National Renewable Energy Action Plan
(NREAP)

IRELAND

First Progress Report

Submitted under Article 22 of Directive 2009/28/EC

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Template for Member State progress reports under Directive 2009/28/EC.

1. Sectoral and overall shares and actual consumption of energy from renewable sources in the preceding 2 years (n-1; n-2 e.g. 2010 and 2009) *(Article 22 (1) a of Directive 2009/28/EC))*.

***Table 1*: The sectoral (electricity, heating and cooling, and transport) and overall shares of energy from renewable sources[1]**

	2009	2010
RES-H&C[2] (%)	4.3%	4.4%
RES-E[3] (%)	13.7%	14.8%
RES-T[4] (%)	1.8%	2.4%
Overall RES share[5] (%)	5.0%	5.5%
Of which from cooperation mechanism[6] (%)	**n/a**	**n/a**
Surplus for cooperation mechanism[7] (%)	**n/a**	**n/a**

***Table 1a:* Calculation table for the renewable energy contribution of each sector to final energy consumption (ktoe)[8]**

	2009	2010
(A) Gross final consumption of RES for heating and cooling	212	229
(B) Gross final consumption of electricity from RES	339	369
(C) Gross final consumption of energy from RES in transport	78	93
(D) Gross total RES consumption[9]	628	690
(E) Transfer of RES to other Member States	n/a	n/a
(F) Transfer of RES from other Member States and 3rd countries	n/a	n/a
(G) RES consumption adjusted for target (D)-(E)+(F)	628	690

[1] Facilitates comparison with Table 3 and Table 4a of the NREAPs.
[2] 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(1)b) and 5(4) of Directive 2009/28/EC divided by gross final consumption of energy for heating and cooling. The same methodology as in Table 3 of NREAPs applies.
[3] Share of renewable energy in electricity: gross final consumption of electricity from renewable sources for electricity (as defined in Articles 5(1)a) and 5(3) of Directive 2009/28/ECdivided by total gross final consumption of electricity. The same methodology as in Table 3 of NREAPs applies.
[4] Share of renewable energy in transport: final energy from renewable sources consumed in transport (cf. Article 5(1)c) 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). The same methodology as in Table 3 of NREAPs applies.
[5] Share of renewable energy in gross final energy consumption. The same methodology as in Table 3 of NREAPs applies.
[6] In percentage point of overall RES share.
[7] In percentage point of overall RES share.
[8] Facilitates comparison with Table 4a of the NREAPs
[9]According to Art.5(1)of Directive 2009/28/EC gas, electricity and hydrogen from renewable energy sources shall only be considered once. No double counting is allowed.

***Table 1.b*: Total actual contribution (installed capacity, gross electricity generation) from each renewable energy technology in [Member State] to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in electricity[10]**

	2009		2010	
	MW	**GWh**	**MW**	**GWh**
Hydro[11]:	526	1109	529	931
non pumped	234	754	237	754
<1MW	18	53	20	57
1MW–10 MW	20	64	21	67
>10MW	196	633	196	625
*pumped (*note pumped hyrdro is not counted as RES-E in the RES-E calculation methodology)*	292	355	292	177
mixed[12]				
Geothermal				
Solar:				
photovoltaic	0.61	0.42	0.65	0.45
concentrated solar power				
Tide, wave, ocean				
Wind:	1264	2936	1389	3228
onshore	1239		1364	
offshore	25		25	
Biomass[13]:		22		27
solid biomass		6		9
biogas		16		18
bioliquids				
TOTAL		4067.42		4186.45
of which in CHP	5.3	0.016	5.3	0.019

[10] Facilitates comparison with Table 10a of the NREAPs.
[11] Normalised in accordance with Directive2009/28/EC and Eurostat methodology.
[12] In accordance with new Eurostat methodology.
[13] Take into account only those complying with applicable sustainability criteria, cf. Article 5(1) of Directive 2009/28/EC last subparagraph.

***Table 1c*: Total actual contribution (final energy consumption[14]) from each renewable energy technology in [Member State] to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in heating and cooling (ktoe)[15]**

	2009	2010
Geothermal (excluding low temperature geothermal heat in heat pump applications)	n/a	n/a
Solar	4.4	5.5
Biomass[16]:		
solid biomass	178	193
biogas	7.0	7.6
bioliquids	-	-
Renewable energy from heat pumps: - of which aerothermal - of which geothermal - of which hydrothermal	22 22	23 23
TOTAL	212	229
Of which DH[17]		
Of which biomass in households[18]	28	32

***Table 1d:* Total actual contribution from each renewable energy technology in [Member State] to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in the transport sector (ktoe)[19],[20]**

	2009	2010
Bioethanol/ bio-ETBE	23	30
Of which Biofuels[21] *Article 21.2*	23	30
Of which imported[22]	20	25
Biodiesel	53	60
Of which Biofuels[23] *Article 21.2*	53	60
Of which imported[24]	29	10
Hydrogen from renewables	-	-
Renewable electricity	0.57	0.57
Of which road transport		
Of which non-road transport	0.57	0.57
Others (as biogas, vegetable oils, etc.) – please specify	1	2
Of which Biofuels[25] *Article 21.2*	1	2
TOTAL	**78**	**93**

[14] Direct use and district heat as defined in Article 5.4 of Directive 2009/28/EC.
[15] Facilitates comparison with Table 11 of the NREAPs.
[16] Take into account only those complying with applicable sustainability criteria, cf. Article 5(1) last subparagraph of Directive 2009/28/EC.
[17] District heating and / or cooling from total renewable heating and cooling consumption (RES- DH).
[18] From the total renewable heating and cooling consumption.
[19] For biofuels take into account only those compliant with the sustainability criteria, cf. Article 5(1) last subparagraph.
[20] Facilitates comparison with Table 12 of the NREAPs.
[21] Biofuels that are included in Article 21(2) of Directive 2009/28/EC.
[22] From the whole amount of bioethanol / bio-ETBE.
[23] Biofuels that are included in Article 21(2) of Directive 2009/28/EC.
[24] From the whole amount of biodiesel.
[25] Biofuels that are included in Article 21(2) of Directive 2009/28/EC.

2. Measures taken in the preceding 2 years and/or planned at national level to promote the growth of energy from renewable sources taking into account the indicative trajectory for achieving the national RES targets as outlined in your National Renewable Energy Action Plan. *(Article 22(1)a) of Directive 2009/28/EC))*

***Table 2*: Overview of all policies and measures**

New schemes, policies and measures introduced in 2009, 2010, 2011

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.Biofuel Obligation	Regulatory	Increased production and use of Biofuels on Irish transport fuels market	Biofuel Producers	New in 2010 (replaced the MOTR scheme)	Start 1/7/2010 – ongoing
2. SI 147 of 2011 and S.I. 148 of 2011 and 2010 Biofuel Obligation Act	Regulatory/Legislative	Legal Provisions that transpose Renewable Energy Directive 2009/28/EC in Ireland	Industry, policy makers	Existing	2010 and 2011
3. Electric Vehicles	Financial	Increased use of electric vehicles in Ireland.	General Public	New	EV grant scheme commenced in 2011. Vehicle registration Scheme already in place to 31/12/12
4. REFIT 2	Financial	4000MW of new onshore wind, hydro and landfill gas sufficient to cover our 2020 RES-E target.	Generators and suppliers of electricity from renewable sources	Planned. On 13 January 2012, the European Commission has indicated their intention to provide state aid clearance for the scheme.	Opening date depends on formal state aid clearance and subsequent Government approval to launch the scheme. The scheme should be formally opened in Quarter 1, 2012.
5. REFIT 3	Financial	310MW of biomass technologies (anaerobic digestion, high efficiency CHP and biomass combustion and co-firing)	Generators and suppliers of electricity from renewable sources	Planned. State aid clearance received in October 2011. Government approval obtained December 2011.	Scheme planned for opening in January 2012.
6. Small, Renewable, Low carbon generation connecting to the grid outside the 'Gate' process	Soft /infrastructural	A policy that facilitates small scale 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	Introduced in July 2009. Continues to remain open to certain small generators as a means to connect to the grid.
7.Revised simplified application procedures for authorisations to construct and licences to generate	Regulatory	CER/10/098 (energy regulator's decision) introduced a simplified procedure for generators with installed capacity up to 40MW to make obtaining authorisation to construct and licence to generate easier.	Those constructing generating stations with installed capacity not exceeding 40MW and generating electricity	Existing	New procedure came into effect in June 2010

