

# **National Renewable Energy Action Plan**

## **IRELAND**



**Submitted under Article 4 of Directive 2009/28/EC**

<b>Table of Contents</b>	
<b>Section</b>	<b>Page</b>
<b>Background</b>	4
<b>1. Summary of national renewable energy policy</b>	5
<b>2. Expected Final Energy Consumption 2010-2020</b>	8
<b>3. Renewable energy targets and trajectories</b>	10
<b>3.1. National overall target</b>	11
<b>3.2. Sectoral targets and trajectories</b>	11
<b>4. Measures for achieving the targets</b>	13
<b>4.1. Overview of all policies and measures to promote the use of energy from renewable resources</b>	13
<b>4.2. Specific measures to fulfil the requirements under Articles 13, 14, 16 and Articles 17 to 21 of Directive 2009/28/EC</b>	21
<b>4.2.1. Administrative procedures and spatial planning (Article 13(1) of Directive 2009/28/EC)</b>	21
<b>4.2.2. Technical specifications (Article 13(2) of Directive 2009/28/EC)</b>	46
<b>4.2.3. Buildings (Article 13(3) of Directive 2009/28/EC)</b>	53
<b>4.2.4. Information provisions (Articles 14(1), 14(2) and 14(4) of Directive 2009/28/EC)</b>	60
<b>4.2.5. Certification of installers (Article 14(3) of Directive 2009/28/EC)</b>	68
<b>4.2.6. Electricity infrastructure development (Article 16(1) and Article 16(3) to (6) of Directive 2009/28/EC)</b>	72
<b>4.2.7. Electricity network operation (Article 16(2) and Article 16(7) and (8) of Directive 2009/28/EC)</b>	88
<b>4.2.8. Biogas integration into the natural gas network (Article 16(7) and Article 16(9) and (10) of Directive 2009/28/EC)</b>	94
<b>4.2.9. District heating and cooling infrastructure development (Article 16(11) of Directive 2009/28/EC)</b>	97
<b>4.2.10. Biofuels and other bioliquids — sustainability criteria and verification of compliance (Articles 17 to 21 of Directive 2009/28/EC)</b>	99
<b>4.3. Support schemes to promote the use of energy from renewable resources in electricity applied by the Member State or a group of Member States</b>	103
<b>4.4. Support schemes to promote the use of energy from renewable resources in heating and cooling applied by the Member State or a group of Member States</b>	114
<b>4.5. Support schemes to promote the use of energy from renewable resources in transport applied by the Member State or a group of Member States</b>	120
<b>4.6. Specific measures for the promotion of the use of energy from biomass</b>	126
<b>4.6.1. Biomass supply: both domestic and trade</b>	126
<b>4.6.2. Measures to increase biomass availability, taking into account other biomass users (agriculture and forest- based sectors)</b>	130
<b>4.7. Planned use of statistical transfers between Member States and planned participation in joint projects with other Member States and third countries</b>	133
<b>4.7.1. Procedural aspects</b>	133
<b>4.7.2. Estimated excess production of renewable energy compared to the indicative trajectory which could be transferred to other Member States</b>	134
<b>4.7.3. Estimated potential for joint projects</b>	134
<b>4.7.4. Estimated demand for renewable energy to be satisfied by means other than domestic production</b>	135
<b>5. Assessments</b>	136
<b>5.1. Total contribution expected of each renewable energy technology to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in electricity, heating and cooling and transport</b>	136
<b>5.4. Preparation of the national Renewable Energy Action Plan and the follow-up of its implementation</b>	143

<b>Table of Contents</b>	
<b>Appendix 1: Overview of Irish modelling methodology</b>	145
<b>Appendix 2: Planning exemptions for renewable technologies that meet certain criteria</b>	150
<b>Appendix 3: Planning Application Process (Non-Strategic Infrastructure Cases)</b>	155
<b>Appendix 4: Flowchart for Strategic Infrastructure Development</b>	156
<b>Appendix 5: Planning and Development (Strategic Infrastructure) Act 2006 7<sup>th</sup> Schedule</b>	160
<b>Appendix 6: Initial consultation carried out by DCENR</b>	162
<b>Appendix 7: Common Terms/Acronyms used in the NREAP</b>	163
<b>Appendix 8: List of bodies from whom submissions were received in response to the public consultation (11/6/2010-25/6/2010) on the draft National Renewable Energy Action Plan</b>	164

## Background

In 2007, the European Union agreed new climate and energy targets- 20-20-20 by 2020 – 20% reduction in greenhouse gas emissions by 2020; 20% energy efficiency by 2020 and 20% of the EU's energy consumption to be from renewable sources by 2020.

Directive 2009/28/EC on the promotion of the use of energy from renewable sources establishes the basis for the achievement of the EU's 20% renewable energy target by 2020. Under the terms of the Directive, each Member State is set an individually binding renewable energy target, which will contribute to the achievement of the overall EU goal.

Member states are to achieve their individual target across the heat, transport and electricity sectors and apart from a sub-target of a minimum of 10% in the transport sector that applies to all Member States, there is flexibility for each country to choose how to achieve their individual target across the sectors. Ireland's overall target is to achieve 16% of energy from renewable sources by 2020.

Directive 2009/28/EC requires each Member State to adopt a national renewable energy action plan and submit these to the European Commission. These plans are to set out Member States' national targets for the share of energy from renewable sources consumed in transport, electricity and heating and cooling in 2020, taking into account the effects of other policy measures relating to energy efficiency on final consumption of energy.

A European Commission Decision (C(2009)5174) of 30 June 2009 established a template for National Renewable Energy Action Plans (NREAPs) under Directive 2009/28/EC. Each Member State is required to complete the template as set out. The purpose of the template is to ensure that NREAPs are complete, cover all the requirements laid down in the Directive and are comparable with each other and future Member State biannual reports on the implementation of the Directive.

Ireland's National Renewable Energy Action Plan ('NREAP') is the submission required under the Directive and follows the format (data and questions) required in the established template.

## 1. Summary of national renewable energy policy

The National Renewable Energy Action Plan (NREAP) sets out the Government's strategic approach and concrete measures to deliver on Ireland's 16% target under Directive 2009/28/EC.

The development of renewable energy is central to overall energy policy in Ireland. Renewable energy reduces dependence on fossil fuels, improves security of supply, and reduces greenhouse gas emissions creating environmental benefits while delivering green jobs to the economy, thus contributing to national competitiveness.

The Government's commitment to accelerating the development of renewable energy is set out in the Government's Energy Policy '*Delivering a sustainable energy future for Ireland – The Energy Policy Framework 2007-2020*'; the *Programme for Government* and in the Government's strategy '*Building Ireland's Smart Economy – A Framework for Sustainable Economic Renewal*.'

Climate change, energy security and competitiveness are inter-related challenges that will be addressed through the transforming of Ireland's economy from one based on fossil fuel dependence to a low carbon economy based around energy efficiency, renewable energy and smart networks.

The Government's ambitions for renewable energy and the related national targets are fully commensurate with the European Union's energy policy objectives and the targets addressed to Ireland under the Renewable Energy Directive. Ireland's energy efficiency ambitions (20% by 2020) as set out in the National Energy Efficiency Action Plan are duly reflected in the NREAP.

### Electricity

The Government has set a target of 40% electricity consumption from renewable sources by 2020. In the last 5 years in particular, Ireland has made big strides in accelerating renewable generation. In the 2001 European RES-E Directive, Ireland was set a target of moving from 3.6% RES-E to 13.2% RES-E by 2010. Ireland achieved 14.4% RES-E in 2009 and is on track to exceed the national target of 15% in 2010.

All key national entities, including the Energy Regulator, the distribution and transmission system operators and the renewable energy sector are working with the Government to deliver the 2020 target through grid connection and grid development strategies.

The significant growth in electricity from renewable sources in recent years is largely attributable to onshore wind. As Ireland moves towards achieving circa 40% RES-E by 2020, the Irish grid is increasingly have to cope with the challenges posed by large amounts of intermittent power. As outlined in the plan, the Irish Transmission System Operator, EirGrid, is involved in detailed examination of the issues and is pioneering several renewables facilitation studies with a view to ensuring the appropriate management of the grid and stability of the electricity system during this transition. The all-island Single Electricity Market, overseen by the regulatory authorities North and South, is evolving continuously to take account of the growth in renewable energy.

Together with the significant contribution of large scale generation, the introduction of a robust framework for the development of a vibrant microgeneration sector is an important component of building societal acceptance of energy infrastructure and

ownership of the national renewable energy targets. The microgeneration area has the potential to create employment and enable participation by a wide section of the community. The Government is committed to developing a comprehensive microgeneration framework which will be taken forward up to 2020.

### Transport

Like most countries, Ireland's transport sector is dependent on imported oil. The Government is working to transform this dependency. A two pronged strategy has been put in place which combines significant increases in the use of biofuels with the accelerated development and use of electric vehicles in Ireland.

The national Biofuel Obligation Scheme 2010 obliges all road transport fuel suppliers to use biofuel in the fuel mix to ensure that they represent a certain percentage of their annual fuel sales. The initial penetration rate will be 4% per annum, to be increased over time. The biofuel obligation will ensure that Irish consumers have access to appropriately priced, sustainable and reliable sources of biofuel over the coming years, and, in doing so, this will give an important incentive to domestic biofuel production.

The Government has set a target of 10% electric vehicles by 2020. The Government is taking a broad ranging series of initiatives around Electric Vehicles, including signing Memoranda or Understanding with a number of motor manufacturers, committing to a large scale national roll out of Electric Vehicle Infrastructure and appropriate supports for the customer. The size and geography of Ireland make the country uniquely suitable for Electric Vehicles, and the Government is ensuring that Ireland becomes an early test bed for this technology, and that it takes full advantage of the potential benefits associated with using electricity from renewable sources in transport.

Ireland is uniquely placed through the interrelationship between the national 40% target for electricity from renewable sources and the national target for the electrification of transport to deliver a fully holistic and mutually reinforcing energy system.

### Heat

The Government has set a target of 12% renewable heat by 2020. A series of related and complementary support programmes have been put in place to address the delivery of this target already, aimed at supporting both demand and supply sides. For historical, geographical and demographic reasons, renewable heat poses considerable challenges for Ireland, challenges which the Government is determined to address.

To that end, work is nearing completion on a new framework to ensure delivery of these targets using the full range of resources available, with an initial focus on the biomass sector but also including geothermal resources in due course. The Department, in conjunction with all stakeholders, is finalising a Roadmap for the development of the bioenergy sector in Ireland.

### Conclusion

In energy planning terms, 2020 is rapidly approaching. The Government is also looking beyond 2020 in terms of the significant opportunities to develop Ireland's abundant offshore renewable energy resources, including offshore wind, wave and tidal energy, recognising that these offer rich potential over the coming decades.

Implementing and delivering on this national renewable energy action plan will be a challenge and will require enhanced co-ordination and collaboration between all relevant Government Departments and state bodies, in particular between the Department of Communications, Energy & Natural Resources, the Department of Environment, Heritage & Local Government, the Department of Agriculture, Fisheries & Food, the Sustainable Energy Authority of Ireland, the Commission for Energy Regulation, Eirgrid (TSO) and ESB Networks (DSO).

A fully joined up and integrated approach, involving all appropriate public sector bodies at national, regional and local level will be critical for delivery over the next decade.

In setting out to achieve a significant transformation of the energy landscape, the Government does not underestimate the challenge (not unique to Ireland) of winning the hearts and minds of local communities, in support of the new infrastructure required to deliver change. This challenge will need to be progressively addressed in the context of implementation of the plan.

We are working to create the economic, infrastructural and planning conditions conducive to the sustainable development of all of Ireland's renewable energy resources, which offer the potential for Ireland to become a significant exporter of renewable energy over the coming decades. The Government will continue to work with the European Commission and other Member States to realise Europe's ambitions for renewable energy, both onshore and offshore.

## 2. Expected Final Energy Consumption 2010-2020

Demand projections are derived from SEAI's 'Energy Forecasts for Ireland to 2020' (2009 Report.<sup>1</sup>) It is noted that demand projections differ from what was submitted to the European Commission in December 2009 under Article 4(3) of Directive 2009/28/EC<sup>2</sup>. While demand projections for the heat and transport sectors remain unchanged, the projections for the electricity sector have been updated to reflect input from the TSO (EirGrid.) EirGrid's demand projections<sup>3</sup> are used as a basis for assessing the future grid infrastructure expansions and assessments of the generation adequacy of the system. Both SEAI and Eirgrid projections are produced using the same underlying economic forecasts. An overview of the modelling process to produce gross consumption projections can be found in Appendix 1.

**Table 1 Expected gross final energy consumption of Ireland in heating and cooling, electricity and transport up to 2020 taking into account the effects of energy efficiency and energy saving measures<sup>4</sup> 2010-2020 (ktoe)**

	2005	2010		2011		2012		2013		2014	
	Base year	Reference scenario	Additional energy efficiency	Reference scenario	Additional energy efficiency	Reference scenario	Additional energy efficiency	Reference scenario	Additional energy efficiency	Reference scenario	Additional energy efficiency
<b>Heating and Cooling<sup>5</sup></b>	5,516	5,184	5,160	5,233	5,139	5,216	5,065	5,248	5,041	5,307	5,043
<b>Electricity<sup>6</sup></b>	2,341	2,511	2,473	2,525	2,469	2,574	2,500	2,632	2,540	2,697	2,587
<b>Transport as in Art. 3(4)a<sup>7</sup></b>	3,912	4,605	4,564	4,430	4,358	4,578	4,482	4,740	4,621	5,043	4,905
<b>Gross final energy consumption<sup>8</sup></b>	12,807	13,127	13,024	12,855	12,633	13,020	12,700	13,285	12,867	13,732	13,220
<b>Final consumption in aviation</b>	857	833	833	673	673	659	659	671	672	692	692
<b>Reduction for aviation limit<sup>9</sup></b>	12,741	13,106	12,996	12,855	12,633	13,020	12,700	13,285	12,867	13,732	13,220

<sup>1</sup> [http://www.seai.ie/Publications/Statistics\\_Publications/Energy\\_Modelling\\_Group/Energy\\_Forecasts\\_for\\_Ireland\\_to\\_2020.pdf](http://www.seai.ie/Publications/Statistics_Publications/Energy_Modelling_Group/Energy_Forecasts_for_Ireland_to_2020.pdf)

<sup>2</sup> [http://ec.europa.eu/energy/renewables/transparency\\_platform/doc/ireland\\_forecast\\_english.pdf](http://ec.europa.eu/energy/renewables/transparency_platform/doc/ireland_forecast_english.pdf)

<sup>3</sup> See <http://www.eirgrid.com/media/Generation%20Adequacy%20Report%202010-2016.pdf>

<sup>4</sup> These estimates on energy efficiency and energy savings shall be consistent with other such estimates that Member States notify to the Commission, notably in Action Plans under the Energy Services Directive and the Energy Performance of Buildings Directive

<sup>5</sup> It is the final energy consumption of all energy commodities except electricity for purposes other than transport, plus the consumption of heat for own use at electricity and heat plants and heat losses in networks (items '2. Own use by plant' and '11. Transmission and distribution losses in page 23 and 24 of the energy Statistics Regulation, OJ L304 of 14.11.2008).

<sup>6</sup> The gross electricity consumption is national gross electricity production, including auto production, plus imports, minus exports

<sup>7</sup> Transport consumption as defined in Art. 3(4)a) of Directive 2009/28/EC. Renewable electricity in road transport for this figure should be multiplied by a factor of 2,5, as indicated by Article 3(4)c) of Directive 2009/28/EC

<sup>8</sup> As defined in Article (2)f) of Directive 2009/28/EC. This comprises final energy consumption plus network losses and own use of heat and electricity at electricity and heating plants (NB: this does not include consumption of electricity for pumped hydro storage or for transformation in electrical boilers or heat pumps at district heating plants)



	2015		2016		2017		2018		2019		2020	
	Reference scenario	Additional energy efficiency	Reference scenario	Additional energy efficiency	Reference scenario	Additional energy efficiency	Reference scenario	Additional energy efficiency	Reference scenario	Additional energy efficiency	Reference scenario	Additional energy efficiency
<b>Heating and Cooling</b> <sup>10</sup>	5,388	5,069	5,477	5,102	5,546	5,066	5,613	5,029	5,668	4,980	5,724	4,931
<b>Electricity</b> <sup>11</sup>	2,764	2,636	2,806	2,677	2,840	2,713	2,872	2,746	2,904	2,779	2,937	2,813
<b>Transport as in Art. 3(4)a</b> <sup>12</sup>	5,311	5,152	5,464	5,308	5,589	5,430	5,706	5,542	5,824	5,658	5,913	5,747
<b>Gross final energy consumption</b> <sup>13</sup>	14,181	13,575	14,469	13,784	14,707	13,887	14,939	13,984	15,166	14,076	15,367	14,142
<b>Final consumption in aviation</b>	725	725	729	730	739	740	755	755	777	777	800	800
<b>Reduction for aviation limit</b> <sup>14</sup>	14,181	13,575	14,469	13,784	14,707	13,887	14,939	13,984	15,166	14,076	15,367	14,142

<sup>9</sup> According to Article 5(6) consumption for aviation has to be considered only up to 6,18% (Community average)

<sup>10</sup> It is the final energy consumption of all energy commodities except electricity for purposes other than transport, plus the consumption of heat for own use at electricity and heat plants and heat losses in networks (items '2. Own use by plant' and '11. Transmission and distribution losses in page 23 and 24 of the energy Statistics Regulation, OJ L304 of 14.11.2008)

<sup>11</sup> The gross electricity consumption is national gross electricity production, including auto production, plus imports, minus exports

<sup>12</sup> Transport consumption as defined in Art. 3(4)a) of Directive 2009/28/EC. Renewable electricity in road transport for this figure should be multiplied by a factor of 2,5, as indicated by Article 3(4)c) of Directive 2009/28/EC

<sup>13</sup> As defined in Article (2)f) of Directive 2009/28/EC. This comprises final energy consumption plus network losses and own use of heat and electricity at electricity and heating plants (NB: this does not include consumption of electricity for pumped hydro storage or for transformation in electrical boilers or heat pumps at district heating plants)

<sup>14</sup> According to Article 5(6) consumption for aviation has to be considered only up to 6,18% (Community average)

### 3. Renewable Energy Targets and Trajectories

#### 3.1 National Overall Target

**Table 2: National overall target for the share of energy from renewable sources in gross final consumption of energy in 2005 and 2020 (figures to be transcribed from Annex I, part A of Directive 2009/28/EC)**

Share of energy from renewable sources in gross final consumption of energy in 2005 ( $S_{2005}$ ) (%)	3.1%
Target of energy consumption from renewable sources in gross final consumption in 2020 ( $S_{2020}$ ) (%)	16%
Expected total adjusted energy consumption in 2020 (Ktoe)	14,142
Expected amount of energy from renewable sources corresponding to the 2020 target (Ktoe)	2,269

### 3.2 Sectoral targets and trajectories

Table 3: National 2020 target and estimated trajectory of energy from renewable sources in heating and cooling, electricity and transport

	2005	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
<b>RES- H&amp;C<sup>15</sup> (%)</b>	3.5%	4.3%	4.9%	6.1%	6.9%	7.7%	8.9%	9.7%	10.1%	10.5%	11.2%	<b>12.0%</b>
<b>RES-E<sup>16</sup>(%)</b>	6.9%	20.4%	24.6%	25.3%	30.5%	31.0%	32.4%	32.2%	33.8%	37.5%	37.3%	<b>42.5%</b>
<b>RES-T<sup>17</sup>(%)</b>	0.0%	3.0%	3.9%	4.6%	5.1%	5.5%	5.9%	6.6%	7.4%	8.1%	8.8%	<b>10.0%</b>
<b>Overall RES share<sup>18</sup> (%)</b>	3.1%	6.6%	8.1%	9.0%	10.5%	11.0%	11.8%	12.2%	12.9%	14.0%	14.4%	<b>16.0%</b>
<b>Of which from cooperation mechanism (%)</b>		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
<b>Surplus for cooperation mechanism (%)</b>		0%	1.4%	1.4%	1.9%	1.9%	1.6%	1.6%	1.0%	1.0%	0%	0%
<b>As part B of Annex I of the Directive</b>												
<b>RES minimum trajectory<sup>19</sup> (%)</b>	2011-2012		2013-2014		2015-2016		2017-2018		2020			
	5.69%		6.98%		8.92%		11.51%		16%			
<b>RES minimum trajectory (ktoe)</b>	739		930		1,217		1,599		2,263			

<sup>15</sup> Share of renewable energy in heating and cooling: gross final consumption of energy from renewable sources for heating and cooling (as defined in Articles 5(1b) and 5(4) of Directive 2009/28/EC divided by gross final consumption of energy for heating and cooling. Line (A) from table 4a divided by line (1) of table 1.

<sup>16</sup> Share of renewable energy in electricity: gross final consumption of electricity from renewable sources for electricity (as defined in Articles 5(1a) and 5(3) of Directive 2009/28/EC divided by total gross final consumption of electricity. Row (B) from Table 4a divided by row (2) of Table 1.

<sup>17</sup> Share of renewable energy in transport: final energy from renewable sources consumed in transport (cf. Article 5(1c) and 5(5) of Directive 2009/28/EC divided by the consumption in transport of 1) petrol; 2) diesel; 3) biofuels used in road and rail transport and 4) electricity in land transport (as reflected in row 3 of Table 1). Line (J) from Table 4b divided by row (3) of Table 1.

<sup>18</sup> Share of renewable energy in gross final energy consumption. Row (G) from Table 4a divided by row (4) of Table 1.

<sup>19</sup> As defined in Annex I.B of the Directive 2009/28/EC.

**Table 4a: Calculation table for the renewable energy contribution of each sector to final energy consumption (ktoe)**

	2005	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
<b>(A) Expected gross final consumption of RES for heating and cooling</b>	193	220	253	311	348	387	451	493	509	527	559	591
<b>(B) Expected gross final consumption of electricity from RES</b>	180	504	607	634	775	803	855	862	917	1,030	1,037	1,196
<b>(C) Expected final consumption of energy from RES in transport</b>	1	135	168	201	234	267	300	333	366	399	432	482
<b>(D) Expected total RES<sup>20</sup> consumption</b>	373	859	1,028	1,145	1,357	1,457	1,605	1,688	1,792	1,956	2,027	2,269
<b>(E) Expected transfer of RES to other Member states</b>	0	0	168	168	233	233	211	211	136	136	0	0
<b>(F) Expected transfer of RES from other Member states and 3rd countries</b>	0	0	0	0	0	0	0	0	0	0	0	0
<b>(G) Expected RES consumption adjusted for target (D)-(E)+(F)</b>	373	859	860	978	1,123	1,224	1,394	1,476	1,656	1,820	2,027	2,269

**Table 4b: Calculation table for the renewable energy in transport share (ktoe)**

	2005	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
<b>(C) Expected RES consumption in transport<sup>21</sup></b>	1	136	169	202	235	268	301	340	380	418	459	519
<b>(H) Expected RES electricity in road transport<sup>22</sup></b>	0	1	1	1	1	1	1	7	14	20	27	37
<b>(I) Expected consumption of biofuels from wastes, residues, non-food cellulosic and lingo-cellulosic material in transport<sup>23</sup></b>	0	1	1	1	1	1	1	1	1	1	1	1
<b>(J) Expected RES contribution to transport for the RES-T target<sup>24</sup>: (C)=(2,5-1)x(H)=(2-1)x(I)</b>	1	138	171	204	238	271	304	352	401	449	500	575

<sup>20</sup> According to Art.5(1) of Directive 2009/28/EC gas, electricity and hydrogen from renewable energy sources are only considered once to avoid double counting

<sup>21</sup> Containing all RES used in transport including electricity, hydrogen and gas from renewable energy sources, and excluding biofuels that do not comply with the sustainability criteria (cf. Article 5(1) last subparagraph). Actual values specified without using the multiplication factors.

<sup>22</sup> Actual values specified without using the multiplication factors.

<sup>23</sup> Actual values specified without using the multiplication factors.

<sup>24</sup> Includes renewable electricity multiplied by 2.5 and second generation and waste derived biofuels multiplied by 2.

#### 4. Measures for achieving the targets

**\*\*Note that a list of the common acronyms/terms used in this document is attached at Appendix 7**

#### 4.1 Overview of all policies and measures to promote the use of energy from renewable resources

**Table 5: Overview of all policies and measures**

Name and reference of the measure	Type of measure	Expected result	Targeted group and or activity	Existing or planned	Start and end dates of the measure
1. Biofuels Mineral Oil Tax Relief (MOTR) Schemes	Fiscal Measure	Increased production and use of Biofuels on Irish transport fuels market	Biofuel Producers	Existing	2005 to end 2010
2. Biofuel Obligation	Regulatory	Increased production and use of Biofuels on Irish transport fuels market	Biofuel Producers	Existing	July 2010
3. ReHeat	Financial	Increased deployment of renewable heating technologies in the commercial, industrial and public sectors. Provides financial assistance for boilers fuelled by wood chips and wood pellets, solar thermal collectors, and heat pumps.	Commercial, agricultural, industrial and service sectors, as well as energy supply companies.	Existing	2006 onwards
4. CHP Deployment grant scheme (30% on equipment purchase and 40% for feasibility studies)	Financial	Aims to increase the deployment of small scale (<1MWe) biomass CHP systems across Ireland in accordance with requirements of EU Directive on CHP.	Commercial, agricultural, industrial and service sectors as well as energy supply companies (ESCOs).	Existing	2006 onwards
5. Greener Homes Scheme	Financial	Facilitates the wider deployment of renewable-energy heating technologies in the residential sector and supports the development of a sustainable market, resulting in reduced dependence on fossil fuel and lower CO <sub>2</sub> emissions.	Homeowners	Existing	2006 onwards
6. Bioenergy scheme for the production of non-food crops	Financial	Grant support for the planting of perennial biomass crops (willow and miscanthus) – contributes to biomass needs of renewable energy sector	Agriculture sector	Existing	Since 2007

Name and reference of the measure	Type of measure	Expected result	Targeted group and or activity	Existing or planned	Start and end dates of the measure
7. Electric Vehicles	Financial	Increased use of electric vehicles in Ireland.	General Public	Existing and Planned	Vehicle registration Scheme already in place to end December 2012 and grant scheme (subject to approval of minister for Finance) to commence January 2011 to December 2012.
8. Alternative Energy Requirement (AER) Programmes I- VI	Financial	Increase in RES-E following six separate calls for tender. There is 532MW of renewable generation in AER.	Generators of electricity from renewable sources	Existing but closed for new applicants	There were 6 separate calls for tender beginning in the mid 1990s. The last call for tender was in 2003.
9. Renewable Energy Feed-in Tariff scheme (REFIT)	Financial	Increase in electricity from renewable energy sources via a feed in tariff mechanism. (initially up to 1450MW, but to be extended in 2010 (subject to state aid clearance) to cover 2020 target/Gate 3)	Generators and suppliers of electricity from renewable sources	Existing (However processing of any new applications is subject to state aid approval for an extension of REFIT.)	2007 onwards
10. Rollout and implementation of Gate 3 renewable generation grid connection offers	Soft	Under Gate 3, 3900MW of renewable generation are receiving grid connection offers over 18 months from December 2009. The rollout and implementation of Gate 3 by the regulator, TSO and DSO will ensure that Ireland can reach its 40% RES-E target.	Generators of RES-E	Existing and planned. It is noted that constraint reports included in connection offers may need to be adjusted following a decision on the consultation on Principles of Dispatch and the Design of the market schedule in the Trading & Settlement Code.	December 2009 onwards
11. Rollout of Grid 25 strategy	Financial / Infrastructural	Grid 25 provides the framework to build a more cost effective and efficient system to cater for the integration of increasing amounts of renewable generation and will necessitate €4 billion investment in the grid. An SEA will be carried out on the implementation programme for Grid25.	Generators of RES-E	Existing and planned (Grid 25 is in the implementation and rollout phase.)	2008 onwards

Name and reference of the measure	Type of measure	Expected result	Targeted group and or activity	Existing or planned	Start and end dates of the measure
12. All Island Grid Study	Technical	The study examines a range of generation portfolios for Ireland, the ability of our power system to handle various amounts of electricity from renewable sources, the investment levels required, and the climate change and security of supply benefits that would accrue.	TSO, regulator, policy makers, industry	Existing	2008
13. East West Interconnector	Financial / Infrastructural	A 500MW interconnector between Ireland and the UK due to be operational by 2012 which will allow for electricity exports from Ireland to the UK and facilitate integration of renewable generation on the Irish electricity system. It is noted that a policy framework will have to be implemented around use of the interconnector.	Transmission System Operator, Generators of RES-E	Existing	2009-2012
14. Small, Renewable, Low carbon generation connecting to the grid outside the 'Gate' process	Soft /infrastructural	A policy that facilitates renewables by providing for grid connections outside the gate process for certain small, renewable, low carbon generators	Small, renewable and low carbon generators such as small bio-energy, wave, tidal generators	Existing	July 2009 onwards
15. Revised application procedures for authorisations to construct and licences to generate	Regulatory	SI 383 and 384 of 2008 simplify the granting of authorisations and licenses to generating stations with installed capacity of 10MW or less. CER/10/098 introduced a simplified procedure for generators with installed capacity up to 40MW.	Those constructing generating stations with installed capacity not exceeding 40MW and generating electricity	Existing	June 2010

Name and reference of the measure	Type of measure	Expected result	Targeted group and or activity	Existing or planned	Start and end dates of the measure
16. Principles of Dispatch and the Design of the Market Schedule in the Trading & Settlement Code	Regulatory	The Single Electricity Market (SEM) Committee is currently undertaking a consultation in this field. The policy will have important implications for how renewable generation is to be treated in the SEM.	Those operating in the Single Electricity Market	Existing / Planned	2010 / 2011
17. Relief for investment in renewable energy generation – Section 486B, Tax Consolidation Act (TCA) 1997	Financial (Tax relief)	The relief for investment applies to corporate equity investments in solar, wind, hydro or biomass technology generation projects. The relief is given in the form of a deduction from a company's profits for its direct investment in new ordinary shares in a qualifying renewable energy company.	Companies paying corporation tax, Generators of solar, wind, hydro and biomass generation	Existing	1999-2011
18. Small and Micro Scale Generation Pilot Programme (Grants).	Financial	The pilot is expected to inform on the technical, market and regulatory issues associated with the installation, network connection and operation of small and micro scale generation technologies.	Micro renewable generators	Existing (closed for new applications)	Launched in February 2009. Initial results from the monitoring programme are expected within the 3 <sup>rd</sup> quarter 2010, with monitoring continuing through 2011.
19. Part L of the Second Schedule of the Building Regulations 1997-2008	Regulatory	In relation to Dwellings, Part L 3(b) requires that "a reasonable proportion of the energy consumption to meet the energy performance of the dwellings is provided by renewable energy sources". This provision is expected to increase use of renewable energy in dwellings	Domestic (dwellings)	Existing The Department of Environment is developing a strategic framework to achieve a carbon neutral standard for dwellings by 2013. Increased use of onsite renewables will be a key element of the framework. Building Regulations Part L (Conservation of Fuel and Energy) for buildings other than dwellings are being reviewed in 2010.	2008



Name and reference of the measure	Type of measure	Expected result	Targeted group and or activity	Existing or planned	Start and end dates of the measure
20. SI 666 of 2006 Part 2 Alternative Energy Systems	Regulatory	Shall ensure before work commences that consideration is given to the technical, environmental and economic feasibility of installing alternative energy systems: this measure should help increase renewables in large buildings	Owners / Designers of Large new buildings (over 1000m2)	Existing	2006 onwards
21. Statutory Instrument (SI) 83 of 2007 and SI 235 of 2008	Regulatory	Conditional planning exemptions for renewable technologies that meet specified criteria – expected to encourage uptake of energy from renewable technologies	Domestic, business and agricultural sectors	Existing	2007 and 2008 onwards
22. Foreshore consent process for offshore energy projects	Regulatory	The Minister for Environment intends to streamline and modernise the consent process for certain developments in the offshore environment, including offshore renewable energy projects such as wave, wind and tidal technologies on a phased basis in order to ensure service continuity in relation to the processing of offshore applications and providing an improved timeline for making decisions on these projects.	Generators of RES-E operating in the offshore environment	Existing / Planned	2010 onwards
23. Planning and Development (Strategic Infrastructure) Act 2006 (No. 27 of 2006)	Legislative/Regulatory	The Act provides for, among other things, the establishment of a streamlined consent procedure for certain types of major infrastructure and a specialised division within the planning board to take decisions.	Transmission System Operator (for strategic projects)	Existing	2006 onwards

Name and reference of the measure	Type of measure	Expected result	Targeted group and or activity	Existing or planned	Start and end dates of the measure
24. Planning & Development (Amendment) Bill 2009	Legislative / Regulatory	The Bill provides for changes to the planning system and proposed changes will have certain implications for the renewable energy sector.	Developers who have to go through the planning process	Planned	The bill has been moving through the legislative process since 2009
25. Accelerated Capital Allowances (ACA) for Energy Efficient Equipment (SI 393 of 2009)	Financial (Tax Relief)	Specifies certain technical standards to be met by renewable energy products to be eligible for the ACA tax relief. Technologies covered include wind turbines >5kw, solar PV and CHP.	Companies paying corporation tax	Existing with biomass boilers to be added in 2010	2009 onwards
26. Ocean Energy	Financial / Soft	Government target of 500MW installed by 2020. The Ocean Energy Prototype Development Fund is aimed at stimulating the development and deployment of Ocean Energy (OE) devices and systems. The Ocean Energy Development Unit is working on a grid connected test facility for wave energy devices. A strategic environmental assessment (SEA) on offshore wind, wave & tidal development scenarios is underway.	Developers of wave and tidal devices  Offshore wind industry	Existing	2008 onwards
27. Renewable Energy RD &D Programme	Financial Financial support is available in three categories: Category 1: Shared-cost Demonstration Category 2: Shared-cost R&D Category 3: Commissioned Public Good Activities	Programme primarily focused on stimulating the deployment of renewable energy technologies that are close to market, and on assessing the development of technologies that are close to market, and on assessing the development of technologies that have prospects for the future.	Developers of renewable energy technologies	Existing	July 2002 onwards
28. Operational and Technical Research	Soft / Technical	Studies expected to assist increasing renewable generation on the grid e.g. Facilitation of Renewable Studies; Offshore Network Research; Wind Security Assessment Tool	Transmission system operator, renewable generators	Existing	Ongoing

<b>Name and reference of the measure</b>	<b>Type of measure</b>	<b>Expected result</b>	<b>Targeted group and or activity</b>	<b>Existing or planned</b>	<b>Start and end dates of the measure</b>
29. Renewable Energy Information Office (under the Sustainable Energy Authority of Ireland)	Soft	This is an information service on renewable energy that provides the public with a service whereby they can easily obtain practical information on renewable energy	General public, industry, business	Existing	Ongoing
30. Local energy agencies	Soft	The network of local energy agencies collective goal is to support the development and implementation of energy policy. Information, advice and skills provided through the local agencies can enhance knowledge on options for increased renewable energy at local level	General public, industry, business	Existing	Ongoing
31. Tree Felling Policy for Wind Farm Development	Soft	The Department of Agriculture, Fisheries and Food recently introduced a tree felling policy for wind farm development. This is to align the two policy areas. Industry and DAFF are in discussion on the policy.	Wind Farm Developers / Forestry sector	Existing	2009 onwards
32. Smart metering pilot programme	Technical /Soft	The results of the smart metering pilot will inform an analysis of the feasibility of implementing smart meters throughout Ireland. Electricity and gas smart meter trials are underway.	Electricity and Gas consumers, policy makers	Existing	2007 onwards
33. Charles Parsons Energy Research Awards	Financial / Soft	The objective of the awards (overseen by Science Foundation Ireland) is to stimulate and develop energy research in Ireland by providing funding for research groups to undertake energy research particularly in priority areas. A specific aim is to increase significantly overall research capacity and in particular attract more engineers into energy research.	Energy researchers, universities, industry, policy makers	Existing	2006
34. Draft Geothermal legislation	Legislative / Regulatory	Bill being drafted to facilitate geothermal development	Industry, policy makers	Planned	2010

Name and reference of the measure	Type of measure	Expected result	Targeted group and or activity	Existing or planned	Start and end dates of the measure
35. Guidelines for Planning Authorities on Wind Energy Development (DEHLG)	Soft	Facilitate a consistency of approach by planning authorities, both in identifying areas suitable for wind energy development and having regard to potential impacts, inter alia on nature and diversity	Planning authorities	Existing	1996 onwards
36. Draft Guidelines on Wind Energy Development and EU Nature Conservation (European Commission)	Soft	Looks at how wind energy targets can be met in ways that minimise adverse impacts on nature and biodiversity.	Responsible authorities in Member States	Existing in draft	Final draft March 2010
37. Offshore licensing and leasing	Regulatory	Offshore renewable energy projects are governed by the Foreshore Acts 1933 to 2009. In the future the foreshore consent system will be much closer aligned to the existing land planning system in order to provide for a more streamlined consent process.	Offshore energy industry; planning authorities	Planned	Ongoing
38. BES (Business Expansion Scheme)	Financial	A tax relief incentive scheme that provides tax relief for investment in certain corporate trades. There is no tax advantage for the company in receipt of the BES, but securing this funding may enhance their ability to attract other external funding.	Renewable Energy Developments meeting the qualifying conditions	Existing	Ongoing

## **4.2 Specific measures to fulfil the requirements under Articles 13, 14, 16 and Articles 17 to 21 of Directive 2009/28/EC**

### **4.2.1. Administrative procedures and spatial planning (Article 13(1) of Directive 2009/28/EC)**

**(a) List of existing national and, if applicable, regional legislation concerning authorisation, certification, licensing procedures and spatial planning applied to plants and associated transmission and distribution network infrastructure:**

#### **Commission for Energy Regulation (CER) Licensing and Authorisation of Plant**

##### **Electricity Regulation Act 1999**

**As amended by:** S.I. 309 of 1999  
Electricity (Supply)(Amendment) Act 2001  
Gas (Interim) (Regulation) Act 2002  
Energy (Miscellaneous Provisions) Act 2006  
Electricity Regulation (Amendment) (SEM) Act 2007  
S.I. 445 of 2000  
S.I. 60 of 2005  
S.I. 254 of 2006  
S.I. 280 of 2008

The Electricity Regulation Act 1999 sets out the functions of the CER and at section 9 includes as a function:

- (g) to grant, monitor the performance of, modify, revoke and enforce licences and authorisations pursuant to this Act

The powers of the CER to grant authorisations and licences are set out in s16 and s14 respectively. A person who wishes to construct a generating station or to generate electricity must obtain an authorisation or licence from the CER. It is within the CER's remit to set the form and information required in an application for authorisation and licence, subject to the discussion below regarding criteria in determining an application.

The legislation sets out that a person who constructs a generating station without an authorisation is liable to a fine of up to £100,000.<sup>25</sup> Similarly, a person who generates electricity without being authorised to do so is guilty of an offence and is liable to a fine of up to £1,500 or to imprisonment for a term of up to 12 months, or both.<sup>26</sup>

In terms of general overarching duties the CER must not discriminate between the holders of and applicants for authorisations or licences and must protect the interests of final customers of electricity.<sup>27</sup> In doing so, the CER must have regard to a number of its additional functions such as the promotion of competition in the generation and supply of electricity, to promote the continuity, security and quality of supplies of electricity, to promote the use of renewable, sustainable or alternative forms of energy and to encourage the efficient use and production of electricity.<sup>28</sup>

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<sup>25</sup> Section 16(1), Electricity Regulation Act 1999

<sup>26</sup> Regulation 4(1) of S.I. 445/2000

<sup>27</sup> Section 9(3) Electricity Regulation Act 1999

<sup>28</sup> Section 9(4) and 9(5) Electricity Regulation Act 1999

## **Small and distributed generation**

Section 17(2B) of the 1999 Act states that

‘The CER shall ensure that authorisation procedures for small generators and distributed generation take into account their limited size and potential impact.’

This section promotes the idea of a less burdensome application procedure for smaller generators and provides a basis for revisions to application procedures where appropriate.

## **Authorisation and Licensing by Order**

Sections 17(3A) and 14(1A) of the 1999 Act state that the CER may provide for the authorisation and licensing of classes of generating stations (respectively) in accordance with Orders made by it. It is open to the CER to define these classes of generator and to set terms and conditions for these authorisations and licences<sup>29</sup>.

## **Criteria for Grant of Authorisation and Licence**

Section 18(2) of the Electricity Regulation Act 1999 and SI 309 of 1999 (Electricity Regulation Act 1999 (Criteria for determination of authorisations) Order, 1999) state that the Minister shall specify criteria on which an application for an authorisation to construct or reconstruct a generating station may be determined and that these criteria may relate to:

- (a) the safety and security of the electricity system, electric plant and domestic lines
- (b) protection of public health and safety
- (c) the protection of the environment including the limitation of emission to the atmosphere, water or land
- (d) the siting of a generating station and associated land use
- (e) use of public ground
- (f) the efficient production and use of energy
- (g) the nature of the primary source of energy to be used by a generating station
- (h) the qualifications of an applicant, including the technical, economical and financial qualifications of the applicant, and
- (i) public service obligations provided for in an order under *section 39*

Section 18(2) was based on Article 7(2) of Directive 2003/54/EC. This section has been superseded by Directive 2009/72/EC, which includes two new matters which may be considered in laying down criteria by which the grant of an authorisation may be determined:

- (j) the contribution of the generating capacity to meeting the overall Community target of at least a 20 % share of energy from renewable sources in the Community’s gross final consumption of energy in 2020 referred to in Article 3(1) of Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources; and
- (k) the contribution of generating capacity to reducing emissions.

These new criteria will have to be transposed into Irish legislation and the 1999 Act may be amended in the future to include these new criteria.

When assessing applications for authorisations the CER uses a matrix based on the criteria set out by the Minister in S.I. 309 of 1999, enacted under section 18(2) of the Electricity Regulation Act 1999. The same criteria are applied to all applications, regardless of the technology type, although different standards may be required of different sizes or types of generator under the Grid/Distribution Code, or secondary fuel requirements etc.

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<sup>29</sup> CER has defined relevant classes. Statutory instruments 383 and 384 of 2008.  
<http://www.irishstatutebook.ie/2008/en/si/0383.html>  
<http://www.irishstatutebook.ie/2008/en/si/0384.html>

Section 9(4)(c) of the 1999 Act states that the CER shall have regard to the need 'to secure that licence holders are capable of financing the undertaking of the activities which they are licensed to undertake'. There is a general duty on the CER that it, 'in relation to electricity, does not discriminate unfairly between holders of licences, authorisations and the board and between applicants for authorisations and licences.'<sup>30</sup>

Applications for authorisations and licences must be made using application forms published by the CER and the documentation listed in the accompanying guidance notes should also be submitted. Less documentation is required of applicants whose proposed generating station has an installed capacity of less than 5MW. The Commission for Energy Regulation published a Decision Paper (CER/10/098)<sup>31</sup> on 29 June 2010 which introduced new application procedures (aimed at reducing the administrative burden) for authorisations to construct and licences to generate for generators with an installed capacity of up to 40MW.

Applicants are generally required to submit, as applicable:

- Application form/s
- Two years' accounts
- Power purchase agreement
- Acceptance to REFIT scheme (where relevant)
- Proof of financing
- A certificate from applicant stating that no adverse change has occurred, if more than 3 months have passed since the end of the accounting year covered by the accounts submitted
- If the company is a special purpose vehicle, a statement of the relevant parent company accounts and guarantees
  
- Outline 5 year business plan
- Maps/Marine Charts
- Construction and commissioning programme
- Planning permission
- Environmental Impact Statement
- Soil stability report and confirmation of compliance with recommendations therein
- Integrated Pollution Prevention Control licence
- Proof of entry on water abstraction register
- Waste licence
- Connection agreement

### **Integrated Pollution Prevention and Control (IPPC) and Waste Licensing**

In some instances renewable installations will be required to have an Integrated Pollution Prevention and Control (IPPC) licence or waste authorisation (waste registration, waste permit or waste licence). In relation to IPPC licensing the Environmental Protection Agency (EPA) shall not grant a licence for an activity unless it is satisfied that, among other things, any emissions from the activity will not cause significant environmental pollution (Section 83(5) of the EPA Acts 1992 to 2007).

A number of activities that are pertinent to renewable energy would fall to be considered under the IPPC licensing – these would include for example industrial scale activities producing biodiesel where a chemical process is involved and the operation of combustion installations with a rated thermal input equal to or greater than 50MW.

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<sup>30</sup> Section 9(3)(a), Electricity Regulation Act 1999

<sup>31</sup> <http://www.cer.ie/en/electricity-generation-current-consultations.aspx?article=9fe2e3cc-bd66-47ae-af9b-bd7b0b9266d6>

In relation to waste licensing the EPA shall not grant a licence unless it is satisfied, among other things, that the activity concerned, carried on in accordance with such conditions as may be attached to the licence, will not cause environmental pollution (Section 40(4) of the Waste Management Acts 1996 to 2010).

General guidance and information in relation to IPPC and waste licensing is available on the EPA website ([www.epa.ie](http://www.epa.ie)) and copies of all licences granted by the EPA are available to download from the website.

Waste authorisation may be applicable to renewable activities where the inputs are wastes i.e. reception, storage and biological treatment<sup>32</sup> of bio waste, incineration with heat recovery etc. Provision is provided under Article 11 of the Waste Management (Facility Permit and Registration) Regulations 2007 and 2008 for an applicant to seek a declaration from the EPA in relation to whether a certificate of registration, facility permit, waste licence or no waste authorisation is required.

A renewable activity may be covered by an IPPC or Waste licence where the renewable activity is associated with another activity which requires a licence. An example would be a pig rearing activity required to hold an IPPC licence, if that pig rearing activity proposed installation of an anaerobic digester for treatment of the slurry and other imported waste materials - the anaerobic digester could be an associated activity and would be included within the scope of the IPPC licence.

