electricity system.

---

<sup>4</sup> Article 7.1 of the RES-E Directive refers also.

The importance of this preliminary work can be demonstrated by noting that the prediction of up to 1,100 MWs of wind-powered RES-E generating plant (clause 3.6 refers) represents approximately 20% of the total electricity generating portfolio currently available.

#### **4 Analyzing success in meeting the national indicative target.**

4.1 At end 2005 the available RES-E generating capacity in Ireland is –

Biomass	25 MWs,
Hydro	240 MWs and
<u>Wind</u>	<u>490 MWs.</u>
Total	755 MWs

4.2 An additional 650 MWs, consisting of a variety of projects is already identified which -

- a) are under construction at this time but have not yet commissioned or
- b) have secured binding connection offers but have not yet started construction.

The capacity commissioned or under construction or with a binding connection offer, is therefore in the region of 1405 MWs or 90%+ of the 2010 estimated target for RES-E generating capacity. Work is ongoing with the energy regulator to ensure that further additional projects become fully consented with connection agreements to add further certainty to meeting or exceeding the target.

#### **5 Conclusions**

5.1 The ongoing programme to promote greater penetration of RES-E technologies in the electricity market in Ireland and the progress achieved to date are consistent with delivering the target addressed to Ireland in the RES-E Directive.

5.2 It is demonstrated in 3.4 and 3.5 that the applied assumptions are realistic.  
END.