8. Principles of Dispatch and the Design of the Market Schedule in the Trading & Settlement Code	Regulatory	The Single Electricity Market (SEM) Committee undertook a 2 year consultation (2009-2011) prior to reaching a decision. The policy has important implications for the treatment and dispatch of renewable generation in the SEM.	All participants in the SEM (mandatory pool for those generators over 10MW)	New	SEM Committee Decision published in 2011 (SEM 11-062)
9.Treatment of Price Taking Generation in Tie Breaks in Dispatch in the SEM & Associated Issues	Regulatory	The SEM committee is currently consulting with a view to reaching a decision on this. This policy will have important implications for the treatment and dispatch of renewable generation in the SEM.	All participants in the SEM (mandatory pool for those generators over 10MW)	New	SEM Committee Consultation SEM 11-063 published in August 2011. Decision expected in 2012.
10 Foreshore consent process for offshore renewable 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, offshore wind and tidal technologies on a phased basis.	Generators of RES-E operating in the offshore environment	Planned	Publication of a general scheme of a Foreshore Bill by the Minister for Environment is imminent (expected to be published in 2012)
11. Planning & Development (Amendment) Act 2010	Legislative / Regulatory	The Act provides for changes to the planning system., some of which have implications for the renewable energy sector (e.g. projects over a certain size will now automatically be treated as strategic infrastructure under the Strategic Infrastructure Act. The time period relating to initial planning consent is now longer.)	Developers who have to go through the planning process	Planned	The legislation was enacted in 2010. Renewable generators may now obtain planning consent for 10 years which is generally more satisfactory and projects over a certain size now automatically seek consent under the Strategic Infrastructure Act.
12. 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, CHP,	Companies paying corporation tax	Existing	Existing from 2009 onwards

		biomass boilers.			
13. Ocean Energy	Financial / Soft	The Ocean Energy Prototype Development Fund (grants for industry) aimed at stimulating Ocean Energy (OE) devices and systems. A strategic environmental assessment (SEA) on offshore wind, wave & tidal development scenarios is underway.	Offshore renewable energy sector	Existing	SEA ongoing 2009-2011 Prototype Development Fund in operation since 2009.
14. Tree Felling Policy for Wind Farm Development	Soft	The Department of Agriculture, Food & the Marine in 2009 introduced a tree felling policy for wind farm development. Industry and DAFF are in discussion on the policy.	Wind Farm Developers / Forestry sector	Existing	2009 onwards
15. 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 have been carried out in 2010-2011.	Electricity and Gas consumers, policy makers	Existing	CER (regulator) published Smart Metering Paper (CER 11/080) May 2011. It highlights the publication of a number of key reports that will be used to inform future decisions regarding electricity smart metering for consumers in Ireland.
16. Draft Geothermal legislation	Legislative / Regulatory	Geothermal Energy Development Bill 2010 published	Industry, policy makers	Existing	Bill published 2010. The bill must now makes its way through the legislative process prior to enactment.
17. Completion of the rollout and implementation of Gate 3 renewable generation grid connection offers	Soft	Under Gate 3, 3900MW of new renewable generation have received grid connection offers The rollout and implementation of Gate 3 by the regulator, TSO and DSO will ensure that Ireland can reach its 40% RESE target.	Generators of RES-E	Existing. All Gate 3 grid connection offers have now issued to those included in the Gate 3 direction. Takeup rates are expected to be known in the course of 2012.	2009-2011 (rollout of offers.) Takeup of offers should be known in 2012.
18.Faciliation of Renewables Study	Technical	This publication was an important step towards providing a more complete picture of the operational implications of managing high levels of variable renewable generation on the power system.	TSO, regulator, policy makers, industry	Existing	Study published in 2010.
19. DS3: Delivering a Secure,	Technical	Follows on from Facilitation of	TSO, regulator, policy makers,	Existing and on-going	2011-2013

Sustainable Power System		Renewables study. The different aspects of this programme are fundamental to ensuring the continued security of supply on the island and are required to deliver on the 2020 renewable electricity targets. There are three major work areas within this programme: System Policies, System Tools and System Performance.	industry		
20. 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. Access rules and the establishment Auction Management Platform have been developed and construction work is progressing well.	Transmission System Operator, Generators of RES-E	Existing	2009-2012
21. Offshore Grid Research	Technical	EirGrid published a study into the design and architecture of a future Offshore Energy Grid. The focus of offshore generation is mainly wind and tidal. The Irish Government has also been involved in the ISLES study examining issues around offshore grid between Ireland, Northern Ireland and Scotland. The report is expected to be published in 2012.	Transmission System Operator. Governments. Generators of RES-E	Existing	2010-2011. The results of the ISLES feasibility study were published in November 2011. http://www.islesproject.eu/
22. S.I. 477 of 2011 (Birds and Habitats Regulations)	Regulatory/Legislative	New regulations to ensure adequate protection of birds and habitats.	Renewable Energy Developers, state bodies involved in licensing and consenting renewable energy developments.	Existing	Published in September 2011

* Indicate if the measure is (predominantly) regulatory, financial or soft (i.e. information campaign).
**Is the expected result behavioural change, installed capacity (MW; t/year), energy generated (ktoe)?
***Who are the targeted persons: investors, end users, public administration, planners, architects, installers, etc? or what is the targeted activity / sector: biofuel production, energetic use of animal manure, etc)?

Schemes, policies and measures <u>that existed pre 2009 and continue</u>

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. 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 (ongoing)
2. 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. Commencement order required.	Introduced: 1999 Budget 2012 announced that the scheme will be extended to 31/12/14 – commencement order will be required.
3. 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 have prospects for the future.	Developers of renewable energy technologies	Existing	July 2002 onwards
4. 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
5. Rollout of Grid 25 strategy	Infrastructural	Grid 25 provides the framework to improve grid which will facilitate the integration of increasing amounts	Generators of RES-E	Existing and planned (Grid 25 is in the implementation and rollout phase.)	Grid 25 was launched in 2008 and the programme is now being rolled out.

		of renewable generation and necessitate significant investment in the grid. An SEA is underway on the implementation programme for Grid25/			
6. 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
7. 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
8. 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
9. Renewable Energy Information Office	Soft	This is an information service on renewable energy that provides the public with a service whereby they can easily obtain practical	General public, industry, business	Existing	Ongoing. In 2012, SEAI will in-source this function, which has been outsourced for a number of years.

		information on renewable energy			
10. 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
11. 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 http://www.sfi.ie/investments-achievements/investments/charles-parsons-energy-research-awards/
12. 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	2006

Schemes and measures that existed in 2009 and 2010 <u>but have now closed</u>

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	Now closed.	2005 to 31/12/10
2. ReHeat	Financial	Increased deployment of renewable heating technologies in the commercial, industrial and public sectors. Provides financial assistance	Commercial, agricultural, industrial and service sectors, as well as energy supply companies.	Now closed for new applicants.	2006 to 31/12/10

		for boilers fuelled by wood chips and wood pellets, solar thermal collectors, and heat pumps.			
3. 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).	Now closed for new applicants. It is expected that the new Biomass REFIT will stimulate CHP deployment.	2006 to 31/12/2010
4. 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_2 emissions.	Homeowners	Now closed for new applicants. Greener Homes was incorporated into Better Energy Homes and support limited to Solar Thermal.	2006 to 31/12/10
5. Alternative Energy Requirement (AER) Programmes I- VI	Financial	Increase in RES-E following six separate calls for tender. 532MW of renewable generation was built under AER. 322MW still in the scheme in 2011/2012.	Generators of electricity from renewable sources	Closed for new applicants several years ago. Those remaining in the scheme (332MW in AER is still in the scheme in the PSO period 2011/2012)	There were 6 separate calls for tender beginning in the mid 1990s. The last call for tender was in 2003.
6. Renewable Energy Feed-in Tariff scheme (REFIT 1)	Financial	Increase in RES-E via a feed in tariff mechanism. In 2011/2012, there is 1242MW of renewable generation in receipt of REFIT.	Generators and suppliers of electricity from renewable sources	Closed for new applicants on 31/12/09. 1242MW in REFIT was included in the 2011/2012 PSO decision.	2007-2009 (New developments accepted before the closing date that have been granted an extension of time continue to build out.)
7. Small and Micro Scale Generation Pilot Programme (Grants).	Financial	Microgeneration pilot run by SEAI 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	Closed for new applications – monitoring of installations in the pilot is underway.	Scheme launched in February 2009. 42 participating in the scheme. Monitoring continuing through 2011 with report on findings expected in 2012.