### **Animal By-Products**

The Department of Agriculture, Fisheries and Food is the competent authority for the animal by product regulations (Regulation 1774 of 2002 and amendments). Biogas and composting facilities treating animal by-products are required to be authorised by the competent authority.

### **The Gate Process**

Separate to authorisation and licensing, it is worth noting as described in detail in section 4.2.6 (b) of the NREAP that a group processing approach applies for grid connection offers for renewable generators. The 'Gate' process was put in place by the Commission for Energy Regulation following public consultation. It is a group processing approach (GPA) towards the processing and issuance of grid connection offers to renewable generators.

Under the GPA or 'Gate' process, applications for connections are processed in batches rather than sequentially. Within these gates, applications are further divided into groups and sub-groups based on the optimal network required to connect them.

The group processing approach allows for a more strategic view to be taken of network requirements and serves to put in place efficient connection solutions to cater for large number of applications and to ensure optimum network development, minimising network costs and, where possible, avoidance of network bottlenecks.

To date there have been 3 'Gates.' Under Gate 1 and Gate 2, 1755MW of connection offers were made and accepted. Under Gate 3, 3900MW of offers are currently in the process of being issued to renewable generators. A Gate 3 liaison group involving the TSO, DSO, regulator and industry representatives meets on a regular basis and all parties are

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<sup>32</sup> Biological treatment means composting, anaerobic digestion, mechanical-biological treatment or any other biological treatment process for stabilising and sanitising biodegradable waste, including pre-treatment processes.



committed to the full roll-out of the Gate. This amount of renewable generation is sufficient for the achievement of Ireland's RES-E target.

## **Planning legislation**

### **Planning and Development (Strategic Infrastructure) Act 2006 (No. 27 of 2006)**

This Act provides for the making to An Bord Pleanála of applications for planning permission in respect of certain proposed developments of strategic importance to the State.

This Act is titled in part *“An Act to provide in the interests of the common good, for the making directly to An Bord Pleanála of applications for planning permission in respect of certain proposed developments of strategic importance to the State: to make provision for the expeditious determination of such applications, applications for certain other types of consent or approval and applications for planning permissions generally....”*.

The majority of TSO projects fall under the provisions of the Act.

**Planning and Development Act 2000 (No. 30 of 2000)** This Act consolidates all previous Planning Acts and much of the Environmental Impact Assessment Regulations. This Act arose out of a comprehensive review of planning legislation that was initiated in August 1997. The principle of the review was to ensure that the planning system of the twenty first century would be strategic in approach and imbued with an ethos of sustainable development.

In addition to the above legislation, regard has to be given to statutory policy framework documents in relation to developments as follows:

- National Development Plan 2007-2013,
  - National Spatial Strategy 2002,
  - Irish Government's Energy White Paper (March 2007)
  - Draft Regional Planning Guidelines for Relevant Region: Border, West, Midlands, Mid-West, South-West, South-East, Mid-East & Dublin: 2010-2022.
  - County Development Plan and relevant Local Area Plans
- 
- Harbours (Amendment) Act 2009
  - Planning and Development Amendment Bill 2009
  - Planning and Development (Amendment) Bill 2009 - Explanatory and Financial Memorandum
  - Planning and Development (Amendment) Bill 2009 - Regulatory Impact Analysis
  - Foreshore and Dumping at Sea (Amendment) Act 2009 9No 30 of 2009)
  - The Foreshore Act 1933
  - Habitats Directive

Under the auspices of the Department of Environment 'Guidelines for Planning Authorities on Wind Energy Development' various Planning Authorities/County Councils have prepared their own 'Wind Energy Strategies'. Furthermore, Clare County Council has prepared a Renewable Energy Strategy and Mayo County Council is currently in the process of drafting a Renewable Energy Strategy.

The Foreshore Acts, 1933 to 2009 require that a lease or licence must be obtained from the relevant Minister prior to undertaking any works or placing structures or material on, or for the occupation of, or removal of material from state-owned foreshore (including any offshore renewable energy projects such as wind, wave or tidal technologies.) In addition, the consent of the relevant Minister is also required for development on privately owned

foreshore. The Foreshore Acts apply to the seabed and shore below the line of high water of ordinary or medium tides and extending outwards to the limit of the territorial seas by 12 nautical miles (22.224 kilometers). Leases and licences are granted subject to the payment of fees.

The following is a list of some of the planning requirements for the transmission and distribution network. The list is non-exhaustive and gives an overview of the main legislation involved.

## **Planning Permission**

### **Transmission and Distribution Infrastructure**

EirGrid (the TSO) is responsible for the development of the transmission network and generally all of its projects fall under the 2006 Act. The transmission network comprises 110/220/400kV lines, substations and cables. ESB Networks (the DSO) develop the distribution network which comprises distribution 110kV lines (tail lines not part of the meshed grid transmission grid), and lower voltage lines.

### **Overhead Distribution lines at 110kV**

Planning permission is required for electricity transmission lines of 110kV and above under s182A of the Planning and Development Act 2000 ('the 2000 Act') as inserted by s.4 of the *Planning and Development (Strategic Infrastructure) Act, 2006* ('the 2006 Act').

### **Overhead Lines 38kV:**

Planning permission is required for 38kV lines under the *Planning and Development Act, 2000*. Applications should be made to the Planning Authority.

If planning permission is granted for a notional alignment of the line, *class 28 (the Location of Overhead Lines) of The Local Government (Planning and Development) Regulations, 2001*, allows electricity companies to locate the line anywhere within 40 metres on either side of the notional line. This may not apply where there is a condition in the planning permission requiring a certain route to be followed, where the proposed line is restricted by other terms and conditions of a planning permission, where the placement of the line affects the property rights of adjoining landowners or where a Special Amenity Area Order is in effect.

*Regulation 5 of the Local Government (Planning and Development) Regulations, 1995*, amends Article 9 of the Local Government (Planning and Development) Regulations, 1994, and provides that electricity undertakings have an exemption from site notices for overhead lines.

## **Appeals**

Appeals can be made under s.37 of the *Planning and Development Act, 2000* as amended by s.10 of the *2006 Act*. The appeal must be made within 4 weeks of the date of the decision.

## **Environmental Impact Assessments (EIAs)**

S.172 of the *2000 Act* provides that an EIA is required if the development is on a class specified in s.176 of that Act. Schedule 5 of the *Planning and Development Regulations, 2001*, ("the 2001 Regulations") set out the classes referred to in s.176. One of the classes is electric power lines with a voltage of 200kV or more and a length of more than 15km and another class is overhead electricity lines with a voltage of 200kV or more. Therefore, EIAs are generally not required for electric power lines of less than 200kV. However, s.103 of the 2001 Regulations allows the planning authority to require an EIA where the development would be likely to have a significant impact on the environment.

### **Overhead lines 20kV and below:**

*Class 27 (Development by Electricity Companies for Power Lines) of The Local Government (Planning and Development) Regulations, 2001*, provides that the development or construction by an “electricity undertaking” of overhead power lines that will transmit/distribute power not exceeding 20kV does not require planning permission. This exemption does not apply where a Special Amenity Area Order is in effect.

This exemption may not apply if development takes place in an area where it may interfere with the “character of the landscape”. “Interfering with the character of the landscape” means blocking a view that is listed in either the Development Plan or any draft Development Plan for the area in which development is proposed. Most planning authorities are now preparing Landscape Character Assessments which will establish a further set of criteria by which proposed exempted developments have to be calculated. However, Article 9 of the regulations limits this “character of the landscape” restriction so even if the development does interfere with the “character of the landscape”, it can be allowed once the line/ cable does not exceed 100 metres in length and is for the purpose of conducting electricity from a distribution or transmission line to any premises.

### **Underground Cables**

*Class 26 (Development by Electricity Companies for Underground Cables) of the Local Government (Planning and Development) Regulations, 2001*, provides that any electricity undertaking can lay mains, pipes, cables and “other apparatus” underground without planning permission. Where the underground cable forms part of a project submitted to the Strategic Infrastructure Division of an Bord Pleanála the exemption may not apply.

Under Class 26 of the Planning & Development Regulations some developments (Laying underground of mains, pipes, cables) are exempt. In the case of the electricity utility provider there are four classes of exemption as follows:

#### **Column 1:**

#### **Description of Development**

##### **Class 26**

The carrying out by any electricity undertaking of development consisting of the laying underground of mains, pipes, cables or other apparatus for the purposes of the undertaking.

##### **Class 27**

The carrying out by any electricity undertaking of development consisting of the construction of over-head transmission or distribution lines for conducting electricity at a voltage not exceeding a nominal value of 20kV.

##### **Class 28**

The carrying out by any electricity undertaking of development for the purposes of the undertaking consisting of the construction or erection of an overhead transmission line not more than 40 metres from a position in respect

#### **Column 2:<sup>33</sup>**

#### **Reference to Conditions and Limitations for each class as outlined in the Planning & Development Regulations**

1(a)(i) – (xi)

1 (b) (i)

1 (d)

1(a)(i) – (xi)

1 (b) (i)

1 (d)

1(a)(i) – (xi)

1 (b) (i)

1 (d)

<sup>33</sup> Planning and Development Regulations 2001 – 2007 - 'Article 6: Schedule 2: Part 1: Exempted Development: Class 26 – Class 29'

of which permission for such line was granted and which otherwise complies with such permission, but not a line in respect of which a condition attached to the relevant permission imposed a contrary requirement.

### **Class 29**

The carrying out by any electricity undertaking of development consisting of the construction or erection of a unit substation for the distribution of electricity at a voltage not exceeding a nominal value of 20kV.

The volume above ground level of any such unit substation shall not exceed 11 cubic metres, measured externally.

1(a)(i) –(xi)

1 (b)(i)

1(d)

**Please note:** 1(a)(i) – (xi) ,1 (b) (i) and 1 (d) all apply as conditions and limitations to Article 6 developments. In case of electricity infrastructure the most relevant conditions and limitations would be 1(a)(v) & (vi), 1(b)(i) and 1(d).

### **Substations**

*Class 29 (Development by Electricity Companies for Substations) of the Local Government (Planning and Development) Regulations, 2001*, provides that planning permission is not required for the development of substations not exceeding 20kV provided that the volume of the substation does not exceed 11 cubic metres above ground level (to be measured externally). This exemption does not apply where a Special Amenity Order is in effect.

Any substation that does not fall within the Class 29 exemption is considered “development” under s.3 of the *Planning and Development Act, 2000*, and requires planning permission under s.32 of the *2000 Act*.

### **Road Opening/ breaking**

*S.51 Electricity Act, 1927*, allows the Board to break up roads for the purpose of laying electricity lines along, across or under streets, roads, railway or tramway. *S.52 Electricity Act, 1927*, provides that the Board cannot break up roads without previous consultation with the Local Authority. *S.53 of the Roads Act, 1993*, states that statutory undertakers who have power to carry out works to roads cannot exercise these powers without consent of the Roads Authority or Minister for the Environment.

### **Wayleave Notices**

*S.53 of the Electricity Act, 1927*, provides for wayleaves across land. *S.53 (1) of the Electricity Supply Act, 1927*, provides that ESB can place an electric line above or below ground across land. *S.53 (3)* provides that before doing so, ESB must serve a notice in writing on the landowner and occupier stating its intention to place the line on the landowner and occupier’s lands.

**S.49 of Electricity Regulation Act, 1999** provides that a person who is authorised to construct a generating station may, with the consent of the CER, exercise the power heretofore enjoyed by ESB to serve a wayleave notice.

### **Special Areas of Conservation (SACs)**

SACs are prime wildlife conservation areas in the country, considered to be important on a European as well as national level. The legal basis on which SACs are selected is the EU Habitats Directive transposed into Irish law by the *European Union (Natural Habitats) Regulations, 1997, as amended in 1998 and 2005*. The Directive lists certain habitats and species that must be protected within SACs.

## **Powers of National Park and Wildlife Services (NPWS):**

The NPWS is part of the Department of the Environment Heritage and Local Government and is charged with the conservation of a range of habitats and species in Ireland.

Responsibilities of NPWS include:

- designation and protection of SACs, Special Protection Areas (SPAs) and National Heritage Areas (NHAs)
- implementation of domestic legislation e.g. *the Wildlife Acts, 1976 and 2000*, and international legislation e.g. EU habitats and birds directives;
- management and development of National Parks and Nature Reserves;
- overseeing licensing under the *Convention on International Trade in Endangered Species and Wildlife Acts 1976 and 2000*.

## **Inland Waterways**

*S.55 of the Electricity Supply Act 1927* provides for advance consultation with the Minister to place or authorise any authorised undertaker to place any electric cable across any navigable river or navigable waterway, whether such cable is placed above or below water or under the ground

## **1946 Forestry Act**

Legislation relating to tree felling is set out in section 37 of the Forestry Act, 1946.

## **Issues about the compatibility of EU legislation on energy and environment**

Feedback indicates issues around apparent conflicts between the interpretation and implementation of EU environmental directives and the achievement of the targets under the renewable energy Directive.

It is noted that as a country, Ireland has immense potential for the development of renewable energy particularly wind energy, both on and offshore and wave energy. The development and expansion of the use of renewable energy, together with measures aimed at a reduction and more efficient use of energy are important as regards meeting our climate change objectives and priorities, both nationally and at European level. At a high level a significant increase in renewable energy and the protection of the environment are thus mutually reinforcing goals.

It is also recognised however that tensions arise between renewable energy development and various environmental policies arising from EU directives. In relation to wind energy, the European Commission's "Draft Guidelines on Wind Energy Development and EU Nature Conservation" looks at how wind energy targets can be met in ways that minimise adverse impacts on nature and biodiversity.

A key challenge in Ireland, which has been highlighted in national guidelines on wind energy development, is that many of the best wind energy sites are also the most sensitive environmentally. Many projects in remote areas are in sites and areas of nature conservation and biodiversity importance, including Natura 2000 and other sites of particular environmental and hydrological sensitivity, (e.g. peat lands and other wetlands, uplands, mountains and coastal areas).

The purpose of national Guidelines is to help planning authorities address the preparation of spatial plans for wind energy development. The Guidelines recommend an approach which seeks to identify within the development plan process, key areas where wind energy resources are good and capable of exploitation in a manner consistent with proper planning and sustainable development, having due regard to key environmental, landscape, technical and economic considerations. This approach is intended to facilitate a consistency of approach by planning authorities, both in identifying areas suitable for wind energy development and having regard to potential impacts, inter alia on nature and diversity.

The Draft EU Guidelines on Wind Energy Development and EU Nature Conservation which will provide both strategic and project level guidance should, when finalised help reconcile the planning and development of wind energy with EU obligations in regard to nature protection, and can assist Member States with the assessment of wind energy projects on designated sites and species and as such will help contribute to resolving perceived inconsistencies between environmental policies and objectives and renewable energy and climate change mitigation targets. Ireland fully supports the EU Commission in working to ensure better cohesion between the various EU policy measures which impact on renewable energy development, both onshore and offshore.

**(b) Responsible Ministry(/ies) / authority(/ies) and their competences in the field:  
Minister for Communications, Energy and Natural Resources**

The Minister for Communications, Energy and Natural Resources is responsible for determining national policy on energy matters, including regulating, promoting and developing renewable energy sources. The Minister's Department of Communications, Energy and Natural Resources is responsible for the implementation of energy policy and the introduction of energy policy legislative change.

**Commission for Energy Regulation (CER)**

The Commission for Energy Regulation (CER) is the statutorily independent regulator for the electricity and natural gas sectors in Ireland under the Electricity Regulation Act 1999 as amended.

As set out at 4.2.1 (a) above, the Commission for Energy Regulation is responsible for the grant of authorisations to construct or reconstruct a generating station ('authorisation') and licences to generate electricity ('licence'). Section 9 of the Electricity Regulation Act 1999 includes as a function of the CER the duty:

- (g) to grant, monitor the performance of, modify, revoke and enforce licences and authorisations pursuant to this Act

Under section 14(1) a licence is subject to the terms and conditions as specified in the licence. Under section 16(3) where the CER grants an authorisation it is subject to the *'terms and conditions as may be specified in the authorisation, including, as respects a generating station, the generating capacity of such station'*. Where an authorisation or licence is granted by Order it is subject to the Conditions in the Order.<sup>34</sup> The CER may amend or revoke any such Order.

The process for modification of an authorisation or licence is set out in sections 19 and 20 of the Act. Where there is a refusal or modification of an authorisation or licence the applicant/Licensee/Grantee affected may, under section 29, request the Minister to establish an appeal panel. The grantee of an authorisation or licence (otherwise than by Order) may also appeal the terms and conditions of an authorisation in accordance with section 29.

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<sup>34</sup> Section 16(3A)(a) and section 14(1A)

The grounds for revocation of an authorisation or licence are set out in the authorisation and licence themselves. If the CER is of the opinion that the holder of an authorisation or licence is in breach of conditions it may issue a notice of its belief of the breach<sup>35</sup>, give a direction or determination<sup>36</sup> or apply to the High Court for an order to discontinue or refrain from specified practices<sup>37</sup>.

### **SEM Committee**

Since November 2007, a regional electricity market (the 'Single Electricity Market' (SEM)) is in place on the island of Ireland. The SEM is regulated by the Commission for Energy Regulation and the Northern Ireland Authority for Utility Regulation under the auspices of the Single Electricity Market Committee (the SEM Committee).<sup>38</sup> Further information on the SEM can be found on the 'All Island Project' website, the website of the Single Electricity Market Operator and the websites of the System Operators.

### **Minister for the Environment, Heritage and Local Government**

The Minister for the Environment, Heritage and Local Government is responsible for developing planning policy and legislation. Ireland's planning system was introduced on the 1 October 1964, when the Local Government (Planning and Development) Act, 1963 came into effect.

The physical planning system in Ireland is operated on the ground by 88 local planning authorities: 29 County Councils, 5 County Borough Corporations, 5 Borough Corporations and 49 Town Councils.

Ireland is one of the few European countries that has an independent third party planning appeals system. It is operated by An Bord Pleanála, (the Planning Appeals Board). Decisions of the planning authorities can, for the most part, be appealed to An Bord Pleanála. The Government Department is precluded from any interference in these decisions.

The main features of the planning system are:

- making development plans
- the need for planning permission
- exempted development
- appeals against planning decisions
- planning enforcement

The physical planning system plays a key role in facilitating delivery of the infrastructure programmes and in addressing housing supply requirements. Local authorities and An Bord Pleanála directly operate the system.

The Department's primary role is to provide the essential legislative framework and policy guidance while seeking to minimise the regulatory burden and cost of the system. In addition, the Department provides an expert advisory service on heritage/conservation issues to planning authorities and to An Bord Pleanála.

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<sup>35</sup> Electricity Regulation Act 1999, Section 24

<sup>36</sup> Electricity Regulation Act 1999, Section 25

<sup>37</sup> Electricity Regulation Act 1999, Section 26

<sup>38</sup> Ref: <http://www.allislandproject.org/>, [http://www.allislandproject.org/en/SEM\\_semc.aspx](http://www.allislandproject.org/en/SEM_semc.aspx)

In general, authorities must decide planning applications within 8 weeks of the date of receipt of the application. The applicant or any person who made a valid submission in writing, in relation to the planning application, to the planning authority can appeal to An Bord Pleanála, within 4 weeks of the decision. In deciding applications, authorities are restricted to considering the proper planning and development of the area concerned, including the preservation and improvement of amenities, the development plan, and any valid, written submissions or observations made on a proposed development. The fee for making a submission or observation on a planning application is currently €20.

The Planning and Development (Strategic Infrastructure) Act 2006 provides for, among other things, the establishment of a streamlined consent procedure for certain types of major infrastructure and the creation of a specialised division within An Bord Pleanála to take decisions in relation to such projects.

### **Offshore Renewable projects**

Offshore renewable energy projects are governed by the Foreshore Acts 1933 to 2009. In the future the foreshore consent system will be much closer aligned to the existing land planning system in order to provide for a more streamlined consent process.

### **Minister for Agriculture, Fisheries and Food**

The Minister for Agriculture, Fisheries and Food is responsible for the Forest Service. The felling section of the Forest Service deals with queries under the 1946 Forestry Act.

### **Increased co-ordination**

There is recognition amongst the various bodies with responsibilities for the different aspects of renewable energy policy and implementation of the need for increased co-ordination at national level in future and the adoption of a fully plan led approach. Recently, there has been significantly increased cross departmental/agency co-operation through meetings and sharing of information to ensure a more coherent and integrated match between energy policy, planning and regulation. It is recognised that this co-ordination and co-operation needs to be enhanced and strengthened going forward. There are opportunities to make significant progress on this in the marine renewable area, through greater future synergy between the offshore energy leasing function and onshore and offshore grid connections.

### **(c) Revision foreseen with the view to take appropriate steps as described by Article 13(1) of Directive 2009/28/EC**

### **Licensing and Authorisations**

The Commission for Energy Regulation (CER) has put in place procedures for the grant of an authorisation to construct a generating station and licence to generate electricity that are considered proportionate and necessary. The administrative procedures in place for applications for authorisations and licences are streamlined and designed to meet requirements while resulting in an efficient process. The rules governing applications for authorisations and licences can be seen to be objective and transparent, as they are set out in legislation.

The CER requires information of applicants to ensure that the legislative criteria for the grant of authorisations and licences and the CER's statutory duties are met. The CER processes applications in as timely a manner as possible and maintains contact with applicants throughout the process. Guidance notes for applicants are available on the CER's website. The procedures are the same for renewable energy installations and other applicants. The CER regularly answers queries from and provides advice to prospective applicants and often contacts applicants to request further information and to progress their applications.



It is currently the case that generating stations with an installed capacity of 1MW or less are automatically authorised and licensed by Statutory Instrument ('by Order'). Generating stations with an installed capacity of over 1MW and up to 10MW must apply to the CER to be authorised or licensed by Order. Generating stations above 10MW are licensed and authorised individually.

On 29<sup>th</sup> June 2010, the CER published a decision paper which introduced new application procedures for authorisations to construct and licences to generate for generating stations with an installed capacity of 40MW or less. The aim of this decision is to reduce the administrative burden on these applicants in accordance with Irish and EU legislation, particularly Article 13 of Directive 2009/28/EC and Article 7(3) of Directive 2009/72/EC. This new procedure comprises a new application form and a reduced requirement for supporting documentation to be submitted to CER. The application fee has also been revised. An applicant must sign a declaration confirming that certain criteria have been met and must provide evidence that finance is available to it and that it has the necessary technical skills to operate the generating station. The new procedure also allows for an authorisation or licence to be granted earlier in a project's development than previously. The threshold chosen means that it would apply predominantly to renewable generating stations, which are generally installed in more remote locations.

The proposed revised application procedure would require the submission of less documentation by the applicants concerned. The proposals contained in this consultation are designed to reduce administrative burden and to reduce procedures where possible and appropriate. The CER must also ensure that it fulfils its statutory functions, and in particular must promote 'the continuity, security and quality and supplies of electricity'.<sup>39</sup> This proposal is considered to reduce application procedures to what is proportionate and necessary and was made with a view to transposing Article 13(1) of Directive 2009/28/EC.<sup>40</sup> A decision on this proposal will be made soon.

The issuance of authorisations and licences is a function that is discrete from other statutory permit procedures. The CER currently requires that planning and environmental permits are in place before it will grant an authorisation or licence. Under proposed revised application procedures, the CER may grant an authorisation to construct and licence to generate in advance of the securing of statutory consents, but the applicant will be required to declare that it will not carry out any activities without the appropriate consent.

It is difficult to give a timetable for the grant of an authorisation or licence. Once all requested documentation has been submitted, an applicant can generally expect to be issued with a licence within six weeks.

There is no discrimination between applicants, as the same criteria are applied to all applications, regardless of the technology type, although different standards may be required of different sizes or types of generator under the Grid/Distribution Code, or secondary fuel requirements etc. Insofar as the authorisation and licence application examines compliance with those requirements, the assessment of the application does take into account the particularities of individual renewable energy technologies.

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<sup>39</sup> Section 9(4)(c), Electricity Regulation Act 1999

<sup>40</sup> See particularly Section 3.3.4, CER/09/175, *Revised Application Procedures for Authorisations and Licences for Certain Generating Stations*. <http://www.cer.ie/en/electricity-generation-current-consultations.aspx?article=9fe2e3cc-bd66-47ae-af9b-bd7b0b9266d6>

## **Planning**

The 2006 Planning and Development (Strategic Infrastructure) Act outlined at 4.2.6 (e) deals with strategic development and strategic infrastructure. It is designed to ensure co-ordination between local, regional and national approaches which balance local interests with the national imperative to deliver strategic infrastructure. The majority of the TSO grid infrastructure projects fall under the provisions of this Act.

The policies and zoning objectives that affect a specific project remain the responsibility of the local planning authority. The local planning authority remains an important stakeholder in the process and in many cases is the main beneficiary of the overall outcome of a specific energy or electrical project.

Currently all Development Plans undertaken by Planning Authorities have to have regard to Regional Planning Guidelines as well as guidelines and circulars issued by the Minister for the Environment, Heritage and Local Government.

In addition, a new Planning and Development (Amendment) Bill 2009 is currently going through the legislative process. It is currently at an advanced stage of legislative drafting. One of the aims of this Bill also is to ensure a closer alignment between the National Spatial Strategy, Regional Planning Guidelines, Development Plans and Local Area plans.

In general terms, the Bill aims to support sustainable economic development by –

- (a) ensuring that the planning system supports targeted investment on infrastructure under the National Development Plan e.g. through the inclusion of a development plan “core strategy” which will set down the demographic and economic evidence basis for the plan;
- (b) further modernising land zoning by ensuring that the location, quantum and phasing of land zoned for development is closely linked to national and regional planning priorities, is aligned with national infrastructure programmes and supports cross-cutting sustainable policies.

There are also proposals being introduced in the Planning and Development (Amendment) Bill in relation to the Strategic Infrastructure Act in relation to a reduction in thresholds for wind-energy development and for certain other categories of projects to be dealt with under the Strategic Infrastructure process.

## **Extension of Planning Permissions**

Section 42 of the Planning and Development Acts 2000-2009 currently prescribes the circumstances in which the duration of a planning permission, normally 5 years, may be extended. Under section 42, a planning permission may only be extended where substantial works were carried out within the original duration of the permission.

Section 23 of the Planning and Development (Amendment) Bill 2009 amends section 42 of the Planning and Development Acts 2000-2009 to provide that a planning permission may be extended where substantial works have not been completed, provided that the authority is satisfied that there were considerations of a commercial, economic or technical nature beyond the control of the applicant which substantially militated against either the commencement of development or the carrying out of substantial works.

Section 23 of the Bill, if and when enacted, will require planning authorities having to satisfy themselves that there have been no significant changes in development objectives in the

development plan or in regional development objectives in the regional planning guidelines for the area of the regional authority since the date of the permission, such that the authority would not, as a result of those changes, grant an application for permission for the development as being in material contravention of the proper and sustainable development in the area of the authority.

The proposed amendment is likely to be of particular benefit to developers of wind farms. In accordance with the wind farm planning guidelines, permissions have been granted for a large number of wind farms throughout the country. However, limitations on the existing electricity grid have meant that some have not yet been able to obtain grid connections, and there has been a concern that, without the proposed amendment, a lot of the permissions already granted, might expire.

### **Offshore Environment**

Regulatory functions in relation to developments in the offshore environment transferred to the Minister for the Environment, Heritage and Local Government on 15<sup>th</sup> January 2010. The current legislation is the 1933 Foreshore Act (as amended). It is the intention of the Minister to streamline and modernise the consent process for certain developments in the offshore environment, including offshore renewable energy projects such as wave, wind and tidal technologies on a phased basis in order to ensure service continuity in relation to the processing of offshore applications and providing an improved timeline for making decisions on these projects.

These phases will include the following.

1. Integration of strategic projects on the Foreshore, within the Strategic Infrastructure Act: The Strategic Infrastructure Act will be amended to allow for a fast-track consent process for major wind, wave and tidal energy projects.
2. Administration of non-Strategic foreshore cases by local authorities: In parallel with Phase 2, legislation transferring responsibility for the administration of the non strategic infrastructure foreshore cases to local authorities will be in development, as will the preparation of a Marine Spatial Strategy.
3. Development of a Marine Spatial Strategy: The Department of the Environment, Heritage and Local Government, in collaboration with other key stakeholders will develop a marine spatial planning framework that will clarify allowable location/type of development on the foreshore (and beyond the foreshore limits) to guide/direct decision-makers and users towards appropriate spatial uses of the foreshore and the efficient, sustainable use of marine resources.
4. Integrated Coastal Zone Management: A regional approach to integrated coastal zone management will be pursued supported by the National Spatial Strategy.

### **(d) Summary of the existing and planned measures at regional / local levels (where relevant)**

#### **CER Licensing and Authorisations**

The authorisation and licensing of generators is carried out by the regulator (CER) on a national basis. There are no specific measures at regional or local level.

#### **Planning**

As mentioned at 4.2.1 (c) above, a new Planning and Development (Amendment) Bill 2009 is currently going through the legislative process. One of the aims of this Bill also is to ensure a closer alignment between the National Spatial Strategy, Regional Planning Guidelines, Development plans and local area plans.

A key element in the Bill is the introduction of a requirement for an evidence based “core strategy” in development plans which will provide relevant information as to how the development plan and the housing strategy are consistent with regional planning guidelines and the National Spatial Strategy. Other provisions that may have impacts on the development of renewable technologies may also be introduced within this Bill which is anticipated to have undergone the legislative process by Summer 2010.

In relation to offshore renewable energy developments, the proposed legislative changes are set out at 4.2.1 (c) above – the intention being to ensure a greater integration between the terrestrial planning system and the current consent processes governing offshore renewable energy development applications.

A matter of concern for stakeholders has been the need for consistency across local authorities in relation to the granting of planning permissions for renewable installations.

Under the planning legislation, a planning authority must demonstrate, by way of a statement when preparing and making a draft development plan, how it has implemented the policies and objectives of the Minister contained in guidelines issued by him under section 28 of the Principal Act. Equally, as the case may be, planning authorities must detail the reasons why such policies and objectives were not implemented.

This should ensure greater consistency across local authorities.

Subsection (1A) provides that a planning authority in having regard to the guidelines issued by the Minister under subsection 1 of the Act that they will: ‘consider the policies and objectives of the Minister contained in the guidelines when preparing and making the draft development plan and the development plan, and append a statement to the draft development plan and the development plan which shall include the information referred to in subsection (1B).’

Subsection (1B) provides that the appended statement will include information which demonstrates: how the planning authority has implemented the policies and objectives of the Minister contained in the guidelines when considering their application to the area or part of the area of the draft development plan and the development plan, or If applicable, that the planning authority has formed the opinion that it is not possible, because of the nature and characteristics of the area or part of the area of the development plan, to implement certain policies and objectives of the Minister contained in the guidelines when considering the application of those policies in the area or part of the area of the draft development plan or the development plan and has to give reasons for the forming of the opinion and why the policies and objectives of the Minister have not been so implemented.

**(e) Are there unnecessary obstacles or non-proportionate requirements detected related to authorisation, certification and licensing procedures applied to plants and associated transmission and distribution network infrastructure for the production of electricity, heating or cooling from renewable sources, and to the process of transformation of biomass into biofuels or other energy products? If so, what are they?**

### **CER Licensing and Authorisations**

The Commission considers that requirements in an application for an authorisation or licence are limited to what is necessary and proportionate in order to establish that the generating station in question meets statutory criteria.

The CER’s Decision CER /10/098 (as outlined above) which introduced new application procedures for authorisations to construct and licenses to generate for generators with an

installed capacity of up to 40MW is aimed at reducing the administration involved in authorisation and licensing procedures where possible and appropriate<sup>41</sup>.

## **Planning**

In order to reduce unnecessary obstacles or non-proportionate requirements, exemptions for certain micro renewable projects were introduced by the Department of the Environment, Heritage and Local Government in 2007 and 2008. These measures reduced the regulatory burden in order to promote the use of certain renewable technologies (ground/air source heat pump, biomass, and wind turbines for example), and to achieve a better alignment with key national policy objectives including, in particular, addressing climate change through the planning system.

The planning exemptions for renewable technologies that meet certain criteria (a summary of Statutory Instrument (SI) 83 of 2007 and Statutory Instrument (SI) 235 of 2008) is attached at Appendix 2. The regulations also include provisions aimed at encouraging the uptake of cleaner and cheaper energy from renewable sources in the industrial, business and agricultural sectors by providing exemptions facilitating a greater penetration of renewable technologies in these sectors.

A key issue is to ensure that planning decisions are consistent with national policies. The County and City Managers Association Planning, Land Use and Transportation Committee has indicated that it will review how the exemptions granted under these statutory instruments are dealt with by the relevant planning authorities, with a view to ensuring that all decisions are consistent with national policies.

Issues around these statutory instruments concerning renewable technologies and whether any further guidance for planning authorities is needed or any revision of what is included in the exemptions will be further explored in particular with the Department of Environment, Heritage & Local Government and County and City Managers.

Article 9.(1) of SI 600 of 2001 outlines conditions for which the exemptions set out in SI 83 of 2007 and SI 235 of 2008 (detailed for each technology below) do not apply. They include if the development would:

- Interfere with the character of a landscape, or a view or prospect of special amenity value or special interest, the preservation of which is an objective of a development plan for the area in which the development is proposed;
- Consist of or comprise the excavation, alteration or demolition of places, caves, sites, features or other objects of archaeological, geological, historical, scientific or ecological interest, the preservation of which is an objective of a development plan for the area in which the development is proposed;
- Be in an area to which a special amenity area order relates.

Those intending to install a technology that is mentioned in the exemptions are advised to get a written declaration from their local authority which will provide assurance that their particular development is covered by the exemptions. This is of particular relevance to wind turbines which are high visibility.

The cost of such a declaration (Section 5 Declaration) is approximately €80 and it must be provided by the local authority within the statutory timelines set out in Section 5 of the

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<sup>41</sup> <http://www.cer.ie/en/electricity-generation-current-consultations.aspx?article=9fe2e3cc-bd66-47ae-af9b-bd7b0b9266d6>

Planning and Development Act 2000. There have been instances of people assuming they were exempt which have ended with the local authority requesting that installations be removed. The designation of an area changes over time and, for example, the building of a house may have been approved 20 years ago but the house may now be in an area of special designation.

**(f) What level of administration (local, regional and national) is responsible for authorising, certifying and licensing renewable energy installations and for spatial planning? If more than one level is involved, how is coordination between the different levels managed? How will coordination between different responsible authorities be improved in the future?**

### **CER Licensing and Authorisations**

An independent body, the Commission for Energy Regulation (CER) which is the regulator of the electricity and gas sectors, is responsible for issuing authorisations and licences for all electricity generation stations.

The CER currently requires that planning permission has been granted before it issues an authorisation or licence. In its revised application procedures for generating stations with an installed capacity of up to 40MW,<sup>42</sup> the CER may issue an authorisation or licence before planning permission has been granted but the applicant must declare that it will obtain the necessary statutory consents and will not commence work until the relevant consents are in place.

### **Planning and foreshore consents**

Generally, most energy projects (renewable and non renewable) will have to go through the planning process in addition to any other consents needed. An applicant will apply to the relevant planning authority with details of the proposed project and provide an Environmental Impact Statement, if required.

With regard to both domestic and industrial micro generation however, planning exemptions have been introduced by the Department of the Environment, Heritage and Local Government. These exemptions have certain thresholds for different types of developments (see Appendix 2.)

An overview of the planning process is outlined at 4.2.1 (b) above. In addition flow charts are attached at Appendices 3 and 4. Appendix 3 illustrates the Planning Application Process for non strategic infrastructure cases while Appendix 4 is a flowchart for strategic infrastructure including the pre application stage, application stage and post decision stage.

For major developments, the Strategic Infrastructure consent process which has been in operation since the 31<sup>st</sup> January 2007 provides for An Bord Pleanála to make a decision in respect of certain types of project subject to certain criteria being met, that the development:-

- (a) would be of strategic, economic or social importance to the State or the region in which it would be situated.
- (b) would have a significant effect on the area of more than one planning Authority.
- (c) would contribute substantially to the fulfilment of any of the objectives in the National Spatial Strategy or in any regional planning guidelines in force in respect of the area or areas in which it would be situated.

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<sup>42</sup> <http://www.cer.ie/en/electricity-generation-current-consultations.aspx?article=9fe2e3cc-bd66-47ae-af9b-bd7b0b9266d6>

It also provides specifically for certain types of energy infrastructure which would be subject to the streamlined process including: An installation for the harnessing of wind power for energy production (a wind farm) with more than 50 turbines or having a total output greater than 100 megawatts.

The County Development Plan is one of the planning policy frameworks within which a decision is taken. The county development plan therefore has an important role to play in the facilitation of strategic infrastructure such as high voltage power lines and this should be reflected in the plans, policies and objectives.

As noted, a new Planning and Development (Amendment) Bill 2009 is going through the legislative process and one of the aims of this Bill also is to ensure a closer alignment between the National Spatial Strategy, Regional Planning Guidelines, Development plans and local area plans. A key element in the Bill is the introduction of a requirement for an evidence based “core strategy” in development plans which will provide relevant information as to how the development plan and the housing strategy are consistent with regional planning guidelines and the National Spatial Strategy.

Offshore renewable energy projects are governed by the Foreshore Acts 1933 to 2009. It is intended that in the future the foreshore consent system will be much closer aligned to the existing land planning system in order to provide for a more streamlined consent process.

**(g) How is it ensured that comprehensive information on the processing of authorisation, certification and licensing applications and on assistance to applicants made available? What information and assistance is available to potential applicants for new renewable energy installations on their applications?**

#### **Renewable Energy Information Office (REIO)**

The Renewable Energy Information Office<sup>43</sup> under the Sustainable Energy Authority of Ireland (SEAI) at outlined in section 4.2.4 is available to provide comprehensive information to potential applicants of new renewable installations. With the assistance of the DSO, TSO and regulator, in October 2008, SEAI published a booklet entitled ‘A guide to connecting renewable and CHP electricity generators to the electricity network.’

[http://www.seai.ie/Publications/Renewables Publications/connecting RE and chp to network.pdf](http://www.seai.ie/Publications/Renewables%20Publications/connecting%20RE%20and%20chp%20to%20network.pdf)

Additional Information is also available at: <http://www.seai.ie/Renewables/>

#### **Commission for Energy Regulation (CER) Licensing and Authorisations**

The regulator has published guidance notes for applicants for authorisations and licences on its website, along with application forms.<sup>44</sup> The CER answers questions and provides advice to prospective applicants by phone and email on an ongoing basis. They issue an acknowledgement to applicants once it is in receipt of their application and will contact applicants to request further information if it is required. They are available to answer applicants’ queries in person if a meeting is considered necessary.

#### **TSO & DSO**

The DSO (ESB Networks) has a specific Customer Relations Manager nominated to liaise with wind farms, with details provided on ESB’s website, available at:

[http://www.esb.ie/esbnetworks/en/generator-connections/gate\\_3.jsp](http://www.esb.ie/esbnetworks/en/generator-connections/gate_3.jsp)

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<sup>43</sup> <http://www.seai.ie/Renewables/REIO>

<sup>44</sup> <http://www.cer.ie/en/electricity-generation-licences-and-authorisations.aspx>

The TSO (EirGrid) has a Customer Relations Team which aims to provide reliable and efficient assistance and support to all customers. The Team provides a single point of contact to facilitate the processing of queries and comments.

### **Gate 3 Liaison Group**

As described in detail at section 4.2.6(b) of the NREAP, the 'Gate' process was put in place by the Commission for Energy Regulation following public consultation. It is a group processing approach towards the processing and issuance of grid connection offers to renewable generators. A Gate 3 liaison group involving the TSO, DSO, regulator and industry representatives meets on a regular basis and all parties are committed to the full roll-out of the Gate.

### **Department of Environment, Heritage & Local Government**

The Department of Environment, Heritage & Local Government provides comprehensive information on the planning process on its website at:

<http://www.environ.ie/en/DevelopmentandHousing/PlanningDevelopment/>

**(h) How is horizontal coordination facilitated between different administrative bodies, responsible for the different parts of the permit? How many procedural steps are needed to receive the final authorisation/ licence/permit? Is there a one-stop shop for coordinating all steps? Are timetables for processing applications communicated in advance? What is the average time for obtaining a decision for the application?**

### **CER Licensing and Authorisations**

In granting an authorisation to construct the CER currently requires that other permits or permissions have been granted; this includes planning permission, Integrated Pollution Prevention Control Licence, Waste Licence, addition to the water abstraction register, connection offer and REFIT acceptance, where appropriate.

In the CER's revised application procedures for generating stations with an installed capacity of up to 40MW,<sup>45</sup> the CER may issue an authorisation or licence before planning permission has been granted but the applicant must declare that it will obtain the necessary statutory consents and will not commence work until the relevant consents are in place.

The number of steps required in obtaining an authorisation or licence depends on the project in question and the statutory permits it requires. Once an applicant has submitted a completed application form for an authorisation or licence, fee and all requested information, it could generally expect to be issued with a licence within six weeks.

### **Gate 3 Liaison Group**

As described in detail at section 4.2.6(b) of the NREAP and at 4.2.1 (g) above, a Gate 3 liaison group involving the TSO, DSO, regulator and industry representatives meets on a regular basis and facilitates horizontal co-ordination. All parties are committed to the full roll-out of the Gate.

### **Planning**

As noted above (see 4.2.1 (b) and 4.2.1 (c) above, the physical planning system in Ireland is operated on the ground by 88 local planning authorities: 29 County Councils, 5 County Borough Corporations, 5 Borough Corporations and 49 Town Councils. Decisions of the planning authorities can, for the most part, be appealed to An Bord Pleanála, the planning appeals board. The Minister for the Environment, Heritage and Local Government is

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<sup>45</sup> <http://www.cer.ie/en/electricity-generation-current-consultations.aspx?article=9fe2e3cc-bd66-47ae-af9b-bd7b0b9266d6>



responsible for developing planning policy and legislation. The Department is precluded from any interference in these decisions.

The Department's primary role is to provide the essential legislative framework and policy guidance while seeking to minimise the regulatory burden and cost of the system. In addition, the Department provides an expert advisory service on heritage/conservation issues to planning authorities and to An Bord Pleanála.

In general, authorities must decide planning applications within 8 weeks of the date of receipt of the application. The applicant or any person who made a valid submission in writing, in relation to the planning application, to the planning authority can appeal to An Bord Pleanála, within 4 weeks of the decision. In deciding applications, authorities are restricted to considering the proper planning and development of the area concerned, including the preservation and improvement of amenities, the development plan, and any valid, written submissions or observations made on a proposed development.

In addition, The Planning and Development (Strategic Infrastructure) Act 2006, which provided for, among other things, the establishment of a streamlined consent procedure for certain types of major infrastructure and the creation of a specialised division within An Bord Pleanála to take decisions in relation to such projects. Offshore renewable energy projects are governed by the foreshore acts 1933 to 2009, although it is intended that in the future the foreshore consent system will be much closer aligned to the existing land planning system in order to provide for a more streamlined consent process.

Offshore developments including offshore renewable energy technologies such as wind, wave and tidal energy have no statutory time period for being dealt with, but going forward it is intended to change that through closer integration with the existing planning consent regime.

**(i) Do authorisation procedures take into account the specificities of the different renewable energy technologies? If so, please describe how. If they do not, do you envisage taking them into account in the future?**

### **CER Licensing and Authorisations**

The authorisation and licensing procedures do not explicitly take into account the specificities of renewable energy technologies - the same legislative criteria for the grant of an authorisation or licence are applied in all applications. However, different standards may be required of different sizes or types of generator under the Grid/Distribution Code, or secondary fuel requirements etc. Insofar as the authorisation and licence application examines compliance with those requirements, the assessment of the application does take into account the particular requirement on that individual renewable energy technology.

### **Planning**

As noted at 4.2.1 (e) above, in order to reduce unnecessary obstacles or non-proportionate requirements, exemptions for certain micro renewable projects were introduced by the Department of the Environment, Heritage and Local Government in 2007 and 2008.

These measures reduced the regulatory burden in order to promote the use of certain renewable technologies (ground/air source heat pump, biomass, and wind turbines for example), and to achieve a better alignment with key national policy objectives including, in particular, addressing climate change through the planning system.

The planning exemptions for renewable technologies that meet certain criteria (a summary of Statutory Instrument (SI) 83 of 2007 and Statutory Instrument (SI) 235 of 2008) is

attached at Appendix 2. It can be seen from Appendix 2 that the planning exemptions take into account the various specificities of the renewable energy technologies.

**(j) Are there specific procedures, for example simple notification, for small-scale, decentralised installations (such as solar panels on buildings or biomass boilers in buildings)? If so, what are the procedural steps? Are the rules publicly available to citizens? Where are they published? Is the introduction of simplified notification procedures planned in the future? If so, for which types of installation / system? (Is net metering possible?)**

### **CER Licensing and Authorisations**

Generators with an installed capacity of 1MW or less are deemed to be automatically authorised and licensed under the terms of S.I. 383 and 384 of 2008 and are subject to the Conditions in those Orders. This system was introduced in order to promote microgeneration. A person need not notify the Commission of their development of this generating station in order to stand authorised and licensed.

These statutory instruments (SIs) are publicly available and can be found on the Commission for Energy Regulation's website and the Irish Statute Book.<sup>46</sup> Documents referred to in the SIs such as the Grid and Distribution Code and Directions by the Commission are available on the Transmission System Operator, Distribution System Operator and Commission's website respectively. It is not currently proposed that this 1MW threshold would be revised.