2.a Please describe the progress made in evaluating and improving administrative procedures to remove regulatory and non-regulatory barriers to the development of renewable energy. *(Article 22(1)e) of Directive 2009/28/EC))*.

CER (the energy regulator) in recent years has introduced several decisions that improve procedures. These include the following:

- Facilitation of transmission and distribution contestability;

- Development of and implementation of Least Cost Chargeable/ Least Cost Technically Acceptable charging;
- Transmission & Distribution standard charging policy;
- Facilitation of small low carbon non Group processing approach developments; (i.e. ability for certain small low carbon renewable generators to obtain a grid connection outside the gate process)
- Reduction of 8% in connection application fees in 2010;
- Distribution charter and fixed timeline for delivery of connection assets;
- Incentivisation of TSO and DSO to deliver connections;
- Development of the less onerous bonding requirements (CER/09/138);
- Facilitation of Gate 3 Liaison Group, a forum which provides industry with the opportunity for direct interaction with the system operators and the CER on connection matters.
- CER/10/098 was a decision introducing a simplified procedure for generators with installed capacity up to 40MW to make obtaining authorisation to construct and licence to generate easier.

A number of Single Electricity Market (SEM) decisions were taken in 2011 that are intended to provide a greater level of clarity to renewable generators on market operations as they affect renewable energy. These include recent decisions on 'Treatment of Price Taking Generation in Tie Breaks in Dispatch in the Single Electricity Market and Associated Issues' (SEM 11 -105) and 'Principles of Dispatch and the Design of the Market Schedule in the Trading and Settlement Code' (SEM 11-062.)

The Department of Environment is currently drawing up legislation that will reform the foreshore consenting function. The General Scheme of a Bill in this regard is expected to be published in 2012. The intention is to see foreshore consenting more integrated with the onshore planning system. In the period 2009-2011, a strategic environmental assessment and natura impact assessment have been undertaken on scenarios for offshore renewable development identified in the draft Offshore Renewable Energy Development Plan (OREDP), currently being finalised. This final OREDP (to be published in 2012) together with the revised consenting system to be introduced should provide for improved strategic decision making and greater policy cohesion in the marine renewable energy area.

The 2010 Planning & Development (Amendment) Act introduced reforms to planning legislation. Under the Act, renewable project developers are now able to secure planning permission grants for ten year periods, which is of considerable benefit in reducing administrative burden, given the time that it can take for projects to be brought to fruition.

The DS3 programme being undertaken by EirGrid[26] is designed to manage the achievement of our renewable electricity target from a grid perspective over the coming years. EirGrid and SONI have established a programme of work entitled "Delivering a Secure Sustainable Electricity System (DS3)". This work programme includes enhancing generation portfolio performance, developing new operational policies and system tools to efficiently use the generation portfolio to the best of its capabilities, and regularly reviewing the needs of the system as the portfolio capability evolves. An advisory council which includes industry representatives has been established and is overseeing the project.

2.b Please describe the measures in ensuring the transmission and distribution of electricity produced from renewable energy sources and in improving the framework or rules for bearing and sharing of costs related to grid connections and grid reinforcements. ***(Article 22(1)f) of Directive 2009/28/EC))*****.**

[26] http://www.eirgrid.com/operations/ds3/ds3programmeoffice/

Several studies have been carried out over the past number of years to investigate the levels of renewable generation that can be securely accommodated on the power system of Ireland and Northern Ireland. These studies have considered the requirements in terms of infrastructure and also the operational implications of managing a power system with large amounts of variable generation sources.

All Island Grid Study

http://www.eirgrid.com/renewables/all-islandgridstudy/

Facilitation of Renewables Study

http://www.eirgrid.com/renewables/facilitationofrenewables/

Ensuring a Secure, Reliable and Efficient Power System in a Changing Environment

http://www.eirgrid.com/media/Ensuring_a_Secure_Reliable_and_Efficient_Power_System_Report.pdf

As a follow on from these studies, and to ensure that the necessary steps are put in place to deliver on our 2020 target, EirGrid and SONI have established a programme of work entitled "Delivering a Secure Sustainable Electricity System (DS3)". Further information on the programme is available online[27].

The GRID25 programme will provide transmission capacity for large amounts of renewable generation in the years ahead, enabling the physical connection and transmission and distribution of electricity from renewable sources. Since the Grid25 strategy was developed, significant progress has been made in optimising the grid investment plans, in identifying new technical solutions, in building new transmission circuits and in up-rating existing circuits.

There has been significant development of the transmission system in the past year, with more network put in place than has been built in the past 20 years. During the past year, 150 km of new transmission lines were completed, along with upgrades to 300 km of existing lines.

The energy regulator's (CER) direction on first stage payments for grid connections (CER/11/083) treats all developers seeking a connection in a fair and equal manner regardless of size, scale or ownership structure. The CER's 2009 decision (CER/09/138) which implemented the current First Stage Payments Scheme significantly reduced the level of financial commitment required from renewable generators at offer acceptance.

CER/09/138 outlined a revised approach to the bonding requirements and connection charging requirements for renewable developers, removing the requirement for large bonds to be paid upfront by developers at offer acceptance. This decision was also made following a significant period of discussion and consultation with the renewable industry.

In terms of cost, CER has in the past few years introduced many connection policy decisions designed to facilitate the industry and meet the needs of windfarm developers. These include the following:

- Facilitation of transmission and distribution contestability;
- Development of and implementation of Least Cost Chargeable/ Least Cost Technically Acceptable charging;
- Transmission & Distribution standard charging policy

[27] http://www.eirgrid.com/operations/ds3/ds3programmeoffice/

- Reduction of 8% in connection application fees in 2010;
- Development of the less onerous bonding requirements (CER/09/138);

3. Please describe the support schemes and other measures currently in place that are applied to promote energy from renewable sources and report on any developments in the measures used with respect to those set out in your National Renewable Energy Action Plan. ***(Article 22(1)b) of Directive 2009/28/EC))*****.**

Further information on the evolution of the position in respect of the electricity, heating and transport sectors since publication of the NREAP in July 2010 can be found in the Annex to this document.

RES-E

REFIT (Renewable Energy Feed-In-Tariff) is the support scheme for RES-E in Ireland. The original scheme (REFIT 1) got state aid clearance in 2007. New applications could be accepted under the REFIT 1 scheme until 31/12/09. Currently 1242MW of renewable generation in REFIT 1 are eligible for payment under the 2011/2012 PSO Decision[28].

It is intended to continue to offer REFIT to support RES-E and ensure delivery of our 2020 renewable target. New support tariffs for biomass technologies ('REFIT 3') will assist the development of a sustainable biomass supply sector in Ireland. They will ensure there is a ready demand for biomass and will build on the energy crop grant scheme run by the Department of Agriculture. A biomass technology state aid application ('REFIT 3') received clearance from the European Commission in October 2011 was approved by Government in December 2011 and will be opened for new applications in January 2012.

The REFIT 2 scheme, which will cover onshore wind, small hydro and landfill gas, is still awaiting state aid approval, which is anticipated to be forthcoming in 2012. Initial indication that the European Commission intends to approve the scheme was forthcoming on 13 January 2012[29]. The formal decision letter is awaited and following this Government approval will be obtained before opening the scheme in Quarter 1 2012.

AER (Alternative Energy Requirement), a series of tender competitions that were run from the mid 1990s to the mid 2000s, were the RES-E schemes that preceded REFIT. The AER MW included in the 2011/2012 PSO decision has fallen from 532MW to 322MW in the current year, as the earlier projects exit the scheme, having availed of the support for the period allowable.

The Accelerated Capital Allowances (ACA) scheme for energy efficient equipment specifies certain technical standards to be met by renewable energy products to be eligible for ACA tax relief. Technologies covered include wind turbines >5kw, solar PV and CHP, with biomass boilers being added in 2010.

On microgeneration, SEAI has been running a microgeneration pilot programme comprising 42 installations that received capital grants from SEAI. Qualifying projects in the pilot have also been able to avail of a feed-in-tariff offered by a commercial company. A report on the monitoring of the installations and the findings on microgeneration in an Irish context should be published by SEAI in 2012.