ESB Networks (the DSO) has a specific section on their website dealing with how micro generator connections can be facilitated, available at:

[http://www.esb.ie/esbnetworks/en/generator-connections/micro\\_gen\\_connections.jsp](http://www.esb.ie/esbnetworks/en/generator-connections/micro_gen_connections.jsp)

### **Planning**

As outlined at 4.2.1. (e) above, certain small scale micro renewable projects are exempt from the need to seek planning permission. The planning exemptions for renewable technologies that meet certain criteria (a summary of Statutory Instrument (SI) 83 of 2007 and Statutory Instrument (SI) 235 of 2008) are attached at Appendix 2.

Information is available on the Department on Environment, Heritage & Local Government website: <http://www.environ.ie> and from the Sustainable Energy Authority of Ireland <http://www.seai.ie/Renewables/REIO/>

**(k) Where are the fees associated with applications for authorisation/ licences/ permits for new installations published? Are they related to the administrative costs of granting such permits? Is there any plan to revise these fees?**

### **Commission for Energy Regulation (CER) Licensing and Authorisations**

Fees for the grant of authorisations and licences are as set out below. These are published on the Commission for Energy Regulation's website in Guidance notes for applicants. Under legislation the Commission has discretion to determine the application fee for authorisations and licences.<sup>47</sup> It is noted that fees are subject to periodic review and therefore may be revised, any such revisions being published on the CER's website.

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<sup>46</sup> [www.irishstatutebook.ie](http://www.irishstatutebook.ie)

<sup>47</sup> Electricity Regulation Act 1999, sections 14(5) & 17(2)

### **Authorisation to Construct**

<b>Installed Capacity</b>	<b>€</b>
1MW to < 5MW	35
5MW to <15MW	100
15MW to < 40MW	100
40MW to < 100MW	1,995
100MW to < 200MW	6,635
200MW to < 500MW	16,590
500MW+	19,905

### **Licence to Generate**

<b>Installed Capacity</b>	<b>€</b>
1MW to < 5MW	35
5MW to <15MW	55
15MW to < 40MW	100
40MW to < 100MW	400
100MW to < 200MW	1,330
200MW to < 500MW	3,320
500MW+	3,980

### **Planning**

On the planning side, different fees apply to different types of development, for example, the current fee for an application to build a house is €65, but costs vary depending on the nature of the project, for example the provision of overhead transmission or distribution lines for conducting electricity lines is €80 or €50 for each 1,000 metres length, or part thereof whichever is the greater. The fee for making submissions or observations to a planning authority in respect of a planning application is €20.

Since the enactment of the 2000 Act planning authorities are statutorily obliged to acknowledge submissions on planning applications and to consider those submissions before making decisions on planning applications. Persons who make submissions are also entitled to be notified of

- any new information provided;
- the decision of the planning authority;
- an appeal against the decision of the planning authority.

The fee for applying for a project under the Strategic Infrastructure consent process is €100,000 and the fee for making submissions or observations to An Bord Pleanála for development under the Planning and Development (Strategic Infrastructure) Act 2006 is €50.

The Board is legally obliged to consider all submissions or observations before making a decision. Third parties also have the right to:

- be notified of any new significant information provided by an applicant;
- request an oral hearing, and;
- be notified of the decision of the Board.

The fees charged are not related directly to the administration costs of processing an application in the case of non strategic infrastructure application (i.e. the administrative costs involved would be higher than the fees charged

### **Offshore Projects**

Foreshore leases and licences are subject to charges for all state-owned foreshore. In the case of offshore energy projects, the valuation of the lease will form part of the negotiation process and may be based on the nominal energy output of each project, and may be subject to regular reviews.

**(I) Is official guidance available to local and regional administrative bodies on planning, designing, building and refurbishing industrial and residential areas to install equipments and systems using renewable energy sources in electricity and heating and cooling, including in district heating and cooling? If such official guidance is not available or insufficient, how and when will this need be addressed?**

### **Planning**

In relation to the planning processes for renewable energy developments, various guidance documents are available for the information of Planning Authorities, potential developers as well as interested members of the public. Each Planning Authority is obliged by statute to prepare a Development Plan every 6 years for their functional area. The contents of this Development Plan would include objectives for the provision of infrastructure including energy facilities.

Guidelines specifically in relation to wind energy development were published by the Department of the Environment, Heritage and Local Government in June 2006. These guidelines include advice inter alia on the size, scale and siting of wind turbine. The guidelines are available on the Department's website at:

<http://www.environ.ie/en/Publications/DevelopmentandHousing/Planning/>

Certain Planning Authorities have produced their own Wind Energy Strategies i.e. Wexford County Council<sup>48</sup>, Mayo County Council<sup>49</sup> and Clare County Council<sup>50</sup>.

The necessity for additional planning guidance for planning authorities relating to the broader area of renewable energy development is a matter for the Department of Environment, Heritage & Local Government.

### **General**

As noted in section 4.2.4, part of the Sustainable Energy Authority of Ireland, the Renewable Energy Information Office (REIO), deals exclusively with providing users and suppliers with up to date accurate technical and process information.

The Renewable Energy Information Office undertakes a range of activities for example conferences, workshops, demonstration events and study tours. All information is published online<sup>51</sup> with a wide range of detailed information available for all stakeholders. In addition, the Renewable Energy Information Office (REIO) operates a telephone help desk that caters to individual queries from members of the public.

The Renewable Energy Information Office has developed targeted resources for planners and architects e.g.

[Passive Homes - Guidelines For The Design And Construction Of Passive House Dwellings In Ireland](#); (PDF, 2.04MB)

[Retrofitting Passive homes - Guidelines for Upgrading existing dwellings in Ireland to the PassivHAUS Standard](#); (PDF, 2.5MB)

[Passive Solar Design](#) (.pdf, 848kb)

[Solar Water Heaters](#) (.pdf, 156kb)

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<sup>48</sup> <http://www.wexford.ie/wex/YourCouncil/Publications/DevelopmentPlans/WindStrategy/>

<sup>49</sup> <http://www.mayococo.ie/en/Planning/DevelopmentPlansandLocalAreaPlans/MayoCountyDevelopmentPlan2008-2014/>

<sup>50</sup> <http://www.clarecoco.ie/planning/planning-strategy/development-plans/clare-county-development-plan-2005-2011/>

<sup>51</sup> <http://www.seai.ie/Renewables/REIO>

Renewable Heat Pumps (.pdf, 222kb)

Wood Pellet Stoves (.pdf, 848kb)

Further examples of the guidance and information provided by REIO can be found at:

[http://www.seai.ie/Renewables/REIO\\_Library/](http://www.seai.ie/Renewables/REIO_Library/)

[http://www.seai.ie/Renewables/Renewable\\_Energy\\_in\\_Business\\_and\\_Industry/](http://www.seai.ie/Renewables/Renewable_Energy_in_Business_and_Industry/)

[http://www.seai.ie/Renewables/Renewable\\_Energy\\_for\\_the\\_Homeowner/](http://www.seai.ie/Renewables/Renewable_Energy_for_the_Homeowner/)

**(m) Are there specific trainings for case handlers of authorisation, certification and licensing procedures of renewable energy installations?**

The regulator's (CER) staff have published guidance notes for applicants for authorisations and licences and answer queries from prospective applicants by phone and email on an ongoing basis. The staff are trained in house. With regard to the planning process, decisions are taken by trained planners with appropriate qualifications.

#### **4.2.2. Technical specifications (Article 13(2) of Directive 2009/28/EC)**

**(a) To benefit from support schemes do renewable energy technologies need to meet certain quality standards? If so, which installations and what quality standards? Are there national, regional standards that go beyond European standards?**

#### **REFIT**

The main support scheme for RES-E is REFIT (Renewable Energy Feed-In Tariff.)

Information on REFIT can be found on the Department's website:

<http://www.dcenr.gov.ie/Energy/Sustainable+and+Renewable+Energy+Division/>

The REFIT scheme currently covers onshore wind (large and small scale), small scale hydro, biomass landfill gas and other biomass. Subject to state aid clearance, REFIT will also be offered for Anaerobic Digestion/High Efficiency CHP, ocean (wave and tidal) energy and offshore wind.

Generators in receipt of REFIT must ultimately be licensed and authorised by the Commission for Energy Regulation (CER). One of the stipulations for renewable energy technologies to benefit from REFIT is to have "evidence of a connection offer or access to a connection." This connection offer binds the generator to the technical standards in the Grid Code. The CER's licensing and authorisation process and information on the Grid Code is outlined briefly below.

#### **CER Licensing and Authorisation process**

Generating stations must obtain an authorisation to construct or reconstruct a generating station ('authorisation') in advance of construction<sup>52</sup> and a licence to generate ('licence') before commencing to generate electricity<sup>53</sup> from the Commission for Energy Regulation (CER).

A developer need not apply for an authorisation until after they are accepted into REFIT. A developer will however not be able to receive support from REFIT (in financial terms) until the site starts generating and this cannot occur until an authorisation to construct and license to generate is issued to the developer by the CER.

#### **The Grid Code**

The Grid Code applies technical standards to all generators wanting to connect to the power system. Under the Grid Code all user plant and apparatus associated with the connection to the Transmission System (it is noted that this includes offshore wind connected to the Irish transmission system) shall comply with the relevant technical standards applying to user plant and apparatus.

The Grid Code is available online at:

<http://www.eirgrid.com/media/EirGrid%20Grid%20Code%20Version%203.4.pdf>

The technical standards in the Irish Grid Code - especially the technical requirements for wind generators are considered to be comparatively advanced. There is on-going work to develop standards at a European level through ENTSO-E and EirGrid<sup>54</sup> is actively involved in this. The requirement to adhere to the Grid Code ensures that large renewable generation plants are designed and built to the required standards.

<sup>52</sup> Section 16 of the Electricity Regulation Act 1999

<sup>53</sup> Section 14 of the Electricity Regulation Act 1999

<sup>54</sup> EirGrid plc is a state-owned commercial company dedicated to the provision of transmission and market services for the benefit of electricity consumers.

The Irish Transmission System Operator, EirGrid, has introduced a performance monitoring mechanism for all generators on the power system. As more intermittent generation comes on to the system, EirGrid, through its performance monitoring mechanism, is working to minimise potential problems and ensure the optimal functioning of the grid.

### **Distribution Code**

Some renewable generators are connected to the distribution system. The distribution code applies technical standards to distribution connected windfarms and the distribution code is available online at:

[http://www.esb.ie/esbnetworks/en/about-us/our\\_networks/distribution\\_code.jsp](http://www.esb.ie/esbnetworks/en/about-us/our_networks/distribution_code.jsp)

### **Transmission and Distribution Codes Review Panel**

Both the distribution and transmission grid codes have a review panel composed of the main stakeholders, with any proposed changes requiring approval by the CER.

### **Microgeneration**

In the Irish electricity market at present, only one supply company (ESB Customer Supply) is currently offering consumers a microgeneration feed-in tariff support scheme under certain terms and conditions. This tariff is offered on a commercial basis and it is open to other supply companies to enter this market.

Further details of the ESB micro generation scheme are available at:

[http://www.esb.ie/esbnetworks/en/generator-connections/micro\\_gen\\_connections.jsp](http://www.esb.ie/esbnetworks/en/generator-connections/micro_gen_connections.jsp)

In order to connect micro generation and to avail of the microgeneration support offered by ESB, certain technical specifications must be adhered to.

For small low voltage micro generators:

EN 50438 with specific Irish Protection settings appropriate to the ESB Network<sup>55</sup> applies and details are provided at:

[http://www.esb.ie/esbnetworks/en/generator-connections/micro\\_gen\\_connections.jsp](http://www.esb.ie/esbnetworks/en/generator-connections/micro_gen_connections.jsp)

EN 50438 specifies the requirements for the connection of micro-generators in parallel with public low-voltage distribution networks and defines micro generation as a source of electrical energy and all associated equipment designed to operate in parallel with the low voltage system, rated up to and including:

- 25A at low voltage[230V], when the network connection is single phase, or
- 16A at low voltage [230/400V], when the network connection is three phase.

The micro-generator must conform to the conditions governing the connection and operation of micro-generation available online at:

[http://www.esb.ie/esbnetworks/en/downloads/conditions\\_governing\\_the\\_connection\\_and\\_operation\\_of\\_microgeneration\\_131106.pdf](http://www.esb.ie/esbnetworks/en/downloads/conditions_governing_the_connection_and_operation_of_microgeneration_131106.pdf)

### **SEAI Microgeneration Pilot Scheme**

The Sustainable Energy Authority of Ireland is currently running a micro-generation pilot scheme – see [www.seai.ie/microgeneration](http://www.seai.ie/microgeneration) . The principal objective of the pilot is to investigate and test technical, market and regulatory issues associated with the installation, network connection and operation of small and micro scale generation technologies. An associated programme objective is to assess measures required for supplier and product qualification to minimise the risk of adverse outcomes at small-scale and micro-generation installations, hence promoting the robust growth of a supply base.

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<sup>55</sup> The ESB Networks business builds, operates and maintains a nationwide distribution system

It is recognised that the equipment used for microgeneration needs to be safe and reliable and should perform to the specified standards. Installation quality may also impact performance and safety, and therefore there is a need for standards for microgeneration installations and for installer training. By ensuring that the technical specifications and standards for equipment and installations are properly defined, the secure running of the electricity system can be maintained.

The standards being applied to these installations are based on those shown in the table below. In some instances, where 3<sup>rd</sup> party independent verification testing had not occurred (e.g. micro wind turbines), manufacturers test reports were reviewed and accepted where they indicated that test to the requirements of the standard had been carried out by the manufacturer.

<b>Technology</b>	<b>Standard</b>	<b>Detail</b>
Micro Wind Turbines	EN 61400-2	Concerned with all subsystems of SWT such as protection mechanisms, internal electrical systems, mechanical systems, support structures, foundations and the electrical interconnection with the load
	EN 61400-11	Acoustic noise measurement techniques
	EN 61400-12	Procedure for measuring the power performance characteristics of a single wind turbine and applies to the testing of wind turbines of all types and sizes connected to the electrical power network.
	EN 50438	Requirements for the connection of micro-generators in parallel with public low-voltage distribution networks
	73/23/EEC	Low Voltage Directive (LVD)
	98/37/EC	Machinery Directive
	89/336/EEC	Electromagnetic Compatibility (EMC)
Photo Voltaic	EN 61215	Crystalline silicon terrestrial photovoltaic (PV) modules. Design qualification and type approval
	EN 61646	Thin-film terrestrial photovoltaic (PV) modules. Design qualification and type approval
	EN 50380	Datasheet and nameplate information for photovoltaic modules
	EN 50438	Requirements for the connection of micro-generators in parallel with public low-voltage distribution networks
	73/23/EEC	Low Voltage Directive (LVD)
	98/37/EC	Machinery Directive



	89/336/EEC	Electromagnetic Compatibility (EMC)
Hydro	IEC 60193	Hydraulic turbines, storage pumps and pump-turbines – Model acceptance tests
	EN 50438	Requirements for the connection of micro-generators in parallel with public low-voltage distribution networks

All pilot installations in SEAI's microgeneration pilot programme are subject to a performance monitoring period of 18 months. The pilot programme is expected to run until mid 2011.

In conjunction with the pilot trials, the market potential of microgeneration and the possible supports that would be needed to achieve that potential are being considered.

### **Greener Homes & Reheat**

The *Greener Homes*<sup>56</sup> scheme provides a grant to domestic property owners to contribute to the initial capital cost of installing a renewable heating technology in an existing home. The *ReHeat*<sup>57</sup> scheme provides support for similar renewable heating systems for larger scale entities in the commercial, industrial, community and public sectors. The Table below outlines the supported technologies and the standards that apply.

<b>Renewable Technology</b>	<b>Standards</b>	<b>Details</b>
Heat Pumps (Greener Homes scheme and Reheat scheme)	IS EN 14511	Minimum Coefficient of Performance required for each heat pump type (Air/water, water/water, brine/water, direct expansion).
	89/336/EEC	Electromagnetic Compatibility (EMC)
	73/23/EEC	Low Voltage Directive (LVD)
	97/23/EC	Pressure Equipment Directive (PED)
Solar Collectors (Greener Homes scheme and Reheat scheme)	IS EN 12975	Thermal solar systems and components - solar collectors: general requirements and test methods.
	IS EN 12976	Thermal solar systems and components - factory made systems: general requirements and test methods.
	IS ENV 12977	Thermal solar systems and Components - custom built systems: general requirements and test methods.
Wood pellet & Wood chip boilers (Greener Homes)	IS EN 303-5	Terminology requirements, testing and marking
	73/23/EEC	Low Voltage Directive (LVD)
	98/37/EC	Machinery Directive
		Minimum efficiency level and maximum emission levels (CO, organic gaseous compounds and Dust particles) are

<sup>56</sup> See: <http://www.seai.ie/Grants/GreenerHomes/>

<sup>57</sup> [http://www.seai.ie/Grants/Renewable\\_Heat\\_Deployment\\_Programme/](http://www.seai.ie/Grants/Renewable_Heat_Deployment_Programme/)

Scheme and Reheat scheme), wood gasifier boilers (Greener Homes Scheme)		also imposed on boilers as part of registration process.
Wood Pellet Stoves (Greener Homes Scheme)	IS EN 14785	Residential space heating appliances fired by wood pellets - requirements and test methods
	73/23/EEC	Low Voltage Directive (LVD)
	98/37/EC	Machinery Directive
		Minimum efficiency level and maximum emission levels (CO, organic gaseous compounds and Dust particles) are also imposed on boilers as part of registration process.

SEAI instituted a quality standards programme for the Greener Homes and Reheat schemes based on inspection of installations. 10% of Greener Homes installations were inspected and in excess of 10% Reheat installations. Where the equipment installed did not meet the criteria as specified in the above table, the grant funding was not awarded. SEAI with Greener Homes publish a list of all products on the market in Ireland that meet the standards identified. While ongoing monitoring of equipment performance would be beneficial, the programme resources did not allow for metering for installations in the scheme.

### **Accelerated Capital Allowances**

The Accelerated Capital Allowance (ACA) is a tax incentive which aims to encourage companies to invest in energy saving and renewable energy technology. The ACA allows companies to write off 100% of the purchase value of qualifying energy equipment against their profit in the year of purchase. Technologies covered include wind turbine >5kw, solar PV and CHP. Biomass boilers are to be added in 2010.

Qualifying products from the defined ACA equipment categories are listed on the ACA Specified List which is updated on a regular basis. Qualification requires equipment to be CE marked and have been tested according to, the appropriate European standard(s), or scientific equivalent, applicable to its size and type, including:

Type Standard	Minimum Peak Watt	(Wp) output per m2
Crystalline silicon	EN 61215	110
Thin-film	EN 61646	30

The ACA currently covers 7 different equipment categories and 29 associated technologies, and only equipment that meets the relevant eligibility criteria is listed on the ACA Specified List.

[http://www.seai.ie/Your\\_Business/Accelerated\\_Capital\\_Allowance/ACA\\_Categories\\_and\\_Criteria/](http://www.seai.ie/Your_Business/Accelerated_Capital_Allowance/ACA_Categories_and_Criteria/)

It is intended that the ACA product lists and criteria (subject to EU approval) will in future be used as a basis for mandatory public procurement standards.

### **Biomass AD CHP**

A biomass AD CHP programme is run by SEAI  
[http://www.seai.ie/Grants/Biomass CHP Anaerobic Digestion CHP Call for Proposals/Introduction to the Programme/](http://www.seai.ie/Grants/Biomass_CHP_Anaerobic_Digestion_CHP_Call_for_Proposals/Introduction_to_the_Programme/)

The aim of the programme is to increase the deployment of biomass CHP and anaerobic digestion CHP schemes in industrial, commercial, service and public sectors. The Programme provides varying grant levels depending on the nature of the project and the technologies involved. In order to be eligible for the grant, applicants must demonstrate that they meet certain quality standards.

A feasibility study of the site's suitability to CHP is required. Applicants must agree to have the projected annual energy savings verified and certified by an SEAI appointed inspector, stating that the CHP plant will comply with the requirements of the EU Directive 2004/8/EC.

Applicants must agree to install heat and electricity metering necessary to calculate electricity from the CHP plant as per Annex II, and the primary energy savings as per Annex II of EU Directive 2004/8/EC and the Guidelines for the implementation of the Annexes II and III of the Directive.

The plant must be designed to operate as a high efficiency CHP, in accordance with the EU CHP directive. The plant must demonstrate primary energy savings (PES) as calculated by the methodology defined in the EU Cogeneration Directive 2004/8/EC, i.e. greater than zero for schemes with generating capacity less than 1MWe or greater than 10% for schemes with generating capacity above 1MWe.

### **Biofuels Mineral Oil Tax Relief**

A biofuels mineral oil tax relief scheme is run by the Department of Communications, Energy and Natural Resources. The primary aim of the scheme is to increase the amount of biofuels in Irish transport.

A guidance note on the scheme is available online:  
<http://www.dcenr.gov.ie/NR/rdonlyres/A29AF63C-E2D4-4A1E-A8E8-AB888583938E/0/GuidanceNoteforApplicantsFINAL.doc>

The mineral oil tax relief is available for 4 distinct categories complying with certain technical specifications.

1. Biofuel blends complying with EU Diesel Standard EN590
2. Bioethanol which consists of un-denatured ethyl alcohol of 80% by volume or higher and is intended for blending with petrol to a maximum of 5% (bioethanol), for use in standard unmodified petrol vehicle engines and also for higher blends, up to 85%, for use in flexible fuel vehicles (FFV's).
3. Pure plant oil produced from oilseed rape which is used in modified diesel vehicle engines
4. Biofuels used in identified captive fleets where it can be shown that the engine warranties of the vehicles in question cover the use of the specified biofuels at the specified blend levels. Any biofuels as defined in Directive 2003/30/EC can be

considered in this category, which can include biodiesel complying with EN 14214 blended with fossil fuels in blends above the limits permitted under diesel standard EN590.

#### **4.2.3 Buildings (Article 13(3) of Directive 2009/28/EC)**

##### **(a) Reference to existing national and regional legislation (if any) and summary of local legislation concerning the increase of the share of energy from renewable sources in the building sector**

Part L of the Second Schedule of the Building Regulations 1997-2008 sets out the requirements regarding conservation of fuel and energy in buildings.

The latest revision to Part L requirements occurred in 2008 when the Building Regulation (Part L Amendment) Regulations 2008 were signed into law. These are available on the Department of Environment, Heritage and Local Government website:  
<http://www.environ.ie/en/DevelopmentandHousing/BuildingStandards/#Building%20Regulations%201997%20-%202009>

In relation to Dwellings, Part L 3(b) requires that "a reasonable proportion of the energy consumption to meet the energy performance of the dwellings is provided by renewable energy sources".

The associated Technical Guidance Document (TGD L 2008) which outlines how the regulatory requirements can be achieved in practice, specifies that a reasonable minimum level of energy provision from renewable energy technologies in Dwellings shall be regarded as:

- 10 kWh/m<sup>2</sup>/annum contributing to energy use for domestic hot water heating, space heating or cooling, or
- 4kWh/m<sup>2</sup>/annum of electrical energy, or
- A combination of these which would have equivalent effect.

In the interests of clarity, "renewable energy technologies" means technology, products or equipment that supply energy derived from renewable energy sources, e.g. solar thermal systems, solar photo-voltaic systems, biomass systems, systems using biofuels, heat pumps, aero-generators and other small scale renewable systems.

In the case of high density developments e.g. apartments and mixed use developments, the use of small scale combined heat and power (CHP) systems can be used as an alternative to renewable technology sources.

There is no prescribed minimum statutory requirement for renewable energy in relation to Buildings Other Than Dwellings.

However, Part 2 of the European Communities (Energy Performance of Buildings) 2006-2008 Regulations, which transposed the EU Energy Performance of Buildings Directive (2002/91/EC) into Irish law, does require that consideration must be given before construction commences to the technical, environmental and economic feasibility of alternative energy systems whenever a building of 1,000m<sup>2</sup> or greater is commissioned.

##### **(b) Responsible Ministry(/ies) / authority(/ies):**

- The Minister for the Environment, Heritage and Local Government, under powers conferred on him by Sections 3 and 18 of the Building Control Act 1990 (No. 3 of 1990), makes regulations setting out the minimum performance requirements that must be achieved by new buildings. Such requirements include provisions for the conservation of fuel and energy and for the limitation of carbon dioxide emissions.

- The Minister for Communications, Energy and Natural Resources is responsible for determining national policy on energy matters, including regulating, promoting and developing renewable energy sources.
- The Sustainable Energy Authority of Ireland is a statutory agency tasked with, among other things, promoting and assisting development of renewable sources of energy.
- Local Building Control Authorities are responsible for enforcing energy performance requirements, including requirements in relation to renewables, in new buildings situated within the functional area of the local authority concerned.
- OPW (The Office of Public Works)<sup>58</sup> is tasked with procuring and managing a significant proportion of the stock of buildings in state ownership.

### **(c) Revision of rules, if any, planned**

Building Regulations Part L (Conservation of Fuel and Energy) for dwellings will be upgraded in 2010 to provide for a 60% improvement in energy efficiency requirements and a 60% reduction in CO<sub>2</sub> emissions relative to 2005 standards (this includes a 40% improvement in energy and carbon dioxide requirements achieved under the current 2008 regulations). Owners or developers may decide to increase the renewable energy component in order to achieve compliance with the more onerous limitations on energy usage/ carbon emissions placed on new dwellings under the revised regulations.

The Department of Environment is also developing a strategic framework to achieve a carbon neutral standard for dwellings by 2013. Increased use of onsite renewables will be one of the options open for consideration with a view to achieving carbon neutrality.

Building Regulations Part L (Conservation of Fuel and Energy) for buildings other than dwellings are also being reviewed this year. It has not yet been determined whether a mandatory requirement for renewable energy will be included in the new Regulations proposed for buildings in this category. Consideration will be given to aligning the calculation methodology for the RES-H contribution of Heat Pumps in the Non-Domestic Energy Assessment Procedure (NEAP)<sup>59</sup> and the approach in Annex VII of Directive 2009/28/EC. It is considered that this would facilitate the uptake of heat pumps, which can make an important contribution to our RES-H target.

It is noted that microgeneration has a particular role in terms of the uptake of renewable energy in buildings. As noted in section 4.2.2 SEAI is currently running a microgeneration pilot programme, which is subject to a performance monitoring period of 18 months. The pilot programme is expected to run until mid 2011.

In conjunction with the pilot trials, the market potential of microgeneration and the possible supports that would be needed to achieve that potential are being considered.

As a significant percentage of electricity from renewable sources is being supplied via the national electricity grid, it has been suggested that renewable requirements for buildings could more appropriately be framed as a percentage of heat required, with an exemption

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<sup>58</sup> <http://www.opw.ie/en/> The OPW is a service organisation. Its customers are Government, other Departments, Offices and Agencies and, ultimately, the public. Its core services are property maintenance, property management, architectural and engineering services, heritage services, project management and procurement services.

<sup>59</sup> [http://www.seai.ie/Your\\_Building/BER/Non\\_Domestic\\_Buildings/Non\\_domestic\\_Energy\\_Assessment\\_Procedure\\_NEAP/](http://www.seai.ie/Your_Building/BER/Non_Domestic_Buildings/Non_domestic_Energy_Assessment_Procedure_NEAP/)

where a very low level of heat in a building is required. This would stimulate RES-H as well as incentivise energy efficiency through highly insulated buildings, decreasing overall energy requirements. This is a matter that will be considered further by the relevant authorities. Achieving the RES-H target could also be assisted by the active promotion of heating from renewable sources in public buildings. It is noted in this context that, the OPW in its procurement of goods, supplies and services considers sustainability priorities, including the use of renewable energy sources, including biomass.

It is worth noting in this context that highly insulated buildings will be achieved through incremental improvements in Part L requirements. It is noted that the approach of driving down backstop values for passive measures within Part L is already proving effective in stimulating greater energy efficiency in this regard. However, Ireland would welcome further discussion at EU level on the general point raised.

**(d) Summary of the existing and planned measures at regional / local levels:**

Building legislation is on a national rather than regional or local basis. Local authority building programmes would reflect requirements in national legislation. The Department of Environment, Heritage and Local Government has approved funding for flagship low-carbon housing schemes in eight local authorities which will begin construction in summer 2010.

Local Authorities and voluntary/co-operative housing associations have been invited by the Department of the Environment, Heritage and Local Government to submit proposals for demonstration projects to deliver sustainable energy-efficient housing developments in which homes will reach a minimum A2 Building Energy Rating; €10m has been allocated in 2009 and again in 2010 to support these demonstration projects, which will significantly advance the knowledge and experience base in the design, construction and use of high performing energy efficient housing, and promote wider awareness of the technologies involved.

Many regions and local areas have been involved in voluntary demonstration projects that include renewables in buildings. Some examples are outlined.

As a participant in the FP6 funded HOLISTIC project<sup>60</sup>, Dundalk is setting out to provide a showcase of some of the innovative technologies, policies and practices that will be needed in order to develop sustainable energy communities in Ireland and elsewhere. As part of this project, the Dundalk Sustainable Energy Zone has established targets of 40% energy efficiency, 20% renewable energy, and 20% renewable heat, from a 2005 baseline, to be achieved in 2010.

It is noted that the draft Tipperary Energy Agency Strategic Plan 2010 to 2015 has set a county target of achieving 25% of energy supply to come from renewable energy sources by 2020 as well as a specific target for the average BER rating across all dwellings in the county - C1 by 2020.

The Mid-West Regional Authority and the South West Regional Authority both produced bioenergy plans. Many counties are preparing renewable energy strategies and several county development plans have detailed chapters on renewable energy development.

**(e) Are there minimum levels for the use of renewable energy in building regulations and codes?** There are minimum levels for use of renewable energy in building regulations and codes.

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<sup>60</sup> <http://www.seai.ie/Dundalk2020/FAQ/>

### **In which geographical areas and what are these requirements?**

These apply nationwide. As outlined in 4.2.3 (a) above, Dwellings, Part L 3(b) requires that "a reasonable proportion of the energy consumption to meet the energy performance of the dwellings is provided by renewable energy sources".

### **In particular, what measures have been built into these codes to ensure the share of renewable energy used in the building sector will increase?**

Building Regulations Part L (Conservation of Fuel & Energy) are subject to ongoing review in the light of emerging trends and developments within the industry and with a particular emphasis on technological improvements.

While the mandatory provision for onsite renewable energy components is set at a relatively modest level, it is anticipated that incremental tightening of maximum permitted energy and carbon coefficients over time may lead to greater use of onsite renewables.

The mandatory renewables requirement was first introduced in 2007 and became fully effective from 1 July 2009 on the expiry of certain transitional planning-related exemptions from the new regulations - as more new houses are built each year and as older houses become obsolete, the proportion of the housing stock with a renewable energy component will constantly increase over time.

In parallel the component of grid electricity derived from renewable sources is also being increased.

### **Biomass Certification**

It is recognised that renewable energy technologies using biomass can play an important role in renewable energy in buildings and that the use of certified biomass fuels can promote growth and confidence in the industry. Ireland has adopted, or is set to adopt, the European standards for the majority of traded biomass fuels. Bioenergy feed stocks in Ireland are dominated by solid biomass for which a comprehensive set of European quality standards and quality assurance standards are well advanced. Most biomass fuel producers in Ireland operate at a small scale. The development of quality assurance associations can assist small producers to economically implement quality systems.

The Irish Wood Fuel Quality Association (WFQA) recently launched its quality assurance scheme, and lessons learned by the WFQA are likely to be of interest for other bioenergy industries looking to develop their own quality assurance schemes. A quality standard and quality assurance system for anaerobic digestion digestate is currently being developed within Ireland and will impact the potential feedstocks for this process. Membership of the WFQA includes all major industry operators in wood fuel production and supply including: EcoWood, Balcas, Rural Generation Limited, Purser-Tarlton, DPellet, TimberPro, and the Irish Bio Energy Association. SEAI sits on the WFQA steering committee as a non-voting member, along with representatives of the National Standards Authority of Ireland and Coford (National Council for Forest Research and Development.)

### **Solar Water Heating Certification**

Ireland has a national building code which sets out the range of performance requirements that a new building must achieve. The Building Regulations consist of 12 separate parts, classified as Parts A to M, which set out the statutory requirements with which a builder or owner must comply whenever a building is constructed. A Technical Guidance Document (TGD) accompanies each part of the Regulations outlining how compliance with the regulatory requirement can be achieved in practice. A link to the building regulations and their associated TGDs can be found at: <http://www.environ.ie/en/tgd/>



The onus is on owners or builders of new dwellings to demonstrate compliance with the requirements of relevant parts of the building code. This has proved particularly challenging in the case of solar water heating systems which are an innovative development in Ireland.

In response a Code of Practice has recently been developed by the National Standards Authority of Ireland in collaboration with the Department of Environment, Heritage and Local Government and SEAI. A copy of the Code of Practice has recently been released for public consultation and can be found at: <http://www.nsai.ie>

The Code of Practice will assist providers and specifiers of solar water heating systems, in the interpretation of the requirements specified in the building code and will provide guidance as to how the requirements should be addressed in practice.

This usual method for demonstrating compliance with the building code in the case of innovative products is to provide certification from any recognised institution within the European Economic Area (EEA) that the product has been assessed for the performance requirements implied in the Irish Building Regulations.

Currently one collector system has attained an Irish Agrément Board certificate <sup>61</sup> and this is a tube system. There are a number of other systems in the process of assessment, including some flat plate systems. It is possible that appropriate certification is/will be procured from other recognised institutions within the EEA.

As Ireland relies on the importation of solar technology we have been particularly attentive to explain our requirements to suppliers / manufacturers from other member states. Our experience in this regard will be helpful to regulators in other Member States. Overcoming barriers to renewables development generally has to be a critical priority for all Member States and the Irish Government looks forward to further progress and discussion in this important area.

**What are the future plans related to these requirements / measures?**

Future plans are outlined in more detail at 4.2.3 (c) above. Building Regulations Part L (Conservation of Fuel and Energy) for dwellings will be upgraded this year. The Department of Environment is also developing a strategic framework to achieve a carbon neutral standard for dwellings by 2013. Increased use of onsite renewables will be a key element of the framework to achieve carbon neutrality. Building Regulations Part L (Conservation of Fuel and Energy) for buildings other than dwellings are also being reviewed this year.

**(f) What is the projected increase of renewable energy use in buildings until 2020?**

**Table 6 Estimated share of renewable energy in the building sector (%)**

	2005	2010	2015	2020
<b>Residential</b>	0.21%	0.26%	0.59%	0.88%
<b>Commercial</b>	0.01%	0.09%	0.35%	1.05%
<b>Public</b>	0.02%	0.03%	0.09%	0.16%
<b>Industrial</b>	1.25%	1.45%	1.51%	2.09%
<b>Total</b>	1.49%	1.84%	2.54%	4.17%

<sup>61</sup> Agrément certification is designed specifically for new building materials, products and processes that do not yet have a long history of use and for which published national standards do not yet exist. The Irish Agrément Board (IAB) assesses, specifies testing, and where appropriate, issues Agrément certificates for such products.

**(g) Have obligations for minimum levels of renewable energy in new and newly refurbished buildings been considered in national policy? If so, what are these levels? If not, how will the appropriateness of this policy option be explored by 2015?**

Minimum levels of renewable energy in new and newly refurbished buildings been considered in national policy for new dwellings. They have been provided for as regards new buildings as described at 4.2.3 (a) above.

As regards existing dwellings, obligations for renewable energy were not extended to refurbishments or major renovations as the age of a building has a major impact on costs and benefits. Application of the proposed cost optimal methodology under the recently agreed recast Energy Performance in Buildings Directive may provide a context for addressing this in future.

As regards new and existing non-domestic buildings, renewable energy will be considered in 2010/2011 as part of current review of requirements.

**If not, how will the appropriateness of this policy option be explored by 2015?**

As outlined at 4.2.3 (c) above, Building Regulations Part L (Conservation of Fuel and Energy) for dwellings will be upgraded this year. The Department of Environment is also developing a strategic framework to achieve a carbon neutral standard for dwellings by 2013. Increased use of onsite renewables will be a key element of the framework to achieve carbon neutrality. Building Regulations Part L (Conservation of Fuel and Energy) for buildings other than dwellings are also being reviewed this year.

Application of cost optimal framework for upgrading energy performance requirements for buildings and building components will have a major bearing on decisions in this area.

**(h) Please describe plans for ensuring the exemplary role of public buildings at national, regional and local level by using renewable energy installations or becoming zero energy buildings from 2012 onwards? (Please take into account the requirements under the EPBD).**

Significant relevant activity is taking place.

- The Government has committed to achieving a carbon neutral building standard for dwellings by 2013.
- By convention, publicly funded housing programmes are built to the latest standards irrespective of whether transitional exemptions apply or not.
- The Department of the Environment, Heritage and Local Government has approved funding for flagship low-carbon housing schemes in eight local authorities which will begin construction in Summer 2010.
- The importance from a public policy perspective of developing landmark sustainable public buildings is well understood - the Department of Environment sponsors an annual prize for the development of sustainable public buildings.
- The Office of Public Works (OPW) has also a strong policy focus towards sustainability/energy efficiency.
- Since January 2009, all public sector buildings over 1000m<sup>2</sup> are required to display an energy certificate based on energy consumption in a recent 12 month period and

update it at least annually. A parallel programme requires local authorities to report energy consumption. It is envisaged that this will be incorporated into the SEAI public sector programme. SEAI has previously provided grant assistance for energy efficient/renewable retrofit: see

[http://www.seai.ie/Your Business/Public Sector/Grants/](http://www.seai.ie/Your_Business/Public_Sector/Grants/)

- SEAI provide energy advice and mentoring services to public bodies and disseminate best practice case studies:

[http://www.seai.ie/Your Business/Public Sector/Best Practice/](http://www.seai.ie/Your_Business/Public_Sector/Best_Practice/)

[http://www.seai.ie/Your Business/Public Sector/Services/](http://www.seai.ie/Your_Business/Public_Sector/Services/)

#### **(i) How are energy efficient renewable energy technologies in buildings promoted?**

- The scheme of Accelerated Capital Allowances for Energy Efficient Equipment was introduced in section 46 of the Finance Act 2008 and has been broadened each year since. Companies which purchase specific energy efficient equipment (including renewable technologies) can claim their full cost against corporation tax in the year of purchase (100% capital allowance) instead of the usual 12½% over 8 years for plant and machinery.
- Grant assistance under schemes funded by the Department of Communications, Energy and Natural Resources and administered by the Sustainable Energy Authority of Ireland (SEAI) such as Greener Homes and Houses of Tomorrow
- Social Housing Investment Programme: Local Authorities and voluntary/co-operative housing associations have been invited by the Department of the Environment, Heritage and Local Government to submit proposals for demonstration projects to deliver sustainable energy-efficient housing developments in which homes will reach a minimum A2 Building Energy Rating; €10m has been allocated in 2009 and again in 2010 to support these demonstration projects, which will significantly advance the knowledge and experience base in the design, construction and use of high performing energy efficient housing, and promote wider awareness of the technologies involved;
- Planning Exemptions (exemptions for renewable technologies previously in place for residential sector were extended to industrial/commercial and agricultural) sectors in 2008
- Annual Energy Show sponsored by SEAI
- Energy Audit services by SEAI and local energy management agencies and others.

#### **4.2.4 Information provisions (Articles 14(1), 14(2) and 14(4) of Directive 2009/28/EC)**

##### **(a) Reference to existing national and or regional legislation (if any) concerning information requirements according to Article 14 of Directive 2009/28/EC:**

The Sustainable Energy Act, 2002 (<http://www.irishstatutebook.ie/2002/en/act/pub/0002/index.html>) established the Sustainable Energy Authority of Ireland (SEAI)<sup>62</sup> and detailed its responsibilities.

Section 6 (f) of the legislation sets out that one of SEAI's specific functions is to provide advice, information and guidance to both ministers and to energy suppliers and users.

6. – (1) The functions of the Authority shall be:

- (a) to promote and assist environmentally and economically sustainable production, supply and use of energy,
- (b) to promote and assist energy efficiency and renewable sources of energy,
- (c) to promote and assist the reduction of greenhouse gas emissions and transboundary air pollutants associated with the production, supply and use of energy,
- (d) to promote and assist the minimising of the impact on the environment of the production, supply and use of energy
- (e) to promote and assist research, development and demonstration of technologies connected with the foregoing paragraphs of this subsection,
- (f) to provide advice, information and guidance
  - (i) to the Minister and such other Ministers or bodies as the Minister may direct, and
  - (ii) to energy suppliers and usersrelating to the matters specified in the foregoing paragraphs of this subsection

##### **(b) Responsible body/(ies) for dissemination of information at national / regional / local levels:**

SEAI, through its **Renewable Energy Information Office** (REIO), based in west Cork, deals exclusively with providing users and suppliers with up to date accurate technical and process information. Apart from its head office in Dublin and REIO in west Cork, SEAI also has regional offices in Dundalk and Sligo.

The SEAI undertakes a range of activities for example conferences, workshops, demonstration events and study tours. All information is published online<sup>63</sup> with a wide range of detailed information available for all stakeholders. In addition, the SEAI operates a telephone help desk that caters to individual queries from members of the public.

While the SEAI has a specific function in this area, there are many bodies and organisations involved in the provision of information and advice on renewable energy to stakeholders, depending on the nature of the query.

These include the Department of Communications, Energy and Natural Resources<sup>64</sup>, the Department of Environment, Heritage and Local Government<sup>65</sup>, the Department of Agriculture, Fisheries & Food,<sup>66</sup> Teagasc<sup>67</sup>, EirGrid<sup>68</sup>, ESB Networks<sup>69</sup> and the Commission for Energy Regulation.<sup>70</sup>

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<sup>62</sup> [www.seai.ie](http://www.seai.ie)

<sup>63</sup> <http://www.seai.ie/Renewables/REIO>

<sup>64</sup> <http://www.dcenr.gov.ie/Energy/Sustainable+and+Renewable+Energy+Division/>

<sup>65</sup> [http://www.viron.ie/en/](http://www.environ.ie/en/)

<sup>66</sup> <http://www.woodenergy.ie> and <http://www.ccwep.ie/>

The Association of Irish Energy Agencies also provides information on a local and regional level (although their core focus tends to be on implementation and project development) and some local energy agencies use public libraries for the dissemination of information. The Geological Survey of Ireland responds to geological and hydrogeological queries relating to geothermal energy.

It is recognised that information on renewable energy is provided across a wide range of bodies and organisations. Going forward, it is recognised that there is a need to review how information is provided to ensure there is a system in place whereby state bodies are in constant communication and co-ordination with each other and that the most up-to-date information is continuously being shared and disseminated.

**(c) Summary of the existing and planned measures at regional / local levels:**

The Association of Irish Energy Agencies (AIEA)<sup>71</sup> is an umbrella organisation for local energy agencies on the Island of Ireland. The collective goal of the Agencies is to support the development and implementation of energy policy and best practice in an impartial and effective manner at local, national and EU level, through its own actions and by strengthening the capabilities of its members. It is comprised of the following local/regional bodies:

- Carlow/Kilkenny Energy Agency
- Cavan Monaghan Rural Development
- CODEMA (City of Dublin Energy Management Agency)
- Cork City Energy Agency
- Cork County Energy Agency
- Donegal County Council
- Galway Energy Agency Limited
- Kerry Energy Agency
- Kildare County Council
- Limerick Clare Energy Agency
- Mayo Energy Agency
- Midlands Energy Agency
- Meath Energy Agency
- Monaghan County Council
- Northern Ireland Energy Agency
- Tipperary Energy Agency
- Waterford Energy Bureau
- Wexford Energy Agency Management Ltd

Each of these organisations are involved to varying degrees in the dissemination of information on renewable energy as well as engaging in studies relating to renewable energy in a local context.

Typically the role covered by energy agencies includes energy awareness and information dissemination; energy management and procurement; energy efficiency and renewable energy projects and sustainable energy training. Local authorities, in partnership with local energy agencies and through increased co-ordination between the association of energy agencies and county and city managers, can implement national policies at a local level

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<sup>67</sup> <http://www.teagasc.ie/>

<sup>68</sup> <http://www.eirgrid.com/renewables/>

<sup>69</sup> [http://www.esb.ie/esbnetworks/en/generator-connections/micro\\_gen\\_connections.jsp](http://www.esb.ie/esbnetworks/en/generator-connections/micro_gen_connections.jsp)

<sup>70</sup> <http://www.cer.ie/en/renewables-overview.aspx>

<sup>71</sup> <http://www.aiea.ie/home>

through renewable energy project development, management and promotion. Local energy agencies can also play a role in ensuring more public support for renewables.

**(d) Please indicate how information is made available on supporting measures for using renewable energy sources in electricity, heating and cooling and in transport to all relevant actors (consumers, builders, installers, architects, suppliers of relevant equipment and vehicles)**

SEAI is actively involved in providing information and advice on supporting measures for renewable energy sources to all relevant stakeholders through organising and participating in a wide range of seminars, conferences and energy shows and also in publishing information including case studies of exemplar projects.

Individual advice and guidance is also provided to key stakeholders at their request. Support schemes are widely advertised and published through targeted actions such as media advertising, energy shows and targeted stakeholder forums. Promotional efforts are generally tailored to the targeted groups in question.

There are a variety of support schemes in place to support renewable energy.

The Department of Communications, Energy & Natural Resources administers the feed in tariff scheme for the electricity sector (REFIT) as well as the Biofuels Mineral Oil tax relief scheme (available until end 2010.)

The Sustainable Energy Authority of Ireland administers domestic, commercial, industrial and public schemes for renewable heat and energy efficiency as well as the field trials for micro generation.

Information on the schemes is made available on the websites of each organisation <http://www.dcenr.gov.ie/Energy/Sustainable+and+Renewable+Energy+Division>  
<http://www.seai.ie/>

Both the Government Department officials and SEAI staff attend and speak at a wide variety of conferences, workshops, seminars and events on an ongoing basis at which renewable support schemes are discussed.

**Who is responsible for the adequacy and the publishing of this information?**

The Sustainable Energy Authority of Ireland (SEAI) and the Department of Communications, Energy and Natural Resources (DCENR) are responsible for publishing information on supporting measures for using renewable energy sources and ensuring the adequacy of the information available. The Department of Environment, Heritage and Local Government<sup>72</sup>, EirGrid<sup>73</sup>, ESB Networks<sup>74</sup> and the Commission for Energy Regulation all provide information on their websites relating to the renewable energy sector.

**Are there specific information resources for the different target groups, such as end consumers, builders, property managers, property agents, installers, architects, farmers, suppliers of equipment using renewable energy sources, public administration?**

The SEAI website ([www.seai.ie](http://www.seai.ie)) is structured to address specific target groups including home owners, businesses, industry and those interested in different types of renewable energy. Information on all sources of renewable energy is available from the website.

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<sup>72</sup> <http://www.environ.ie/en/>

<sup>73</sup> <http://www.eirgrid.com/renewables/>

<sup>74</sup> [http://www.esb.ie/esbnetworks/en/generator-connections/micro\\_gen\\_connections.jsp](http://www.esb.ie/esbnetworks/en/generator-connections/micro_gen_connections.jsp)

The SEAI-REIO organises a range of activities for example conferences, workshops, demonstration events and study tours that provide information to all interested stakeholders – information on activities in 2009 is provided at (g) below .

SEAI also provides information at an individual level, through its telephone helpdesk, to those stakeholders who make direct contact. In addition to the helpdesk, SEAI has specific technical experts to answer queries related to geothermal, bio and solar energy and the passive housing standard. Information for both applicants and suppliers to the various support schemes administered by the Sustainable Energy Authority of Ireland is available on the SEAI website<sup>75</sup>.

The Department of Communications, Energy & Natural Resources has published on its website the terms and conditions of REFIT (the renewable energy feed-in tariff scheme) as well as a series of clarifications on the operation of the scheme.

<http://www.dcenr.gov.ie/Energy/Sustainable+and+Renewable+Energy+Division/>

The Department deals with queries on the operation of the REFIT scheme on an ongoing basis and meets with industry representatives as necessary on request. The Department also handles queries and provides information on the Biofuels Mineral Oil tax relief scheme on an ongoing basis.

### **Are there information campaigns or permanent information centres in the present, or planned in the future?**

The Sustainable Energy Authority of Ireland's subsidiary, the Renewable Energy Information Office, is a permanent information centre established for the purpose of disseminating information on renewable energy. <http://www.seai.ie/Renewables/REIO/>

Some local energy agencies have specific information centres or distribute information via public libraries.

A matter currently under review is the development of a more dedicated approach to collecting, collating and disseminating information related to the bioenergy sector.

### **(e) Who is responsible for publishing information on the net benefits, costs and energy efficiency of equipment and systems using renewable energy sources for heating, cooling and electricity?**

SEAI publishes various information leaflets and pamphlets on individual equipment in domestic, commercial and industrial settings which includes a typical payback period for technologies. This general information is supported by case studies of real world applications of these technologies. [http://www.seai.ie/Renewables/REIO\\_Library/](http://www.seai.ie/Renewables/REIO_Library/)

In addition, SEAI undertakes the gathering of energy related statistics through its Energy Policy Statistical Support Unit (EPSSU). This data is periodically published and also forms the basis for future projections.

[http://www.seai.ie/Publications/Statistics\\_Publications/](http://www.seai.ie/Publications/Statistics_Publications/)

As noted at (g) below, during 2009, SEAI-REIO developed a number new resources including a web based range of energy cost benefit calculators. See [http://www.seai.ie/Renewables/REIO\\_Library](http://www.seai.ie/Renewables/REIO_Library)

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<sup>75</sup> <http://www.seai.ie/Grants/>

**(f) How is guidance for planners and architects provided to help them to properly consider the optimal combination of renewable energy sources, high efficiency technologies and district heating and cooling when planning, designing, building and renovating industrial or residential areas? Who is responsible for that?**

SEAI - REIO has developed targeted resources for planners and architects e.g.

### **Renewable Energy in Your Home Leaflets**

Passive Homes - Guidelines For The Design And Construction Of Passive House Dwellings In Ireland; (PDF, 2.04MB)

Retrofitted Passive homes - Guidelines for Upgrading existing dwellings in Ireland to the PassivHAUS Standard; (PDF, 2.5MB)

Passive Solar Design (.pdf, 848kb)

Solar Water Heaters (.pdf, 156kb)

Renewable Heat Pumps (.pdf, 222kb)

Wood Pellet Stoves (.pdf, 848kb)

SEAI has also hosted low energy building design days and workshops and sent study groups to international conferences. The annual 'See the Light' national conference focuses specifically on low energy buildings and the integration of renewable energy technologies.

In 2010 SEAI is planning 4 regional conferences on renewable energy planning issues for local authority decision makers, in addition to developing a series of information bulletins to provide information on local, societal and environmental impacts of renewables.

Local energy agencies along with their respective local authorities can also play a useful role in providing guidance and advice.

**(g) Please describe the existing and planned information, awareness raising and training programmes for citizens on the benefits and practicalities of developing and using energy from renewable sources. What is the role of regional and local actors in the designing and managing these programmes?**

SEAI-Renewable Energy Information Office provide detailed and up to date information for all stakeholders including citizens. Regional bodies under the aegis of the AIEA are involved in providing information and running information campaigns at a local level.

A number of local and regional bodies have undertaken energy audits, surveys, plans and maps related to their specific areas. These include Dublin city and county, Dundalk and Mayo. Under the auspices of the Department of Environment 'Guidelines for Planning Authorities on Wind Energy Development', certain Planning Authorities have produced their own Wind Energy Strategies i.e. Wexford County Council<sup>76</sup>, Mayo County Council<sup>77</sup> and Clare County Council<sup>78</sup>.

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<sup>76</sup> <http://www.wexford.ie/wex/YourCouncil/Publications/DevelopmentPlans/WindStrategy/>

<sup>77</sup> <http://www.mayococo.ie/en/Planning/DevelopmentPlansandLocalAreaPlans/MayoCountyDevelopmentPlan2008-2014/>

<sup>78</sup> <http://www.clarecoco.ie/planning/planning-strategy/development-plans/clare-county-development-plan-2005-2011/>



It is noted that industry associations in Ireland (e.g. Irish Wind Energy Association, Irish Bioenergy Association, Marine Renewable Industry Association, Geothermal Association of Ireland etc) regularly hold information seminars, conferences etc through which they raise awareness of their sector.

The following is an overview of informational activities undertaken by the Sustainable Energy Authority of Ireland in 2009:

- During 2009 the Renewable Energy Information Office developed a number new resources including a web based range of energy cost benefit calculators for willow, miscanthus, hemp, anaerobic digestion, solar thermal and geo-thermal heat pumps.

See [http://www.seai.ie/Renewables/REIO\\_Library](http://www.seai.ie/Renewables/REIO_Library)

- The Renewable Energy Information Office introduced a series of procurement guidelines for solar, biomass and geo-thermal systems providing professionals with
  - Typical project cycle & special planning considerations
  - Design guidelines
  - Specification guidance note
  - List of references
  - List of tools (software)
- With regard to printed material the Renewable Energy Information Office produced two targeted publications Re\_Energise and Bioenergy News.  
[http://www.seai.ie/Renewables/REIO\\_Library/REIO\\_Publications/](http://www.seai.ie/Renewables/REIO_Library/REIO_Publications/)
- REIO also launched a second set of passive house guidelines for retro-fitting existing properties and developed a third in this series focusing on non-residential passive house projects. Note: The Passivhaus Institut ([www.passiv.de](http://www.passiv.de)) endorsed both publications and now disseminates copies and the web link to all English speaking countries as definitive guides.  
[Passive Homes - Guidelines For The Design And Construction Of Passive House Dwellings In Ireland](#); (PDF, 2.04MB)  
[Retrofitted Passive homes - Guidelines for Upgrading existing dwellings in Ireland to the PassivHAUS Standard](#); (PDF, 2.5MB)
- The Renewable Energy Information Office also developed a best practice guide for solar pv.
- Each month the Renewable Energy Information Office releases an electronic newsletter E-Update to some 8,000 subscribers.
- The Renewable Energy Information Office's call centre answered over 8,000 calls in 2009.
- In support of informational activities SEAI released 11 approved media features to the specialist and trade media on topics ranging from passive houses to wood heating.
- SEAI delivered 23 presentations at local and national events plus presentations at three international events

- 30 schools participated in a series of education workshops that the Renewable Energy Information Office presented.
- The Renewable Energy Information Office operated the Sustainable Energy Pavilion at the National Ploughing Championships and invited 20 companies (providers of solar thermal and pv, wood heating, biomass, geo-thermal, wind turbines etc.) to participate in providing a one-stop shop information service to consumers.
- In 2009, SEAI organised 3 international study tours, the first to Germany with a group of 50 architects at the 13th International Passive House conference in Frankfurt. Site visits to see six different projects were arranged. The second study tour focused on the energy opportunities for Irish landowners and farmers and was to the Agri-Technica 2009 event in Germany and again included site visits. The third study tour was in Austria, focused on energy efficient buildings
- SEAI organised four national conferences as well as several significant workshops and seminars
  - See the Light 2009 in Galway focused on low energy, passive houses and the integration of renewable energy technologies in buildings.
  - Bioenergy 2009: The June conference focused in supply, demand and wood fuel quality. Over 40 technology service and product/fuel suppliers exhibited attracting over 2,000 visitors. The demonstration event focused on wood fuel harvesting and concluded with a site visit to see an operational biomass DH system in Callen, Co Kilkenny.
  - Anaerobic Digestion (AD) in Ireland – Tomorrow’s Thinking Today – was a national conference focusing on AD, target audience was landowners, farmers, agricultural advisors and developers, the food industry, independent power producers, environmental regulators, government departments, energy consultants and financial institutions.
  - Planning for New Renewables – focussed on planning and regulatory issues on wind (small, large and auto generation) and emerging technologies.
  - 4 professional seminars and demonstration events were run focusing on wood fuel quality, supply chains, energy crops and AD feed stocks as well as 3 events in support of ReHeat, CHP and CHP AD programmes
  - 2 two-day workshops, targeting the construction industry and architects and focusing very specifically on greening the built environment and the concept of the passive house.

Regional Planning Guidelines are referring to the use and development of renewable energy and renewable energy infrastructure and County Development Plans are also making provision for the development of renewable energy.

The delivery of the National Renewable Energy Action Plan requires the involvement and participation of regional and local bodies. Local and regional bodies have an important role to play in enhancing societal understanding around the transformation of the energy landscape being brought about through increased use of renewable energy.

Examples of some of the initiatives underway at county level is described below:

The Donegal Renewables Training Consortium is a Donegal County Development Board led initiative through which agencies operating within and external to the County are working together to develop a coordinated training programme on renewables, the following agencies are presently participating FAS, Fastrack to IT, Donegal County Council, Udaras na Gaeltachta and Letterkenny Institute of Technology. The County Development Board is developing Killybegs as a centre of excellence for both servicing and training in the renewables sector given the facilities and engineering expertise located there.

Donegal County Council are working with Letterkenny Institute of Technology (LYIT) on the development of a Wind farm training course, LYIT have entered into an licence agreement with a German Educational institute and the first intake of students has commenced on the course. A Wind Turbine Training Tower will be erected on an LYIT campus for the course participants. The qualified participants from this course will have an international recognized qualification on wind turbine maintenance.

Donegal County Council in conjunction with Teagasc have developed the Forest Link Project. A number of public and private sector buildings have installed Biomass burners and a supply chain has also been created. Donegal County Council will be carrying out engineering studies to assess public sector buildings which are suitable for conversion for biomass supply.

RASLRES is a multi-national European bio-energy project which seeks to grow the number of local businesses involved in the sector and is led by the Western Development Commission (WDC), Ireland<sup>79</sup> with partners in Sweden, Scotland, Northern Ireland, the Faroe Islands and Finland.

Under the Rural Development Programme Fund 2007-2013<sup>80</sup> (previously known as 'Leader'), a percentage of grant aid for certain small scale projects (e.g. run by micro-enterprises or community groups) using renewable technologies may be available in some instances.

FÁS (Irish employment authority), the Construction Industry Federation and Waterford County Council have developed a training programme in 'Energy Efficiency and Renewable Energy Technologies.' The training and certification programme was developed to cater for the training and certification needs of both public/ private sector staff involved in improving energy efficiency and evaluating renewable /alternative energy options. Approximately 70 persons have received training to date under this programme.

Waterford County Council and Waterford Institute of Technology have collaborated to produce "Biogas Energy Production in Agriculture", which is a guide for Irish Farmers in developing farm based Anaerobic Digestion Plants.

A Competence Centre for bio-refining and bio-energy has been established in the National University of Ireland, Galway co-hosted by the University of Limerick and University College Dublin. The Irish Local Development Network has noted that they can provide national reach into the community and smaller enterprise sector.

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<sup>79</sup> <http://www.wdc.ie/2010/05/wdc-launches-raslres-e3-million-european-bio-energy-project/>

<sup>80</sup> <http://www.pobail.ie/en/RuralDevelopment/EURuralDevelopment/>

#### **4.2.5. Certification of installers (Article 14(3) of Directive 2009/28/EC)**

##### **(a) Reference to existing national and/or regional legislation (if any) concerning certification or equivalent qualification schemes for installers according to Article 14(3) of the Directive 2009/28/EC:**

Building Regulation (Part L Amendment) Regulations 2008 are available on the Department of Environment, Heritage and Local Government website:

<http://www.environ.ie/en/DevelopmentandHousing/BuildingStandards/#Building%20Regulations%201997%20-%202009>

In relation to Dwellings, Part L 3(b) requires that "a reasonable proportion of the energy consumption to meet the energy performance of the dwellings is provided by renewable energy sources". Section 1.2.7 of the associated Technical Guidance Document (TGD L 2008) states that: 'To ensure that works are carried out in a "workmanlike manner", the design and installation of renewable energy systems to comply with this guidance should be carried out by a person qualified to carry out such work.'

##### **(b) Responsible body/(ies) for setting up and authorising certification /qualification schemes by 2012 for installers of small-scale biomass boilers and stoves, solar photovoltaic and solar thermal systems, shallow geothermal systems and heat pumps:**

The Sustainable Energy Authority of Ireland (SEAI) is actively engaged with the development of training standards for small scale and micro-generation installations. It is SEAI policy that renewable energy equipment funded under SEAI programmes (e.g. Greener Homes) should be installed by competent installers who are certified as having successfully completed the requisite accredited training courses and manufacturers' product training.

Based on the identified need for defined training standards and courses for renewable energy installers, the EU Interreg funded Renewable Energy Installers Academy<sup>81</sup>, a collaborative project between Action Renewables and SEAI, was established in 2004. The project developed the template for accredited training for installers of renewable heat and electricity producing technologies. The training standard for heat producing appliances (wood pellet boilers, solar thermal and heat pumps) has been registered in the UK and with FETAC<sup>82</sup> in Ireland. Course material was also developed and courses are being delivered by a number of training providers. Training Standards for solar pv and wind installers were also developed by the project.

Under the small- and micro-scale generation programme, SEAI has engaged in activities to further the provision of accredited microgeneration training courses in Ireland. In order to meet the need for training for micro-generator installers in the short to medium term, it is proposed to build upon work carried out by SEAI and Action Renewables through the REIA project, and to adapt the courses developed specifically for the regulatory regime in Ireland and to fully meet the training needs of installers. It is noted that manufacturer's training for specific products can be an important component of installer training. It is noted in the area of heat pumps that it may be useful for SEAI to undertake a comparison between the FETAC course and the EU GEOTRAINET programme.

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<sup>81</sup> <http://www.reinstalleracademy.org/site/home.asp>

<sup>82</sup> [www.fetac.ie](http://www.fetac.ie)

An ultimate objective is the development of a competency requirement within the National Framework of Qualifications (NFQ) for all installers in this field. SEAI has been working in collaboration with FETAC<sup>83</sup>, FAS<sup>84</sup>, the Commission for Energy Regulation<sup>85</sup>, the ETCI<sup>86</sup>, Industry Groups and training providers through a Standards Development Group in accordance with FETAC's 'Formation and Organisation of Standards Development Groups.'

The Sustainable Energy Authority of Ireland (SEAI) administers a grant scheme called Greener Homes <http://www.seai.ie/Grants/GreenerHomes/> The Greener Homes Scheme provides assistance to homeowners who intend to purchase a new renewable energy heating system for existing homes. The grants are provided to householders who invest in renewable energy based heating systems under the following categories: solar heating, heat pump and wood chip or pellet boilers.

Installers under the scheme must be registered with SEAI. In order to register with SEAI, they must have appropriate FETAC or City & Guilds qualifications as set out below.

The introduction of a robust framework for the development of a vibrant microgeneration sector is recognised as an important component of building societal acceptance and participation in achieving our renewable energy targets. The microgeneration area has the potential to create employment and enable participation by a wide section of the community. Recognising that the general public would not be experts in the field, it is essential, in order to ensure safety and reliability and to develop confidence in the sector going forward, that installers are trained to proper standards and are adequately certified to carry out work.

**(c) Are such certification schemes / qualifications already in place? If so, please describe.**

The Further Education and Training Awards Council (FETAC) and the City and Guilds (C&G)<sup>87</sup> are the awarding bodies of qualifications for renewable energy installers.

FETAC (the Further Education and Training Awards Council) is the national awarding body for further education and training in Ireland. Programmes leading to FETAC awards are at Levels 1 to 6 of the [National Framework of Qualifications](#) The National Framework of Qualifications (NFQ) provides a way to compare qualifications, and to ensure that they are quality assured and recognised at home and abroad.

For an installer to register with SEAI, they must complete the relevant course and obtain the appropriate qualification. The table below outlines the detail of the qualifications for each renewable technology.

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<sup>83</sup> [www.fetac.ie](http://www.fetac.ie)

<sup>84</sup> [www.fas.ie](http://www.fas.ie)

<sup>85</sup> [www.cer.ie](http://www.cer.ie)

<sup>86</sup> <http://www.etcie.ie/index.php>

<sup>87</sup> <http://www.cityandguilds.com/9947.html>

Technology	Awarding Body	Detail
Heat pumps and Geothermal systems	FETAC	Level 6 qualification, Renewable Energy Installer:- Heat pumps
Solar Panels	FETAC	Level 6 qualification, Renewable Energy Installer:- Solar Hot Water
Wood pellet & wood chip boilers and stoves	FETAC	Level 6 qualification, Renewable Energy Installer:- Biomass boilers
Wood gasifiers	FETAC	Level 6 qualification, Renewable Energy Installer:- Biomass boilers and Manufacturer model specific training
Micro Wind Turbines	C&G	Certificate in wind turbine installation*
Photo Voltaic	C&G	Certificate in Solar Photovoltaic Installation*
Hydro		There are no accredited training courses for the installation of hydroelectric generators. A level 6 certificate in Electrical Installation of Micro-Generators will be a requirement for the electrical installation of hydroelectric generators once available.

\*FETAC level 6 courses in these areas are currently under development and will supersede the City & Guilds when in place.

FETAC level 6 qualifications for micro generation installers have been finalised as of March 2010 and training programmes will be in place by the end of 2010 once sufficient training providers have procured the appropriate equipment needed to provide the training. Once available, these will supersede the current City & Guilds requirement. The level 6 qualifications are:

- Level 6 Certificate in Electrical Installation of Micro-Generators
- Level 6 Certificate in Implementation of Micro Solar Photovoltaic Systems
- Level 6 Certificate in Implementation of Small Scale Wind Systems

**(d) Is information on these schemes publicly available? Are lists of certified or qualified installers published? If so, where? Are other schemes accepted as equivalent to the national/ regional scheme?**

SEAI provides information through its renewable energy information office <http://www.seai.ie/Renewables/REIO/>. The SEAI website contains information on registered installers for renewable heating technologies. <http://www.seai.ie/Grants/GreenerHomes/Installers/> including 'How to get listed' and 'installer training.' The Renewable Energy Installer Academy also provides information on installer training <http://www.reinstalleracademy.org/site/home.asp>

Public lists of registered installers for renewable heating technologies are available on the SEAI website at: [http://www.seai.ie/Grants/GreenerHomes/Installers/Installers\\_List/](http://www.seai.ie/Grants/GreenerHomes/Installers/Installers_List/) and [http://www.seai.ie/Renewables/Microgeneration/Register\\_of\\_Installers/](http://www.seai.ie/Renewables/Microgeneration/Register_of_Installers/)

The Greener Homes scheme quality assurance programme includes an inspection of 10% of all installations and 100% of all installers under the programme. Inspections focus on the quality of installations. Defects are given a severity rating – severity 1 is for health and safety issues; severity 2 is for potential performance issues; severity 3 is for poor workmanship issues.

All inspections where a severity 1 or 2 defect is noted require rework, correcting the defect. A rework notification signed by the home owner is required within 4 weeks of notification to

the installer. If rework hasn't been completed in an appropriate timeframe, the installer is de-registered. Workshops and newsletters focussed on best practice and dissemination of information and learning from inspections are given to the community of installers. Lists of trained microgeneration installers are being developed.

Inspections were also carried out on in excess of 10% of all installations under the ReHeat Programme and the Microgeneration Programme Pilot Field Trials. Both programmes noted very low rates of defect and identified a high quality of installers competency in the installations inspected.

The Renewable Energy Installers Academy (REIA) currently publish a list of City and Guilds trained installers at <http://www.reiaadmin.org/> Membership of the Renewable Energy Installer Academy<sup>88</sup> also qualifies as equivalent to an SEAI registered installer.

**(e) Summary of existing and planned measures at regional / local levels (where relevant).**

Certification is considered to be a matter that is most appropriately dealt with at national level. In recognition of this, SEAI has promoted the development of training according to the National Framework of Qualifications as outlined at (c) above. Where support mechanisms (such as Greener Homes/ the microgeneration pilot programme) are in place, these are used to require installers to meet the training requirements. Further consideration will be given as to how to address certification of installers in all cases. At a regional and local level, the approach is generally focussed on training provision and inspection of installations in some cases.

As outlined the training and certification of installers has a very significant part to play in terms of developing confidence in the sector going forward. It is recognised that this is a complex area. The work that has been done to date, as outlined above, will be taken forward led by SEAI.

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<sup>88</sup> <http://www.reinstalleracademy.org/site/home.asp>

#### **4.2.6. Electricity infrastructure development (Article 16(1) and Article 16(3) to (6) of Directive 2009/28/EC)**

##### **(a) Reference to existing national legislation concerning requirements related to the energy grids (Article 16):**

There is no single piece of legislation detailing all the requirements related to energy grids in Ireland. At present, there is a range of primary and secondary legislation that together form the legal context for electricity grids in the country and these are listed below.

- European Communities (High Efficiency Combined Heat and Power) Regulations 2009 (SI 499 of 2009)
- Electricity Regulations Act 1999 (Appointment of Person to Calculate Power to Heat Ratios of Combined Heat and Power Units) Order 2009 (SI 299 of 2009)
- European Communities (Internal Market in Electricity) (Electricity Supply Board) Regulations 2008 (S.I. 280 of 2008) (deals with the legal unbundling of ESB Networks Ltd)
- European Communities (Cross Border Electricity Network Access) Regulations 2005 (S.I. 287 of 2005)
- European Communities (Internal Market in Electricity) Regulations 2009 (SI 226 of 2009)
- European Communities (Internal Market in Electricity) (Amendment) Regulations 2009 (SI 59 of 2009)
- Electricity Regulation (Amendment) (EirGrid) Act 2008
- Electricity Regulation Act 1999 Act (Single Electricity Market) Regulations 2007 (SI 406 of 2007)
- Electricity Regulation (Amendment) (Single Electricity Market) Act 2007\*
- Energy (Miscellaneous) Provisions Act 2006 European Communities Internal Market in Electricity) Regulations 2006 (SI 524 of 2006)
- European Communities (Internal Market in Electricity) Regulations 2005 (SI 60 of 2005)
- Electricity Regulation Act 1999 (Eligible Customer) (Consumption of Electricity) Order 2003 (SI 632 of 2003)
- Electricity Regulation Act 1999 Levy Order 2003 (SI 692 of 2003)
- European Communities (Internal Market in Electricity) (Amendment) Regulations 2003 (SI 328 of 2003)
- European Communities (Internal Market in Electricity) (Amendment) Regulations 2002 (SI 145 of 2002)
- Electricity Regulation Act, 1999 (Eligible Customer) Order 2002 (SI 3 of 2002)
- European Communities (Internal Market in Electricity) Regulations 2000 (SI 445 of 2000)



- Electricity Regulation Act, 1999 (Establishment Day) Order, 1999 (No. 214 of 1999)
- Electricity Regulation Act, 1999
- Planning and Development (Strategic Infrastructure Act) 2006
- Two standards adopted under European norms EN 50160 'Voltage Characteristics in Public Distribution Systems' and EN50438 'Requirements for the connection of micro-generators in parallel with public low-voltage distribution networks' are relevant to the accommodation of renewable generation at lower voltage levels.

### **Offshore Environment**

Regulatory functions in relation to developments in the offshore environment transferred to the Minister for the Environment, Heritage and Local Government on 15<sup>th</sup> January 2010. The current legislation is the 1933 Foreshore Act (as amended). It is the intention of the Minister to streamline and modernise the consent process for certain developments in the offshore environment, including offshore renewable energy projects such as wave, wind and tidal technologies on a phased basis in order to ensure service continuity in relation to the processing of offshore applications and providing an improved timeline for making decisions on these projects.

These phases will include the following.

- (a) Integration of strategic Projects on the Foreshore, within the Strategic Infrastructure Act: The Strategic Infrastructure Act will be amended to allow for a fast-track consent process for major wind, wave and tidal energy projects.
- (b) Administration of non-Strategic foreshore cases by local authorities: In parallel with Phase 2, legislation transferring responsibility for the administration of the non strategic infrastructure foreshore cases to local authorities will be in development, as will the preparation of a Marine Spatial Strategy.
- (c) Development of a Marine Spatial Strategy: The Department of the Environment, Heritage and Local Government, in collaboration with other key stakeholders will develop a marine spatial planning framework that will clarify allowable location/type of development on the foreshore (and beyond the foreshore limits) to guide/direct decision-makers and users towards appropriate spatial uses of the foreshore and the efficient, sustainable use of marine resources.
- (d) Integrated Coastal Zone Management: A regional approach to integrated coastal zone management will be pursued supported by the National Spatial Strategy.

**(b) How is it ensured that transmission and distribution grids will be developed with a view to integrating the targeted amount of renewable electricity while maintaining the secure operation of the electricity system? How is this requirement included in the transmission and distribution operators' periodical network planning?**

The 2007 Government White Paper<sup>89</sup> on energy policy 'Delivering a sustainable energy future for Ireland - The Energy Policy Framework 2007-2020' sets out a number of strategic goals to support achievement of the overall policy objectives. The 4<sup>th</sup> strategic goal is 'delivering electricity and gas over efficient, reliable and secure networks.'

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<sup>89</sup> <http://www.dcenr.gov.ie/Energy/Energy+Planning+Division/Energy+White+Paper.htm>

In this context, a commitment was made to ensuring that through EirGrid's<sup>90</sup> Grid 25 strategy<sup>91</sup> and in the context of the All Island Grid Study<sup>92</sup>, the electricity transmission and distribution networks can accommodate, in an optimally economic and technical way, targets for renewable generation on the island to 2020 and beyond.

The All Island Grid Study 2008<sup>93</sup> examined the way in which the electrical network on the island might be developed up to 2020 so as to enable the integration of increasing amounts of renewables.

EirGrid's Grid 25 sets out a Government approved high level strategy for the development of the necessary transmission infrastructure to support a national 40% RES-E target (announced by the Government in December 2008) and in the long term a more sustainable electricity supply.

Given the necessary ambition of the national Grid 25 strategy, the challenges to be faced in delivering it are considerable. EirGrid, as the national state owned transmission system operator, are taking the necessary organisational and operational actions to ensure delivery of the Grid 25 development programme. Ireland, in common with all Member States, must continue to address the many challenges inherent in delivering new grid infrastructure on a national scale.

In terms of RES-E, Ireland was set at target under Directive 2001/77/EC of 13.2% RES-E by 2010. Initial estimates are that we will meet and even exceed a higher national RES-E target of 15% by 2010. Under Directive 2009/28/EC, Ireland has been set a 16% target for energy consumption, to be met across the transport, heat and electricity sectors. RES-E will play a significant role in meeting this overall target and in December 2008, the Government set a RES-E target of 40%. It is estimated that between 4630MW and 5800MW of renewable generation would be required, depending on economic growth assumptions and demand projections, to ensure 40% of electricity consumption from renewable sources. Together with existing renewable generation capacity, the Gate process described below is capable of delivering the required additional renewable generation capacity to meet the higher of these scenarios.

Grid 25 provides the framework to build a more cost effective and efficient system to cater for the shift towards the integration of increasing amounts of renewable generation over time. The transmission capacity assumptions informing this grid development strategy are based on the high level principles of ensuring network safety, security of supply and economic transmission development, while delivering on the renewable target in the years ahead. It provides a foundation for more detailed work on specific reinforcements in coming years and will lead to plans for particular projects which will be delivered in consultation with the public and in line with planning legislation.

Grid 25 is fully consistent with the 'Gate' process for the connection of renewable energy in Ireland. The 'Gate' process was put in place by the Commission for Energy Regulation following public consultation. It is a group processing approach (GPA) towards the processing and issuance of grid connection offers to renewable generators. A Strategic Environmental Assessment (SEA) will be carried out on the implementation programme for Grid25.

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<sup>90</sup> EirGrid is the Transmission System Operator

<sup>91</sup> <http://www.eirgrid.com/transmission/investinginthefuture-grid25/>

<sup>92</sup> <http://www.dcenr.gov.ie/Energy/North-South+Co-operation+in+the+Energy+Sector/All+Island+Electricity+Grid+Study.htm>

<sup>93</sup> <http://www.dcenr.gov.ie/Energy/North-South+Co-operation+in+the+Energy+Sector/All+Island+Electricity+Grid+Study.htm>

Under the GPA or 'Gate' process, applications for connections are processed in batches rather than sequentially. Within these gates, applications are further divided into groups and sub-groups based on the optimal network required to connect them. This approach is considered a more efficient process than dealing with applications on an individual basis where projects which are the subject of such applications interact with each other electrically and where large volumes of such applications exist.

The group processing approach allows for a more strategic view to be taken of network requirements and serves to put in place efficient connection solutions to cater for large number of applications and to ensure optimum network development, minimising network costs and, where possible, avoidance of network bottlenecks.

To date there have been 3 'Gates.' Under Gate 1 and Gate 2, 1755MW of connection offers were made and accepted. Under Gate 3, 3900MW of offers are currently in the process of being issued to renewable generators. A Gate 3 liaison group involving the TSO, DSO, regulator and industry representatives meets on a regular basis and all parties are committed to the full roll-out of the Gate. This amount of renewable generation is sufficient for the achievement of Ireland's RES-E target and with falling demand may even mean that the RES-E target is exceeded.

A 'shallow' connection policy exists whereby generators may opt to connect to the network in advance of the full, deep transmission reinforcements required having been completed once the transmission/distribution shallow works, transmission short circuit driven deep works ( or any other system integrity works), control systems and all deep distribution assets are in place. This is termed connecting on a 'non firm' basis to the transmission system. This is done in a manner that facilitates the secure operation of the electricity system.

Apart from the above, the Commission for Energy Regulation published a decision in 2009 (CER 09/099) that allows for certain renewable, small and low carbon generators to connect to the transmission and distribution grids without going through the full rigours of the Gate process. This includes small projects, research and development projects and those that qualify as they are deemed to provide benefits of a public nature that merit qualification.<sup>94</sup> EirGrid's grid development strategy will take full account of this additional procedure going forward.

The rollout of the build programme under the Grid 25 strategy will be critical to the delivery of new renewable generation under Gate 3. Societal acceptance of the need for new infrastructure to support renewable generation will be critical and local support will be needed for infrastructure of local, regional and national importance.

### **Private Wire Network**

It is noted that some renewable developers have considered the possibility of installing a direct line (also known as a private wire network.) This can be viewed as a piece of electrical infrastructure that is independent of the national transmission / distribution system and the purpose of which is to supply electricity directly to another party located on the same site as the generator (e.g. separate business premises in the case of an industrial estate.) However, effectively only the TSO / DSO are authorised to operate a transmission / distribution system in Ireland at present. Direct lines are possible only if the DSO has refused a request for a connection to the network and the energy regulator has given its approval; however this situation has not occurred in practice thus far.

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<sup>94</sup> Treatment of Small, Renewable and Low Carbon Renewable Generators outside the GPA, Decision Paper, CER/09/099 July 24th 2009 <http://www.cer.ie/GetAttachment.aspx?id=eda74811-2364-4ec4-865e-7c3d84023114>

It is noted that this private wire network issue may present a barrier to the development of certain business models sought by some potential renewable project developers. It is however recognised that any decision on what models to allow in the future requires careful consideration. The technical standards of direct lines/private wire networks would have to be of a certified standard and not in any way compromise the safe and secure operation of the electricity network. Issues around sharing of costs and charging would also fall to be considered, among other things.

Furthermore it is noted that there is a provision relating to this issue in the third internal market legislative package. Under Directive 2009/72/EC owners of a private network are subject to similar regulation as network owners and operators and must be able to allow full third party access for alternative suppliers through its network. Ireland will be considering this issue in the context of transposition of Directive 2009/72 and notes its particular pertinence and the perceived barrier in the renewable energy sphere. Ireland considers that further discussion with other Member States on this issue as it pertains to renewable generation would be particularly useful.

**(c) What will be the role of intelligent networks, information technology tools and storage facilities? How will their development be ensured?**

Ireland is committed to developing a robust electrical power system that has the infrastructural capacity and technological capability to facilitate the development of Ireland's renewable energy potential. The use of intelligent networks and information technology will play an important part in this. Both the TSO (EirGrid) and DSO (ESB Networks) are working continuously towards optimal technological solutions for the connection of renewable generation.

With regard to the current situation, intelligent networks are already playing a role. EirGrid already operate a transmission network which has remote control capability at all transmission stations and provides real time voltage, current and power readings. The current transmission network permits power measurands from all 400 kV, 220 kV and 110 kV stations in real time. These measurands help the TSO to control and manage the power flows on the transmission network. Employing sophisticated information technology tools with this information, the TSO is able to remotely control wind farms, conventional generation and network topology.

Similarly to EirGrid, the DSO (ESB Networks) also operates an extensive Supervisory Control and Data Acquisition (SCADA) system with all substation Transformers and CBs monitored and controlled at all voltage levels and with a further 1,000 controlled points (generally at reclosers) embedded on the individual feeders.

A more immediate impact on the ability to accommodate large volumes of wind energy will be provided by the adoption of High Temperature Low Sag conductors for Transmission uprating with the first such HV line uprating scheduled to take place in July 2010.

Given that information tools are key to managing the penetration of renewables on the system, as well as maximising the efficiencies from the capability embedded within intelligent networks, both the DSO and TSO are engaged in significant research and development work.

Currently EirGrid is engaged in a number of domestic and European funded projects to develop the appropriate Information Technology tools to manage the renewable challenges. Some specific projects include dynamic line rating, improving wind forecasting in operations today and for the future including high wind scenarios, implementing wind dispatch from the

control centre to every wind farm within 10 seconds and applying stochastic wind forecasts in the scheduling of plant.

ESB Networks is conducting significant research and development with EirGrid and the Electric Power Research Institute (EPRI)<sup>95</sup>, which will in particular facilitate the accommodation of greater renewables on the system at less cost. Initiatives include reactive power control on embedded wind farm generators, the development of home area networks to be used in conjunction with smart meters and charging infrastructure for electric vehicles which has the potential to allow vehicle to grid flow of energy.

In addition, EirGrid is engaged in research & development to examine the merits of adopting particular network technologies and/or storage facilities. EirGrid's Grid25 strategy foresees the use of new 'Smart Grid' technology in the form of smart metering, which will establish a two-way flow of information between supplier and user and help end-users control their consumption levels and overall energy efficiency.

The purpose of Grid25 is to put in place a safe, secure and affordable electricity supply network throughout Ireland for the 21st century; a supply network that is flexible enough to allow for an increased use of renewable and sustainable energy and innovative enough to stimulate efforts to reduce our overall CO2 emissions through energy efficiency. This will be achieved in part by integrating new and innovative grid technologies.

In addition, in line with Government policy, smart meters are being rolled out in Ireland. To this end the Government has mandated that the Commission for Energy Regulation (CER) implement a pilot Smart Meter project. This is currently underway with an examination of over 6000 users for a behavioural trial with a further 3000 users for a technology trial. This pilot programme is being implemented by ESB Networks in the electricity network.

#### **Commission for Energy Regulation (CER) Smart Metering Pilot**

The European Commission adopted EU Directive EC 2006/32 on 5th April 2006<sup>96</sup> Article 13 of this Directive requires that where technically possible and financially reasonable, energy metering should record the time of use and customer billing should be sufficiently comprehensive so as to enable the self regulation of energy consumption.

Smart metering is believed to be one method which encourages the self regulation of energy consumption, provides the potential to improve energy efficiency, change demand patterns and is also seen as a key method to support the development of 'smart grids'. This method is supported by the government who has said in the Programme for Government 2007<sup>97</sup> that it will ensure that the ESB installs a new smart electronic meter in every home in the country which will allow people to reduce their bills by cutting back on unnecessary use of electricity and allow consumers to sell electricity back into the grid from any renewable power supplies they have.

The CER established a Smart Metering Project Phase 1 in late 2007, the results of which will inform an analysis of the feasibility of implementing smart meters throughout Ireland. The necessary governance structures have been put in place to support the project and four work streams established in relation to networks/technical issues, customer behaviour, tariffs and billing/data provision. The first phase of the project involves the setting up and running of two main trials, namely a trial to ascertain the potential for smart metering technology (gas and electricity) to change customer behaviour and technology trials that are aimed at attaining an understanding of the smart metering communications technology mix suitable to

<sup>95</sup> <http://my.epri.com/portal/server.pt?>

<sup>96</sup> Directive 2006/32/EC on energy end-use efficiency and energy services  
[http://eurlex.europa.eu/LexUriServ/site/en/oj/2006/l\\_114/l\\_11420060427en00640085.pdf](http://eurlex.europa.eu/LexUriServ/site/en/oj/2006/l_114/l_11420060427en00640085.pdf)

<sup>97</sup> Programme for Government 2007 [http://www.foe.ie/download/pdf/2007\\_programme\\_for\\_government\\_final.pdf](http://www.foe.ie/download/pdf/2007_programme_for_government_final.pdf)

the Irish environment. The former are due to be completed at the end of 2010 (electricity) and mid 2011 (gas), with the latter due to conclude in quarter three of 2010.

The Commission for Energy Regulation in conjunction with the Economic and Social Research Institute (ESRI)<sup>98</sup> will produce a Smart Metering Cost Benefit Analysis by the end of the first quarter in 2011, which will utilise the findings from these trials and inform decisions to be made regarding a national rollout of smart metering.

Further information in relation to the smart metering pilot can be found in the 'Smart Metering Project' section of the Commission for Energy Regulation's website.<sup>99</sup>

### **Storage**

Ireland currently has a hydro pumped storage facility of 292MW at Turlough Hill. In addition, the Commission for Energy Regulation has recently approved the construction of a further pumped hydro storage facility of 70MW (Knocknagreenan.)

There is a clear and growing interest in developing electricity storage facilities on the power system. A number of studies have been commissioned by interested parties. In recognising this, EirGrid has conducted a study to examine how different types of storage can be utilised most effectively in the Irish power system. In EirGrid's most recent Generation Adequacy Report (GAR) 2010-2016<sup>100</sup>, there is a section on an EirGrid study on the operation of varying levels of storage on the Irish power system and an illustrative set of results.

The findings indicate that only pumped hydro and compressed-air energy storage are currently suitable for providing a reliable supply of electricity on a large scale.<sup>101</sup> In the study, at 40% of electricity from renewables on the Irish power system, very little curtailment of wind occurred. This indicates low value in adding large pumped storage at the 40% penetration level. However, in excess of 50% renewables penetration, storage can contribute to avoiding wind curtailment and thus reduce production costs. When examined in the context of increased interconnection however, the study concludes that this benefit is less significant with additional interconnection providing a competitive alternative. The study found that it may be more economic to export wind than to store it using pumped hydro and incur the efficiency loss of the pumping cycle.

Taking account of international developments in relation to storage, further work is needed on the potential role storage could play in the context of further intermittent renewable generation. EirGrid has been requested to continue its examination of the necessity and feasibility of storage linked to renewable energy.

### **(d) Is the reinforcement of the interconnection capacity with neighbouring countries planned? If so, which interconnectors, for which capacity and by when?**

The development of further electricity interconnection between Ireland and the UK is a key priority in the context of supporting increased penetration of renewables and progressive development of a regional electricity market.

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<sup>98</sup> <http://www.esri.ie>

<sup>99</sup> <http://www.cer.ie/en/information-centre-reports-and-publications.aspx?article=c03aebf5-8048-456c-ba8b-33a79319a818&mode=author>

<sup>100</sup> <http://www.eirgrid.com/media/Generation%20Adequacy%20Report%202010-2016.pdf>

<sup>101</sup> Compressed-Air Energy Storage (CAES), which involves the compression of air into a subsurface geological reservoir, may represent an alternative method of large-scale energy storage and may merit further review.

## **Current Situation**

At present there is just one major line between the Ireland and Northern Ireland grids. The current Louth to Tandragee line consists of a 275 kV double circuit (two circuits on the same tower) overhead line. There are also two small existing 110 kV standby North-South lines, Strabane to Letterkenny and Enniskillen to Corraclassy, which allow mutual short term technical assistance.

Since November 2007, a regional electricity market (the 'Single Electricity Market' (SEM)) is in place on the island of Ireland. The establishment of the SEM trading arrangements on the island mean that what was considered as a North-South interconnector is now considered as a tie line. The Moyle electricity submarine cable links the electricity grids of Northern Ireland and Scotland and has a capacity of 500MW.

## **East West Interconnector (EWIC)**

Construction of an East-West Interconnector (EWIC) to the United Kingdom is underway to schedule and the contract for build has been placed. EirGrid has received planning permission and full notice to proceed with the EWIC which will have an import and export capacity of 500MW. The EWIC is one of the projects to receive funding (€110m) under the European Economic Recovery Plan. It has also received significant financial support from the European Investment Bank (EIB) and will be completed for 2012. The EWIC project forms an integral part of Ireland's plans to integrate increasing amounts of renewable generation and is central to our ability to export excess electricity abroad in the coming years. Further information on the progress of the EWIC is available on the EirGrid website.<sup>102</sup>

## **Second North South connection**

It is aimed to complete a second North-South line between Ireland and Northern Ireland by 2012. The two main operators on the island (Ireland and Northern Ireland) have applied for planning for the 400kv line running between Meath (Ireland) and Tyrone (Northern Ireland) under the respective legislation. The project will facilitate cross-border electricity flows and the further integration of renewables onto the network.

## **Further Interconnection**

A private company has applied for and was granted an exemption from EU Third Party Access Rules for two proposed East West Electricity Interconnectors between Ireland and Great Britain. Construction of these interconnectors has not yet commenced.

Further interconnection with the UK and mainland Europe is under active consideration and examination. EirGrid has carried out an assessment of the costs and benefits of further interconnection between the island of Ireland and Great Britain or France. The Interconnection Economic Feasibility Report<sup>103</sup> provides the results of this work and indicates a prima facie economic case for more interconnection in the years ahead. In carrying out this assessment, EirGrid has examined a broad range of scenarios such as number of interconnectors, different fuel prices and different generation portfolios. This analysis is part of EirGrid's commitment to assess and examine the benefits of further integration with other European Member States and will help inform decisions regarding the timeframe for future interconnection.

## **Offshore Grid**

In addition to the interconnection outlined above, Ireland is also actively involved in developments on an offshore grid with regard to offshore wind, wave and tidal energy potential and is involved in a number of initiatives and developments in the EU context.

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<sup>102</sup> <http://www.interconnector.ie/>

<sup>103</sup> [http://www.eirgrid.com/media/47958\\_EG\\_Summary09.pdf](http://www.eirgrid.com/media/47958_EG_Summary09.pdf)

Apart from involvement in the Adamowitsch group<sup>104</sup> examining offshore grid, Ireland also participates in the following:

### **North Seas Offshore Grid Initiative**

Following a political declaration by the ministers concerned en marge of the December 2009 Energy Council in Brussels, the North Seas Offshore Grid initiative was established and Ireland is one of the participating countries (which consists of 9 EU Member States and Norway.)

The ministers concerned declared their interest in discussing the development of an offshore grid in a common and co-ordinated way, given that many of the issues to be tackled are common across several countries. The intention is that initial work under the initiative will proceed throughout 2010 culminating in the signing of a Memorandum of Understanding by the ministers involved in December 2010. The North Seas Offshore Grid Initiative adds a political dimension to other work being carried out in the EU on the development of offshore grids.

### **ISLES project**

The Irish Scottish Links on Energy Study (ISLES) is a joint EU Interreg funded feasibility project between the Department of Communications, Energy and Natural Resources (Ireland), the Scottish Government and the Department of Enterprise, Trade and Investment (Northern Ireland.) ISLES recognises that an offshore interconnected transmission network offers the potential for the partner countries to capitalise on their abundant offshore renewable energy potential. The project will examine the feasibility of the construction of an offshore electricity transmission network linking potential offshore sites for the generation of renewable energy in the coastal waters of Ireland, Northern Ireland and Western Scotland. The feasibility study will take over eighteen months to complete. The work is seen as a key part in developing thinking on the EU's concept of a European offshore grid. The two-year study is due to finish by the end of 2011.