The Programme for Government states that a microgeneration feed-in-tariff will be introduced at a price not much higher than the SEM price. The Minister for Energy intends to review this commitment in 2012 in consultation with his cabinet colleagues.

[28] Available at: http://www.dcenr.gov.ie/Energy/Sustainable+and+Renewable+Energy+Division/REFIT.htm

[29] http://ec.europa.eu/competition/elojade/isef/index.cfm?fuseaction=dsp_sa_by_date

Tax Relief

As described in the NREAP, section 486b of the 1997 Tax Consolidation Act 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. This scheme was available to 31/12/2011. In Budget 2012, it was announced that the scheme would be continued for a further 3 years and a commencement order is now required to be introduced by the Department of Finance.

RES-H

It is intended that the REFIT scheme, although payable on exported electricity, through the encouragement of biomass high efficiency CHP and anaerobic digestion technologies will also incentivise renewable heat production. The Department of Agriculture continues to operate the bio-energy scheme for non food crops (willow and miscanthus) which encourages the production of biomass.

A number of support schemes run by SEAI that were described in the NREAP and that promoted RES-H namely ReHeat, CHP and Greener Homes ended 31/12/10 due to budgetary constraints. Greener Homes was incorporated into the Better Energy scheme with support limited to solar thermal. Those that had already been accepted into the SEAI schemes prior to closure continued to receive funding in 2011. It is intended that introduction of higher REFIT tariffs for small scale biomass technologies, particularly CHP (although specifically payable for RES-E) will also incentivise RES-H.

Newly built homes are required to comply with the renewable energy requirement in Part L of the Building Regulations and can also make a contribution to the renewable heat target. The Accelerated Capital Allowances (ACA) scheme for energy efficient equipment specifies certain technical standards to be met by renewable energy products to be eligible for ACA tax relief. Technologies covered include biomass boilers. A review of the RES-H sector will be required if there is evidence that insufficient take-up of RES-H technologies means that our target in the heat sector appears unlikely to be achieved.

RES-T

The Energy (Biofuel Obligation and Miscellaneous Provisions) Act 2010 became law on 1 July 2010 and is designed to ensure that Ireland can achieve a target of 10% biofuels in the fuel mix by 2020. This provides market players with long-term certainty to develop economically viable scale into their projects going forward. It facilitates industry in developing appropriate financing, planting, refining, storage, distribution and supply chain logistics.

Under the Biofuel Obligation provided for in the Act, suppliers are compelled to use biofuel in the fuel mix to ensure that biofuels represent a certain percentage (currently 4%) of their annual fuel sales. The percentage will be increased periodically, taking account of the Fuel Quality Directive requirements.

Biofuels Obligation Certificates are awarded for the supply of one litre of biofuel. These certificates may then be traded amongst account holders. Obligated parties who have not been able to fully meet their obligation by supplying biofuel themselves can either

- purchase certificates from other account holders with surpluses, or
- pay a non-compliance levy (currently set at 45 cent for each certificate it is short).

The obligation will allow Ireland to achieve carbon savings of over 700,000 tonnes per year. This is the equivalent of taking almost 200,000 cars off the road.

Electric Vehicles

As set out in the NREAP, there is a target of 10% of all vehicles to be powered by electricity by 2020. In April 2011 the Minister opened the Electric Vehicle grant scheme to assist in the purchase of electric vehicles. Those purchasing a full battery electric vehicle (BEV) or plug in hybrid electric vehicles (PHEV) will be grant aided by up to €5,000, depending on the price of the vehicle. These grants are in addition to the VRT reliefs of up to €5,000 which apply to BEVs and the VRT reliefs of

up to €2,500 for PHEVs. More information is available here: http://www.seai.ie/Grants/Electric_Vehicle_Grant_Scheme

***Table 3*: Support schemes for renewable energy**

RES support schemes year n (e.g. 2011)			**Per unit support**	**Total (M€)***
[(sub) category of specific technology or fuel]				
Instrument (provide data as relevant)	Obligation/quota (%)		4% by volume of transport fuel mix must be biofuels	n/a
	Penalty/Buy out option/ Buy out price (€/unit)		Purchase certificates for biofuels from others with surpluses or 45c per litre buy out price for the biofuel obligation scheme	n/a
	Average certificate price		n/a	n/a
	Tax exemption/refund		€1.26m (total tax relief in 2010 under section 486B of the Tax Consolidation Act.) 2011 figures not yet available	
	Investment subsidies (capital grants or loans) (€/unit)		Renewable Heat Deployment Programme (ReHeat) (Grant scheme) 2011 (residual spend) Biomass CHP (feasibility studies only) (residual spend 2011) Willow and Miscanthus crop supports in 2011	€307,257.78 €76,584.77 €263,927.37.
	Production incentives			
		Feed-in -tariff	2011 Rates €66.35 MWH for large scale wind €68.68 MWH for small scale wind €81.49 MWH for landfill gas €83.81 MWH for biomass technologies €83.81 MWh for small hydro Plus a fixed payment of €9.9 MWh for all technologies	€39.3m in 2011 (PSO levy) for REFIT (between 800 MW and 1000MW)*** (See below re cost being offset by reduction in wholesale electricity price)
		Feed-in premiums	n/a	n/a
		Tendering	AER Rates vary according to the prices bid in.	€15.23m in 2011 (PSO Levy) for the AER scheme (between 322MW and 532MW))*** (See below re cost offset)
Total annual estimated support in the electricity sector			*REFIT/AER/Tax*	55.79m ***

	Relief	(see below re cost offset)
Total annual estimated support in the heating sector	Reheat/CHP/Crops	€648, 000
Total annual estimated support in the transport sector	*Biofuels Obligation*	n/a

***** The quantity of energy supported by the per unit support gives an indication of the effectiveness of the support for each type of technology

*** RES-E: A study[30] carried out by EirGrid/SEAI in 2011 shows that the costs of REFIT and AER are offset by the reduction in wholesale electricity prices.

The broad conclusion of the study was that:

- The wind generation expected in 2011 will reduce Ireland's wholesale market cost of electricity by around €74 million.
- This reduction in the wholesale market cost of electricity is approximately equivalent to the sum of Public Service Obligation (PSO) costs[31], estimated as €50 million, and the increased constraint costs incurred, due to wind in 2011.
- The total cost of generation is the sum of the wholesale cost of electricity, the PSO cost of wind and the dispatch constraint costs. The total cost does not increase with the inclusion of the 2011 wind capacity

Generally Ireland notes that it is difficult to estimate costs. For example in the transport sector, the obligation is on suppliers, but one can assume they recoup their costs in some way e.g. through increased charges on consumers, however these are not necessarily transparent. Furthermore all schemes have administration, overhead, salary costs etc in state bodies and in private sector organisations and such costs are not always visible.

3.1. Please provide the information on how supported electricity is allocated to final customers for purposes of Article 3 (6) of Directive 2003/54/EC. *(Article 22(1)b) of Directive 2009/28/EC))*.

Under the relevant energy regulator (CER) Decision CER 11/284, in accordance with Statutory Instrument 147 of 2011, any renewable generator that is covered by REFIT or AER and wishes to remain in receipt of support will not receive a Guarantee of Origin (GO). The renewable generator will have the attributes of their generation transferred directly to the fuel mix of the supplier with whom they have their Power Purchase Agreement (PPA) under the support scheme. Neither the generator nor the supplier will be able to transfer the attribute to any other party and it will be applied to the supplier's fuel mix for the disclosure period in which the generation occurred.

In accordance with S.I. 147 of 2011, a GO is therfore not issued in respect of PSO supported generation (both AER and REFIT are supported through the public service obligation (PSO) levy fund.) The renewable attribute of the generation is thus captured in the fuel mix in a manner that reflects suppliers activities in the electricity market. This is consistent with the underlying purpose of fuel mix disclosure by providing customers with reliable information with which to distinguish between suppliers on the basis of their fuel mix.

4. Please provide information on how, where applicable, the support schemes have been structured to take into account RES applications that give additional benefits, but may

30 http://www.dcenr.gov.ie/NR/rdonlyres/C85DC27F-8D47-4D9A-A5BC-5DA1A5CA818E/0/ImpactofWindGenerationonWholesaleElectricityCostsin2011.pdf

31 Note the PSO costs referred to would cover both the REFIT scheme and the predecessor of REFIT, known as AER.

also have higher costs, including biofuels made from wastes, residues, non-food cellulosic material, and ligno-cellulosic material?) *(Article 22 (1)c of Directive 2009/28/EC))*.

To encourage the development and use of second generation biofuels, Ireland's Biofuel Obligation Scheme (provided for under the Energy (Biofuel Obligation and Miscellaneous Provisions) Act 2010), in line with the EU Renewable Energy Directive, awards double certificates for each litre of second generation biofuel placed on the market.

The structure of the biomass REFIT tariffs also provides for higher tariffs depending on size and for different biomass technology categories, with significantly higher tariffs being awarded for high efficiency CHP and for anaerobic digestion when compared with biomass combustion and biomass co-firing. This ensures that additional benefits are rewarded.

5. Please provide information on the functioning of the system of guarantees of origin for electricity and heating and cooling from RES, and the measures taken to ensure reliability and protection against fraud of the system. *(Article 22(1)d of Directive 2009/28/EC))*.

Guarantees of Origin (GOs) were provided for in legislation in S.I. 147 of 2011 which transposed the requirements relating to GOs in Renewable Energy Directive 2009/28/EC. GOs are provided for in the statutory instrument as regards the electricity sector. Article 15(2) of Directive 2009/28/EC provides that Member States may arrange for GOs to be issued in response to a request from producers of heating and cooling from renewable energy sources. A decision was taken not to introduce the optional GOs for the heating and cooling sector in Ireland at this time.

The energy regulator (CER) published the 'Supervisory Framework for the Administration of Guarantees of Origin' Decision (CER 11/824) on 17 November 2011[32]. This decision sets out how the GO system will function.

In line with S.I. 147 of 2011, SEMO (the Single Electricity Market Operator) is the body responsible for the administration of the scheme. SEMO have developed the business processes that will be followed in relation to registering, requesting, issuing, transferring, revoking and importing GOs. SEMO will maintain an electronic register holding all the GOs and related information. Each generator unit and supplier holding GOs will have an account on this register and will be required to provide SEMO with any information it requires in order to discharge its duties.

In terms of reliability and fraud, measures have been developed by SEMO (in conjunction with the CER) to make the system as robust as possible. These measures include only communicating with authorised users from each participant and password protecting the certificates issued.

6. Please describe the developments <u>in the preceding 2 years</u> in the availability and use of biomass resources for energy purposes. *(Article 22(1)g) of Directive 2009/28/EC))*.

The contribution of bio-energy has continued to increase in Ireland in absolute terms in 2009 and 2010. The quantity of bio-energy increased in 2009 by 16% (to 326 ktoe) compared to the amount in 2008 and by a further 9% (to 356 ktoe) in 2010 compared to 2009.

The largest single stream, forest based biomass, although increasing in absolute terms, remained at a consistent 45% of total biomass for bio-energy over the period 2008 - 2010. (Note that due to

[32] http://www.dcenr.gov.ie/NR/rdonlyres/D020B24D-EC0A-437F-90E1-A596B4F91C26/0/SupervisoryFrameworkGOs.pdf

improved statistics collection the data for 2009 and 2010 for "Direct supply of wood biomass", the information shows a considerable increase over that reported for 2006 in the first NREAP report.)

The contribution from liquid biofuels has increased from 20% of total biomass in Total Primary Energy Requirement (TPER) in 2008 to 26% in 2010.

In 2009 Ireland's wood pellet production capacity increased by 30,000 tonnes per year as a new production facility came on stream. The total production capacity in Ireland is now 100,000 tonnes per year, while on the island of Ireland the total capacity is 150,000 tonnes per year.

With regard to energy crops, additional area has been planted under the Department of Agriculture, Food and Marine's Bio-energy Scheme, with 877 hectares added in 2009 and 353 hectares added in 2010.

On the demand side 62 commercial / industrial wood fuelled boilers, supported under the Sustainable Energy Authority of Ireland Re-Heat Deployment Programme, came into operation in 2009/2010. These additional boilers have a total installed capacity of 16.5 MW_{th}.

In the same period one biomass CHP plant with a capacity of 3 MW_e and one anaerobic digestion CHP plant with a capacity of 250 kW_e were commissioned. Co-firing of biomass in a peat fired power plant (plant capacity of 120 MW_e) was increased through 2009 and 2010, with a goal to achieve 30% co-firing by 2015. In 2010 96, 535 tonnes of biomass was consumed in the peat fired power plant, equivalent to 12.2% co-firing.

Table 4: **Biomass supply for energy use**

	Amount of domestic raw material (*)		Primary energy in domestic raw material (ktoe)		Amount of imported raw material from EU (*)		Primary energy in amount of imported raw material from EU (ktoe)		Amount of imported raw material from non EU(*)		Primary energy in amount of imported raw material from non EU (ktoe)	
	Year n-2	Year n-1	Year n-2	Year n-2	Year n-2	Year n-1	Year n-2	Year n-1	Year n-1	Year n-1	Year n-2	Year n-1
Biomass supply for heating and electricity:												
Direct supply of wood biomass from forests and other wooded land energy generation (fellings etc.)**	263,000	276,000	43	45	2,000	4,000	0.33	0.66	0	0	0	0
Indirect supply of wood biomass (residues and co-products from wood industry etc.)**	616,000	664,000	106	114	Confidential[1]	Confidential[1]			0	0	0	0
Energy crops (grasses, etc.) and short rotation trees (please specify)	4,000	1,000	0.7	0.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Agricultural by-products / processed residues and fishery by-products **	64,276	51,554	4.5	4.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Biomass from waste (municipal, industrial etc.) **	241,922	260,111	60	64	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Others (please specify)												
Biomass supply for transport:												
Common arable crops for biofuels (please specify main types)	Confidential[1]	Confidential[1]										
Energy crops (grasses,etc.) and short rotation trees for biofuels (please	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

specify main types)												
Others (please specify)	Confidential[1]	Confidential[1]										

* Amount of raw material if possible in m3 for biomass from forestry and in tonnes for biomass from agriculture and fishery and biomass from waste
** The definition of this biomass category should be understood in line with table 7 of part 4.6.1 of Commission Decision C (2009) 5174 final establishing a template for National Renewable Energy Action Plans under Directive 2009/28/EC
[1] Data is known is certain cases, but is not being published in this table for confidentiality reasons, due to restricted number of suppliers. The rule applied on confidentiality is as follows:
Primary confidentiality
A category is confidential if any one of the following conditions applies:
(i) there are less than three units
(ii) one unit accounts for more than 80% of the total (dominance rule 1)
(iii) two units account for more than 90% of the total (dominance rule 2)

We are in the process of contacting those companies that fall into this category to ask whether they can agree to publication of their data in this document, however at the time of submission to the EC, some responses are still awaited. Should the companies agree to publication, we will publish an updated table in due course.

Table 4a. **Current domestic agricultural land use for production of crops dedicated to energy production (ha)**

Land use	**Surface (*ha*)**	
	2009	2010
1. Land used for common arable crops (wheat, sugar beet etc.) and oildseeds (rapeseed, sunflower etc.) (Please specify main types)	325,000	300,000
2. Land used for short rotation trees (willows, poplars). (Please specify main types)	360	548
3. Land used for other energy crops such as grasses (reed canary grass, switch grass, Miscanthus), sorghum. (Please specify main types)	2,101	2,266

7. Please provide information on any changes in commodity prices and land use <u>within your Member State in the preceding 2 years</u> associated with increased use of biomass and other forms of energy from renewable sources? Please provide where available references to relevant documentation on these impacts in your country. ***(Article 22(1) h) of Directive 2009/28/EC)).***

Forest residues contribute 45% to total biomass for bio-energy supply in Ireland. In 2010, liquid biofuels provided an additional 26%. The balance of biomass for bio-energy was provided by landfill gas, anaerobic digestion of sewage sludge and combustion of residues (tallow and solid recovered fuel), with a minor contribution from pure plant oil derived from oilseed rape.

In 2009 and 2010, this range of biomass feedstocks has had no detectable influence on commodity prices or land-use (total area of oilseed rape in 2010 was 7,900 hectares, with this crop primarily acting as a break-crop in a cereal growing regime.)

8. Please describe the development and share of biofuels made from wastes, residues, non-food cellulosic material, and lingo cellulosic material. ***(Article 22(1) i) of Directive 2009/28/EC)).***

There is to date no production or consumption of biofuels derived from non-food cellulose material or lingo cellulosic material in Ireland. Biofuels that are produced and consumed in Ireland under Article 21(2) include those derived from used cooking oil (UCO) and category 1 tallow (to produce biodiesel) and whey (residue from dairy products production used for bio-ethanol production).