### **European Network of Transmission System Operators in Electricity**

EirGrid, the Irish TSO, actively participates in the European Network of Transmission System Operators in Electricity, ENTSO-E, which is now fully established. For the purpose of system development ENTSO-E is organised in a number of regional groupings. EirGrid participates in the North Seas Regional Group, which will in due course be an important contributor to the development of proposals for an off-shore grid in this region.

### **Off-shore Grid Connection Study**

The TSO, EirGrid, is involved in carrying out a preliminary study on how significant offshore wind resources (beyond the 800MW in Gate 3) off the east coast of Ireland could be integrated into the Irish transmission system, if developed. The research conducted to date has considered the implications and merits of how an off-shore and onshore grid would work together. Early indications from the study suggest that there are positive synergies between on and offshore systems. Of course, any decision regarding the development of an offshore grid is dependent on assumptions relating to cost and reliability performance of the off-shore assets.

### **British Irish Council**

<http://www.british-irishcouncil.org/>

The British Irish Council was established under the Good Friday Agreement and has been given legal footing in Ireland by the 1999 British Irish Agreement Act.<sup>105</sup> Membership of the

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<sup>104</sup> [http://ec.europa.eu/energy/infrastructure/tent\\_e/coordinators\\_en.htm](http://ec.europa.eu/energy/infrastructure/tent_e/coordinators_en.htm)

<sup>105</sup> <http://www.irishstatutebook.ie/1999/en/act/pub/0001/index.html>



British-Irish Council comprises representatives of the Irish and British Governments and of the devolved administrations in Northern Ireland, Scotland and Wales, together with representatives of the Isle of Man, Guernsey and Jersey. Within the last 12 months, the British Irish Council commenced an energy work programme which is looking at the potential to develop grid interconnections between the member administrations and potentially between the member administrations and continental Europe. This work is also looking at the additional market facilitation issues necessary to encourage renewable trade between the administrations and areas of mutual interest as regards offshore grid developments.

### **Offshore export potential**

The Sustainable Energy Authority of Ireland<sup>106</sup> is examining Ireland's potential to develop offshore renewable generation for export. The Authority intends to commission an economic study in this area.

### **Wave and Tidal Energy in Ireland**

The origins of the development of Ireland's marine renewable energy sector date back to 2005 when 'An Ocean Energy Strategy for Ireland' was put forward. The strategy was aimed at advancing Ireland's research and development capabilities and the speed at which ocean energy technologies are deployed in Ireland. It proposed a four phase strategy to capitalise on Ireland's marine energy resource.

In order to take the strategy forward, the Minister provided for the establishment of a dedicated Ocean Energy Development Unit (OEDU) section in the Sustainable Energy Authority of Ireland.<sup>107</sup> The OEDU is charged with operating a prototype development funding scheme for ocean energy devices, establishing national wave and tidal test facilities, enhancing the national wave tank facility and initiating other measures to promote and develop the sector.

The 2007 Government White Paper<sup>108</sup> on energy policy 'Delivering a sustainable energy future for Ireland - The Energy Policy Framework 2007-2020' sets out a number of strategic goals to support achievement of the overall policy objectives. This includes a specific ocean (wave and tidal) energy target of 500 MW by 2020 and this target has been restated in the current Programme for Government.

The OEDU is currently overseeing a strategic environmental assessment (SEA) of offshore wind, wave and tidal development scenarios in a draft offshore renewable energy development plan. It is intended that in future there would be a more planned approach towards delivering the wave and tidal target in Ireland, through synergies between the offshore energy leasing function and onshore and offshore grid connections.

### **(e) How is the acceleration of grid infrastructure authorisation procedures addressed? What is the current state and average time for getting approval? How will it be improved?**

The Irish statutory planning process is an independent process that ensures all views are taken into account when determining whether a project can proceed.

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<sup>106</sup> [www.seai.ie](http://www.seai.ie)

<sup>107</sup> [http://www.seai.ie/Renewables/Ocean\\_Energy/](http://www.seai.ie/Renewables/Ocean_Energy/)

<sup>108</sup> <http://www.dcenr.gov.ie/Energy/Energy+Planning+Division/Energy+White+Paper.htm>

### **Strategic Infrastructure Consent Process**

The key policy aim of the 2006 Planning and Development (Strategic Infrastructure) Act was to provide for a streamlined, single stage consent process for certain classes of infrastructure development of national importance by statutory bodies and private promoters.

This included provisions for both rigorous environmental assessment and full public consultation. Since it came into operation on 31 January 2007 it has been performing well and now provides a streamlined process in respect of development consent for both publicly and privately promoted major infrastructure projects including major renewable energy projects.

From the commencement of the Strategic Infrastructure Act to date, 34 formal applications, including some in the energy sphere, have been received with 20 completed (3 withdrawn and 17 determined). The overall rate of compliance with the statutory objective to decide strategic infrastructure cases within 18-weeks is high in that 11 out of the 17 formally cases to date have been determined within the objective (nearly 70%).

Transmission infrastructure projects are strategic in nature and of national importance and thus much of the transmission permitting falls under the procedures outlined in the Strategic Infrastructure Act. To date the TSO has had two projects go through this new process and a grant of permission was given in both cases (the East West interconnector project and a 110kV overhead line project in Donegal). The experience to date is that it can take from 6 months to a year for a decision. The TSO currently has an application for a new 100km 400kV line presently under consideration.

The schedule of energy projects (which includes transmission projects above a certain size) assessed by the Strategic Infrastructure process is attached at Appendix 5.

Under the new procedure projects are now submitted directly to the Strategic Infrastructure Division of An Bord Pleanála for decision. As part of the new process specific pre-application consultations take place to try to ensure that the subsequent application for permission/ approval is of a high standard, e.g. that correct procedures are followed and that issues relating to proper planning and sustainable development and the effects on the environment are adequately addressed from the outset in the application.

### **Developments covered by the 2000 Planning and Development Act**

With regard to the standard planning consent process, generally a decision has to be made by the Planning Authority within 8 weeks. However this process can be extended if there is a request for further information and appeals on a decision can also be made by the applicant or by a third party in certain instances.

<http://www.environ.ie/en/DevelopmentandHousing/PlanningDevelopment/Planning/>

### **(f) How is coordination between grid infrastructure approval and other administrative planning procedures ensured?**

The 2006 Planning and Development (Strategic Infrastructure) Act outlined at 4.2.6 (e) above deals with strategic development and strategic infrastructure. It is designed to ensure co-ordination between local, regional and national approaches which balance local interests with the national imperative to deliver strategic infrastructure. The majority of the TSO grid infrastructure projects fall under the provisions of this Act.

The policies and zoning objectives that affect a specific project remain the responsibility of the local planning authority. The local planning authority remains an important stakeholder in

the process and in many cases is the main beneficiary of the overall outcome of a specific energy or electrical project.

Currently all Development Plans undertaken by Planning Authorities have to have regard to Regional Planning Guidelines as well as guidelines and circulars issued by the Minister for the Environment, Heritage and Local Government.

In addition, a new Planning and Development (Amendment) Bill 2009 is currently going through the legislative process. One of the aims of this Bill also is to ensure a closer alignment between the National Spatial Strategy, Regional Planning Guidelines, Development plans and local area plans.

A key element in the Bill is the introduction of a requirement for an evidence based “core strategy” in development plans which will provide relevant information as to how the development plan and the housing strategy are consistent with regional planning guidelines and the National Spatial Strategy.

**(g) Are priority connection rights or reserved connection capacities provided for new installations producing electricity from renewable energy sources?**

Under the Group Processing Approach (‘Gate’) as set out in response to 4.2.6 (b) above, connection capacity has been reserved for renewable generation, including enough to specifically meet the 40% RES-E target in the context of the overall target addressed to Ireland under Directive 2009/28/EC.

To date, there have been three ‘Gates.’ Gate 1 was finalised in December 2004 and processed applications equating to 373 MW of renewable capacity. Gate 2 processed applications equating up to 1300 MW and in 2008, the Commission for Energy Regulation approved Gate 3, which provides for 3900 MW of new additional renewable generation.

**(h) Are any renewable installations ready to come online but not connected due to capacity limitations of the grid? If so, what steps are taken to resolve this and by when is it expected to be solved?**

There are no renewable installations ready to come online (i.e. built and ready to generate) but not connected due to capacity limitations of the grid. The Gate 3 process ensures that there is consistency between network reinforcement and development and the physical connection of renewable generators.

The connection offer process uses a baseline plan for when both shallow and deep reinforcements are likely to be completed. These indicate to a generator when the grid network capacity is likely to be able to connect and operate that unit at full output.

Generators are able to connect sooner than this and if they do priority dispatch units, which applies equally to transmission and distribution connected units, are operated at full output unless there is a security threat to the system. This mechanism results in it being unlikely that a unit would be ready to come on line in the future and not be connected due to grid capacity limits.

On the Distribution side the work required for connection is identified and an estimate of the time taken for completion provided. There is ongoing liaison between the DSO and the renewable generator to co-ordinate the completion of both the DSO and works required. Connection requires that all the distribution identified works – including deep distribution reinforcements work is completed. If this is delayed or takes longer than expected, then a renewable connection could be delayed, but in such cases the work required to complete connection is known and already in progress.

To provide greater control to the wind farm operator two changes are in the process of being put in place by the DSO: the provision (for a fee) of a specific date for work completion by ESB Networks (the DSO) with associated contractual penalties, and the ability of the Wind Farm to contestably construct parts of their connection.

**(i) Are the rules on cost sharing and bearing of network technical adaptations set up and published by transmission and distribution system operators? If so, where? How is it ensured that these rules are based on objective, transparent and non-discriminatory criteria? Are there special rules for producers located in peripheral regions and regions with low population density?**

There are rules outlining cost sharing and bearing of network technical adaptations and these are published by EirGrid and approved by the Commission for Energy Regulation (CER.)

The capital costs of connection and technical adaptation are divided between producers, transmission and distribution system operators using a methodology based on a version of the “shallow connection” principle. This means that the costs of the immediate connection assets to the network are born by the connecting producer while the costs of additional reinforcement of the surrounding base network are recovered through a tariff imposed on all users of the system. This costing mechanism has evolved from a number of CER decisions over a number of years which all were made following appropriate public consultation as legislated for in the powers invested in the CER by Electricity Regulation Act 1999.

Specifically the price of the shallow connection assets charged to the producer is determined by use of standard charging schemes that are approved by the CER. Therefore the costs for shallow connection assets, which are built by the TSO, TAO and DSO, are transparent and non-changing to the producer on signing a connection offer. Where differences arise between the price charged for the asset and the actual cost of the build the difference is born by the Transmission Asset Owner (TAO)<sup>109</sup> and DSO as appropriate. This difference is then part of the annual tariff review process by the CER for the next annual review period. In addition shallow connection assets are now contestable.

The capital costs of construction of the base network is born by the TAO and DSO. The base transmission network is planned and controlled by the TSO. The costs of the base transmission and distribution network are recovered through tariffs imposed on the use of users of both the transmission and distribution system, by all users including generators. The rules of this cost allocation are subject to annual review by the CER which balances conflicting public interests in setting these. There are no current plans to alter the schemes outlined above.

The following document applies to all transmission connections. It was developed as part of the All Island Project with input from the regulatory authorities, industry and system operators. It was also approved by the Commission for Energy Regulation (CER.)  
<http://www.eirgrid.com/media/Connection%20Charging%20Statement.pdf>.

In addition to the above, the following gives further details to those processed as part of the Group Processing Approach. The document was developed by the DSO, TSO and CER This document gives the details for those processed as part of Gate 2. The document is being updated for Gate 3 and will be finalised shortly.

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<sup>109</sup> Eirgrid is the independent Transmission System Operator. The Transmission Asset Owner (TAO) is currently ESB Networks. It is the Government's intention to transfer the ownership of the transmission assets to EirGrid.

<http://www.eirgrid.com/media/Joint%20TSODSO%20Group%20Processing%20Approach.pdf>.

The rules outlined are based on objective, transparent and non-discriminatory criteria. There are no special rules for producers located in peripheral regions and regions with low population density.

The DSO (ESB Network) document 'Standard Prices for Generators 2010' provides details and descriptions of standard connection building blocks such as a Substation Line Bay, Transformer, typical Cost/km for different Line Voltages etc and may be viewed at:

<http://www.esb.ie/esbnetworks/en/commercial-downloads/Standard-Prices-for-Generator-Connections.pdf>

**(j) Please describe how the costs of connection and technical adaptation are attributed to producers and/or transmission and/or distribution system operators? How are transmission and distribution system operators able to recover these investment costs? Is any modification of these cost bearing rules planned in the future? What changes do you envisage and what results are expected?**

Please see the response at 4.2.6 (i) above. The capital costs of connection and technical adaptation are divided between producers, transmission and distribution system operators using a methodology based on a version of the "shallow connection" principle. This means that the costs of the immediate connection assets to the network are born by the connecting producer while the costs of additional reinforcement of the surrounding base network are recovered through a tariff imposed on all users of the system, regulated by the Commission for Energy Regulation (CER.) Specifically the price of the shallow connection assets charged to the producer is determined by use of standard charging schemes that are approved by the regulator.

The Distribution works associated with a connection are charged in full to the generator or group of generators driving those works. A paper by the CER outlining the rules for charging and rebating for generators being processed under the Group Processing Approach is currently under consultation with a proposed decision expected shortly. The present CER approved policy (approved 2007) can be found at:

[http://www.esb.ie/esbnetworks/en/download\\_documents/charges-policies/generators.jsp](http://www.esb.ie/esbnetworks/en/download_documents/charges-policies/generators.jsp)

**(k) Are there rules for sharing the costs between initially and subsequently connected producers? If not, how are the benefits for subsequently connected producers taken into account?**

There are rules for sharing the costs between initially and subsequently connected producers. The rules in place were consulted upon and subsequently approved by the Commission for Energy Regulation.<sup>110</sup> Note: there is also an open consultation ongoing in this area.

**(l) How will it be ensured that transmission and distribution system operators provide new producers wishing to be connected with the necessary information on costs, a precise timetable for processing their requests and an indicative timetable for their grid connection?**

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<sup>110</sup> Ref: Decision Paper on DSO Proposals on LCTA, Rebates and Fees, CER/08/077, 9<sup>th</sup> May 2008, Joint DSO/TSO Group Processing Approach Pricing Principles Guidelines, 27/02/2007

There is publicly available information on the standard transmission charges and timelines. This information is approved by the CER under Section 35 of the 1999 Electricity Regulation Act.<sup>111</sup>

Through the Gate 3 process, EirGrid and ESB networks issue a connection offer to each generator wishing to connect that sets out the connection charge and estimate timeline specific to the individual customer for an operational date. This information is calculated using planned transmission capacity assumptions.

EirGrid runs an Incremental Transfer Capacity (ITC) Programme to identify the scheduled firm transmission capacity to be provided to each of the eligible Gate 3 projects for each year from 2010 to 2025. EirGrid published the Incremental Transfer Capacity programme up to 2023 in January 2010. The ITC helps ensure a level of consistency between network planning and renewable integration on the transmission system. Further information on this issue is available from the EirGrid website.<sup>112</sup>

The documents below contain lists of charges that are applied for various services provided by ESB Networks (the DSO).

- [Standard Pricing for Connecting Generators to the Electricity Distribution System \(PDF | 140KB\)](#)
- <http://www.esb.ie/esbnetworks/en/commercial-downloads/Standard-Prices-for-Generator-Connections.pdf>

This document details the approved pricing approach from the Commission for Electricity Regulation (CER) for connecting new generators to the electricity distribution system.

- [Application Fees for Embedded Generators](#)

This document lists the application fees that are charged for connecting an embedded generator as approved by the CER.

[http://www.esb.ie/esbnetworks/en/downloads/application\\_fees\\_for\\_embedded\\_generators\\_may\\_2008.pdf](http://www.esb.ie/esbnetworks/en/downloads/application_fees_for_embedded_generators_may_2008.pdf)

- [Schedule of Operation and Maintenance Charges](#)

This document outlines the Operation and Maintenance Charges that apply to Generators, Combined Heat and Power (CHP) and Autoproducer customers. Approved by CER on 21/11/2008

[http://www.esb.ie/esbnetworks/en/download\\_documents/charges-policies/generators.jsp](http://www.esb.ie/esbnetworks/en/download_documents/charges-policies/generators.jsp)

Also the DSO has initiated customer meetings with generators who will receive a connection offer and appointed a Customer Relations Manager to deal specifically with wind farms. In addition a section of the web site has been developed specifically to provide up to date information on Gate 3 and a dedicated e-mail address has been put in place for all generator related queries. See: [http://www.esb.ie/esbnetworks/en/generator-connections/gate\\_3.jsp](http://www.esb.ie/esbnetworks/en/generator-connections/gate_3.jsp)

Finally general information relating to the progression of the Gate 3 offer programme described at 4.2.6 (b) above and providing for an additional 3900MW of renewable

<sup>111</sup> Standard Transmission Charges and Timelines Decision Paper CER/09/077 1<sup>st</sup> May 2009  
<http://www.cer.ie/GetAttachment.aspx?id=0e95c64f-80f9-4487-b9c9-88f56b8209a5>

<sup>112</sup> <http://www.eirgrid.com/customers/gate3/itcfirmaccessquantities/>

generation is communicated in the Gate 3 Liaison Group forum as established by the Commission for Energy Regulation (CER.) The aim of the Liaison Group is to discuss and communicate with stakeholders the progress of the Gate 3 offer programme. The Group meetings, which are held monthly, are organised by the CER and consist of representatives from the CER, the TSO, DSO and industry. Further information in relation to the terms of reference of the group and meeting minutes can be viewed on the Commission for Energy Regulation's website.<sup>113</sup>

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<sup>113</sup> Ref: <http://www.cer.ie/en/electricity-transmission-network-overview.aspx?article=35174640-af92-457c-89ab-44a56abea1ce>

#### **4.2.7. Electricity network operation (Article 16(2) and Article 16(7) and (8) of Directive 2009/28/EC)**

##### **(a) How is the transmission and distribution of electricity from renewable energy sources guaranteed by transmission and distribution system operators? Is priority or guaranteed access ensured?**

Ireland has a process in place for the processing and issuing of connection offers (see 4.2.6 (b)) through which sufficient capacity is reserved on the system to meet the Government's RES-E target.

As noted in 4.2.6 (b), RES-E will play a significant role in meeting Ireland's overall target under Directive 2009/28/EC (covering RES-E, RES-H and RES-T.) The Government has set a RES-E target of 40% and it is estimated that between 4630MW and 5800MW of renewable generation would be required, depending on economic growth assumptions and demand projections, to ensure 40% of electricity consumption from renewable sources.

To date there have been 3 'Gates.' Under Gate 1 and Gate 2, 1755MW of connection offers were made and accepted. Under Gate 3, 3900MW of offers are currently in the process of being issued to renewable generators. This amount of renewable generation is sufficient for the achievement of Ireland's RES-E target and with falling demand may even mean that the RES-E target is exceeded.

The Gate process is thus a form of priority access commensurate with the achievement of our 2020 RES-E target. In addition, EirGrid has developed a range of operational procedures to ensure priority dispatch of renewable resources in real time (ensuring our RES-E target can be met) while maintaining the reliability and safety of the grid as appropriate. The Distribution System Operator (DSO) does not dispatch any generation and DSO connections are designed such that the distribution connection can accommodate the full MEC and are not a factor in limiting output.

##### **(b) How is it ensured that transmission system operators, when dispatching electricity generating installations give priority to those using renewable energy sources?**

In Ireland, legislation<sup>114</sup> requires that priority dispatch be afforded by the system operator to generation from renewable resources. The Transmission System Operator (TSO), EirGrid, achieves this by allowing all renewable sources to be dispatched prior to dispatching fossil fuel generation. Notwithstanding that, the situation has occurred where the TSO has had to dispatch down renewable generation at times for security reasons. It is noted that renewable generators are integrated into the SEM and that principles underlying dispatch of plant in the SEM are determined by the SEM Committee. Going forward, national legislative provisions on dispatch of renewable generation will be reviewed and their adequacy assessed in the context of Article 16 (2) (c) of Directive 2009/28/EC, in consultation with the CER and Eirgrid.

##### **(c) How are grid- and market- related operational measures taken in order to minimise the curtailment of electricity from renewable energy sources? What kinds of measures are planned and when is implementation expected?**

On 1st November 2007 the Single Electricity Market (SEM) went live, commencing the trading of wholesale electricity in Ireland and Northern Ireland on an All-Island basis. The Single Electricity Market consists of a gross mandatory pool market, into which all electricity generated on or imported onto the island of Ireland must be sold, and from which all

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<sup>114</sup> 1999 Electricity Regulation Act (section 9 (5) (e))



wholesale electricity for consumption on or export from the island of Ireland must be purchased.<sup>115</sup>

Hence, the wholesale electricity market is operated across two legal jurisdictions and wholesale trade takes place across a larger area than in the past. This involves close cooperation of the System Operators in Ireland and Northern Ireland - EirGrid<sup>116</sup> and SONI<sup>117</sup> - on market related matters, including dispatch of generation plant on the island in the context of the SEM.

The SEM is regulated by the Commission for Energy Regulation and the Northern Ireland Authority for Utility Regulation under the auspices of the Single Electricity Market Committee (the SEM Committee).<sup>118</sup> Further information on the SEM can be found on the 'All Island Project' website, the website of the Single Electricity Market Operator and the websites of the System Operators.

The SEM is connected to the UK via the Moyle connector (linking Northern Ireland and Scotland) at present. Interconnection plans are set out in the response to Question 4.2.6 (d) above. In addition, it is noted that the efficient use of available capacity of the existing connection capacity is a key objective for the SEM Committee.

This is in the context of the increasing focus by policy makers across Europe on how national electricity markets can be more closely integrated with one another to allow consumers to reap the benefits of the internal European market for electricity. It is also in the context of increasing wind penetration and EU legal requirements in relation to the allocation of cross border capacity.

Given the above, the SEM Committee has consulted on SEM regional integration examining how best to coordinate the allocation of available transfer capacity on connectors across various timeframes - from long to medium term through to day ahead, intra-day and in balancing markets. In examining these matters it is necessary to do so in the context of the wider, more strategic implications for the integration of the SEM with its neighbouring markets in light of the France-UK-Ireland (FUI) regional grouping. Further information on this consultation process can be viewed on the All Island Project website.<sup>119</sup>

Efficient use of Moyle and future interconnection is one matter that will assist in the minimisation of curtailment of wind. Demand side response has the potential to also play a role in this regard. At present a number of demand side measures are currently in place and demand side bidding is facilitated under the SEM Trading and Settlement Code.

A programme has been initiated to develop a coordinated and sustainable demand response on the island of Ireland in the context of the SEM. This commenced in December 2009 and will cover a number of matters including demand side bidding in the wholesale market, smart grids, load shifting and overall demand reduction.

The TSO, DSO, regulator, Sustainable Energy Authority of Ireland along with the Department of Communications, Energy and Natural Resources are working closely on the development of smart grid technologies. A smart metering pilot has commenced in Ireland and information on this has been outlined at 4.2.6 (c).

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<sup>115</sup> Note that a de minimis level applies in relation to mandatory participation in the SEM.

<sup>116</sup> <http://www.eirgrid.com/>

<sup>117</sup> <http://www.soni.ltd.uk/>

<sup>118</sup> Ref: <http://www.allislandproject.org/>, [http://www.allislandproject.org/en/SEM\\_semc.aspx](http://www.allislandproject.org/en/SEM_semc.aspx)

<sup>119</sup> [http://www.allislandproject.org/en/TS\\_Decision\\_Documents.aspx?article=beea10b1-a6c2-4993-8cfe-037a57dee8f9](http://www.allislandproject.org/en/TS_Decision_Documents.aspx?article=beea10b1-a6c2-4993-8cfe-037a57dee8f9)

EirGrid has developed a range of operational procedures to ensure priority dispatch of renewable resources in real time (ensuring our RES-E target can be met) while maintaining the reliability and safety of the grid as appropriate.

In addition when these generators are not run, there is a financial compensation mechanism in the Single Electricity Market (SEM) which currently compensates qualifying controllable wind farms who are impacted in these cases with the market price by the volumes curtailed. These financial arrangements rely on the quality and reliability of the control and availability signals to achieve this in practice.

To this end EirGrid has, with the industry, substantially reworked the wind farm commissioning process as well as designed a standard for availability signal which has significantly improved the quality, reliability and accuracy of these signals.

Some current operational initiatives in place to facilitate renewable generation are:

- remote control capability of windfarms at transmission level and those larger than 5MW on the distribution network from the National Control Centre (NCC), which allows response to active and reactive power dispatch instructions
- week ahead, day ahead and intra day wind forecasting for use in dispatch and scheduling of generation
- agreed commissioning process with the wind industry
- priority dispatch

The specific rules employed currently for priority dispatch are as follows:

- Re-dispatch of conventional generation will be considered on an all island basis before any priority dispatch unit is instructed to reduce output from its desired or expected market output. This may also include the re-dispatch of tie line phase shifting transformers. Conventional generation moved to their minimum generation levels in line with the market expectations can be de-committed to facilitate the wind output provided this action does not endanger the security of the power system.
- Priority dispatch hydro stations will be instructed to reduce output before priority dispatch wind farms - even if this results in water being spilt - provided this does not endanger the security of the power system and that appropriate consideration of issues like flooding are taken into account. Appropriate tie-breaking criteria will be used if necessary.
- Priority dispatch wind farms, which are registered in the SEM as Variable Price Takers (VPTs) will be instructed to reduce output before other priority dispatch wind farms, provided this does not endanger the security of the power system. Appropriate tie-breaking criteria will be used if necessary.
- The remaining priority dispatch wind farms will be instructed to reduce output if all the other measures were unable to prevent part or whole of the system being put at risk. Appropriate tie-breaking criteria will be used if necessary.

EirGrid is working to develop a range of grid related tools, in the area of wind forecasting, stochastic scheduling, on line dynamic stability assessment, real time wind dispatch and others. More detail is provided below. Many of these tools are already operational in the National Control Centre. The Wind Security Assessment Tool (WSAT) is designed to assist real time stability and is a leading edge development planned to be operational in 2010. At the penetrations of wind that Ireland is attempting to reach, system stability is a technical limitation. Accurately knowing this limit in real time will help maintain a secure power system while meeting the policy targets.

The following grid initiative schemes are noteworthy:

- Real time dynamic stability assessment: The addition of large amounts of non-synchronous generation to a power system fundamentally changes the behaviour of the power system especially during and following disturbances. Broad safety margins will need to be implemented in the real time dispatch. The TSO is tackling this issue by conducting long term frequency and stability studies to understand the issues better as well as developing a real time on line dynamic stability assessment tool. Both these measures will allow the system to accommodate more wind without threatening the security of the system.
- EirGrid is developing the use of real time dynamic line ratings which allow for the actual weather conditions in assessing the thermal capacity of lines. This capability will in most cases allow for an increased use of certain transmission lines which will reduce the dispatch down of renewable plant for security reasons
- EirGrid is working to develop a range of grid related tools, in the application of wind forecasting, in the stochastic scheduling of generator units. This research aim is to analyse whether there is a better, more secure and efficient mechanism to schedule units on line given that wind forecasts will undoubtedly always have uncertainty in their accuracy
- ESB Networks and EirGrid are working together to assess the reactive power control in real time of distribution connected windfarms. This project can release the reactive capability of the embedded distribution windfarms in a constructive manner which if managed correctly could help an increased penetration of renewables;

Ireland's commitment to facilitate the integration and operational control of renewable forms of energy is underpinned by EirGrid's involvement in a range of major technical studies, including the Facilitation of Renewables studies. The Facilitation of Renewables studies is a suite of pioneering studies that aim to identify the dynamic issues associated with operating a power system with high levels of intermittent renewable generation, and how to best solve these issues. The final results of the study have now been published on the Eirgrid website and will inform the basis for EirGrid's renewable operational strategy in the years ahead.  
<http://www.eirgrid.com/renewables/facilitationofrenewables/>

**(d) Is the energy regulatory authority informed about these measures? Does it have the competence to monitor and enforce implementation of these measures?**

The Commission for Energy Regulation (CER) is the independent body responsible for overseeing the regulation of Ireland's electricity and gas sectors. The CER was initially established and granted regulatory powers over the electricity market under the Electricity Regulation Act, 1999. The enactment of the Gas (Interim) (Regulation) Act, 2002 expanded the CER's jurisdiction to include regulation of the natural gas market, while the Energy (Miscellaneous Provisions) Act 2006 granted the Commission additional powers in relation to gas and electricity safety.

Under the 1999 Electricity Regulation Act, it is a duty of the CER to require that the system operator gives priority to generating stations using renewable, sustainable or alternative energy sources when selecting generating stations. The Electricity Regulation Amendment (SEM) Act 2007 outlined the Commission's functions in relation to the Single Electricity Market (SEM) for the island of Ireland. This market is regulated by the Commission and the Northern Ireland Authority for Utility Regulation (NIAUR).

In the context of the above, the Commission regulates the electricity wholesale market, including rules for trading across interconnectors, licenses the System Operator, approves the Grid Codes and has responsibility for the approval of cost recovery for network investment and revenue requirements of the electricity network businesses.

**(e) Are plants generating electricity from renewable energy sources integrated in the electricity market? Could you please describe how? What are their obligations regarding participation in the electricity market?**

Renewable generators are integrated into the Single Electricity Market (SEM) in Ireland. Generators, including renewable generators, below a defined de-minimis level do not have to participate in the Single Electricity Market (the SEM). The de minimis level is set out in the market rulebook, the Trading and Settlement Code, and is set at a Maximum Export Capacity of 10MW. Generators above this level must participate in the market or, where this is facilitated, appoint an Intermediary to participate on their behalf.

Renewable generators, as others, must sign up to the Trading and Settlement Code, and fulfil the necessary registration requirements to participate in the SEM. The Trading and Settlement Code and requirements in this regard are publicly available on the website of the Single Electricity Market Operator (the SEMO).<sup>120</sup>

At a high level, renewable generators get paid the market price by their tradable volume in the SEM. Depending on whether the generating unit is controllable or not will impact on its treatment in the SEM. If a qualifying unit is controllable and dispatched down for security reasons, the qualifying unit is rewarded as if they had generated their available output.

More specifically, in the SEM, units are classified and paid according to the type of output and bidding arrangement of the generating unit.

A unit can be classified as:

- Predictable if the generation source does not vary e.g. thermal unit or;
- Variable where the output can change from one trading period to the next e.g. wind unit.

In addition, the unit can either be treated as Autonomous (i.e. embedded), a Price Taker or Price Maker. Autonomous units are typically treated as embedded units i.e. they are treated as negative demand and are assumed scheduled first in both the market (day-ahead) and dispatch (within-day) schedules. Autonomous units do not receive constraint payments in the event that the system operator curtails their output. Their tradable volume is their actual physical output.

Price Takers are units which have priority dispatch status which opt to register as Price Takers and are treated the same as Autonomous units except where in the event of the unit being constrained down these units will receive constraint payments, i.e. the units will get paid for their availability, not their output. Price Makers submit price quantity pairs and are scheduled according to their offers in the market and receive constraint payments if constrained up or down.

In general renewable generators fall into three categories Autonomous (non controllable wind), Variable Price Takers (Controllable Wind) and Predictable Price Makers (Hydro).

- An Autonomous Price-Taker Generator, if its MEC is excess of 5MW, is a unit which cannot or has yet to be confirmed as capable of being controlled up or down by the TSO.

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<sup>120</sup> Ref: <http://allislandmarket.com/MarketRules/>  
Ref: [http://allislandmarket.com/market\\_registration/](http://allislandmarket.com/market_registration/)

- A Variable Price-Taker Generator (VPTG) is typically a wind farm whose MEC  $\geq$  5MW, is controllable according to Grid Code and opts to be priority dispatched. It is therefore included by default in the market schedule.
- Predictable Price-Maker Generators (PPMG) are treated as a price-maker as they are able to reduce or increase their output when requested by the system operator.

Certain obligations for generators participating in the market include:

- the renewable generator must be licensed by the regulator (Commission for Energy Regulation)
- they must have a connection to the grid
- they must comply with relevant conditions of the Grid Code, and
- as the SEM is a collateralised market they must provide the required collateral cover.

There are other obligations on all units participating in the market and these are detailed in the Trading and Settlement Code.<sup>121</sup>

There is a clear interaction between wholesale electricity market arrangements, as determined by the SEM Committee, and renewable energy policy. That interaction will be monitored and assessed.

**(f) What are the rules for charging transmission and distribution tariffs to generators of electricity from renewable energy sources?**

All, renewable and non-renewable, transmission connected generators and those distribution connected generators with a contracted Maximum Export Capacity greater than or equal to 10MW are charged locational generator tariffs.

These can either be capacity based charges (€/MW/Month) or energy based charges (€/MWh). Capacity based charges are charged for a generator's portion of its MEC that has firm access to the transmission system while energy based charges are charged for a generator's portion of its MEC that has non-firm access to the transmission system. See: <http://www.cer.ie/en/electricity-transmission-network-decision-documents.aspx#TariffDocuments>

ESB Networks is the Distribution System Operator. A document on 'ESB network charges for 2010 Operation and Maintenance Charges for Generators CER 09188' is available at: [http://www.esb.ie/esbnetworks/commercial-downloads/operation\\_maintenance\\_charges\\_2010.pdf](http://www.esb.ie/esbnetworks/commercial-downloads/operation_maintenance_charges_2010.pdf)

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<sup>121</sup> <http://www.allislandmarket.com/MarketRules/>

#### **4.2.8. Biogas integration into the natural gas network (Article 16(7) and Article 16(9) and (10) of Directive 2009/28/EC)**

##### **(a) How is it ensured that the charging of transmission and distribution tariffs does not discriminate against gas from renewable energy sources?**

The framework for demand connections to the gas network is set out in the Connections Policy, a Commission for Energy Regulation (CER) approved Gaslink (previously issued by Bord Gáis Networks) document.

The document deals with demand connections only and there is no explicit charging policy for Entry points. However, to date, given the size of any potential new entry points (very large transmission connections) it has been assumed that they would pay 100% of the connection cost upfront and that there would be a regulated tariff on that entry point to recover the cost of the connection.

Regulated Tariffs are set as follows:

- The regulator (CER) establishes an allowed revenue that the asset owner and operator can recover. This is currently carried out in the Bord Gáis Networks five year revenue control that commenced in October 2007 and runs for five years.
- The required revenue is made up of three building blocks namely
  1. Operational Expenditure (OPEX)
  2. Depreciation and
  3. Return on Capital Employed (referred to as the WACC).

The most recent CER Revenue Control Decisions (CER/07/110 for Transmission and CER/07/111 for Distribution) are available on the regulator's (CER) website ([www.cer.ie](http://www.cer.ie))

- The projected system usage (capacity bookings and commodity flows) for the five years of the revenue control are established and feed into the tariff projections
- At a high level the tariffs are calculated by dividing the allowed revenue by the projected capacity bookings and commodity flows. This gives a capacity and commodity tariff for the five years of the revenue control
- The tariffs are updated on annual basis to update for changes in demand figures and to correct for any over or under recoveries
- The CER currently approves tariffs at transmission level for the Onshore, the Interconnectors and Inch. All customer categories pay the same transmission tariff. At Distribution level there are four categories of customers who pay different tariffs depending on their annual usage.

At present the framework for new gas connections does not explicitly discriminate for or against any form of gas.

However it does not explicitly cater for gas from renewable sources. The injection of gas from renewable sources (and /or smaller sources as are likely with biogas) may require clarifications to the current connections and charging framework as it may create the concept of a 'Distribution Entry Point.' Such a concept has previously been examined in the electricity sector and there is a regime in place there for such customers.

##### **(b) Has any assessment been carried out on the need to extend the gas network infrastructure to facilitate the integration of gas from renewable sources? What is the result? If not, will there be such an assessment?**

A specific assessment has not been carried out on the need to extend the gas network to facilitate the integration of gas from renewable sources.

Various approaches have been made to Gaslink<sup>122</sup> by parties who are considering developing 'renewable gas facilities' but no request for connection has been received.

Gaslink has engaged with the Commission for Energy Regulation (CER) in relation to renewable gas entry points connecting to the gas network. It is Gaslink's intention to progress with the inclusion of specific methodology in the Network Connections Policy that governs the terms for connection of such entry points to the gas network.

Under current Regulatory Policy, new entry points pay the total of the capital costs of their entry connection. Gaslink in conjunction with the CER will review an appropriate mechanism for renewable gas entry points and together develop a proposal for inclusion in the Connections Policy.

This proposal will endeavour to bring clear and transparent arrangements which will clarify the approach for renewable gas facilities and will assist the wider use of renewable gas ensuring non discriminatory access to the gas network.

Bord Gáis Éireann (BGE)<sup>123</sup> has carried out a review of the potential of renewable gas resources in Ireland and its associated market potential as a renewable source. A report has been drafted on the future of renewable gas in Ireland (available from BGE.) This report looks at the potential of energy from bio-methane to contribute to Ireland's renewable energy target.

**(c) Are technical rules on network connection and connection tariffs for biogas published? Where are these rules published?**

There are no explicit technical rules developed for the introduction of renewable gas within Ireland.

However, all natural gas entering the gas network in Ireland, must comply with specific gas quality requirements. The CER have issued a Decision Paper on Gas Quality in March 2009 following extensive consultation with the Gas Quality Industry Group. This group, chaired by the CER continues to meet to progress gas quality requirements.

Gaslink and the CER have recently discussed the issue of gas quality relating to renewable gas and CER intend to consider progressing with the necessary requirements in 2010.

A Position Paper on the Position of European Transporters on the Injection of Renewable gas in the Natural Gas Networks is being developed by Gas Transmission Europe (GTE) with a view to recommending that the renewable gas producer takes specific care to comply

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<sup>122</sup> Gaslink is the independent system operator with responsibility for developing, maintaining and operating the natural gas transportation system in Ireland. Gaslink was established in 2007 in compliance with the unbundling requirements of the EU Gas Directive 2003/55/EC. The primary function of Gaslink is to ensure the secure, reliable and efficient operation of the transmission and distribution systems under economic conditions and with due regard to the environment. Also Gaslink ensures non-discriminatory access to the natural gas network and avoids conflicts of interest in the gas supply market. Gaslink is also responsible for the planning and development of the gas network, with responsibility for preparing a seven year development plan and a five-year price control plan.

<sup>123</sup> Bord Gáis Éireann (Bord Gáis) was established in 1976 and is a commercial state body operating in the energy industry. For many, Bord Gáis would be synonymous with natural gas. However, the structure of the energy industry has changed significantly since the introduction of market liberalisation and Bord Gáis now has a variety of roles within the gas industry in Ireland. In addition, Bord Gáis has expanded beyond its original base into the electricity supply market.

with gas quality requirements in order to protect the gas market against identified specific risks.

It is expected that this paper will be published soon by the European Network of Transmission System Operators for Gas (ENTSOG). Gaslink, as members of ENTSOG are monitoring the development of this paper. CEN, the European Committee for Standardisation, are expected to be mandated by the European Commission to produce a gas quality standard for bio-methane for use in transport and injection in natural gas pipelines.



#### **4.2.9. District heating and cooling infrastructure development (Article 16(11) of Directive 2009/28/EC)**

**(a) Please provide an assessment of the need for new district heating and cooling infrastructure using renewable energy sources and contributing to the 2020 target. Based on this assessment, are there plans to promote such infrastructures in the future? What are the expected contributions of large biomass, solar and geothermal facilities in the district heating and cooling systems?**

Given that, historically, district heating has played a limited role in the Irish context, the scope for enhancing the use of district heating solutions remains a challenge. The focus will be on opportunities for biomass and geothermal. The policy objective is to work to overcome existing challenges and deliver district heating commensurate with the characteristics of the Irish market.

The economics of district heating would tend to favour new build rather than retrofit, although opportunities for retrofit must continue to be explored. Because of the substantial amount of residential property constructed in recent years, there is unlikely to be a very significant demand for further construction in Ireland in the immediate future. Where construction does take place, the requirements under Part L of the Building Regulations (see section 4.2.3) that require that there be renewable energy in each dwelling represent a significant opportunity for district heating in the Irish market and so there may be some demand for district heating in apartment complexes. In addition, there will be some demand in the commercial sector.

The advantages of district heating using biomass are self-evident. In general district heating shows higher fuel efficiency than individual small boilers, combined with a better flue gas cleaning, leading to cleaner emissions. The use of larger boilers in district heating allows the use of a wetter fuel, because the evaporated water (and also the water generated by burning a hydrocarbon) can be condensed from the fuel gas by the low temperature return water of the district heating system. This can lead to significant efficiencies. Fuel for a district heating plant can be harvested locally from local forest or grown locally. This reduces transportation costs and associated emissions.

Disadvantages of district heating are the high investment cost in the piping network, which often makes retrofit of the distribution infrastructure expensive. There is obvious potential for installing District Heating systems in new developments, and in particular in the development of medium or large scale urban areas, where the required piping can be laid down in the development phase together with other infrastructure such as sewage, water mains, electricity lines etc.

The boiler of the district heating system can and should be connected to a heat accumulating tank. This allows the boiler to operate under optimal conditions, since the excess heat can be stored in the tank. Once the tank is full, the boiler can be switched off. This is especially advantageous during summer with low heat demands. The maintenance of many small boilers disappears in favor of the maintenance of one big boiler.

Energy Service Companies (ESCOs) and energy performance contracting (EPC) are common business models that decrease energy costs and reduce environmental impact for the clients and stakeholders. These are business models that should be considered further in future. They frequently incorporate renewables. Reducing stakeholders' energy demands with the ESCO model often requires a shared energy (heat and/or power) distribution, using district heating/cooling networks. The growth of ESCO's will require the encouragement of district heating, grouped stakeholders' and model ESCO contract templates.

A number of actions are required to support district heating, including the development of a regulatory framework for elements of the residential, industrial and institutional heat market, and the ongoing and sustainable construction of biomass supply chains. Similarly, a significant amount of up-skilling in the building sector will be required, and it is quite likely that there will be planning and access issues to be resolved also.

Regional and county development plans have considerable potential for the promotion of district heating and cooling as they offer an opportunity to introduce biomass heating into residential, commercial and industrial centres without the need to install individual boilers.

#### **4.2.10. Biofuels and other bioliquids – sustainability criteria and verification of compliance (Articles 17 to 21 of Directive 2009/28/EC)**

##### **(a) How will the sustainability criteria for biofuels and bioliquids be implemented at national level?**

The National Biofuel Obligation, underpinned by newly introduced legislation, will implement the Sustainability Criteria as an integral part of the scheme. The legal basis for the Biofuel Obligation is the Energy (Biofuel Obligation and Miscellaneous Provisions) Act 2010. The Obligation, which came into force on 1 July 2010, is operated by the National Oil Reserves Agency (NORA)<sup>124</sup>, the statutory state agency, responsible for the holding of national strategic oil stocks and implementing the Oil Stocks Directive.

##### **(b) How will it be ensured that biofuels and bioliquids that are counted towards the national renewable target, towards national renewable energy obligations and/or are eligible for financial support comply with the sustainability criteria set down in Article 17(2) to (5) of Directive 2009/28/EC?**

Compliance with the sustainability criteria set down in the Directive will be verified by NORA as part of the operation of the Obligation Scheme. In essence, the Scheme operates on the basis of redeemable certificates granted to those bringing biofuel to the market. These certificates are then redeemed by Obligated Parties against their obligation. However, any biofuel supplier claiming a certificate will have to certify that they meet the criteria as laid out in the Directive. NORA will then have to verify compliance with the sustainability criteria on an ongoing basis, as well as on the basis of formal end of year audits.

Supporting actions are being carried out by other Departments and Agencies with regard to those provisions of the Directive that relate to sustainability criteria. These include the Department of Agriculture, Fisheries and Food and Teagasc.

##### **(c) If a national authority / body will monitor the fulfilment of the criteria, does such a national authority / body already exist? If so, please specify. If not, when is it envisaged to be established?**

As noted, the National Oil Reserves Agency (NORA) will monitor fulfilment of the sustainability criteria. The National Oil Reserves Agency Act 2007<sup>125</sup> has established NORA as a State Agency under the aegis of the Department of Communications, Energy and Natural Resources.

##### **(d) Please provide information on the existence of national law on land zoning and national land register for verifying compliance with Article 17(3) to (5) of Directive 2009/28/EC. How economic operators can access to this information?**

A variety of national legislative measures are in place to deal with the relevant landscape and biodiversity issues.

Under the EU Habitats Directive 92/43/EEC, each Member State is required to designate Special Areas of Conservation (SACs) for the protection of endangered habitats and species as listed in Directive. Scientific criteria outlined in the Directive determine which sites should be designated as Special Areas of Conservation. MS are also required under the terms of the EU Birds Directive (79/409/EEC) to designate Special Protection Areas (SPAs) for the protection of endangered species of wild birds. These Directives were given force in Irish law

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<sup>124</sup> <http://www.nora.ie/>

<sup>125</sup> [http://www.nora.ie/regulations\\_legislation/regulations%5flegislation.450.450.html](http://www.nora.ie/regulations_legislation/regulations%5flegislation.450.450.html)  
[http://www.nora.ie/regulations\\_legislation/biofuels\\_obligation\\_scheme.450.474.html](http://www.nora.ie/regulations_legislation/biofuels_obligation_scheme.450.474.html)

through the European Communities (Natural Habitats) Regulations SI 94/1997, later amended (1998 & 2005)

The basic designation for wildlife within Ireland is the Natural Heritage Area. This is an area considered important for the habitats present or which holds species of plants and animals whose habitat needs protection. Under the Wildlife Amendment Act (2000), NHAs are legally protected from damage from the date they are formally proposed for designation. Nature Reserves are areas of importance to wildlife, protected by Ministerial order under the Wildlife Acts. Under the Wildlife Acts, the Minister may also designate refuges for wild birds or wild animals or flora and impose protective measures to conserve both the species and their habitats. Wildfowl sanctuaries are areas that have been excluded from the 'Open Season Order' so that game birds can rest and feed undisturbed. Shooting of game birds is not allowed in these sanctuaries. The Wildlife Act, 1976, enables the Minister to enter into a voluntary management agreement with private landowners. Under these agreements landowners will manage their lands to ensure that desirable wildlife habitats are protected.

Details of sites designated under EU Directives can be obtained directly from the National Parks & Wildlife Service's Site Designations Unit and via the National Parks & Wildlife Service (NPWS) website. All persons with a valid legal interest in particular lands are notified whenever a site is proposed for designation, and have the option to appeal on a number of grounds. There is no 'land register' for protected areas.

It should also be noted that several of the habitats mentioned in Article 17(3) to (5) are not found in Ireland, and so no measures are required to cover them in a national land register. This includes 'highly bio diverse grassland'

In relation to Article 17(3) (a) no such forest type exists in Ireland. Forest harvesting is governed by the Forestry Act 1946 which prohibits the felling of trees unless the person obtains a Felling Licence from the Minister for Agriculture, Fisheries and Food. No Felling Licence is issued for felling in any area designated for biodiversity reasons by the Minister for Environment, Heritage and Local Government, without the consent of that Minister (e.g. Special Area of Conservation, Nature Reserve etc.)

**(e) As far as protected areas are concerned, please provide information under which national, European or international protection regime they are classified.**

Wildlife Act 1976

European Union Birds Directive 1979 (79/409/EEC)

European Union Habitats Directive 1992 (92/43/EEC)

European Union Habitats Directive 1992 (Amended) (97/62/EEC)

European Communities (Natural Habitats) Regulations SI 94/1997

European Communities (Natural Habitats) Regulations (Amended) SI 233/1998

Wildlife (Amendment) Act 2000

European Communities (Natural Habitats) Regulations (Amended) SI 378/2005

**(f) What is the procedure for changing the status of land? Who monitors and reports at national level on land status changes? How often are the land zoning register updated (monthly, annually, bi-annually, etc.)?**

Designated areas are chosen using existing knowledge. SACs are chosen subject to criteria laid out in Annex III of the Habitats Directive, such as the importance within Ireland of the site for its habitats or species, how "representative" the example is of the relevant habitat present on the site, how isolated the population is of the relevant species on the site, the intactness of the habitat on the site, and other factors, including the need to ensure a good geographic spread of sites, the total number of habitats and species listed in the Annex to the Habitats Directive present on the site, whether or not there is a priority habitat on the site

and whether or not the site contains habitats or species for which Ireland is especially important.

SPAs are chosen if they are regularly used by 1% or more of the all-Ireland population of a listed (i.e. Annex 1) species, or regularly used by 1% or more of the bio-geographical population of a migratory species, or regularly used by more than 20,000 waterfowl. In addition, sites important for dispersed species require protection under the 1979 Birds Directive.

The process is as follows:

1. Site Identification & Mapping
2. Notification of Owners
3. Objections and Appeals
4. Designation

The EC adopted the Irish list of candidate SACs in December 2004. SPAs are designated by the Minister without reference to the EU, although the Commission can and does seek to ensure that the total area designated is adequate within the terms of the Birds Directive. NHAs are designated by the Minister without reference to Europe.

There is no monitoring of land zoning changes, although all site designations are logged and maintained in a database within the National Parks & Wildlife Service. Designated areas are also taken into consideration by planning authorities in the Development Planning process.

**(g) How is compliance with good agro-environmental practices and other cross compliance requirements (required by Article 17(6) of Directive 2009/28/EC) ensured and verified at national level?**

Farmers in receipt of the Single Payment Scheme (and other direct payment schemes e.g. area based compensation scheme and agri-environment scheme) carry important responsibilities in respect of the environment, public, plant and animal health, protection of the land and animal welfare. These responsibilities are set out in standards and requirements now commonly referred to as Cross Compliance.

Farmers are not paid to observe environmental and other legislation but should they not comply with that part encompassed in the cross compliance requirements they render themselves liable to a possible reduction of their payments under the direct payment schemes.

All farmers are obliged to

- Maintain all their lands in Good Agricultural and Environmental Condition and
- Comply with all 19 Statutory Management Requirements applying under the single payment scheme.

5% of the land declared by the farmer must be checked for eligibility. Under Cross compliance, 1% checks are carried out for all areas with the exception of cattle identification (5%) and sheep (3%). All measures must be checked on the farm.

Cross Compliance Sanctions

Breaches of a negligence nature can be 1%, 3% or 5% of the payment depending on the seriousness of the non-compliance. Breaches which are of an Intent nature can range from 15% to 100% depending on the seriousness of the non-compliance. There is provision under the legislation to extend the sanction outside the year of the finding. Where the breach is repeated within three years, the sanction will be multiplied by 3 to a limit of 15%. Further repetitions may result in more serious penalties.

**(h) Do you intend to help develop voluntary "certification" scheme(s) for biofuel and bioliquid sustainability as described in the second subparagraph of Article 18(4) of Directive 2009/28/EC? If so, how?**

It is not intended to develop voluntary "certification" schemes for biofuel and bioliquid sustainability as described in the second subparagraph of Article 18(4) of Directive 2009/28/EC.

### **4.3. Support schemes to promote the use of energy from renewable resources in electricity applied by the Member State or a group of Member States**

#### **Regulation**

- (a) What is the legal basis for this obligation/target?**
- (b) Are there any technology-specific targets?**
- (c) What are the concrete obligations/targets per year (per technology)?**
- (d) Who has to fulfil the obligation?**
- (e) What is the consequence of non-fulfilment?**
- (f) Is there any mechanism to supervise fulfilment?**
- (g) Is there any mechanism to modify obligations / targets?**

#### **Answer re (a) to (g) on Regulation:**

Ireland's targets are stated Government policy as set out in the 2007 Government White Paper<sup>126</sup> on energy policy 'Delivering a sustainable energy future for Ireland - The Energy Policy Framework 2007-2020' and the 2009 Carbon Budget<sup>127</sup> in which a 40% RES-E target was set. The Government has also set a 500MW target for ocean (wave and tidal) energy, contained in the energy policy White Paper, as well as in the current Programme for Government.

#### **Financial support**

**For any scheme you use, please give a detailed description answering the following questions?**

#### **(a) What is the name and a short description of the scheme?**

The current scheme is known as REFIT (Renewable Energy Feed In Tariff) and is a feed in tariff scheme. The REFIT scheme is a competition for the allocation of support for the construction of certain categories of renewable generation. The scheme allows RES-E generators to secure the necessary investor confidence to finance debts. RES-E generators enter into 15 year power purchase agreements with suppliers at negotiated and fixed prices. Via the Public Service Obligation (PSO) levy mechanism, REFIT compensates participating retail electricity suppliers according to the REFIT terms and conditions for the net additional costs attributable to their participation in the scheme and purchase of electricity from the relevant generators in the REFIT scheme.

The terms and conditions of the scheme are available online at:

<http://www.dcenr.gov.ie/Energy/Sustainable+and+Renewable+Energy+Division/>

Prior to the introduction of REFIT, a tender scheme, the Alternative Energy Requirement (AER) scheme was used to support RES-E in Ireland. Under AER, there were six calls for tenders (AER I – AER VI) between the mid 1990s and 2003. AER applications were invited from prospective generators to build, own and operate new wind, hydro, biomass and waste-to-energy facilities. All applications were ranked on the basis of bid price per kilowatt-hour supplied. Successful applicants could enter into Power Purchase agreements (PPAs) of up to 15 years with the Public Electricity Supplier (ESB).

#### **(b) Is it a voluntary or obligatory scheme?**

Participation in the REFIT scheme by both generators and suppliers is voluntary. A generator who wishes to participate in the scheme under its terms and conditions applies to the Department of Communications, Energy & Natural Resources. Once the generator

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<sup>126</sup> <http://www.dcenr.gov.ie/Energy/Energy+Planning+Division/Energy+White+Paper.htm>

<sup>127</sup> <http://www.environ.ie/en/Environment/News/MainBody.18676.en.htm>

receives a letter of offer, the generator must then negotiate a Power Purchase Agreement with any of the electricity suppliers operating in the Irish electricity market.

Under AER, participation by generators was voluntary while the Public Electricity Supplier, ESB<sup>128</sup>, was required to act as contracting party to the PPAs. (This is because the electricity market was only fully liberalised after the closure of the AER schemes.)

**(c) Who manages the scheme?**

The policy, objectives and terms and conditions of the REFIT scheme are set by the Department of Communications, Energy & Natural Resources, who administer the scheme. The Commission for Energy Regulation (CER) is responsible under Statutory Instrument 217 of 2002 (as amended) for the ex ante calculation and ex post correction of amounts payable to suppliers under the Public Service Obligation levy, which includes amounts in relation to the REFIT scheme.

A similar situation applied with regard to the AER scheme.

**(d) What are the measures taken to ensure availability of necessary budget/ funding to achieve the national target?**

The funding mechanism for RES-E is via a Public Service Obligation (PSO) levy. The imposition of a PSO for this purpose is made possible in legislation through Section 39 of the Electricity Regulation Act 1999. Section 39 provides that the regulator (CER) may impose a PSO with regard to 'electricity... from generating stations chosen as a result of a competitive process...which use as their primary fuel source such renewable, sustainable or alternative forms of energy as may be specified...' Statutory Instruments (SI) 217 of 2002 (as amended), SI 284 of 2008 and SI 444 of 2009 are orders that have been made under section 39 of the 1999 Electricity Regulation Act.

Eligible, notified costs associated with the REFIT scheme, the feed-in tariff scheme, are borne by all final electricity consumers in Ireland through the PSO levy. The Commission for Energy Regulation is responsible for calculation, certification and supervision of the PSO levy.

The distribution system operator (DSO) invoices all supply businesses at the end of each month the appropriate amount of PSO charge, based on the number of distribution connected customers registered to each supply business. The transmission system operator does the same in relation to TSO connected customers.

All active electricity supply companies are obliged to levy the PSO (if any) on all of their final customers when issuing electricity bills and all final customers pay the levy to their supply company as part of their electricity bill.

The relevant levy amount is then collected from suppliers for distribution and transmission connected customers by the DSO and TSO respectively. The DSO passes its proportion of the levy collected to the TSO and the TSO (SEMO) is responsible for making payment of the money it collects to all relevant PSO stakeholders, which includes electricity suppliers eligible for REFIT payments.

In State Aid Decision N553-01, the European Commission deemed that the Irish PSO levy fund constituted state resources and as the 3 other cumulative conditions under Article 87(1) of the EC Treaty were met, the AER scheme therefore constituted state aid, but was

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<sup>128</sup> <http://www.esb.ie/main/home/index.jsp>



compatible with the Treaty under Article 87 (3) (c). As REFIT is of a similar nature to AER from a state aid perspective, REFIT was subject to a European Commission assessment and also received state aid clearance.

The 2006 REFIT scheme was put in place in order to achieve the 2010 RES-E target and state aid clearance for the scheme was obtained to accept applicants into the scheme until end 2009.

In light of the new target addressed to Ireland under Directive 2009/28/EC, the ministry has applied for state aid clearance to extend the existing approved feed-in tariff support mechanism to encourage new renewable generation in the period 2010-2020.

The PSO mechanism described above will continue to be used as the means of funding the scheme.

**(e) How is long-term security and reliability addressed by the scheme?**

Participating generators enter 15 year power purchase agreements at negotiated and fixed prices with supply companies. This secures investor confidence. Under the terms and conditions of the scheme, REFIT then compensates participating retail electricity suppliers for the net additional costs attributable to their participation in the programme.

Under AER, suppliers could enter into Power Purchase agreements (PPAs) of up to 15 years with the Public Electricity Supplier.

**(f) Is the scheme periodically revised? What kind of feed-back or adjustment mechanism exists? How has the scheme been optimised so far?**

The REFIT scheme received state aid clearance in September 2007, so the time period of its operation to date has been short. The Department of Communications, Energy and Natural Resources (DCENR) and the Commission for Energy Regulation (CER) are in ongoing communication with industry participants in the scheme and interested applicants and there is ongoing liaison between DCENR and CER on feedback received.

DCENR runs a Renewable Energy Development Group which meets approximately four to five times per year. The group consists of stakeholders from both the public and private sector in the renewable energy sphere. This group also acts as a forum for feedback and communication.

As noted above, DCENR has applied for state aid clearance (decision awaited) with regard to extending the feed-in tariff mechanism (with some minor adjustments) to support delivery of the 2020 target addressed to Ireland under Directive 2009/28/EC.

Under AER, there were six separate calls for tenders with modifications to the scheme over time.

**(g) Does support differ according to technology?**

The terms and conditions of both AER and REFIT are available online at:  
<http://www.dcenr.gov.ie/Energy/Sustainable+and+Renewable+Energy+Division/>

There are different reference prices for the various renewable generation technologies supported under REFIT. Essentially the reference prices act as floor prices.

REFIT tariffs are currently as follows:

Large Wind: €66.353/MWh

Small Wind: €68.681/ MWh

Hydro: €83.814/ MWh

Landfill Gas: €81.486/ MWh

Biomass: €83.814/ MWh.

These reference prices are subject to annual increases, if any, in the consumer price index.

In 2009, the terms and conditions were announced for REFIT for additional categories, subject to state aid clearance (these reference prices not being subject to annual increases in the consumer price index.)

Ocean (wave and tidal): €220/ MWh

Offshore wind €140/MWh

In May 2010 a revised set of tariffs for the biomass combustion, Anaerobic Digestion and biomass CHP were announced.

The Tariffs are as follows:

AD CHP ≤500 kW	€150/MWh
AD CHP >500 kW	€130/MWh
AD (non CHP) ≤500kW	€110/MWh
AD (non CHP) >500kW	€100/MWh
Biomass CHP ≤1500kW	€140/MWh
Biomass CHP >1500kW	€120/MWh

Biomass Combustion (including co-firing in existing plant\*[subject to a change in the Refit terms and conditions to permit this]):

For using energy crops €95/MWh

For all other biomass €85/MWh

(Limited to 30% of the maximum rated capacity co-firing in any plant until 2017, 40% between 2017 and 2019, and 50% thereafter.) These tariffs will be indexed to CPI and offered on a 15 year basis. CHP utilising biomethane, displaced from the source of biomethane, will qualify for REFIT on that portion of the fuel mix deriving from bioenergy.

#### **(h) What are the expected impacts in terms of energy production?**

Under Directive 2009/28/EC, Ireland has been set a 16% target for energy consumption, to be met across the transport, heat and electricity sectors. RES-E will play a significant role in meeting this overall target and in 2008, the Government set a RES-E target of 40%. It is estimated that between 4630MW and 5800MW of renewable generation would be required, depending on economic growth assumptions and demand projections, to ensure 40% of electricity consumption from renewable sources. Further detail can be found in the TSO's Generation Adequacy Report 2010-2016

[www.eirgrid.com/.../Generation%20Adequacy%20Report%202010-2016.pdf](http://www.eirgrid.com/.../Generation%20Adequacy%20Report%202010-2016.pdf)

There are approximately 532 MW of renewable generation in the AER schemes (which are now closed for new applications.)

#### **(i) Is support conditional on meeting energy efficiency criteria?**

The REFIT scheme is not conditional on meeting energy efficiency criteria. Specified categories of renewable generation, which meet the terms and conditions of the scheme, are eligible to apply. A similar situation applied to AER.

#### **(j) Is it an existing measure? Could you please indicate national legislation regulating it?**

The REFIT terms and conditions were announced in 2006 and are available online:

<http://www.dcenr.gov.ie/Energy/Sustainable+and+Renewable+Energy+Division/>

The scheme received state aid clearance in 2007. As noted at 4.3 (d), the scheme is funded via a Public Service Obligation levy fund which is governed by legislation (1999 Electricity Regulation Act) as set out above. A similar situation applied to the AER scheme.

**(k) Is this a planned scheme? When would it be operational?**

As noted at 4.3 (d) above, the Department of Communications, Energy & Natural Resources is in the process of seeking state aid clearance for the continuation of a feed-in tariff scheme to support RES-E going forward. Subject to state aid clearance, this is expected to be operational in 2010.

**(l) What start and end dates (duration) are set for the whole scheme?**

Under the original REFIT scheme, start dates can be to end 2010 while end dates can be up to end 2025.

It is the intention of the Department of Communications, Energy & Natural Resources that going forward, subject to state aid clearance, start dates for the feed-in tariff mechanism for RES-E would be up to end 2019 while end dates would be up to end 2034.

AER began in the mid 1990s. The last AER tender competition was in 2003. Support for the projects in AER is ending progressively going forward.

**(m) Are there maximum or minimum sizes of system which are eligible?**

Under the current scheme, definitions are provided for the categories of renewable generation which may apply for REFIT. Under these some maximum and minimum sizes are defined.

- "hydro" and "hydro project" means any hydro-powered electricity generating plant with an installed nameplate rating at or less than 5 MW which is connected directly to the electricity network and metered independently of any other electricity generating plant;
- "large scale wind project" means a project with an installed nameplate rating greater than 5 MW;
- "small scale wind project" means any wind-powered electricity generating plant with an installed nameplate rating at or less than 5 MW which is connected directly to the electricity network and metered independently of any other electricity generating plant; and
- It is also noted that under EU state aid rules, projects over 125MW require a detailed assessment. Any projects over that size will be subject to a separate detailed assessment and individual state aid application.

The six AER tenders had varying terms and conditions, which in certain cases included some conditions around size of plant. More information on the AER programme can be found at: <http://www.dcenr.gov.ie/NR/rdonlyres/2E9CE305-4C9D-4CE2-87E2-2FB8DF13A6AD/0/AERProgramme2005.doc>

**(n) Is it possible for the same project to be supported by more than one support measure? Which measures can be cumulated?**

It is possible that a project could obtain REFIT (or could have obtained AER) and also have been eligible for relief for investment in renewable energy generation under Section 486b of the 1997 Tax Consolidation Act. There is currently no restriction on the AD/Bioenergy CHP capital grant programme being combined with proposed new REFIT tariffs.

**(o) Are there regional / local schemes? If so, please detail using the same criteria.** No, REFIT is run on a national basis, as was AER.

**Specific questions for financial support for investment:**

**(a) What is granted by the scheme? (Subsidies, capital grants, low interest loans, tax exemption or reduction, tax refunds)**

Section 62 Finance Act 1998 provided for a scheme of tax relief for corporate investments in certain renewable energy projects. The Section came into operation as Section 486B, TCA 1997, with effect from 18 March 1999. Since then, the scheme has been periodically extended to 31 December 2011.

The relief applies to corporate equity investments in certain renewable energy generation projects. The relief is given in the form of a deduction from a company's profits for its direct investment in new ordinary shares in a qualifying renewable energy company.

**(b) Who can benefit from this scheme? Is it specified for certain technology (/ies)?**

To qualify for this relief, the energy project must be in the solar, wind, hydro or biomass technology categories, and must be approved by the Minister for Communications, Energy & Natural Resources. The relief is capped at the lesser of 50% of all capital expenditure (excluding lands), net of grants or €9.525 million for a single project. Investment by a company or group is capped at €12.7 million per annum, and unless the shares are held for at least 5 years by the corporate investor, the relief shall be withdrawn (Section 486B (6) (b) refers).

**(c) Are applications continuously received and granted or are there periodical calls? If periodical, could you please describe the frequency and conditions?**

The scheme is open to receive applications on a continual basis, however the number of applicants is low e.g. well below 10 applications received in 2009.

**Specific questions for tradable certificates:**

**(a) Is there an obliged share of electricity produced from renewable sources in the total supply?**

**(b) Who has the obligation?**

**(c) Are there technology-specific bands?**

**(d) Which technologies are covered by the scheme?**

**(e) Is international trade in certificates allowed? What are the conditions?**

**(f) Is there a floor bottom price?**

**(g) Is there a penalty for non-fulfilment?**

**(h) What is the average price for certificates? Is it made public? Where?**

**(i) What is the trading scheme for certificates?**

**(j) How long can a plant participate in the scheme?**

This section is not relevant for Ireland as we do not operate a tradable certificate scheme.

**Specific questions for feed-in fixed tariffs:**

**(a) What are the conditions to get the fixed tariff?**

See <http://www.dcenr.gov.ie/Energy/Sustainable+and+Renewable+Energy+Division/>

- REFIT is only available for newly constructed renewable energy based electricity generating plants.

To be accepted into the scheme, applicants must demonstrate that:

- planning permission has been obtained for the construction of the proposed electricity generating plant at the proposed site and this is demonstrated to the Minister in the application or it has been demonstrated that planning permission is not required, and
- a connection offer has been made by the appropriate network operator to connect the project submitted in REFIT and this is demonstrated to the satisfaction of the Minister in the application, and
- Once in receipt of a letter of offer the following conditions apply:

<b>Conditions of offer</b>	<b>7B –Grounds of withdrawal</b>
<p>Each recipient of a letter of offer shall:</p> <p>(a) within 5 working days of its receipt acknowledge receipt of the offer to the Department in writing;</p> <p>and</p> <p>(b) within 30 days of its receipt (excluding Saturdays Sundays and public holidays) execute a PPA with a licensed supplier and within 5 working days thereafter produce acceptable evidence to the Department that it has executed a PPA;</p>	<p>A letter of offer may be withdrawn at the Minister’s discretion where an applicant:</p> <p>(a) fails to acknowledge receipt of a letter of offer to the Department within 10 days of its receipt;</p> <p>or</p> <p>(b) within 35 days of receiving a letter of offer (excluding Saturdays Sundays and public holidays) fails to execute a PPA with a licensed supplier or fails to produce acceptable evidence to the Department that it has executed a PPA;</p>
<p>and</p> <p>(c) within 90 days of its receipt make the necessary applications to the Commission for Energy Regulation for statutory permission/s unless the necessary permissions have previously been obtained from CER or applied for;</p> <p>and</p> <p>(d) comply with any timelines or conditions fixed by the network operator to complete a connection except where an appeal (where there is a right of appeal) is brought against a decision of the network operator and it is not reasonable to expect compliance with the timeline or condition in question until the outcome of the appeal is known and such appeal is made as soon as maybe</p>	<p>or</p> <p>(c) fails to provide to the Department within 95 days of its receipt evidence that an application for the necessary statutory permission/s to the CER has been submitted or evidence it has already obtained the necessary statutory permission/s;</p> <p>or</p> <p>(d) fails to comply with any timeline or condition fixed by the network operator to complete a connection except where an appeal (where there is a right of appeal) is brought against a decision of the network operator and it is not reasonable to expect compliance with the timeline or condition in question until the outcome of the appeal is known and such appeal is made as soon as maybe and is pursued with</p>

<p>and is pursued with reasonable diligence;</p> <p>and</p> <p>(e) in the event of such an appeal, comply with any such timeline or condition as revised in accordance with the decision on the appeal, or, in a case in which the decision on the appeal contains no such revision, within a time to be fixed by the Minister</p> <p>and</p> <p>(f) within 30 days of the making of an Order under section 39 of the Electricity Regulation Act,1999, in respect of the PPA's referred to in these terms and conditions submit to DCENR a detailed time schedule consisting of reasonable deadlines for the conclusion of -</p> <ul style="list-style-type: none"> <li>(i) financial close, meaning the appropriate funding arrangements are in place, and</li> <li>(ii) contracts for the completion of civil works, electrical works and purchase and installation of the generating plant.</li> </ul> <p>and</p> <p>(g) promptly deliver to the Department or the CER or an electricity network operator any additional information requested except where an appeal (where there is a right of appeal) is brought against such a request of the network operator and such appeal is made as soon as maybe and is pursued with reasonable diligence;</p> <p>or</p> <p>(h) in the event of such an appeal, promptly comply with any such request as revised in accordance with the decision on the appeal, or, in a case in which the decision on the appeal upholds the request, promptly deliver the information requested;</p>	<p>reasonable diligence;</p> <p>or</p> <p>(e) in the event of such an appeal, fails to comply with any such timeline or condition as revised in accordance with the decision on the appeal, or, in a case in which the decision on the appeal contains no such revision, within a time to be fixed by the Minister</p> <p>or</p> <p>(f) within 35 days of the making of an Order under section 39 of the Electricity Regulation Act,1999, in respect of the PPA's referred to in these terms and conditions fails to submit to the Department the detailed time schedule referred to in 7A(f);</p> <p>or</p> <p>(g) fails to provide to the Department or the CER or an electricity network operator any additional information requested except where an appeal (where there is a right of appeal) is brought against such a request of the network operator and such appeal is made as soon as maybe and is pursued with reasonable diligence;</p> <p>or</p> <p>(h) in the event of such an appeal, fails to comply promptly with any such request as revised in accordance with the decision on the appeal, or, in a case in which the decision on the appeal upholds the request, promptly deliver the information requested;</p>
<p>and</p>	<p>or</p>

<p>(ij) submit to the Minister a current Tax Clearance Certificate from the Revenue Commissioners or, in the case of a non- resident applicant, submit to the Minister such a Certificate or a statement of suitability from the Irish Revenue Commissioners;</p> <p>and</p> <p>(k) in the case of an applicant who has submitted an option on an appropriate interest in the site of the project satisfy the Minister that appropriate title has been obtained within a period notified by the Minister.</p>	<p>(ij) fails to submit a current Tax Clearance Certificate or a statement of suitability from the Irish Revenue Commissioners as appropriate;</p> <p>or</p> <p>(k) in the case of an applicant who has submitted an option on an appropriate title in the site of the project within the period notified by the Minister fails to satisfy the Minister that appropriate title has been obtained.</p>
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**(b) Is there a cap on the total volume of electricity produced per year or of installed capacity that is entitled to the tariff?**

Under the original state aid clearance for REFIT, the support programme could be allocated up to a quantitative capacity limit of 1450 MW.

The 2006 REFIT scheme was put in place in order to achieve the 2010 RES-E target and state aid clearance for the scheme was obtained to accept applicants into the scheme until end 2009. In light of the new target addressed to Ireland under Directive 2009/28/EC, the Department of Communications, Energy & Natural Resources has applied for state aid clearance (decision awaited) to extend the feed-in tariff support mechanism to encourage new renewable generation in the period 2010-2020.

A quantitative capacity limit is being sought, commensurate with achieving our 2020 renewable target and covering the new renewable generation planned under the Gate 3 process (see NREAP section 4.2.6(b.)) With regard to the recently announced biomass /AD technologies [still also subject to state aid clearance], a quantitative limit has been announced.

The quantitative limits for the recently announced biomass/AD technologies are as follows;

**Limits per technology:**

Anaerobic Digestion	50MW
Biomass CHP	100MW
Biomass Combustion (including co-firing in existing plant*subject to a change in REFIT terms and conditions to permit this):	
Until 31st December 2015	160MW

**(c) Is it a technology specific scheme? What are the tariff levels for each?**

The scheme applies to specific categories of renewable generation.

REFIT tariffs are currently as follows:

REFIT tariffs are currently as follows:

Large Wind: €66.353/MWh

Small Wind: €68.681/ MWh

Hydro: €83.814/ MWh

Landfill Gas: €81.486/ MWh

Biomass: €83.814/ MWh.

These reference prices are subject to annual increases, if any, in the consumer price index.

In 2009, the terms and conditions were announced for REFIT for additional categories, subject to state aid clearance (these reference prices not being subject to annual increases in the consumer price index.)

Ocean (wave and tidal): €220/ MWh

Offshore wind €140/MWh

In May 2010 a revised set of tariffs for the biomass combustion, Anaerobic Digestion and biomass CHP were announced.

The Tariffs are as follows:

AD CHP ≤500 kW	€150/MWh
AD CHP >500 kW	€130/MWh
AD (non CHP) ≤500kW	€110/MWh
AD (non CHP) >500kW	€100/MWh
Biomass CHP ≤1500kW	€140/MWh
Biomass CHP >1500kW	€120/MWh

Biomass Combustion (including co-firing in existing plant\*[subject to a change in the Refit terms and conditions to permit this]):

For using energy crops	€95/MWh
For all other biomass	€85/MWh

(Limited to 30% of the maximum rated capacity co-firing in any plant until 2017, 40% between 2017 and 2019, and 50% thereafter) These tariffs will be indexed and offered on a 15 year basis. CHP utilising biomethane, displaced from the source of biomethane, will qualify for REFIT on that portion of the fuel mix deriving from bioenergy.

**(d) Are there other criteria differentiating tariffs?**

Currently different REFIT tariffs are paid depending on the category to which the electricity belongs as defined in the REFIT terms and conditions - some of the categories distinguish between size e.g. small and large scale onshore wind have different tariffs.

**(e) For how long is the fixed tariff guaranteed?**

As noted, RES-E generators enter into 15 year power purchase agreements with suppliers at negotiated and fixed prices. Via the Public Service Obligation (PSO) mechanism, REFIT compensates participating retail electricity suppliers for the net additional costs attributable to their participation in the scheme for the 15 years provided the PPA remains in force.

**(f) Is there any tariff adjustment foreseen in the scheme?**

There is ongoing feedback and communication between industry, the regulator and the Government Department on the REFIT scheme. Any REFIT payments payable under the PSO levy are adjusted annually by the Commission for Energy Regulation to take account of the actual market pool price in the previous year.

**Specific questions for feed-in premiums:**

**(a) What are the conditions to get the premium?**

**(b) Is there a cap on the total volume of electricity produced per year or of installed capacity that is entitled to the premium?**

**(c) Is it an alternative to fixed tariff?**

**(d) Is it a technology-specific scheme? What are the premium levels for each?**

**(e) Is there a floor and/or a cap for the premium? Please specify.**

**(f) For how long is the premium price guaranteed?**

**(g) Is any tariff adjustment foreseen in the scheme?**



This section is not relevant for Ireland as we do not operate a feed-in premium scheme.

**Specific questions for tendering:**

**(a) What is the frequency and size of the tenders?**

**(b) Which technologies are specified?**

**(c) Is it integrated with grid development?**

This section is not relevant for Ireland as we no longer run a tendering scheme.

As noted, the Alternative Energy Requirement scheme was a tendering scheme - there were 6 separate calls for tender beginning in the mid 1990s. The last call for tender was in 2003 and more information can be found at: <http://www.dcenr.gov.ie/NR/rdonlyres/2E9CE305-4C9D-4CE2-87E2-2FB8DF13A6AD/0/AERProgramme2005.doc>

#### **4.4. Support schemes to promote the use of energy from renewable resources in heating and cooling applied by the Member State or a group of Member States**

##### **(a) How are the support schemes for electricity from renewable energy sources adapted to encourage the use of CHP from renewable energy sources?**

Please see below responses to 'Specific Questions for feed-in fixed tariffs' (a) – (f)

##### **(b) What support schemes are in place to encourage the use of district heating and cooling using renewable energy sources?**

Reheat is a capital grant aid programme (see below) designed to support the installation of renewable heating technologies in industrial/institutional facilities. The programme provides aid to the boiler element alone of district heating facilities.

##### **(c) What support schemes are in place to encourage the use of small-scale heating and cooling from renewable energy sources?**

See information on the Greener Homes scheme under Financial Support (a) – (o) below.

##### **(d) What support schemes are in place to encourage the use of heating and cooling from renewable energy sources in industrial applications?**

See information on the Reheat and CHP programmes schemes under Financial Support (a) – (o) below.

#### **Regulation**

##### **(a) What is the legal basis for this obligation/target?**

##### **(b) Are there any technology-specific targets?**

##### **(c) What are the concrete obligations/targets per year (per technology)?**

##### **(d) Who has to fulfil the obligation?**

##### **(e) What is the consequence of non-fulfilment?**

##### **(f) Is there any mechanism to supervise fulfilment?**

##### **(g) Is there any mechanism to modify obligations / targets?**

Ireland's targets are stated Government policy as set out in the 2007 Government White Paper<sup>129</sup> on energy policy 'Delivering a sustainable energy future for Ireland - The Energy Policy Framework 2007-2020' and the 2009 Carbon Budget<sup>130</sup> in which a 40% RES-E target was set. The Government set a 12% RES-H target in the energy policy White Paper.

#### **Financial support**

**For any scheme you use, please give a detailed description answering the following questions?**

##### **(a) What is the name and a short description of the scheme?**

- Reheat: Capital grant aid programme designed to support the installation of renewable heating technologies in industrial/institutional facilities.
- CHP: Capital grant aid programme designed to support the installation of Biomass/AD CHP units.
- Greener Homes: Capital grant aid programme designed to support the installation of renewable heating technologies in existing homes.

<sup>129</sup> <http://www.dcenr.gov.ie/Energy/Energy+Planning+Division/Energy+White+Paper.htm>

<sup>130</sup> <http://www.environ.ie/en/Environment/News/MainBody.18676.en.htm>

- REFIT: The renewable energy feed-in tariffs announced for the biomass sector, with their emphasis on CHP, will also support renewable heating and cooling.

**(b) Is it a voluntary or obligatory scheme?**

All schemes are voluntary.

**(c) Who manages the scheme?**

All the grant schemes are managed by the Sustainable Energy Authority of Ireland<sup>131</sup>. The Department of Communications, Energy & Natural Resources<sup>132</sup> (DCENR) is responsible for the corporate governance of the Sustainable Energy Authority of Ireland, including auditing of expenditure on the schemes.

The policy, objectives and terms and conditions of the REFIT scheme are set by the Department of Communications, Energy & Natural Resources, who administer the scheme. The Commission for Energy Regulation (CER) is responsible under Statutory Instrument 217 of 2002 (as amended) for the ex ante calculation and ex post correction of amounts payable to suppliers under the Public Service Obligation levy, which includes amounts in relation to the REFIT scheme.

**(d) What are the measures taken to ensure availability of necessary budget/ funding to achieve the national target?**

The grant schemes are market development measures that were not designed to deliver the full extent of Ireland's 2020 targets under Directive 2009/28/EC.

The REFIT funding is ensured via the Public Service Obligation (PSO) levy mechanism (further information on this has already been provided in 4.3 above.)

**(e) How is long-term security and reliability addressed by the scheme?**

These grant schemes were designed to support the deployment of technology at an 'early commercial' stage, and particularly to overcome market failures around the commercial appreciation of risk, and the lack of an existing supply chain for equipment, fuels and suitably trained support staff.

The recently announced REFIT tariff structure for the biomass sector, subject to state aid approval, will form the basis of a long-term RES-H policy, and will allow investors and industry to plan on the basis of an understood and predictable set of support measures.

**(f) Is the scheme periodically revised? What kind of feed-back or adjustment mechanism exists? How has the scheme been optimised so far?**

All of the grant schemes set out have been periodically revised.

Reheat was extended to the institutional public sector in 2007, and the range of technologies supported was extended.

The CHP deployment programme, originally designed to support fossil fuel fired CHP has recently been revised so that only renewable (Biomass/Anaerobic Digestion) units are supported.

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<sup>131</sup> <http://www.seai.ie/>

<sup>132</sup> <http://www.dcenr.gov.ie/>

Greener Homes has been revised on a number of occasions. The grant aid levels were reduced in late 2007, and new homes were excluded from mid 2008 (to coincide with changes to the building regulations). The type of technologies supported has also been broadened over time.

**(g) Does support differ according to technology?**

Support differs according to technology, although the same basic framework applies throughout. For the CHP and Reheat programmes grant aid is set at 30% of the capital cost, up to a limited capital amount. Greener Homes has a flat payment rate.

The REFIT structure and level of support for the biomass sector is differentiated on the basis of technology and size.

**(h) What are the expected impacts in terms of energy production?**

ReHeat - 550,000 MWh/year

Biomass CHP / AD CHP - 120,000 MWh electricity and 300,000 MWh heat/year

**(i) Is support conditional on meeting energy efficiency criteria?**

In the CHP programme, installations need to meet the terms of the 2004 Cogeneration Directive on High Efficiency CHP.

For Reheat, installations must meet certain boiler efficiency criteria. For boilers of less than 200kw, this is  $73.9\% + 7\log x$  (where x is the size of the boiler). For anything greater than 200kw, the efficiency must be greater than or equal to 90%.

For Greener Homes, a list of eligible technologies is used. These technologies must all meet certain safety and manufacturing standards.

**(j) Is it an existing measure? Could you please indicate national legislation regulating it?**

All of these schemes are existing measures.

**(k) Is this a planned scheme? When would it be operational?**

The REFIT supports for the biomass sector are planned and are due to enter into force in 2010, subject to state aid approval from the European Commission.

**(l) What start and end dates (duration) are set for the whole scheme?**

All of the grant schemes were announced in Budget 2006 (December 2005), and commenced in 2006. State Aid clearance for the Reheat and CHP programmes expires at end 2010.

**(m) Are there maximum or minimum sizes of system which are eligible?**

There are no thresholds for Reheat, although the amount of capital aid is capped after a certain point. For the CHP support programme, there are minimum sizes set. These are 100KWe for biomass, and 50KW for AD.

**(n) Is it possible for the same project to be supported by more than one support measure? Which measures can be cumulated?**

It is possible that some early projects may receive grant aid from other sources (e.g. CHP grant aid from SEAI or agricultural waste management grants) and also qualify for REFIT support.

**(o) Are there regional / local schemes? If so, please detail using the same criteria.**

The schemes described are on a national basis. It is noted that the Mid-West Regional Authority and the South West Regional Authority have both produced bioenergy plans.

**Specific questions for financial support for investment:**

**(a) What is granted by the scheme? (subsidies, capital grants, low interest loans, tax exemption or reduction, tax refunds)**

Section 62 Finance Act 1998 provided for a scheme of tax relief for corporate investments in certain renewable energy projects. The Section came into operation as Section 486B, TCA 1997, with effect from 18 March 1999. Since then, the scheme has been periodically extended to 31 December 2011.

The relief applies to corporate equity investments in certain renewable energy generation projects. The relief is given in the form of a deduction from a company's profits for its direct investment in new ordinary shares in a qualifying renewable energy company.

**(b) Who can benefit from this scheme? Is it specified for certain technology(/ies)?**

To qualify for this relief, the energy project must be in the solar, wind, hydro or biomass technology categories, and must be approved by the Minister for Communications, Energy & Natural Resources. The relief is capped at the lesser of 50% of all capital expenditure (excluding lands), net of grants or €9.525 million for a single project. Investment by a company or group is capped at €12.7 million per annum, and unless the shares are held for at least 5 years by the corporate investor, the relief shall be withdrawn (Section 486B (6) (b) refers).

**(c) Are applications continuously received and granted or are there periodical calls? If periodical, could you please describe the frequency and conditions?**

The scheme is open to receive applications on a continual basis, however the number of applicants is low e.g. well below 10 applications received in 2009.

**Specific questions for tradable certificates:**

**(a) Is there an obliged share of electricity produced from renewable sources in the total supply?**

**(b) Who has the obligation?**

**(c) Are there technology-specific bands?**

**(d) Which technologies are covered by the scheme?**

**(e) Is international trade in certificates allowed? What are the conditions?**

**(f) Is there a floor bottom price?**

**(g) Is there a penalty for non-fulfilment?**

**(h) What is the average price for certificates? Is it made public? Where?**

**(i) What is the trading scheme for certificates?**

**(j) How long can a plant participate in the scheme?**

This section is not relevant for Ireland as we do not operate a tradable certificate scheme for RES-H.

**Specific questions for feed-in fixed tariffs:**

**(a) What are the conditions to get the fixed tariff?**

In May 2010 a revised set of tariffs for the biomass combustion, Anaerobic Digestion and biomass CHP were announced.

The Tariffs are as follows:

AD CHP ≤500 kW

€150/MWh

AD CHP >500 kW	€130/MWh
AD (non CHP) ≤500kW	€110/MWh
AD (non CHP) >500kW	€100/MWh
Biomass CHP ≤1500kW	€140/MWh
Biomass CHP >1500kW	€120/MWh

Biomass Combustion (including co-firing in existing plant\*[subject to a change in the Refit terms and conditions to permit this]):

For using energy crops	€95/MWh
For all other biomass	€85/MWh

(limited to 30% of the maximum rated capacity co-firing in any plant until 2017, 40% between 2017 and 2019, and 50% thereafter)

These tariffs will be indexed and offered on a 15 year basis. CHP utilising biomethane, displaced from the source of biomethane, will qualify for REFIT on that portion of the fuel mix deriving from bioenergy.

To be accepted into the scheme, applicants must demonstrate that planning permission has been obtained and there is evidence of a grid connection. Once in receipt of a letter of offer, a series of conditions must be fulfilled as set out in the REFIT Terms and Conditions. The Terms and Conditions for this revised set of REFIT tariffs for the biomass sector are currently being drawn up.

**(b) Is there a cap on the total volume of electricity produced per year or of installed capacity that is entitled to the tariff?**

The quantitative limits for the recently announced biomass/AD technologies are as follows;

**Limits per technology:**

Anaerobic Digestion	50MW
Biomass CHP	100MW
Biomass Combustion (including co-firing*subject to change in REFIT terms and conditions):	
Until 31st December 2015	160MW

**(c) Is it a technology specific scheme? What are the tariff levels for each?**

The REFIT scheme applies to specific categories of renewable generation.

The Tariffs are as follows:

AD CHP ≤500 kW	€150/MWh
AD CHP >500 kW	€130/MWh
AD (non CHP) ≤500kW	€110/MWh
AD (non CHP) >500kW	€100/MWh
Biomass CHP ≤1500kW	€140/MWh
Biomass CHP >1500kW	€120/MWh

Biomass Combustion (including co-firing in existing plant\*[subject to a change in the Refit terms and conditions to permit this]):

For using energy crops	€95/MWh
For all other biomass	€85/MWh

In order to qualify for this tariff, CHP installations will have to be certified as High Efficiency CHP as per the 2004 Cogeneration Directive (2004/8/EC). Energy crops will be defined as purpose grown perennial crops, and will include willow, miscanthus and eucalyptus.

**(d) Are there other criteria differentiating tariffs?**

The criteria differentiating tariffs are the size of the installation, the type of process technology, the efficiency involved, and, when considering Biomass combustion, the type of biomass being used.

**(e) For how long is the fixed tariff guaranteed?**

Those participating in REFIT enter into 15 year power purchase agreements with suppliers at negotiated and fixed prices.

**(f) Is there any tariff adjustment foreseen in the scheme?**

There is ongoing feedback and communication between industry, the regulator and the Government Department on the REFIT scheme. Any REFIT payments payable under the PSO levy are adjusted annually by the Commission for Energy Regulation to take account of the actual market pool price in the previous year.

**Specific questions for feed-in premiums:**

**(a) What are the conditions to get the premium?**

**(b) Is there a cap on the total volume of electricity produced per year or of installed capacity that is entitled to the premium?**

**(c) Is it an alternative to fixed tariff?**

**(d) Is it a technology-specific scheme? What are the premium levels for each?**

**(e) Is there a floor and/or a cap for the premium? Please specify.**

**(f) For how long is the premium price guaranteed?**

**(g) Is any tariff adjustment foreseen in the scheme?**

This section is not relevant for Ireland as we do not operate a feed-in premium scheme for RES-H.

**Specific questions for tendering:**

**(a) What is the frequency and size of the tenders?**

**(b) Which technologies are specified?**

**(c) Is it integrated with grid development?**

n/a

#### **4.5. Support schemes to promote the use of energy from renewable resources in transport applied by the Member State or a group of Member States**

##### **(a) What are the concrete obligations / targets per year (per fuel or technology)?**

The Biofuel Obligation Scheme will compel all road transport fuel suppliers to use biofuel in the fuel mix to ensure that they represent a certain percentage of their annual fuel sales. The initial effective penetration rate will be 4% by volume per annum (3.2% by energy) per annum, and will be increased over time. The following increase to an effective penetration rate of 6% is scheduled to take place in 2012, subject to reports being prepared by the European Commission under the Directive; and on the basis of analysis to be conducted domestically.

The Irish Government has set a target of 10% electric vehicles by 2020.

##### **(b) Is there differentiation of the support according to fuel types or technologies?**

The Biofuel Obligation will not differentiate between different fuels, or set separate targets for individual fuels. The obligation will be applied as a percentage of each obligated party's annual mineral petrol and diesel sales, with both fuels eligible for the same certification.

In terms of Electric Vehicles, there is no differentiation of support thus far on the basis of the origin of the electricity used, although a grant aid per vehicle is to be applied on the basis of the cost of the vehicle and whether it is a full Electric Vehicle or Plug-In Hybrid Electric Vehicle.

It is also intended, as per Article 44x of the Energy (Biofuel Obligation and Miscellaneous Provisions) Act 2010, to put in place certain conditions around the type of fuels that may qualify as eligible under the obligation. These conditions will include compliance with TARIC codes; a measure will require clearance through the Technical Regulations procedure.

##### **Is there any specific support to biofuels which meet the criteria of Article 21(2) of the Directive?**

There will be double certification (two tradable certificates will be awarded instead of one per unit) for biofuels produced from wastes, residues, non-food cellulosic material, ligno-cellulosic material and algae.

#### **Regulation**

##### **(a) What is the legal basis for this obligation/target?**

The legal basis for the Biofuel Obligation is the Energy (Biofuel Obligation and Miscellaneous Provisions) Act 2010.

##### **(b) Are there any technology-specific targets?**

The Biofuel Obligation will not differentiate between different fuels, or set separate targets for individual fuels. The obligation will be applied as a percentage of each obligated party's annual mineral petrol and diesel sales.

##### **(c) What are the concrete obligations/targets per year (per technology)?**

The effective initial penetration rate will be 4% by volume per annum (3.2% by energy) and this will be increased over time in line with EU targets and to commitments on climate change and energy security.

##### **(d) Who has to fulfil the obligation?**

The Biofuel Obligation is aimed at all road transport fuel suppliers. The legislation identifies those parties currently involved in large scale sales of transport fuel as 'Obligated Parties'.



They will have to ensure that they have a given number of Biofuel Obligation Certificates at year end to match their obligation. These certificates can only be obtained by bringing biofuel to market.