Biodiesel production and use from UCO and tallow has increased significantly from 2009 to 2010, while the production and use of bio-ethanol from whey has remained fairly constant over the period.

The Biofuels Obligation Scheme was initiated in July 2010. Under this scheme suppliers of petrol and diesel to the transport sector in Ireland are obligated to ensure that in any given year a set percentage of their supply is composed of biofuel that comply with the sustainability criteria set out in Article 17 of the Renewable Energy Directive 2009/28/EC. The percentage under the obligation is currently set at 4% by volume.

***Table 5*: Production and consumption of Art.21(2) biofuels (Ktoe)**

Article 21(2) biofuels[33]	2009	2010
Production – Fuel type Biodiesel	16.3	22.6
Production – Fuel type Bioethanol		2.5
Consumption – Fuel type Biodiesel	16.4	22.6
Consumption– Fuel type Bioethanol		2.5
Total production Art.21.2.biofuels		25.1
Total consumption Art.21.2. biofuels		25.1
% share of 21.2. fuels from total RES-T	%	27%

Note: Total biofuels consumed were 77 ktoe in 2009 and 92 ktoe in 2010.

9. Please provide information on the estimated impacts of the production of biofuels and bioliquids on biodiversity, water resources, water quality and soil quality within your country <u>in the preceding 2 years</u>. Please provide information on how these impacts were assessed, with references to relevant documentation on these impacts within your country. **(*Article 22 (1) j) of Directive 2009/28/EC)).)***

The most significant feedstocks for domestic biofuel production over the two years have been imported vegetable oil and residues - used cooking oil, tallow and whey. Some oilseed rape has been used to produce pure plant oil for transport. The area of oilseed rape has remained relatively small with 6,250 hectares planted in 2009 and 7,900 hectares planted in 2010.

With this mix of feedstocks, domestic production of biofuels has produced no detectable impacts in terms of biodiversity, water resources, water quality or soil quality in Ireland in 2009 or 2010.

10. Please estimate the net greenhouse gas emission savings due to the use of energy from renewable sources (*Article 22 (1) k) of Directive 2009/28/EC)).

***Table 6*: Estimated GHG emission savings from the use of renewable energy (t CO2eq)**

Environmental aspects	Year n-2	Year n-1
<u>Total estimated net GHG emission saving from using renewable energy</u>[34]		
- Estimated net GHG saving from the use of renewable electricity	2,032,700	1,856,870
- Estimated net GHG saving from the use of renewable energy in heating and cooling	767,414	824,780
- Estimated net GHG saving from the use of renewable energy in transport	216,650	259,020

<u>Notes on the calculation methodology on which the figures in Table 6 were based</u>

Estimation of GHG emissions avoided due to the use of renewable electricity

For both wind and hydro generated electricity the primary energy equivalent (PPE) is first calculated. The PPE is the amount of primary energy that is required to generate the equivalent amount of electricity by conventional means.

The primary and final energy consumption for non-combustible renewable energy sources such as wind and hydro are very similar. For most fuels this is not the case, due to the energy conversion losses associated with electricity generation. Depending on the efficiency of electricity generation, typically between 25% and 55% of the energy content of the fuel input into power plants is output in the form of electricity.

[33] Biofuels made from wastes, residues, non-food cellulosic material, and lignocellulosic material.

[34] The contribution of gas, electricity and hydrogen from renewable energy sources should be reported depending on the final use (electricity, heating and cooling or transport) and only be counted once towards the total estimated net GHG savings.

The primary energy of fossil fuels and combustible renewables is defined as the calorific content of the fuel, according to internationally agreed methodologies for presenting energy statistics. For non-combustible renewable sources (wind and hydro) the primary energy is equated with the quantity of electricity generated. This follows the IEA principle that the primary energy should be the first energy form downstream in the production process for which multiple energy uses are practical. This allows for harmonised international comparisons, but it does not accurately represent how fossil fuels used for electricity generation are displaced by non-combustible renewable energy. This is because, in primary energy terms, the fuel input into a fossil fuel plant is currently equated with the electricity output from a non-combustible renewable energy plant, such as a wind farm or hydro-power plant. An alternative approach is to equate the primary energy of the renewable energy with the primary energy of the fuel that would have been required to produce the equivalent amount of electricity.

This is the principle behind the primary energy equivalent (PEE) based on the partial substitution method. It requires an assumption to be made about the efficiency of the fossil fuel-based electricity generation being substituted by the non-combustible renewable generated electricity. The contribution from the renewable energy source is, in this approach, equated to the fossil fuel energy input that it displaces. The PEE for non-combustible renewable energy essentially represents the thermal fossil fuel energy avoided through the generation of renewable-based electricity. By quantifying the fossil fuel displacement achieved by renewable energy, the environmental benefits and indeed the security of supply benefits may be quantified and used to inform policy decisions.

This raises a key question however – what electricity generation is being displaced by renewable energy-generated electricity? The calculation of PEE can be based on a theoretical displacement by each kWh from renewable energy of a kWh generated from the entire fossil fuel plant mix. The methodology used here draws on approaches that have been developed for use in baselining studies in credit-based emissions trading systems. Renewable energy plants are not generally displacing electricity from either 'must-run' plants (peat) or from baseload plants (coal fired station at Moneypoint). Calculating the PEE based on the remaining plant provides a more accurate estimate than using the entire plant mix and the approach is known as the Operating Margin Approach. The assumption underpinning this approach is that the renewable plant is displacing the last plants to be dispatched to meet electricity demand, i.e. the marginal oil and gas plants. There are clear limitations in this analysis but it does provide useful indicative results.

The limitations and caveats associated with this methodology include that it ignores any plant used to meet the associated reserve requirements of renewables. These open cycle plants will typically have lower efficiency and generate increased CO_2 and NO_x emissions compared with CCGT and these emissions should be incorporated into the analysis. The purpose of presenting a simplified analysis here is to provide initial insights into the amount of fossil fuels that are displaced by renewables and the amount of emissions thereby avoided.
It is assumed the electricity from renewables (wind, hydro, landfill gas and the electricity portion of waste water biogas) avoids the amount of CO_2 produced by the weighted average electricity production from the same marginal plant considered above – i.e. oil and single cycle gas plant.

Estimation of GHG emissions avoided due to the use of renewable thermal energy (heat) and transport biofuels
It is assumed that the thermal energy from renewable energy (solid biomass, biogas, geothermal and solar and the thermal portion of waste water biogas) displaces thermal energy from oil-fired boilers. The CO_2 avoided from thermal renewable energy is equated with the CO_2 emissions that would have arisen from this oil consumption.

The avoided CO_2 emissions associated with biofuels usage in transport assumes 100% displacement of emissions from conventional fuels. The emissions from biofuels production are accounted for in this analysis in accordance with the UNFCCC reporting guidelines. Thus the CO_2 avoided from bio-ethanol in transport is equated with CO_2 emissions that would have arisen from petrol consumption and CO_2 avoided from biodiesel and pure plant oil is equated with diesel consumption.

11. Please report on (<u>for the preceding 2 years</u>) and estimate (<u>for the following years up to 2020</u>) the excess/deficit production of energy from renewable sources compared to the indicative trajectory which could be transferred to/imported from other Member States

and/or third countries, as well as estimated potential for joint projects until 2020. (*Article 22 (1) l, m) of Directive 2009/28/EC)).*

Table 7: **Actual and estimated excess and/or deficit (-) production of renewable energy compared to the indicative trajectory which could be transferred to/from other Member States and/or third countries in [Member State] (ktoe)[35],[36]**