**(e) What is the consequence of non-fulfilment?**

There will be penalties enforced for non-compliance with the Biofuel Obligation. An obligated party who has a shortfall in the number of certificates at the end of a defined period (calendar year) will be required to pay a non-compliance fee, calculated on the basis of the number of certificates short multiplied by the established amount of 45 cent per certificate.

**(f) Is there any mechanism to supervise fulfilment?**

The National Oil Reserves Agency (NORA) will be the Administrator for the Biofuel Obligation Scheme in Ireland on behalf of the Minister for Communications, Energy and Natural Resources.

**(g) Is there any mechanism to modify obligations / targets?**

The legislation includes the requirement for a review of the ongoing impact of biofuel use before any change in the suggested penetration rate

**Financial support**

**(a) What is the name and a short description of the scheme?**

The Biofuels Mineral Oil Tax Relief schemes I and II, which were launched by the Department of Communications, Energy and Natural Resources (DCENR) in 2005 and 2006, allow specified biofuel producers to produce specific volumes of biofuel on which excise relief will be awarded for a specific period. The second scheme will run until the end of 2010. DCENR held an open competitive call for proposals for both schemes which were open to anyone who could fulfil the criteria for the schemes. There was a limited amount of excise relief available for each scheme. The schemes were designed as interim measures to accelerate the level of biofuels in the fuel mix, in advance of the introduction of a biofuels obligation. More specifically, they were designed to incentivise a move towards the inclusion of biofuels in the fuel market, but also to stimulate interest in industry in production, thereby providing a market for indigenous production.

The Electric Vehicles Scheme will be a grant aid scheme, subject to the approval of the Minister for Finance, for up to 6,000 vehicles over a two year period commencing in January 2011. Those purchasing a full battery electric vehicle will be grant aided by up to €5,000, depending on the price of the vehicle. In addition to this, grant aid of up to €2,500 is being provided for eligible plug in hybrid electric vehicles. The Vehicle Registration Tax (VRT) exemption for electric vehicles and the VRT reliefs of up to €2,500 for plug-in hybrid vehicles, which were due to end in December 2010, have been extended for a further two year period.

**(b) Is it a voluntary or obligatory scheme?**

The Mineral Oil Tax Relief scheme was a voluntary scheme.

The Biofuel Obligation Scheme will be obligatory.

The Electric Vehicles Scheme will be voluntary.

**(c) Who manages the scheme? (Implementing body, monitoring authority)**

The MOTR Scheme is managed by DCENR with the actual excise relief being granted by the Irish Revenue Commissioners and the Department of Finance.

The National Oil Reserves Agency (NORA) will administer the Biofuel Obligation Scheme. The Electric Vehicle Scheme will be administered by the Sustainable Energy Authority of Ireland (SEAI). Both bodies are statutory agencies which come under the remit of the Department of Communications, Energy and Natural Resources (DCENR).

**(d) What are the measures taken to ensure availability of necessary budget/ funding to achieve the national target?**

The National Oil Reserves Agency (NORA) is currently responsible for ensuring that Ireland complies with its EU and international requirements for emergency oil supplies. The agency is funded by a levy on mineral fuel, which it collects from oil suppliers. It also enters into contracts with oil suppliers for the purposes of leasing oil storage. On that basis, it was deemed that NORA was the most appropriate Administrator for the Biofuel Obligation. Oil companies and oil consumers currently make returns to DCENR. The levy applicable to individual companies is calculated by NORA based on these figures and NORA charges those companies accordingly. The cost of administering the Biofuel Obligation will be met by extending the NORA levy to also cover biofuels, which are currently exempt.

A commitment has been made by the Irish Government to bring forward a grant aid scheme for electric vehicles, subject to the approval of the Minister for Finance, and that a specific sum has been allowed in excise relief foregone for the Mineral Oil Tax Relief (MOTR) schemes.

**(e) How is long-term security and reliability addressed by the scheme?**

The Biofuel Obligation legislation will ensure that Irish consumers have access to appropriately priced, sustainable and reliable sources of biofuel over the coming years, and, in doing so, this will give an important incentive to domestic production.

**(f) Is the scheme periodically revised? What kind of feed-back or adjustment mechanism exists? How has the scheme been optimised so far?**

The MOTR Scheme II has recently been revised having taken biofuel production to date under the scheme into account. The Finance Act 2010 introduced end use restrictions on the scheme which is due to finish at the end of 2010.

**(g) Does support differ according to technology?**

With regard to the 2 year Electric Vehicle Scheme (subject to the approval of the Minister for Finance), those purchasing a full battery electric vehicle will be grant aided by up to €5,000, depending on the price of the vehicle. In addition to this grant aid of up to €2,500 is being provided for eligible plug in hybrid electric vehicles. The Vehicle Registration Tax (VRT) exemption for electric vehicles and the VRT reliefs of up to €2,500 for plug-in hybrid vehicles.

**(h) What are the expected impacts in terms of energy production?**

The Biofuel Obligation Scheme will compel all road transport fuel suppliers to use biofuel in the fuel mix to ensure that they represent a certain percentage of their annual fuel sales. The initial penetration rate will be 4% by volume per annum (3.2% by energy) per annum, to be increased over time.

**(i) Is support conditional on meeting energy efficiency criteria?**

Support is not conditional on meeting energy efficiency criteria

**(j) Is it an existing measure? Could you please indicate national legislation regulating it?**

The MOTR Scheme is currently in place and the legislation governing the scheme is the Finance Act 2006.<sup>133</sup> It comes to an end on December 31 2010.

**(k) Is this a planned scheme? When would it be operational?**

The Biofuel Obligation came into force in July 2010.

The Electric Vehicles grant aid scheme will commence in January 2011, subject to the approval of the Minister for Finance. The Vehicle Registration Tax (VRT) exemption for electric vehicles and the VRT reliefs for plug-in hybrid vehicles will run until the end December 2012.

**(l) What start and end dates are set for the whole scheme?**

The MOTR Schemes run until the end of December 2010.

The Biofuel Obligation came into force in July 2010.

The Electric Vehicles Scheme will be a grant aid scheme for up to 6,000 vehicles over a two year period commencing in January 2011. The Vehicle Registration Tax (VRT) exemption for electric vehicles and the VRT reliefs for plug-in hybrid vehicles will run until the end December 2012.

**(m) Are there maximum or minimum sizes of system which are eligible?**

No

**(n) Is it possible for the same project to be supported by more than one support measure? Which measures can be cumulated?**

It is not possible for the same project to be supported by more than one support measure. However, some biofuel eligible under the obligation may claim excise relief under the MOTR scheme, while the two schemes are both operating between July and December 2010.

**(o) Are there regional / local schemes? If so, please detail using the same criteria.**

There are no regional /local schemes.

**Specific questions for financial support for investment:**

**(a) What is granted by the scheme? (subsidies, capital grants, low interest loans, tax exemption or reduction, tax refunds)**

The Biofuels Mineral Oil Tax Relief schemes allow specified biofuel producers to produce specific volumes of biofuel on which excise relief will be awarded for a specific period.

The Electric Vehicles Scheme is a grant aid scheme for up to 6,000 vehicles over a two year period commencing in January 2011. Those purchasing a full battery electric vehicle will be grant aided by up to €5,000, depending on the price of the vehicle. In addition to this grant aid of up to €2,500 is being provided for eligible plug in hybrid electric vehicles. The VRT exemption for electric vehicles and the VRT reliefs of up to €2,500 for plug-in hybrid vehicles, which were due to end in December 2010, have been extended for a further two year period.

**(b) Who can benefit from this scheme? Is it specified for certain technology(/ies)?**

Biofuel producers benefit from the MOTR Schemes and the Biofuel Obligation. Individuals will be able to benefit from the Electric Vehicle Scheme.

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<sup>133</sup> <http://www.irishstatutebook.ie/2006/en/act/pub/0006/index.html>

**(c) Are applications continuously received and granted or are there periodical calls? If periodical, could you please describe the frequency and conditions?**

The call for proposals for the MOTR scheme II closed in 2006.

The Electric Vehicle Scheme will open for application in January 2011 for a two year period up to a limit of 6,000 vehicles.

**Specific questions for tradable certificates:**

**(a) Is there an obliged share of electricity produced from renewable sources in the total supply? n/a as it relates to electricity.**

The Biofuel Obligation Scheme will compel all road transport fuel suppliers to use biofuel in the fuel mix to ensure that they represent a certain percentage of their annual fuel sales. The initial penetration rate will be 4% by volume per annum (3.2% by energy) per annum, to be increased over time.

**(b) Who has the obligation?**

Suppliers of Road transport fuel will be the obligated parties.

**(c) Are there technology-specific bands?**

Full Electric Vehicles will receive a capital grant of up to €5,000, while Plug-In Hybrid Electric Vehicles will receive a grant of €2,500.

**(d) Which technologies are covered by the scheme?**

n/a

**(e) Is international trade in certificates allowed? What are the conditions?**

International trading of certificates is not allowed. Biofuel Obligation Certificates may be traded amongst domestic account holders.

**(f) Is there a floor bottom price?**

n/a

**(g) Is there a penalty for non-fulfilment?**

An obligated party who has a shortfall in the number of certificates at the end of a defined period (calendar year) will be required to pay a non-compliance fee, calculated on the basis of the number of certificates short multiplied by the established amount of 45 cent per certificate.

**(h) What is the average price for certificates? Is it made public? Where?**

There is no average price for certificates.

**(i) What is the trading scheme for certificates?**

The administrator of the scheme will have the power to certify trading of certificates amongst account holders. This means that obligated parties who have not been able to fully meet their obligation by supplying biofuel themselves can purchase certificates from other obligated parties or from biofuels suppliers who have registered with the Administrator.

**(j) How long can a plant participate in the scheme?**

n/a

**Specific questions for feed-in fixed tariffs:**

**(a) What are the conditions to get the fixed tariff?**

**(b) Is there a cap on the total volume of electricity produced per year or of installed capacity that is entitled to the tariff?**

**(c) Is it a technology specific scheme? What are the tariff levels for each?**

**(d) Are there other criteria differentiating tariffs?**

**(e) For how long is the fixed tariff guaranteed?**

**(f) Is there any tariff adjustment foreseen in the scheme?**

n/a - there is no feed-in tariff system in the RES-T sector.

**Specific questions for feed-in premiums:**

**(a) What are the conditions to get the premium?**

**(b) Is there a cap on the total volume of electricity produced per year or of installed capacity that is entitled to the premium?**

**(c) Is it an alternative to fixed tariff?**

**(d) Is it a technology-specific scheme? What are the premium levels for each?**

**(e) Is there a floor and/or a cap for the premium? Please specify.**

**(f) For how long is the premium price guaranteed?**

**(g) Is any tariff adjustment foreseen in the scheme?**

n/a - there is no feed-in premium system in the RES-T sector.

**Specific questions for tendering:**

**(a) What is the frequency and size of the tenders?**

**(b) Which technologies are specified?**

**(c) Is it integrated with grid development?**

n/a - there is no tendering system in the RES-T sector.

## **4.6. Specific measures for the promotion of the use of energy from biomass**

### **Section 4.6.1**

#### **Biomass supply: both domestic and trade**

It is noted that COFORD (National Council for Forest Research and Development) is due to shortly issue a publication on wood demand to 2020. Projected levels of wood biomass supply from forestry are based mainly on projected levels of wood supply from privately owned forests established in the main since 1985 under a number of grant aid schemes. This additional supply will reduce the level of competition from demand for wood for board manufacture, which uses similar assortments to wood for energy. Demand in the board sector is supplied in the main by wood from state forests.

#### **Table 7: Biomass supply in 2006<sup>134</sup>**

Table 7 outlines data showing the biomass resources used for energy in 2006 while table 7a estimates a projected biomass supply scenario for 2015 and 2020. Data on forestry was available from the 2007 publication UNECE Joint Wood Energy Enquiry [JWEE] for Ireland (2006/7) provided by the forestry research agency COFORD. Agricultural data is based on information supplied by the agricultural agency Teagasc and information published by the Central Statistics Office<sup>135</sup>.

The Environmental Protection Agency (EPA) produces waste reports annually; the data for municipal waste provided here is derived from the 2006 report based on the EPA's expert view of waste flows. The National Waste Water Report 2006 is the basis for data on sewage sludge. Industrial quantities for energy are included in the Biodegradable Municipal Solid Waste category and further disaggregation is unavailable. The national energy balance 2006 produced by SEAI's Energy Policy Statistical Support Unit (EPSSU) contains data on the amount of energy consumed in each of the high level categories shown below.

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<sup>134</sup> Conversion Rates from Resource Quantity to Primary Energy are available at <http://www.seai.ie/Renewables/Bioenergy/>

<sup>135</sup> [http://www.cso.ie/releasespublications/documents/agriculture/2006/croplfinal\\_june2006.pdf](http://www.cso.ie/releasespublications/documents/agriculture/2006/croplfinal_june2006.pdf)

Sector of origin	Amount of domestic resource	Imported		Exported	Net Amount	Primary Energy Production	
		EU	Non-EU	EU/Non-EU			
<b>Biomass from forestry</b>	<i>Of which</i>						
	<b>Direct supply of wood biomass from forests and other wooded land for energy generation</b>					<b>17</b>	
	a) Fellings (m <sup>3</sup> )	15,316	2,182	0	0	17,498	
	b) Residues from fellings (tops, branches, bark, stumps) (m <sup>3</sup> )	7,900	0	0	0	7,900	
	c) Landscape management residues (woody biomass from parks, gardens, tree rows, bushes) (m <sup>3</sup> )	0	0	0	0	0	
	d) Other	0	0	0	0	0	
	<b>2 Indirect supply of wood biomass for energy generation</b>						<b>105</b>
	e) Residues from sawmilling, woodworking, furniture industry (m <sup>3</sup> )	1,165,228	0	0	0	1,165,228	
	f) By products of the pulp and paper industry (m <sup>3</sup> )	0	0	0	0	0	
	g) Processed wood fuel (m <sup>3</sup> )	0	0	1089	0	0	
h) Post consumer recycled wood (tonnes)	114,930	0	0	0	114,930		
<b>Biomass from agriculture and fisheries:</b>	<i>Of which</i>						
	<b>Agricultural crops and fishery products directly provided for energy generation</b>					<b>3</b>	
	a) Arable crops (cereals, oilseeds, sugar beet, silage maize) (tonnes)	3,488	0	0	0	0	
	b) Plantations (tonnes)	0	0	0	0	0	
	c) short rotation trees (tonnes)	580	0	0	0	0	
	d) other energy crops (grasses) (tonnes)	0	0	0	0	0	
	e) algae (tonnes)	0	0	0	0	0	
	f) other (tonnes)	0	0	0	0	0	
	<b>Agricultural by-products / processed residues and fishery by-products for energy generation</b>						<b>57</b>
	a) Straw						
	b) Manure						
	c) Animal fat	62,000	0	0	0	0	
	d) Meat and bone meal	149,659	0	0	0	0	
e) Cake by-products							
f) Fruit biomass							
g) Fishery by product							
h) Clippings from vines, hedges etc							
i) other							
<b>Biomass from waste</b>	<i>Of which</i>						
	<b>Biodegradable fraction of municipal solid waste including bio-waste and landfill gas</b>	<b>Trace</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>&lt;1</b>
	<b>Biodegradable fraction of industrial waste (including paper, cardboard, pallets)</b>	<b>na</b>	<b>na</b>	<b>na</b>	<b>na</b>	<b>na</b>	<b>na</b>
	<b>Sewage sludge</b>	<b>27,473</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>7</b>

**Table 7a: Estimated biomass domestic supply in 2015 and 2020**

Projections for the forestry sector are based on recent work conducted by the forest service which aims to complete an all island timber forecast out to 2020. Estimates of the future uses of agricultural products and by-products are based on work carried out for the Bioenergy Working Group (BWG)<sup>136</sup> in 2010. Projections of future waste availability are projected by Ireland's Sustainable Development Model (ISuS)<sup>137</sup>, originally funded by the EPA and maintained and operated by the ESRI.

The Bio Energy Analysis Model (BEAM) uses these resource projections as inputs and performs an economic optimisation of the bioenergy sector. Based on these results and consultation from stakeholders the expected primary energy usage in 2015 and 2020 is estimated. Please refer to Appendix 1 for more information on the BEAM model.

Sector of origin		2015		2020	
		Expected amount of domestic resource	Primary energy production (ktoe)	Expected amount of domestic resource	Primary energy production (ktoe)
A)Biomass from forestry	<b>1.Direct supply of wood biomass from forests and other wooded land for energy generation (m<sup>3</sup>)</b>	512,000	79.53	807	125
	<b>2.Indirect supply of wood biomass for energy generation (m<sup>3</sup>)</b>	581,000	90.28	860	133
	<b>1.Agricultural crops and fishery products directly provided for energy generation</b>		247		595
B)Biomass from agriculture and fisheries:	a)Arable crops (cereals, oilseeds, sugar beet, silage maize) (tonnes)	340,000	200	340,000	200
	b)Plantations (tonnes)	0	0	0	0
	c)short rotation trees (tonnes)	92,160	33	310,400	112
	d)other energy crops (grasses) (tonnes)	40,000	14	65,000	23
	e) algae (tonnes)	0		0	0
	f)other (tonnes)	0		0	0
	<b>2.Agricultural by-products / processed residues and fishery by-products for energy generation</b>				
	Straw (tonnes)	143,000	49	765,000	260
	Manure	148,217	24	442,229	69
	<i>Pig</i>	<i>71,667</i>	<i>11</i>	<i>209,679</i>	<i>33</i>
	<i>Cattle</i>	<i>67,251</i>	<i>10</i>	<i>218,620</i>	<i>32</i>
	<i>Poultry</i>	<i>9,300</i>	<i>3</i>	<i>14,000</i>	<i>4</i>
	Animal fat	62,000	23	62,000	23
	Meat and bone meal	36,000	15	46,000	20
	Cake by-products	0	0	0	0
	Fruit biomass	0	0	0	0
	Fishery by product	0	0	0	0
Clippings from vines, hedges etc	0	0	0	0	
other	0	0	0	0	
C)Biomass from waste	<b>1.Biodegradable fraction of municipal solid waste including biowaste and landfill gas (tonnes)</b>	730,000	220	1,359,416	410
	<b>2.Biodegradable fraction of industrial waste (including paper, cardboard, pallets)</b>	na	na	na	na
	<b>3.Sewage sludge</b>	58,870	15	98,116	25

<sup>136</sup> The Bioenergy Working Group is a forum for stakeholders across the biomass sector to input into policy making

<sup>137</sup> [http://www.esri.ie/research/research\\_areas/environment/isus/](http://www.esri.ie/research/research_areas/environment/isus/)



**Table 8: Current agricultural land use for production of crops dedicated to energy in 2006**

	<b>Surface (ha)</b>
<b>Land Used for Short Rotation Trees</b>	63
<b>Land Used for other energy crops such as grasses (Miscanthus)</b>	617

**4.6.2. Measures to increase biomass availability, taking into account other biomass users (agriculture and forest-based sectors) – Mobilisation of new biomass sources:**

**(a) Please specify how much land is degraded**

Degraded land i.e. 'land that for a significant period of time, has either been significantly salinated or presented significantly low organic matter content and has been severely eroded' doesn't exist in Ireland. Tilled land is sampled to test organic matter content and all indications are that this is not an issue in Ireland.

**(b) Please specify how much unused arable land there is**

The most recent figures show 3,258 hectares of fallow land and 331 hectares of arable regeneration. There were 380,000 hectares of arable crops in 2008. There was an additional 103,000 hectares that had been used as arable in one or more of the previous four years.

**(c) Are any measures planned to encourage unused arable land, degraded land, etc. to be used for energy purposes?**

The Energy Crop Payment Schemes and the Afforestation Grant Schemes operated by the Department of Agriculture, Fisheries and Food incentivise landowners to put degraded or unused land into energy crops and forestry.

**(d) Is energy use of certain already available primary material (such as animal manure) planned?**

There are a number of capital grant aid schemes in place for Biomass/Anaerobic Digestion CHP (see section 4.4 of the NREAP for further information) and for the use of biomass in heating (Reheat). Furthermore, there has been considerable use of biomass co-fired with peat on an experimental basis (over 122,000 tonnes.) Indications are that co-firing of biomass in the country's peat burning power stations may be sourced on a local or regional basis, benefiting the local economy. Use of wood for heating (using available roundwood in forests) is increasing year on year. Preliminary plans are in place for a number of combined heat and power projects which will also use available roundwood.

The tariff announced for Anaerobic Digestion is designed to specifically make use of animal manure, and other wastes from secondary processing of agricultural products (such as slaughterhouse waste). Similarly, the biomass tariff is designed to encourage and support the use of available materials from the forestry sector, such as thinnings and waste from sawmills.

The Competence Centre for Bio-refining and bio-energy is undertaking research to improve understanding of the potential in Ireland to develop a successful renewable biomass industry.

**(e) Is there any specific policy promoting the production and use of biogas? What type of uses are promoted**

For further information on the position on biogas, see section 4.2.8 of the NREAP.

**(f) What measures are planned to improve forest management techniques in order to maximise the extraction of biomass from the forest in a sustainable way? How will forest management be improved in order to increase future growth? What measures are planned to maximise the extraction of existing biomass that can already be put into practice?**

Substantial supporting work is underway in this area, including the EU supported BioMob programme (an FP 7 programme) and the RASLRES<sup>138</sup> programme (funded under the Northern Periphery Programme). Under the auspices of the national forest research and development programme (COFORD), a series of tools have been put in place and widely disseminated that show the location and size of forest biomass resources available from privately owned forests over the period to 2029. Further workshops on the use of these tools, aimed at end users and project developers, are planned. New software to estimate delivered-in cost of wood fuels is being made available to the forestry sector in a further series of workshops to be held in 2010.

Both systems are supported by dedicated web sites. A new wood energy research, development and demonstration programme has recently been agreed between the Department of Agriculture, Fisheries and Food and Waterford Institute of Technology. This aims to develop more cost effective wood energy supply chains, and to investigate forest management techniques that maximise the level of sustainable biomass production. Publications and field days on thinning and roading systems that mobilise biomass from forests are being provided by the Forestry Unit of Teagasc (the national farm advisory and research authority).

The Department of Agriculture, Fisheries and Food<sup>139</sup> (DAFF) also provides roading grants to support infrastructure development and assist the early thinning of plantations to increase the level of supply of biomass from forests. The Department has also provided start-up funding to a number of forest owner producer groups to encourage private forest owners to work collectively in the management of their forests and marketing of forest products, with an emphasis on the wood energy market.

The Sustainable Energy Authority of Ireland has run a series of information and support workshops and conferences to highlight the opportunities for the forestry and agricultural sectors. A further series of supporting measures will be brought forward in the context of the Bioenergy Working Group Report. This will include a reinforced information provision function, a more involved business support Agency, and the use of exemplar supply chains and processes.

– **Impact on other sectors:**

**(a) How will the impact of energy use of biomass on other sectors based on agriculture and forestry be monitored? What are these impacts? (If possible, please provide information also on quantitative effects.) Is the monitoring of these impacts planned in the future?**

It is expected that there will be some impact on existing businesses that already use or handle biomass. The effect of the feed in tariffs will be monitored by the Department of Communications, Energy and Natural Resources with reference to price increases for raw material.

**(b) What kind of development is expected in other sectors based on agriculture and forest that could have an impact on the energy use? (e.g. could improved efficiency/ productivity increase or decrease the amount of by-products available for energy use?)**

The continued concentration of livestock produce in larger units may impact the availability of animal wastes for Anaerobic Digestion. Similarly, developments in

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<sup>138</sup> <http://www.raslres.eu/>

<sup>139</sup> <http://www.agriculture.ie/>

waste management policy are likely to see the use of higher landfill levies, thereby increasing the supply of waste to Anaerobic Digestion and combustion facilities. Overall wood production in Ireland is expected to grow by 80% to 6.5 million cubic metres by 2029. A significant proportion of the increase is forecast to be used for energy.

#### **4.7. Planned use of statistical transfers between Member States and planned participation in joint projects with other Member States and third countries**

Directive 2009/28/EC provides an overall framework for the use of co-operation mechanisms under the Directive. Member States and the European Commission are not yet entirely clear how the co-operation mechanisms will work on a practical level. Under the Intelligent Energy Europe Programme, the co-operation mechanisms in the Directive are the subject of concerted action by Member States who will look more closely and in-depth at the co-operation mechanisms including practicalities, procedures etc.

##### **4.7.1. Procedural aspects**

**(a) Describe the national procedures (step by step) established or to be established, for arranging a statistical transfer or joint project (including responsible bodies and contact points)**

##### **Possible way Statistical Transfer may work**

1. Government level written agreement between buyer country and seller country (Minister for Communications, Energy & Natural Resources on behalf of Ireland – Contact point will be the Director General for Energy in Ireland.)
2. A suitable remuneration arrangement will have to be negotiated and agreed between the buyer and seller country at ministry level, as well as negotiation around the length of the agreement and other terms and conditions.
3. Transfer protocol agreement put in place between buyer and seller country's statistical authority.

##### **Possible way Joint Project may work**

1. Government level written agreement between buyer country and seller country involved in the Joint Project (Minister for Communications, Energy & Natural Resources on behalf of Ireland – Contact point will be the Director General for Energy in Ireland.)
2. Decision on where to locate. Location of project is 'seller country.' Other party involved is considered 'buyer country.'
3. Agreement between the countries on how much the buyer country will buy, project lifetime, how the 2020 obligation will be dealt with etc.
4. Transfer protocol agreement put in place between buyer and seller country's statistical authority.

**(b) Describe the means by which commercial entities can propose and take part in joint projects either with Member States or third countries.**

The contact point in the first instance is the Director General for Energy in Ireland (Department of Communications, Energy and Natural Resources.)

**(c) Give the criteria for determining when statistical transfers or joint projects shall be used**

1. Ireland would propose to sell statistical transfer in the event that there is an excess above its national renewable energy target either in 2020 or in the years before (e.g. if Ireland is in excess of the trajectory in the years before 2020.)
2. Should Ireland find that it is in a situation of being above its target, it would seek to generate revenue from the excess. This would of course be the subject of negotiation at ministry level. It will be necessary to ensure that Ireland's achievement of its national target is not in any way jeopardised by any such arrangement.

3. Ireland does not intend to fall below its national target or indicative trajectory.
4. Ireland has significant offshore resources which hold electricity export potential and could potentially be available for joint projects with other MS.

**(d) What is going to be the mechanism to involve other interested Member States in a joint project?**

All joint projects must be the subject of a political inter-governmental agreement between the Member States or third countries concerned. The mechanism will be initiated at Director General level.

**(e) Are you willing to participate in joint projects in other Member States? How much installed capacity / electricity or heat produced per year are you planning to support? How do you plan to provide support schemes for such projects?**

1. Ireland is open to participation in joint projects with other Member States in principle.
2. However as noted in the forecast document, the reaching of our national target is not predicated on the use of the co-operation mechanisms under the Directive.
3. At present, there is no plan to support a specific capacity via joint projects.
4. Ireland has significant offshore resources which hold electricity export potential and could potentially be available for joint projects with other MS.
5. Any schemes provided under joint projects would be the subject of negotiation.

**4.7.2. Estimated excess production of renewable energy compared to the indicative trajectory which could be transferred to other Member States**

See Table 9 below

**4.7.3. Estimated potential for joint projects**

**(a) In which sectors can you offer renewable energy use development in your territory for the purpose of joint projects?**

Ireland has significant offshore resources which hold electricity export potential and could potentially be the subject of joint projects depending on negotiations with other Member States. Apart from this, subject to negotiation Ireland is open to joint projects in general across any renewable energy technologies.

**(b) Has the technology to be developed been specified? How much installed capacity / electricity or heat produced per year?**

As noted, offshore resources could be developed. As outlined in our forecast document, constraints and costs relating to domestic deep reinforcement for grid infrastructure, electricity interconnectors and offshore grid development would have to be appropriately addressed in any joint project agreements.

Apart from this, there is potential for any technologies subject to negotiation.

**(c) How will sites for joint projects be identified? (For example, can local and regional authorities or promoters recommend sites? Or can any project participate regardless its location?)**

Reaching our national target is not predicated on the use of joint projects.

Ireland is however open to exploring joint project opportunities and in that context the relevant authorities at national, regional and local level would be involved.

**(d) Are you aware of the potential for joint projects in other Member States or in third countries?**

Ireland would highlight its involvement in a number of initiatives relating to which there may in the future be potential for joint projects. These include the ISLES offshore grid study and the North Seas Offshore Grid initiative, described in 4.2.6 (d) above.

**(e) Do you have any preference to support certain technologies? If so, which?**

Ireland is supportive of all technologies with renewable energy potential in an Irish context.

**4.7.4. Estimated demand for renewable energy to be satisfied by means other than domestic production**

**Table 9: Estimated excess and/or deficit production of renewable energy compared to the indicative trajectory which could be transferred to/from other Member States in Ireland (ktoe)**

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
<b>Estimated excess in forecast document</b>	0	135	135	160	160	139	139	77	77	0	0
<b>Estimated excess in NREAP</b>	0	168	168	233	233	211	211	136	136	0	0
<b>Estimated deficit in forecast document</b>	0	0	0	0	0	0	0	0	0	0	0
<b>Estimated deficit in NREAP</b>	0	0	0	0	0	0	0	0	0	0	0

## **5. Assessments**

***5.1 Total contribution expected of each renewable energy technology to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in electricity, heating and cooling and transport***



**Table 10 Modelled Scenario**

**Estimation of total contribution (installed capacity, gross electricity generation) expected from each renewable energy technology in Ireland to meet the binding 2020 targets and the indicative interim trajectory for the share of energy from renewable resources in electricity 2010-2014**

The data in this modelled scenario is influenced of necessity to a significant degree by planned Gate 3 generation. Technologies in the R&D category (e.g. wave and tidal) are not included in the Gate. However as noted at 4.2.6 (b), CER 09/099 is a new policy which sets out how small, renewable, low carbon generation can access the grid outside the Gate 3 process. Possibilities using CER 09/099 are reflected only to a limited degree in the modelled scenario, hence the low figures for certain technologies. Reports on the NREAP will be submitted on a biennial basis and the modelled scenario can be updated at that time to reflect technology and other developments that may occur in the interim. In the meantime, the non modelled Export scenario version of Table 10 which follows offers an alternative development trajectory, without the constraints built into the modelled scenario.

	2005		2010		2011		2012		2013		2014	
	MW	GWh	MW	GWh	MW	GWh	MW	GWh	MW	GWh	MW	GWh
<b>Hydro:</b>	234	760	234	701	234	703	234	701	234	698	234	720
<1MW	18		18		18		18		18		18	
1MW-10MW	20		20		20		20		20		20	
>10MW	196		196		196		196		196		196	
<i>Of which is pumping</i>	0	0	0	0	0	0	0	0	0	0	0	0
<b>Geothermal</b>	0	0	0	0	0	0	0	0	0	0	0	0
<b>Solar:</b>	0	0	0	0	0	0	0	0	0	0	0	0
<i>photovoltaic</i>												
<i>Concentrated solar power</i>												
<b>Tide, Wave, Ocean</b>	0	0	0	0	0	0	0	0	0	0	0	0
<b>Wind:<sup>140</sup></b>	494	1,588	2,088	4,817	2,325	5,965	2,370	6,189	2,794	7,478	2,907	7,756
<i>Onshore</i>	469		2,052	4,701	2,289	5,848	2,334	6,073	2,542	6,663	2,656	6,942
<i>offshore</i>	25		36	116	36	116	36	117	252	815	252	814
<b>Biomass:</b>	20	116	77	347	81	393	84	479	131	839	134	864
<i>Solid</i>	2	8	15	28	19	73	22	158	69	519	72	544
<i>biogas</i>	18	108	62	320	62	320	62	321	62	320	62	320
<i>Bioliquids</i>	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>748</b>	<b>2,465</b>	<b>2,399</b>	<b>5,866</b>	<b>2,640</b>	<b>7,060</b>	<b>2,688</b>	<b>7,369</b>	<b>3,159</b>	<b>9,014</b>	<b>3,275</b>	<b>9,340</b>
<i>Of which CHP</i>	2	13	5	37	6	42	7	47	7	51	8	56

<sup>140</sup> Aggregated wind data only available - breakdown in GWh between onshore and offshore in 2005 unavailable

	2015		2016		2017		2018		2019		2020	
	MW	GWh	MW	GWh	MW	GWh	MW	GWh	MW	GWh	MW	GWh
<b>Hydro:</b>	234	714	234	705	234	705	234	705	234	692	234	701
<1MW	18		18		18		18		18		18	
1MW-10MW	20		20		20		20		20		20	
>10MW	196		196		196		196		196		196	
<i>Of which is pumping</i>	0	0	0	0	0	0	0	0	0	0	0	0
Geothermal	0	0	0	0	0	0	0	0	0	0	0	0
Solar:	0	0	0	0	0	0	0	0	0	0	0	0
<i>photovoltaic</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Concentrated solar power</i>	0	0	0	0	0	0	0	0	0	0	0	0
Tide, Wave, Ocean	0	0	0	0	13	42	25	81	38	124	75	230
Wind:	3,151	8,339	3,172	8,404	3,367	8,985	3,858	10,235	3,887	10,258	4,649	11,970
<i>onshore</i>	2,899	7,525	2,920	7,587	2,951	7,639	3,329	8,534	3,354	8,553	4,094	10,228
<i>offshore</i>	252	814	252	817	416	1,345	529	1,702	533	1,705	555	1,742
Biomass:	137	887	140	914	143	936	146	960	150	984	153	1,006
<i>Solid</i>	75	567	78	593	81	616	84	640	88	664	91	687
<i>biogas</i>	62	320	62	321	62	320	62	320	62	320	62	319
<i>Bioliquids</i>	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total</b>	<b>3,522</b>	<b>9,939</b>	<b>3,546</b>	<b>10,023</b>	<b>3,757</b>	<b>10,668</b>	<b>4,263</b>	<b>11,982</b>	<b>4,309</b>	<b>12,058</b>	<b>5,111</b>	<b>13,909</b>
<i>Of which CHP</i>	9	61	9	65	10	70	10	70	80	561	80	561

**Table 10 Non-Modelled 'Export Scenario'**

**Estimation of total contribution (installed capacity, gross electricity generation) expected from each renewable energy technology in Ireland to meet the binding 2020 targets and the indicative interim trajectory for the share of energy from renewable resources in electricity 2010-2014**

The 'Export Scenario' table set out below is not a modelled scenario. The table illustrates Ireland's potential to become an exporter of RES-E to other EU Member States between now and 2020, were the appropriate conditions (economic, technical and environmental) to develop to allow this to happen and subject to a comprehensive cost-benefit analysis. Developing this level of electricity from renewable sources is currently limited technically by grid infrastructure. In order for this export scenario to be realised, significant further infrastructural investment in the period to 2020 would be needed, including build of additional interconnectors and offshore grid and deep reinforcement onshore. The potential for this level of development in the export scenario arises from: offshore wind projects that currently have either foreshore leases or a grid connection offer; onshore wind projects already built, contracted with the TSO or due to receive a grid connection offer in Gate 3; potential for geothermal, pumped storage and solar and Ireland's 500MW 2020 ocean (wave and tidal) target.

	2005		2010		2011		2012		2013		2014	
	MW	GWh	MW	GWh	MW	GWh	MW	GWh	MW	GWh	MW	GWh
<b>Hydro:</b>	234	760	234	760	234	760	234	760	234	760	234	760
<1MW	18		18		18		18		18		18	
1MW-10MW	20		20		20		20		20		20	
>10MW	196		196		196		196		196		196	
<i>Of which is pumping</i>	0	0	0		0		0		0		0	
<b>Geothermal</b>	0	0	0	0	0	0	0	0	0	0	0	0
<b>Solar:</b>	0	0	0	0	0	0	0	0	0	0	0	0
<i>photovoltaic</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Concentrated solar power</i>												
<b>Tide, Wave, Ocean</b>	0	0	0	0	0	0	0	0	0	0	0	0
<b>Wind:<sup>141</sup></b>	494	1,588	2,088	5,504	2,325	6,126	2,370	6,244	2,794	7,454	2,907	7,751
<b>Onshore</b>	469		2,052	5,393	2,289	6,016	2,334	6,133	2,542	6,681	2,656	6,979
<b>offshore</b>	25		36	110	36	110	36	110	252	772	252	772
<b>Biomass:</b>	20	128	82	503	114	698	146	893	177	1,088	209	1,283
<b>Total</b>	748	2,477	2,404	6,767	2,673	7,585	2,749	7,897	3,206	9,302	3,351	9,794

<sup>141</sup> Aggregated wind data only available - breakdown in GWh between onshore and offshore in 2005 unavailable

	2015		2016		2017		2018		2019		2020	
	MW	GWh	MW	GWh	MW	GWh	MW	GWh	MW	GWh	MW	GWh
<b>Hydro:</b>	234	760	234	760	234	760	239	777	259	842	284	923
<1MW	18		18		18		18		18		18	
1MW-10MW	20		20		20		20		20		20	
>10MW	196		196		196		196		196		196	
<i>Of which is pumping</i>	0		0		0		5		25		50	
<b>Geothermal</b>	0	0	0	0	0	0	5	35	5	35	5	35
<b>Solar:</b>	0	0	1	3	2	5	3	8	4	11	5	13
<i>photovoltaic</i>	0		1	3	2	5	3	8	4	11	5	13
<i>Concentrated solar power</i>												
<b>Tide, Wave, Ocean</b>	0	0	0	0	125	383	225	690	325	996	500	1,533
<b>Wind:</b>	4,375	11,734	4,248	11,527	4,737	13,041	5,653	15,645	5,903	16,431	7,145	19,832
<i>onshore</i>	3,836	10,081	3,421	8,992	3,385	8,896	3,851	10,120	3,807	10,004	4,737	12,449
<i>offshore</i>	539	1,654	827	2,535	1,352	4,145	1,802	5,525	2,096	6,427	2,408	7,383
<b>Biomass:</b>	241	1,478	273	1,673	305	1,868	336	2,063	368	2,258	400	2,453
<b>Total</b>	4,850	13,973	4,756	13,963	5,403	16,058	6,461	19,217	6,864	20,572	8,339	24,789

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
<b>Surplus for cooperation mechanism (%)</b>	n/a	2%	2%	2%	2%	3%	3%	3%	3%	4%	6.6%

**Table 11 Estimation of total contribution expected from each renewable energy technology in Ireland to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in heating and cooling 2010-2020 (ktoe)**

	2005	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
<b>Geothermal (excluding low temperature geothermal heat in heat pump applications)</b>	0	0	0	0	0	0	0	0	0	0	0	0
<b>Solar</b>	0	4	5	7	8	10	12	13	15	17	18	20
<b>Biomass:</b>	183	198	223	273	301	332	388	422	430	440	463	486
<b>solid</b>	176	188	212	259	285	313	362	360	383	407	430	453
<b>biogas</b>	7	10	11	14	16	19	26	28	31	33	33	33
<b>bioliquids<sup>142</sup></b>	0	0	0	0	0	0	0	0	0	0	0	0
<b>Renewable energy from heat pumps:</b>	10	18	25	31	38	44	51	58	64	71	78	84
<b>Total</b>	193	220	253	311	348	387	451	493	509	527	559	591
<b><i>Of which District Heating<sup>143</sup></i></b>		0	16	29	43	56	70	83	96	110	123	131
<b><i>Of which biomass in households</i></b>	16	23	23	23	23	23	24	24	24	24	24	24

<sup>142</sup> Counting only those complying with the sustainability criteria, cf. Article 5(1) last subparagraph of Directive 2009/28/EC

<sup>143</sup> District heating and / or cooling from total renewable heating and cooling consumption. (RES- DH)

**Table12: Estimation of total contribution expected from each renewable energy technology in Ireland to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in the transport sector 2010-2020 (ktoe)**

	2005	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
<b>Bioethanol/ bio-ETBE</b>	0.01	40	50	60	70	80	90	100	110	120	129	139
<b>Of which Biofuels Article 21.2</b>		0	0	0	0	0	0	0	0	0	0	0
<b>Of which imported</b>		3	10	20	30	40	49	59	69	79	89	99
<b>Biodiesel</b>	0.77	94	117	140	163	186	209	232	255	278	301	342
<b>Of which Biofuels Article 21.2</b>		0	0	0	0	0	0	0	0	0	0	0
<b>Of which imported</b>		4	27	50	73	102	125	148	171	194	217	240
<b>Hydrogen from renewable</b>		0	0	0	0	0	0	0	0	0	0	0
<b>Renewable Electricity</b>	1	1	1	1	1	1	1	7	14	20	27	37
<b>Of which road transport</b>	Trace	0.01	0.01	0.01	0.01	0.01	0.01	5.38	11.78	17.53	24.54	34.03
<b>Of which non-road transport</b>	0.29	0.56	0.61	0.96	1.15	1.19	1.43	1.38	1.52	1.51	1.58	1.76
<b>Others (RVO)</b>	0.5	0.90	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
<b>Of which Biofuels Article 21.2</b>	0.50	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
<b>Total<sup>144</sup></b>	1	135	168	201	234	267	300	333	366	399	432	482

<sup>144</sup> To avoid double counting for RES this total excludes renewable electricity in transport which is captured in table 10 ‘modelled scenario’. Renewable electricity in transport is accounted for in the calculation of RES-T as shown in table 4 b.

#### **5.4 Preparation of the National Renewable Energy Action Plan and the follow up on its implementation**

**(a) How were regional and/or local authorities and/or cities involved in the preparation of this Action Plan? Were other stakeholders involved?**

County and city managers and regional bodies were specifically included in the initial targeted feedback request on the first version of the document. A representative of county and city managers participates in the Renewable Energy Development Group (REDG), a group representing public and private sector interests in the renewable energy sphere, chaired by the Director General of Energy from the Department of Communications, Energy & Natural Resources, that meets approximately quarterly. The NREAP was the main topic of discussion at 3 meetings of the REDG in March, May and June 2010.

In addition, other regional and local bodies were also specifically included in the initial request for feedback on the various sections of the NREAP that issued by email. These included the Association of Irish Energy Agencies, the Western Development Commission, the South East Regional Authority and Atlantic Way.

The County and City Managers made a submission as part of the consultation. In addition, several local energy agencies, the association of energy agencies and some individual counties also made submissions (see Appendix 8.)

**(b) Are there plans to develop regional/local renewable energy strategies? If so, could you please explain? In case relevant competences are delegated to regional/local levels, what mechanism will ensure national target compliance?**

Regional and local renewable bodies have many initiatives underway and plans and strategies in place. Information on various strategies underway at a regional / local level can be found in the answers to various questions above. It is intended, going forward, that through the participation of county and city managers in the Renewable Energy Development Group, there will be greater co-ordination between national and county/local plans.

**(c) Please explain the public consultation carried out for the preparation of this Action Plan.**

A targeted consultation was carried out via the Renewable Energy Development Group, which is chaired by the Director General of Energy from the Department of Communications, Energy & Natural Resources. A number of meetings of the group were convened at which this plan was the main topic of discussion (specifically 15<sup>th</sup> March 2010, 7<sup>th</sup> May 2010 and 29<sup>th</sup> June 2010.) Initial draft text relating to section 4 was issued on a section by section basis to the members of the group and feedback was requested and received. A list of the initial consultees (those included in the initial targeted consultation process on section 4) is attached at Appendix 6.

Following this first round of targeted consultation, the entire draft plan was subject to a period of public consultation and was disseminated through the Department's website for views and comment by all interested parties ahead of the final plan being sent to the European Commission. 58 submissions were received in response to the public consultation and all submissions were reviewed. A list of those from whom written feedback was received during the public consultation is attached at Appendix 8.

**(d) Please indicate your national contact point/the national authority or body responsible for the follow-up of the Renewable Energy Action Plan?**

The national contact point/national authority responsible for follow up on this plan is Director General Energy/Department of Communications, Energy & Natural Resources.

**(e) Do you have a monitoring system, including indicators for individual measures and instruments, to follow-up the implementation of the Renewable Energy Action Plan? If so, could you please give more details on it?**

Preparing the National Renewable Energy Action Plan has been a very constructive process in terms of bringing together the various bodies involved in the sector and reviewing the policies, legislation and other provisions in place that will influence the achievement of Ireland's renewable energy target. It has also provided an opportunity to reflect on whether the measures in place are adequate, what more needs to be done and identified gaps that need to be addressed going forward.

The Department of Communications, Energy & Natural Resources will have primary responsibility for overseeing and monitoring the implementation of the National Renewable Energy Action Plan, working closely with the SEAI, Eirgrid, the CER, the Department of Environment, Heritage & Local Government, the Department of Agriculture, Fisheries and Food and all other relevant Departments, Agencies and state entities, as well as the renewable energy sector itself. Arrangements to ensure optimum cross Government co-ordination and regular reporting mechanisms will be put in place. The Renewable Energy Development Group, which comprises state and industry stakeholders in the sector, will be an important forum in the implementation process.



## Appendix 1

### Overview of Irish modelling methodology

#### Brief summary of the modelling process undertaken to produce gross consumption projections in Heat, Electricity and Transport

- Demand projections are derived from SEAI's 'Energy Forecasts for Ireland to 2020' (2009 Report).<sup>145</sup>
- Gross final consumption estimates for each economic sub-sector are based on the output from the Economic and Social Research Institute of Ireland (ESRI)'s macroeconomic model for Ireland – HERMES.
- Electricity demand has been reconciled with EirGrid's demand projections<sup>146</sup> for the electricity sector.
- In the *Reference scenario* projections, the projections to take account of the expected impact of energy efficiency measures put in place before the end of 2008 but which are considered too recent to be detectable in any time-series analysis are amended.
- The *Additional Energy Efficiency* scenario demand projections incorporating the additional targeted energy savings to be delivered by Ireland's National Energy Efficiency Action Plan (NEEAP) 2009–20 are generated.
- This scenario also includes the impact of the electrification of 10% of road vehicles by 2020.