	Year n-2	*Year n-1*	*2011*	*2012*	*2013*	*2014*	*2015*	*2016*	*2017*	*2018*	*2019*	*2020*
Total GFC ***(incl Aviation adj as per Article 5)***	12,577	12,496	**11,992**	**11,809**	**11,722**	**11,723**	**11,713**	**11,668**	**11,670**	**11,683**	**11,663**	**11,701**
Of Which												
GFC Electricity	2,473	2,489	2,449	2,461	2,451	2,481	2,502	2,520	2,543	2,570	2,603	2,665
GFC Heat	4,934	5,212	5,103	4,933	4,825	4,724	4,630	4,501	4,419	4,337	4,230	4,126
TFC Transport ***(as per Article 3(4))***	4,309	3,886	3,551	3,533	3,564	3,633	3,694	3,758	3,818	3,880	3,935	4,006
Total Renewable Energy	628	690	**786**	**941**	**1,088**	**1,207**	**1,357**	**1,457**	**1,552**	**1,655**	**1,744**	**1,872**
Of Which												
Renewable Electricity	339	369	426	533	628	695	791	840	883	934	975	1,059
Renewable Heat	212	229	256	282	309	336	363	386	411	436	456	468
Renewable Transport	77	92	103	126	151	177	204	231	258	285	313	345
Renewable Transport for RES-T	78	93	*105*	*128*	*154*	*182*	*211*	*239*	*270*	*302*	*334*	*392*
RES %	**5%**	**5.5%**	**7%**	**8%**	**9%**	**10%**	**12%**	**12%**	**13%**	**14%**	**15%**	**16%**
Indicative Trajectory	**n/a**	**n/a**	**681**	**671**	**817**	**817**	**1,043**	**1,039**	**1,340**	**1,342**	**1,603**	**1,872**
Actual/estimated excess	**n/a**	**n/a**	**105**	**270**	**271**	**390**	**314**	**418**	**212**	**313**	**141**	**0**

GFC – Gross final consumption of energy; TFC – total final consumption

11.1. Please provide details of statistical transfers, joint projects and joint support scheme decision rules.

Ireland is actively involved in exploring the possibilities provided for in the co-operation mechanisms under the Renewable Energy Directive. As stated in the NREAP, we have considerable potential, particularly in the offshore renewable energy area for the export of renewable generation. We are participating actively in this working group which has been set up under the concerted action under the Directive and we have also attended a meeting of the Nordic working group that is looking at use of the co-operation mechanisms.

Other activities that are taking place include the commissioning of a study by the state energy bodies (SEAI, together with DCENR, CER and EirGrid) on on the Viability and Cost Benefit Analysis for Ireland exporting renewable electricity (RES-E) using the Co-operation Mechanisms in Directive 2009/28/EC. This study is expected to be completed in the first quarter of 2012. This study will help inform our use of the co-operation mechanisms.

One of the areas of collaboration of the British Irish Council is energy and following an energy summit in June 2011, a joint communiqué was issued. The Council agreed to an *'All Islands Approach'* vision to energy resources across the British Islands and Ireland which enables

[35] Please use actual figures to report on the excess production in the two years preceding submission of the report, and estimates for the following years up 2020. In each report Member State may correct the data of the previous reports.
[36] When filling in the table, for deficit production please mark the shortage of production using negative numbers (e.g. –x ktoe).

opportunities for commercial generation and transmission, facilitating the cost-effective exploitation of the renewable energy resources available, increasing integration of their markets and improving security of supply. The Council agreed a set of principles to underpin the vision, and launched a programme of joint work spanning the potential for renewable energy trading, as well as work streams on interconnection and market integration. The opportunities for renewable energy trading will be explored in the British Irish Council in the context of the co-operation mechanisms under the Directive.

It is envisaged that if any agreements on renewable trade are reached under the co-operation mechanisms of the Directive, there will be detailed negotiations on the terms and rules that are to apply. The agreements are likely to be legally binding inter-governmental treaties backed up by legislation in both jurisdictions, as appropriate.

12. Please provide information on how the share for biodegradable waste in waste used for producing energy has been estimated, and what steps have been taken to improve and verify such estimates. (*Article 22 (1) n of Directive 2009/28/EC)).*

Our preference for calculation of waste to energy is to use a recognised European Standard (EN) as set out by CEN (European Committee for Standardisation.) Our understanding is that this standard is in development and once it has been finalised, it is our intention that this will be the future methodology used.

In the interim, in the first waste to energy plant in Ireland, the 'mass balance ' system as used in other Member States whereby waste is sampled on a set basis and a breakdown of the components by calorific is used to estimate the renewable component, is what we are using for the ex ante calculation relating to our renewable energy feed-in tariff scheme. For the ex - post reconciliation, a methodology will have to be finalised. Ideally, this will be an EN standard, set by CEN, if such a standard has been finalised at that point.

CEN, has published a technical standard that deals with the determination of biomass content in solid recovered fuels. The CEN/TS 15440 standard is used to estimate the biodegradable share of waste in cement plants in Ireland.

Response to 22 3(a-c) of Directive 2009/28?EC

Do you intend to

(a) establish a single body for authorisation, certification and licensing and providing assistance to applicants

In theory, the establishment of a single body for authorisation, certification and licensing of renewable installations is appealing. However, by law, functions are assigned to specific bodies and setting up another body through which applications are channelled will not change the legal obligations on specified bodies in respect of these functions.

An example would be the planning system. The physical planning system in Ireland is operated on the ground by 88 local planning authorities. In the exercise of their planning functions, the day-to-day operation of the planning system is a matter for the planning authorities, and under planning legislation, the decision as to whether to grant a planning application, with or without conditions, is a matter for the relevant planning authority in the first instance.

Decisions of the planning authorities can, for the most part, be appealed to An Bord Pleanála, an independent third party planning appeals system. An Bord Pleanála reaches its own decision on each case, in line with the proper planning and sustainable development of the area. Under the relevant legislation, the Minister for Environment is specifically precluded from exercising any

power or control in relation to any particular case, with which a planning authority or An Bord Pleanála is or may be concerned.

Hence the setting up of a one stop shop, which among other tasks, would be responsible for planning decisions is not compatible with the current system.

However, on the planning side, under the 2006 Strategic Infrastructure Act, significant advancements have been made in recent years in terms of streamlining planning processes for strategic infrastructure, including significant new renewable energy infrastructure. For major developments, the Strategic Infrastructure consent process which has been in operation since the 31st 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:-

- would be of strategic, economic or social importance to the State or the region in which it would be situate.
- would have a significant effect on the area of more that one planning Authority.
- 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.

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 licence to generate electricity for example must be issued by the Commission for Energy Regulation (CER). The CER also has the statutory function relating to determining grid connection policy while applications for grid connection must be made to the appropriate network operator – EirGrid or ESB Networks. The foreshore consent application must be dealt with by the Department of Environment (pending changes to the legislation to integrate this with other planning legislation). Applications for the REFIT scheme are processed by the Department of Communications, Energy & Natural Resources.

Essentially setting up another body or so called 'one stop shop' would not change the statutory functions of the different bodies. It would simply add an extra administrative layer to the processes and require additional state resources to fund and run. Rather than setting up additional state bodies, an example of where information on the requirements is set out in a comprehensible way is SEAI's handbook of guidelines for connecting renewable projects – this kind of resource can prove very useful for developers of new projects.

Do you intend to

(b) provide for automatic approval of planning and permit applications for renewable energy installations where the authorising body has not responded within set time limits

In section 23 of the 2010 Planning & Development Act, there are specific provisions amending section 34 of the principal planning Act as regards the failure to make a decision within the specified period ('default' permission) "Where a planning authority fails to make a decision within a period of 12 weeks after the expiry of the first period a decision of the planning authority to grant the permission shall be regarded as having been given on the last day of that period of 12 weeks."

The provisions exclude default permissions for applications where either an environmental impact assessment or a determination as regards whether an environmental impact assessment is required or where appropriate assessment is required. "Subparagraphs (i) to (iv) shall not apply where there

is a requirement under Part X or Part XAB to carry out an environmental impact assessment, a determination whether an environmental impact assessment is required, or an appropriate assessment, in respect of the development relating to which the authority has failed to make a decision."

These provisions were included to ensure we complied fully with our obligations under the Environmental Impact Assessment Directive and the Habitats Directives. There are no proposals currently to change these provisions, as it would raise significant issues in terms of compliance with both Directives. We have various objectives statutorily provided for to ensure projects are dealt with as expeditiously as possible, but would not propose to provide for automatic approval for renewable energy projects where set time limits have not been met.

Do you intend to

(c) indicate geographic locations suitable for exploitation of energy from renewable sources in land use planning and for the establishment of district heating and cooling

SEAI has developed a series of geographical information system (GIS) maps covering wind, bio-energy and geothermal energy. These can be viewed on the SEAI website www.seai.ie under each of the identified renewable energy sources. The maps provide initial resource data for developers, allowing them to do preliminary assessments of the feasibility of projects. SEAI is considering further development of GIS, subject to budget availability, to enhance its utility and to facilitate accelerated deployment of renewable energy technologies in Ireland.