#### Demand Side Modelling

The SEAI Energy Forecasts for Ireland to 2020 (2009 report)<sup>147</sup> is consistent with the Economic and Social Research Institute's (ESRI) 'World Recovery' scenario in which Ireland experiences a sharp economic decline during 2009, a further small decline during 2010, and higher than average growth in 2011–20.

Gross final consumption estimates for each economic sub-sector are based on the output from the ESRI's macroeconomic model for Ireland – HERMES. The CO<sub>2</sub> price assumptions underpinning the model are based on CO<sub>2</sub> futures market up to 2012 and on Department of Finance guidelines thereafter. Fuel prices are broadly in line with the input assumptions for the European Commission's PRIMES energy forecasting model. Fuel and carbon price input assumptions are shown below.

<b>Carbon Price</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>
€/tCO <sub>2</sub>	23.84	13.83	14.54	20.74	30.74
<b>Fuel Prices</b>	<b>2008</b>		<b>2010</b>	<b>2015</b>	<b>2020</b>
	€/2008 / (MWh)		€/2008 / (MWh)	€/2008 / (MWh)	€/2008 / (MWh)
Coal	8.10		7.20	8.70	10.20
Oil	56.40		26.50	41.50	51.60
Gas (GCV)	25.80		17.70	21.30	26.20
Peat	12.00		12.0	12.0	12.0

<sup>145</sup>

[http://www.seai.ie/Publications/Statistics\\_Publications/Energy\\_Modelling\\_Group/Energy\\_Forecasts\\_for\\_Ireland\\_to\\_2020.pdf](http://www.seai.ie/Publications/Statistics_Publications/Energy_Modelling_Group/Energy_Forecasts_for_Ireland_to_2020.pdf)

<sup>146</sup> See <http://www.eirgrid.com/media/Generation%20Adequacy%20Report%202010-2016.pdf>

<sup>147</sup> [http://www.seai.ie/Publications/Statistics\\_Publications/Energy\\_Modelling\\_Group/Energy\\_Forecasts\\_for\\_Ireland\\_to\\_2020.pdf](http://www.seai.ie/Publications/Statistics_Publications/Energy_Modelling_Group/Energy_Forecasts_for_Ireland_to_2020.pdf)

The underlying econometric analysis for these demand numbers is derived from two sources. The ESRI's HERMES macroeconomic model is used to derive numbers for heat and transport. Electricity demand is based on the projections of Ireland's electricity system operator EirGrid. This marks a departure from the approach taken in December's Forecast document<sup>148</sup>, which used the heat, transport and electricity numbers from HERMES as a basis for projecting demand.

EirGrid's electricity demand forecasts are used as the basis for assessing the need for future grid infrastructure expansion and assessments of the generation adequacy on the system. EirGrid's latest demand projections<sup>149</sup> are driven by the same ESRI economic forecast as presented above allowing them to be incorporated into the previous forecasts.

Thus the procedure for generating the final consumption projection is as follows:

1. Within ESRI's HERMES Energy Sub-Model, energy demand projections are calculated based on the macro-economic projections for Ireland using historical econometric time-series relationships.
2. Gross electricity demand is updated to reflect EirGrid projections.
3. In the *Reference* scenario projections, SEAI amends the HERMES Energy Sub-Model output to take account of the expected impact of energy efficiency measures put in place before the end of 2008 but which are considered too recent to be detectable in any time-series analysis.<sup>150</sup>
4. SEAI then generates the *Additional Energy Efficiency* scenario demand projections incorporating the additional targeted energy savings to be delivered by Ireland's National Energy Efficiency Action Plan 2009–20. This scenario also includes the impact of the electrification of 10% of road vehicles by 2020 on consumption.

### **Supply Side Modelling**

The total contribution expected of each renewable energy technology in heat, transport and electricity are based on modelling conducted by SEAI's Energy Modelling Group (EMG). These include the outputs of a PLEXOS based electricity market model and the Bio Energy Analysis Model (BEAM). The projections presented here represent only one plausible future outcome and as such should not be considered as establishing any technology target or sectoral obligation.

### **Electricity Model – Key Assumptions**

Modelling of the electricity sector to 2020 was undertaken using the validated PLEXOS Single Electricity Market (SEM) model released in May 2010 as a starting point. The SEM model optimises the All-Ireland electricity system at half hourly periods to meet a specified demand level and load profile given the technical characteristics of the set of generation units on the system. The interaction with Great Britain' market, BETTA, through interconnection is also accounted for in the optimisation equation.

The SEM model contains plant build for the years 2010-2012, and the assumptions in this model were not altered for these years. The SEM model was adjusted to add

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<sup>148</sup> [http://ec.europa.eu/energy/renewables/transparency\\_platform/doc/ireland\\_forecast\\_english.pdf](http://ec.europa.eu/energy/renewables/transparency_platform/doc/ireland_forecast_english.pdf)

<sup>149</sup> See <http://www.eirgrid.com/media/Generation%20Adequacy%20Report%202010-2016.pdf>

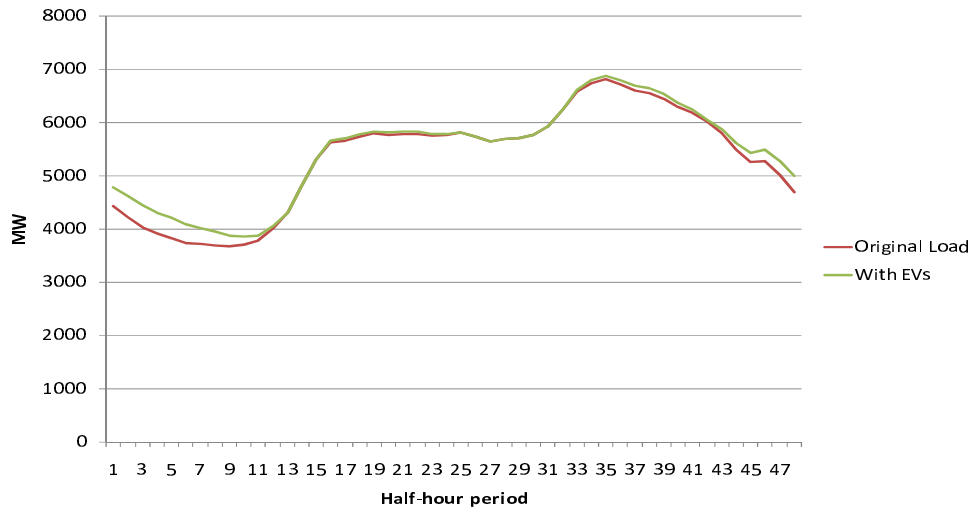
<sup>150</sup> This includes legislation such as the 2008 Building Regulations and changes to the motor tax regime in 2009.

data beyond the time horizon of 2012 for generator build profiles, interconnection and fuel prices.

The transmission network is not explicitly modelled apart from interconnection between the island of Ireland and Great Britain. Operational rules imposed in the model are based on advice from EirGrid and reflect the operational heuristics used to ensure a stable system.

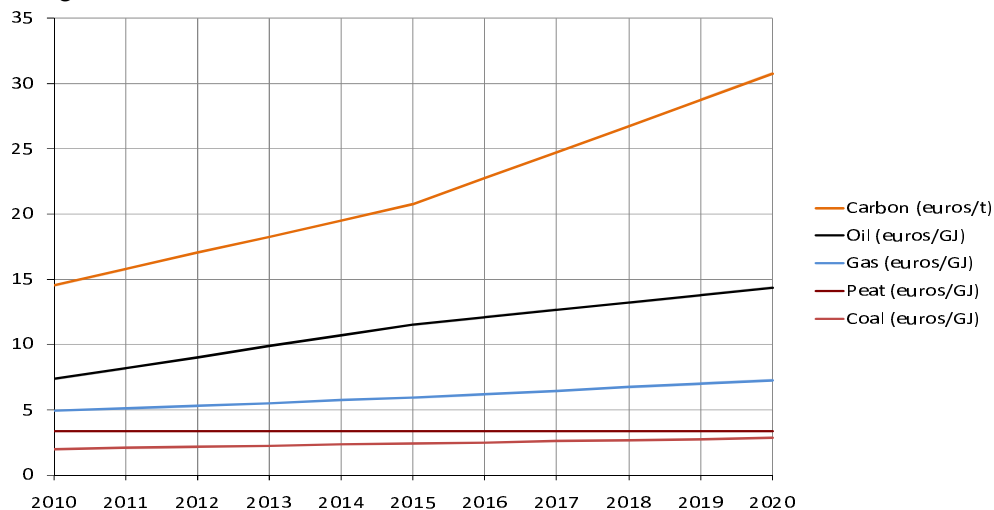
### **Electricity Demand**

The yearly demand trajectory used in the model is shown in table 1 with the process undertaken to produce this demand described in section 2. Using the 2007 load profile adjusted for the effect of night time charging of electric vehicles, a projection of daily load profiles to 2020 was produced. The figure below shows graphically the impact of Electric Vehicles on the load profile. Electric Vehicles have the effect of increasing demand over the night valley thereby tending to flatten the profile.



### **Fuel Prices**

The fuel prices used in the model are based on those shown in section 2 adjusted for transport costs and gas price seasonality. The assumptions made for seasonality are that gas prices will be 10% above the traded fuel price shown the winter, and 10% below in the summer. The figure below shows the fuel prices used in the PLEXOS modelling.



### **Generator Build**

Generator build in the SEM region out to 2020 is based on the Generation Adequacy Report 2010-2016 (GAR) and with reference to the Incremental Transfer Capacity (ITC) programme for the profile of wind power capacity build. The timing and location of new wind build after the horizon of the validated model is based on Gate 3.

### **Wind Profile**

The onshore wind profiles used in the published SEM validated model are used. These are based on generation levels of wind plant in the year 2008. The offshore wind profile for Ireland uses actual 2008 wind speed data which is then passed through the turbine power curve. The same profile for offshore wind on the east coast and west coast, based on east coast data, is assumed.

### **Interconnection**

The Moyle electricity link (between Northern Ireland and Scotland) and the East-West interconnector (between Ireland and Wales) (currently under construction) are both included in the assumptions, with the East West Interconnector included from 2013. There is a wheeling charge applied to both connectors. These charges are taken from the SEM validated model and have been assumed to be the same for both connectors as well as constant over the time horizon. We have not attempted to develop views on how these charges might change or whether they would be different for the East-West interconnector<sup>151</sup>.

### **British Market Assumptions**

The PLEXOS model used for NREAP contains a full representation of the British market. The British model that we have used is based on British proprietary data. 10GW of wind capacity by 2020 is assumed.

### **Overview of the Bio Energy Analysis Model (BEAM)**

BEAM is a linear optimisation model that estimates the future biomass usage in the heat, transport and electricity sectors based on the most economic solution, given a set of technology and resource characteristics as well as land use constraints and the quantities of each resource available. The outputs support the tables in section 5 – in particular table 11 and table 12; transport and heat.

The cost structure and the possible available quantities of biomass resources from waste, forestry, wood industry by-products, energy crops, agricultural by-products and imports were established based on stakeholder consultation and on published literature, where available. The Bio energy Working Group (BWG) provided much of the price and quantity data for possible available resources. The costs and maximum quantities of fossil fuel resources are also specified and are consistent with SEAI's forecast report in December 2009.

Typical Technology costs and operational characteristics, including fuel input options, efficiency and load factors are specified based on published technical standards and market information<sup>152</sup>.

Heat, transport and electricity demands are each treated slightly differently by the model. The heat sector is modelled in its entirety, with heat demand as shown in table 1 as 'additional energy efficiency', specified. Policy supports, as outlined in table 5, are applied to the appropriate entity and the model optimises the technology

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<sup>151</sup> See page 14 of Report at [http://www.allislandproject.org/en/market\\_decision\\_documents.aspx?article=cb4ee33b-a83a-47ce-956a-6cff30900495](http://www.allislandproject.org/en/market_decision_documents.aspx?article=cb4ee33b-a83a-47ce-956a-6cff30900495)

<sup>152</sup> Biomass technology characteristics and costs were sourced from SEAI grant programme data.

mix based on their costs, operational characteristics and the input costs of resources to meet the heat demand.

Demand for biofuels is specified in the transport sector based on government obligations. The model then optimises among the competing resources, for example rape seed, tallow, wheat etc, as inputs to the biofuel production plant. Biodiesel and Bioethanol are either produced locally or imported based on the relative economics of doing either or both.

Electricity producing plant will generate if it is economic for them to do so given a specified average annual market price. The REFIT levels are applied to the relevant technologies and the model outputs the optimal resource input configuration. BEAM focus on resource inputs to electricity generation rather than the output from this plant – the electricity model captures output levels in a more sophisticated manner. Further information on the BEAM model is available on request from SEAI's Energy Modelling Group.

## Appendix 2

### Planning Exemptions for Renewable Technologies that meet certain criteria

#### Summary of exemptions set out in SI 83 of 2007 and SI 235 of 2008

<b>Technology/ Application</b>	<b>Summary</b>
<b>Wind turbine in a domestic setting</b>	<ul style="list-style-type: none"><li>• Turbine must not be attached to a building.</li><li>• One turbine per house and it can not be sited in front of the building.</li><li>• Total height must not exceed 13m.</li><li>• Rotor diameter must not exceed 6m.</li><li>• 3m minimum clearance between ground and lowest point of blades.</li><li>• Turbine mast must be the total maximum height of the assembly including turbine and blades plus one metre from the nearest party boundary.</li><li>• Noise levels must not exceed 43db(A) or 5 db(A) above background noise at the nearest inhabited neighbouring dwelling.</li><li>• No advertising can be placed on the turbine and the turbine must be matt finished.</li><li>• The blades must not interfere with telecoms signals.</li></ul>
<b>Wind turbine in an agricultural setting</b>	<ul style="list-style-type: none"><li>• Turbine must not be attached to a building.</li><li>• One only turbine per site.</li><li>• Total height must not exceed 20m.</li><li>• Rotor diameter must not exceed 8m.</li><li>• 3m minimum clearance required between ground and lowest point of blades.</li><li>• Turbine mast must be one and a half times the total maximum height of the assembly (including turbine and blades) plus 1m from the nearest party boundary or non-electrical overhead lines.</li><li>• Turbine mast must be the total maximum height of the assembly including turbine and blades plus 20m from the nearest 38kV electricity distribution line.</li><li>• Turbine mast must be the total maximum height of the assembly including turbine and blades plus 30m from the centreline of the nearest transmission line i.e. 110kV plus.</li><li>• The turbine must not be within 100m of an existing turbine.</li><li>• Noise levels must not exceed 43db(A) at the nearest inhabited dwelling.</li><li>• No advertising can be placed on the turbine and the turbine must be matt finished.</li><li>• The blades must not interfere with telecoms signals.</li><li>• Consent must be sought from the Irish Aviation Authority if the turbine is to be within 5km of an airport.</li></ul>

**Wind turbine in an industrial or business setting**

- Turbine must not be attached to a building.
- One only turbine per site.
- Total height must not exceed 20m.
- Rotor diameter must not exceed 8m.
- 3m minimum clearance required between ground and lowest point of blades.
- Turbine mast must be the total maximum height of the assembly including turbine and blades plus 5m from the nearest party boundary or non-electrical overhead lines.
- Turbine mast must be the total maximum height of the assembly including turbine and blades plus 20m from the nearest 38kV electricity distribution line.
- Turbine mast must be the total maximum height of the assembly including turbine and blades plus 30m from the centreline of the nearest transmission line i.e. 110kV plus.
- Noise levels must not exceed 43db(A) or 5 db(A) above background noise at the nearest inhabited neighbouring dwelling.
- No advertising can be placed on the turbine and the turbine must be matt finished.
- The blades must not interfere with telecoms signals.
- Consent must be sought from the Irish Aviation Authority if the turbine is to be within 5km of an airport.
- The area must not be within an Architectural Conservation Area.

**Solar Thermal or PV panel in a domestic setting**

- Total panel area must not exceed 12 sq. m or 50% of the total roof area including existing panels.
- The distance between the plane of the wall or pitched roof and the panel must not be more than 15cm.
- The distance between the plane of a flat roof and the panel must not exceed 50cm.
- The panel must be a minimum of 50cm from the edge of the wall or roof on which it is mounted.
- A free standing array's height must not exceed 2m above ground level.
- The erection of a free standing array must not reduce the area of private space to the rear or side of the house to less than 25 sq. m.

**Solar Thermal within a light industrial or business setting**

- Can not be erected on a wall.
- Total panel area must not exceed 50 sq. m or 50% of the total roof area including existing panels.
- The distance between the plane of the pitched roof and the panel must not exceed 50cm in a light industrial building and 15cm in a business premises.
- The distance between the plane of a flat roof and a panel must not exceed 2m in a light industrial setting and 1m in a business premises.
- The panel must be a minimum of 50cm from the edge of the roof on which it is mounted or 2m on a flat roof.
- Any associated equipment or storage must be within the roof space of the building.
- A free standing array's height must not exceed 2m above ground level.

- The total aperture area of a free standing array must not exceed 25 sq. m.
- No advertising can be placed on the panel and a free standing panel must not be placed to the front of the premises.

**Solar Thermal or PV within an industrial setting**

- Distance between the plane of the wall or pitched roof and the panel must not exceed 1m.
- The distance between the plane of a flat roof and the panel must not exceed 2m.
- The panel must be a minimum of 50cm from the edge of the wall or roof on which it is mounted.
- The total aperture area must not exceed 50 sq. m.
- Any associated equipment or storage must be within the roof space of the building.
- A free standing array's height must not exceed 2m above ground level.
- No advertising can be placed on the panel.

**Solar Thermal or PV within an agricultural setting**

- Total panel area must not exceed 50 sq. m or 50% of the total roof area including existing panels.
- Distance between the plane of the wall and the panel must not exceed 15cm.
- The distance between the plane of a pitched roof and the panel must not exceed 50cm.
- The distance between the plane of a flat roof and the panel must not exceed 2m.
- The panel must be a minimum of 50cm from the edge of the wall or roof on which it is mounted or 2m if on a flat roof.
- The total aperture area of a free standing array must not exceed 25 sq. m.
- Any associated equipment or storage must be within the roof space of the building.
- A free standing array's height must not exceed 2m above ground level.
- No advertising can be placed on the panel.

**PV within a light industrial or business setting**

- Total panel area must not exceed 50 sq. m or 50% of the total roof area including existing panels.
- The distance between the plane of the wall and the panel must not exceed 15cm.
- The distance between the plane of a pitched roof and the panel must not exceed 50cm in the case of a light industrial building and 15cm in a business setting.
- The distance between the plane of a flat roof and the panel must not exceed 2m in the case of a light industrial building and 1m in the case of a business premises.
- The panel must be a minimum of 50cm from the edge of the roof or pitched roof on which it is mounted or 2m on a flat roof.
- Any associated equipment or storage must be within the roof space of the building.
- A free standing array's height must not exceed 2m above ground level.
- The total aperture area of a free standing array must not exceed 25 sq. m.



- No advertising can be placed on the panel and a free standing panel must not be placed to the front of the premises.

**CHP enclosing structure in industrial setting**

- Gross floor area not to exceed 500 sq. m and height and length must not exceed 10m and 50m respectively.
- Must not be within 10m of public road or 200 metres of the nearest inhabited dwelling e.g. house, school, church, hospital unless written consent is available.
- Structure must not exceed 8m if within 100m of a public road.
- Maximum of 2 flues which must be below 20m in height and a maximum of 1m in diameter.
- Noise levels must not exceed 43 db(A) at the nearest party boundary.
- One only such structure exempt per premises and the structure can not enclose anything else.
- 

**CHP enclosing structure in light industrial or commercial setting**

- Gross floor area not to exceed 300 sq. m and height and length must not exceed 8m and 40m respectively.
- Must not be within 10m of public road or 200 metres of the nearest inhabited dwelling e.g. house, school, church, hospital unless written consent is available.
- Structure must not exceed 8m if within 100m of a public road.
- Maximum of 2 flues which must be below 16m in height and a maximum of 1m in diameter.
- Noise levels must not exceed 43 db(A) at the nearest party boundary.
- One only such structure exempt per premises and the structure can not enclose anything else.

**CHP enclosing structure in agricultural setting**

- Gross floor area not to exceed 300 sq. m and height and length must not exceed 8m and 40m respectively.
- Must not be within 10m of public road or 100 metres of the nearest inhabited dwelling e.g. house, school, church, hospital unless written consent is available.
- Structure must not exceed 8m if within 100m of a public road.
- Maximum of 2 flues which must be below 16m in height and a maximum of 1m in diameter.
- Noise levels must not exceed 43 db(A) at the nearest party boundary.
- One only such structure exempt per premises and the structure can not enclose anything else.

**Biomass Boiler in industrial, light industrial or business setting**

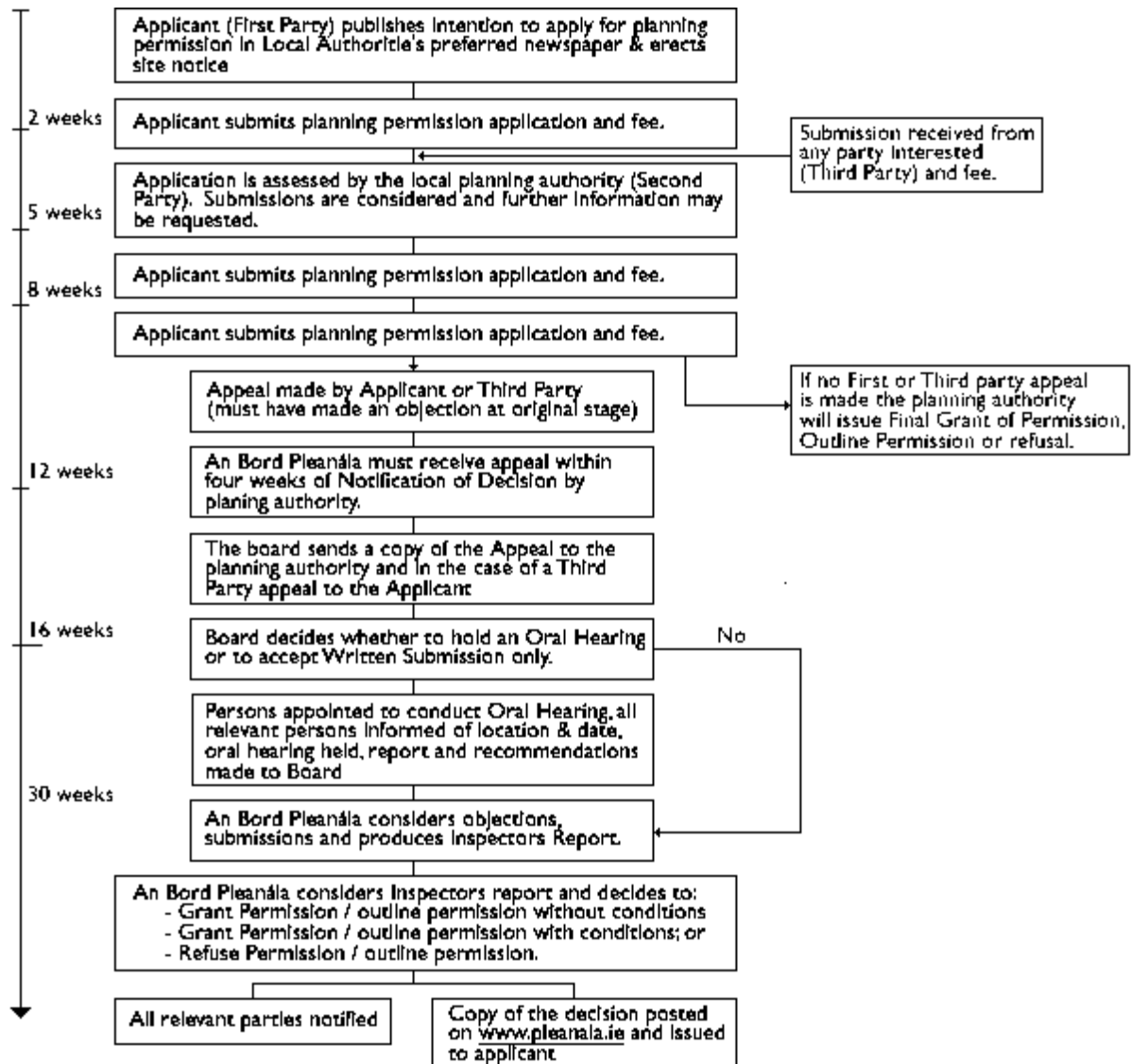
- Exemptions apply to boiler house, flues and storage of fuel.
- The gross floor area of the boiler house must not exceed 20 sq. m.
- The maximum allowable storage capacity for fuel store must not exceed 75 cubic metres.
- The maximum exempt height for the storage is 3m.

**Biomass Boiler  
in an agricultural  
setting**

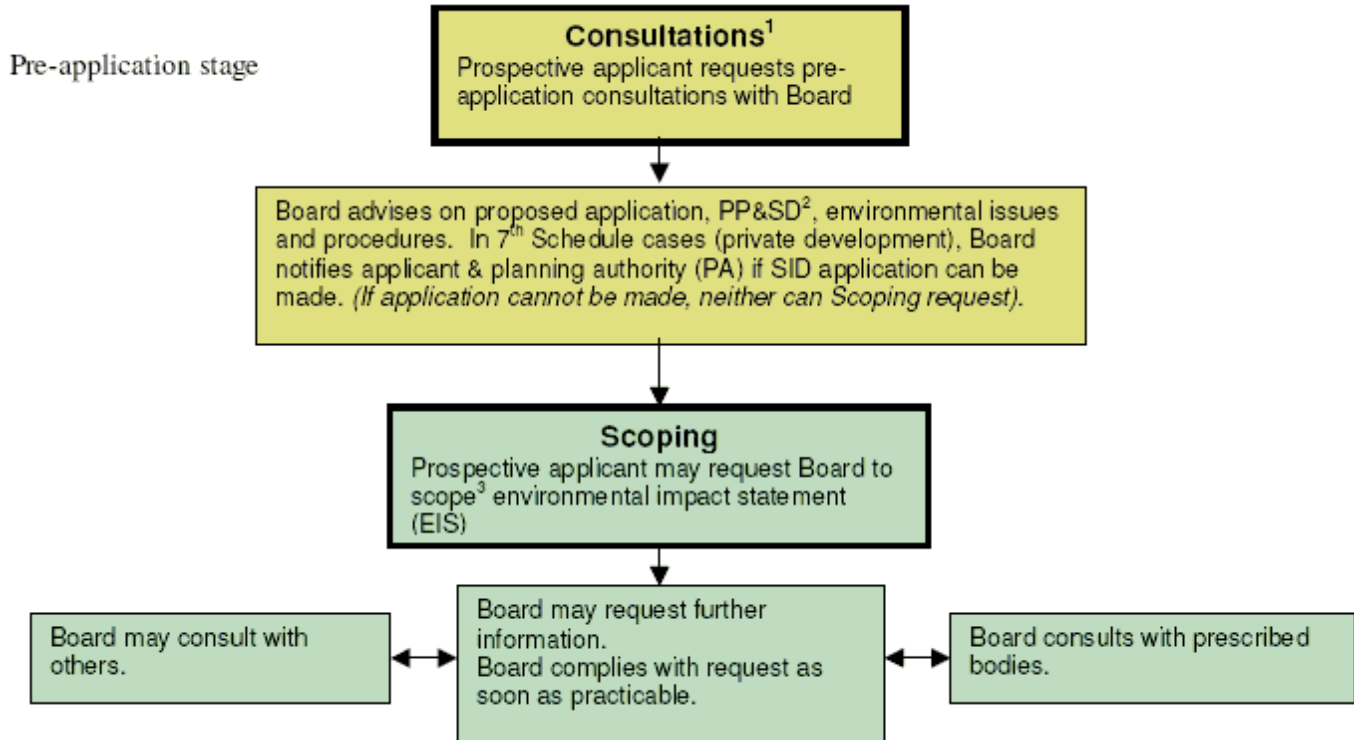
- The maximum exempt height for any flue, 2 are allowable, is 16m above ground level and the maximum diameter of same is 1m.
- Only one such structure is allowable per premises.
- The boiler house must not be within 10m of a public road or 100 metres from the nearest inhabited building such as a school, church, hospital etc. unless the written consent of the occupant is given.
- Noise levels must not exceed 43 db(A) at the nearest party boundary.
- The fuel must not be derived from animal waste or from wood containing dangerous substances.
- Exemptions apply to boiler house, flues and storage of fuel.
- The gross floor area of the boiler house must not exceed 20 sq. m.
- The maximum allowable storage capacity for fuel store must not exceed 75 cubic metres.
- The maximum exempt height for the storage is 3m.
- The maximum exempt height for any flue, 2 are allowable, is 20m above ground level and the maximum diameter of same is 1m.
- Only one such structure is allowable per premises.
- The boiler house must not be within 10m of a public road or 100 metres from the nearest inhabited building such as a school, church, hospital etc. unless the written consent of the occupant is given.
- Noise levels must not exceed 43 db(A) at the nearest party boundary.
- The fuel must not be derived from wood containing dangerous substances.

## Appendix 3

### Planning Application Process (Non – Strategic Infrastructure Cases)

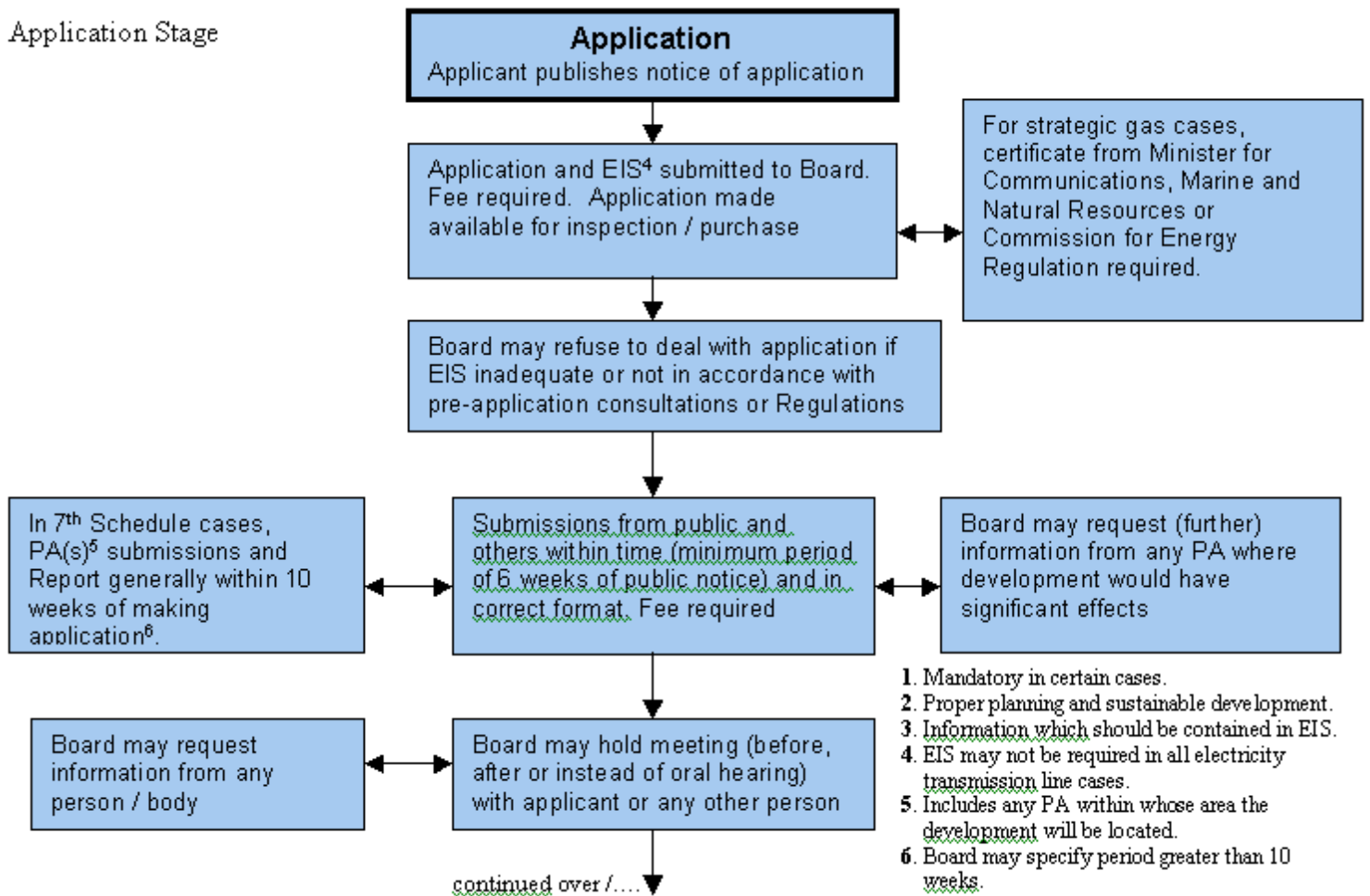


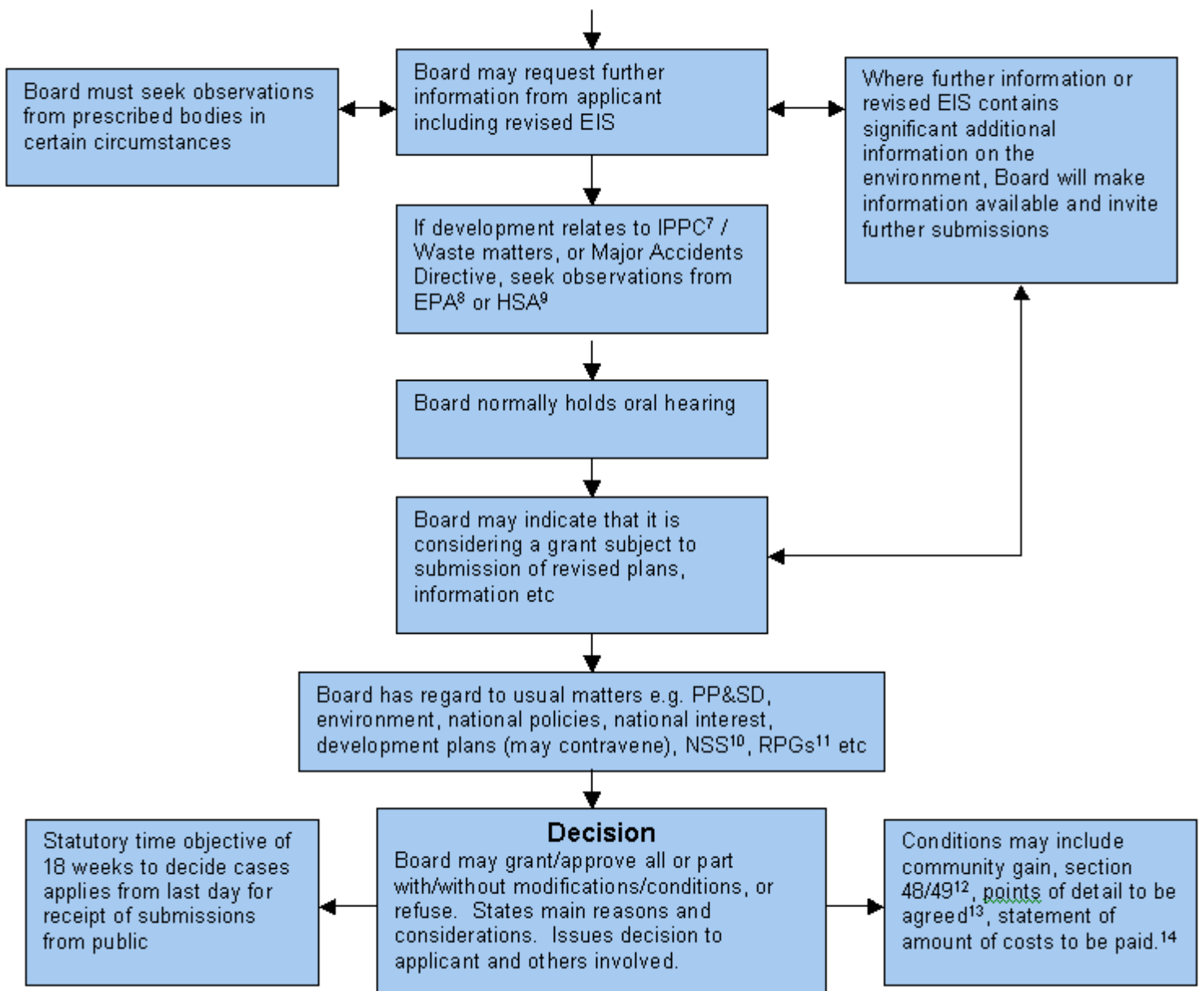
**Appendix 4**  
**Flowchart for Strategic Infrastructure Development**



## 1.1. Application stage - Strategic Infrastructure Development

Application Stage





## 1.2. Post-decision stage - Strategic Infrastructure Development

### Post-decision stage

Board may amend decision to correct clerical error or to clarify what it intended to convey. May invite submissions from relevant persons. Change may **not** result in material alteration to development as permitted /approved.

7. Integrated pollution prevention and control.
8. Environmental Protection Agency.
9. Health and Safety Authority.
10. National Spatial Strategy.
11. Regional Planning Guide lines
12. Section 48/49 financial contribution conditions.
13. Only applies to 7<sup>th</sup> Schedule cases.
14. Must issue with 7<sup>th</sup> Schedule decision. In other cases, where it applies, it may issue at a later date.

Developer may request alteration to development

Board considers whether alteration would be material or have significant effects on the environment. If not, makes decision.

If alteration is material, Board directs that information is made available to specified persons, class of persons or public, and seeks observations. Makes decision on request.

If alteration would have significant effects on the environment, general EIA provisions will apply including new EIS, public notice, fresh submissions from public etc.

## **Appendix 5**

### **Planning and Development (Strategic Infrastructure) Act 2006**

#### **“SEVENTH SCHEDULE**

Infrastructure Developments for the purposes of sections 37A and 37B

#### *Energy Infrastructure*

Development comprising or for the purposes of any of the following:

- An installation for the onshore extraction of petroleum or natural gas.
- A crude oil refinery (excluding an undertaking manufacturing only lubricants from crude oil) or an installation for the gasification and liquefaction of 500 tonnes or more of coal or bituminous shale per day.
- A thermal power station or other combustion installation with a total energy output of 300 megawatts or more.
- An industrial installation for the production of electricity, steam or hot water with a heat output of 300 megawatts or more.
- An industrial installation for carrying gas, steam or hot water with a potential heat output of 300 megawatts or more, or transmission of electrical energy by overhead cables, where the voltage would be 220 kilovolts or more, but excluding any proposed development referred to in section 182A(1).
- An oil pipeline and any associated terminals, buildings and installations, where the length of the pipeline (whether as originally provided or as extended) would exceed 20 kilometres.
- An installation for surface storage of natural gas, where the storage capacity would exceed 200 tonnes.
- An installation for underground storage of combustible gases, where the storage capacity would exceed 200 tonnes. An installation for the surface storage of oil or coal, where the storage capacity would exceed 100,000 tonnes.
- An installation for hydroelectric energy production with an output of 300 megawatts or more, or where the new or extended superficial area of water impounded would be 30 hectares or more, or where there would be a 30 per cent change in the maximum, minimum or mean flows in the main river channel.
- An installation for the harnessing of wind power for energy production (a wind farm) with more than 50 turbines or having a total output greater than 100 megawatts.
- An onshore terminal, building or installation, whether above or below ground, associated with a natural gas storage facility, where the storage capacity would exceed 1mscm.



- An onshore terminal, building or installation, whether above or below ground, associated with an LNG facility and, for the purpose of this provision, 'LNG facility' means a terminal which is used for the liquefaction of natural gas or the importation, offloading and re-gasification of liquefied natural gas, including ancillary services.

## **Appendix 6**

### **National Renewable Energy Action Plan - Initial targeted consultation carried out by DCENR**

#### **Members of the Renewable Energy Development Group**

1. Dept of Communications, Energy & Natural Resources (DCENR)
2. Dept of Environment, Heritage & Local Government (DEHLG)
3. National Parks & Wildlife Service (DEHLG)
4. Dept of Enterprise, Trade & Innovation
5. Dept of Agriculture, Fisheries & Food (DAFF)
6. Dept of Finance
7. Dept of Transport
8. Sustainable Energy Authority of Ireland (SEAI)
9. Commission for Energy Regulation (CER)
10. Eirgrid
11. ESB Networks
12. Gaslink
13. Waterford Co Co (on behalf of city and county managers)
14. Coillte
15. Irish Farmers Association (IFA)
16. Environmental Protection Agency (EPA)
17. Teagasc
18. Irish Business & Employers Confederation (IBEC)
19. IBEC Large Energy Users
20. Irish Wind Energy Association (IWEA)
21. Marine Renewables Industry Association (MRIA)
22. Irish Bioenergy Association (IrBea)
23. Irish HydroPower Association
24. Irish Wind Farmers Group (Meitheal na Gaoithe)
25. Micro Electricity Generation Association (MEGA)
26. Arthur Cox
27. Viridian
28. Tonn
29. Scottish & Southern Energy (SSE) Renewables
30. Electricity Supply Board (ESB)
31. Bord Gáis Éireann (BGE)
32. SWS Energy
33. National Offshore Wind Association of Ireland (NOW Ireland)

#### **Others to be part of initial consultation (not part of the REDG)**

34. Association of Irish Energy Agencies (AIEA)
35. Western Development Commission (WDC)
36. South East Regional Authority (co-ordinating on behalf of regional authorities)
37. ESRI
38. Dept of Community, Equality & Gaeltacht Affairs
39. Northern Ireland Dept of Enterprise, Trade & Investment
40. Heritage Council
41. Bord Na Móna
42. Forfás (at their request)
43. Eco Evolution (at their request)
44. Atlantic Way (at their request)
45. Environmental Pillar of Social Partnership (at their request)
46. Art Ltd (at their request)
47. Geothermal Association of Ireland (at their request)

**Appendix 7**  
**Common Terms /Acronyms used in the NREAP**

**CER** - the Commission for Energy Regulation – the energy regulator for the electricity and gas sectors in Ireland

**CHP** - Combined Heat and Power the ability to usefully utilise some of the waste heat produced as well as electricity generated, resulting in increased efficiency of energy use.

**DAFF** – Department of Agriculture, Fisheries and Food

**DCENR** - Department of Communications, Energy and Natural Resources (the Irish ministry for Energy)

**DEHLG** - Department of Environment, Heritage and Local Government (the Irish ministry for Environment)

**EirGrid** – the Irish Transmission System Operator (TSO)

**EPA** – Environmental Protection Agency

**ESB Networks /ESBN** – the Irish Distribution System Operator (DSO)

**NREAP** – National Renewable Energy Action Plan required to be submitted to the European Commission under Article 4 of Directive 2009/28/EC

**NPWS** – National Parks and Wildlife Service – part of the Department of Environment, Heritage & Local Government

**PSO** - Public Service Obligation

**REFIT** – Renewable Energy Feed-in-Tariff

**REIO** – Renewable Energy Information Office- part of SEAI

**RES-E** – electricity from renewable sources

**RES-H** – heat from renewable sources

**RES-T** – transport energy from renewable sources

**SEAI** – the Sustainable Energy Authority of Ireland - The Sustainable Energy Authority of Ireland (SEAI), formerly the Irish Energy Centre was set up by the government in 2002 as Ireland’s national energy authority.

**SEM** – Single Electricity Market - the wholesale electricity market operating in Ireland and Northern Ireland.

**S.I.** – Statutory Instrument

## Appendix 8

### List of bodies from whom submissions were received in response to the public consultation (11/6/2010-25/6/2010) on the draft National Renewable Energy Action Plan

1. An Taisce
2. Art Ltd
3. Arthur Cox
4. Birdwatch Ireland
5. Bord na Mona plc
6. Carlow County Council
7. Coastal Concern Alliance
8. Coillte
9. Commission for Energy Regulation
10. Competence Centre for Biorefining and Bioenergy
11. County and City Managers Association Environment Committee
12. Covanta Energy Corporation
13. Damien Nee
14. Department of Agriculture, Fisheries and Food
15. Department of Finance
16. Donegal County Council
17. Energy Solutions Europe
18. ESB
19. FIG
20. Forfas, Enterprise Ireland, IDA
21. 4 Front Energy and Environmental
22. Fuel Synergy
23. Galeforce Energy
24. Geothermal Association of Ireland
25. GT Energy
26. HSE
27. IBEC (Irish Business & Employers Confederation)
28. IFA (Irish Farmers Association)
29. ILDN (Irish Local Development Network)
30. IrBea (Irish Bioenergy Association)
31. Irish Environmental Network
32. Irish Timber Growers Association
33. IWEA (Irish Wind Energy Association)
34. JHM Crops
35. Kilkenny Leader Partnership, Carlow Kilkenny Energy Agency and Kilkenny Sustainable Energy Forum
36. Limerick Clare Energy Agency
37. Limerick County Council
38. Mainstream Renewable Power
39. Martin Hogan
40. MEGA (Micro Electricity Generation Association)
41. MRIA (Marine Renewables Industry Association)
42. Natural Hydro Energy on behalf of the Sprit of Ireland project
43. Neil Coyle
44. NOW Ireland
45. OFTEC
46. Oireachtas Joint Committee on Climate Change and Energy Security (Irish Parliamentary Committee)
47. RAID

48. RIAI (Regulatory and support body for Architects in Ireland)
49. RPS Group
50. Smart Taxes
51. Solaris-Energy
52. SSE Renewables
53. Sustainability Institute
54. UCC (University College Cork)
55. University of Limerick
56. Walter Ryan Purcell
57. Western Development Commission
58. Woodland Managers Ltd