The physical planning system in Ireland is operated on the ground by 88 local planning authorities. Under planning legislation, planning authorities and An Bord Pleanála are obliged to have regard to any guidelines that are issued by the Minister for the Environment, Community and Local Government, including the Wind Energy Development Guidelines published by the Department of Environment in 2006. In the exercise of their planning functions, the day-to-day operation of the planning system is a matter for the planning authorities, and under planning legislation, the decision as to whether to grant a planning application, with or without conditions, is a matter for the relevant planning authority in the first instance.

In making decisions on planning applications, planning authorities must consider the proper planning and sustainable development of the area, having regard to the provisions of the development plan, any submissions or observations received, relevant Ministerial or Government policies, including any guidelines (such as the wind energy guidelines) issued by the Department of Environment. When developing county development plans, county managers must have regard to the wind energy guidelines. Many counties in Ireland have developed wind energy strategies in which they have identified areas that are suitable for wind energy development.

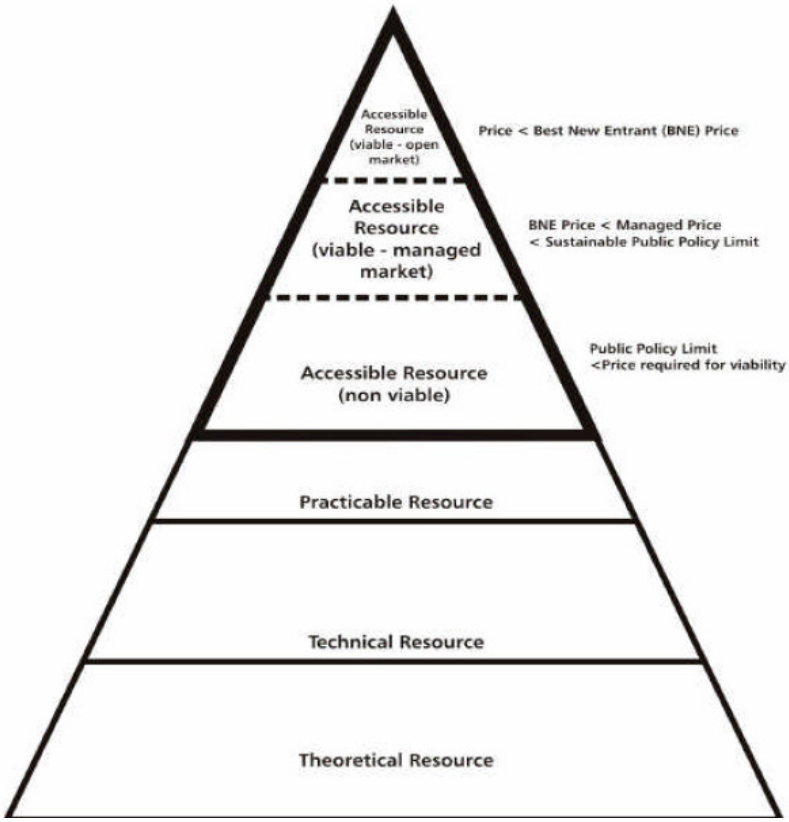
The Sustainable Energy Authority of Ireland initiated a project in 2011 that is seeking to assist local authorities in the methodology they could employ for the development of local authority renewable energy strategies (LARES), which are broader than just wind energy strategies. As part of the strategy development, local authorities will be encouraged to use the SEAI methodology on the assessment and definition of renewable energy resources. [37]

While the SEAI study did not cover all renewable energy resource areas, one of its primary goals was to create a methodology which would form a consistent mechanism for future separate studies in the electricity and heat markets utilising renewable energy technologies i.e. to define a common and robust methodology for the assessment of Irish renewable energy resources for all to use.

37

http://www.seai.ie/Grants/Renewable_Energy_RD_D/Projects_funded_to_date/Biomass/Renewable_Energy_Resource_Ireland_to_2010_and_2020/

The methodology provided in the report allows the local authority to assess the various levels of renewable energy resource within their jurisdiction and also to determine the levels of resource that are likely to be proposed by developers. The report can be used as a resource by local authorities as a methodology for assessing the resources within their jurisdiction. The general classification proposed by the study is represented in the diagram below.



Annex

Evolution in the position since Ireland's National Renewable Energy Action Plan (NREAP) was submitted to the European Commission in July 2010

Energy use in Ireland fell by 0.3% in 2010, although electricity consumption increased by 0.8%. Energy demand in Ireland in 2010 has reduced in recent years and is now at 2003 levels. Heat and transport have historically made up most of gross final consumption (GFC) in Ireland while electricity has had the smallest share. In 2010, electricity accounted for less than one fifth (18%) of final energy demand. Ireland's energy import dependency stood at 86% in 2010.

In 2010, gross final energy use from renewable energy was 5.5%. Ireland's target under Directive 2009/28/EC is 16%. Electricity generated from renewable energy (normalised in accordance with Directive 2009/28/EC methodology) reached 14.8% of gross electricity consumption (RES-E) in 2010. Renewable energy contribution to thermal energy (RES-H) was 4.4% in 2010. Renewable energy in transport (RES-T) reached 2.4% in 2010. All sectors require considerable effort to achieve the three fold increase in renewable energy that is required to meet the legally binding target of 16% under Directive 2009/28/EC. Much of the data (figures/tables) in this annex is drawn from two SEAI documents published in December 2011: Energy in Ireland 1990-2010 (2011 report) and Energy Forecasts for Ireland to 2020 (2011 report). Both of these publications are available at www.seai.ie

Table 1

% of each target	**2009**	**2010**
RES-E (normalised)	13.7	14.8
RES-T	1.8	2.4
RES-H	4.3	4.4
% of renewables in consumption across the 3 sectors	5.0%	5.5%

TFC= Total Final Consumption

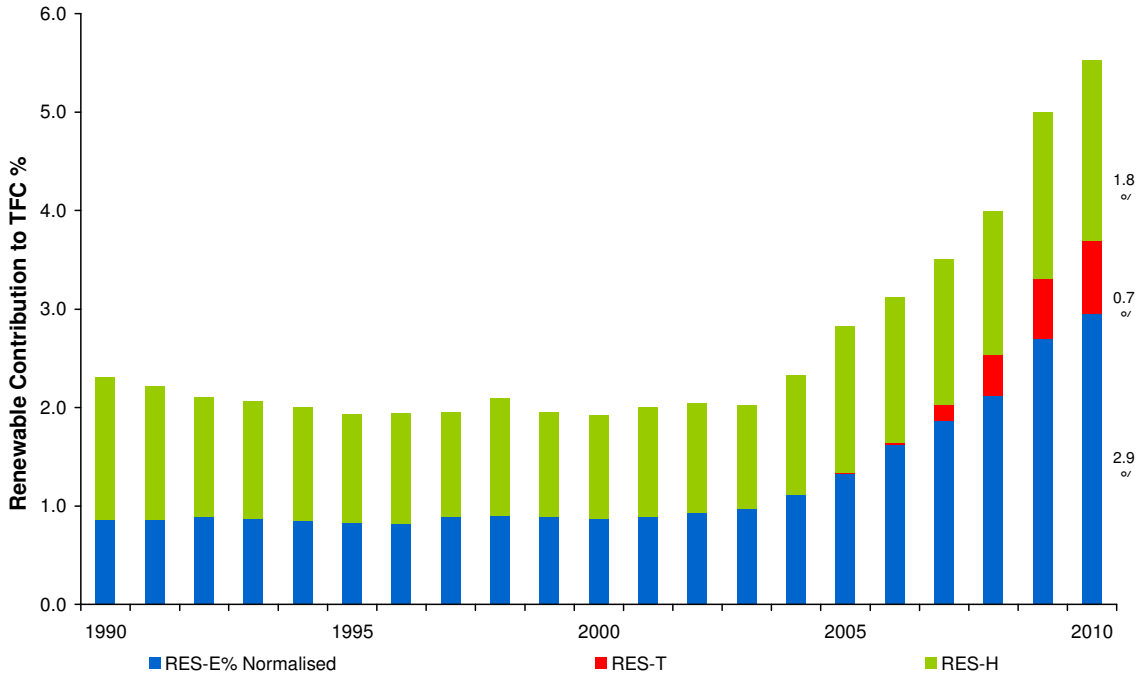


Figure 1 : In 2010, gross final energy use from renewable energy was 5.5%.

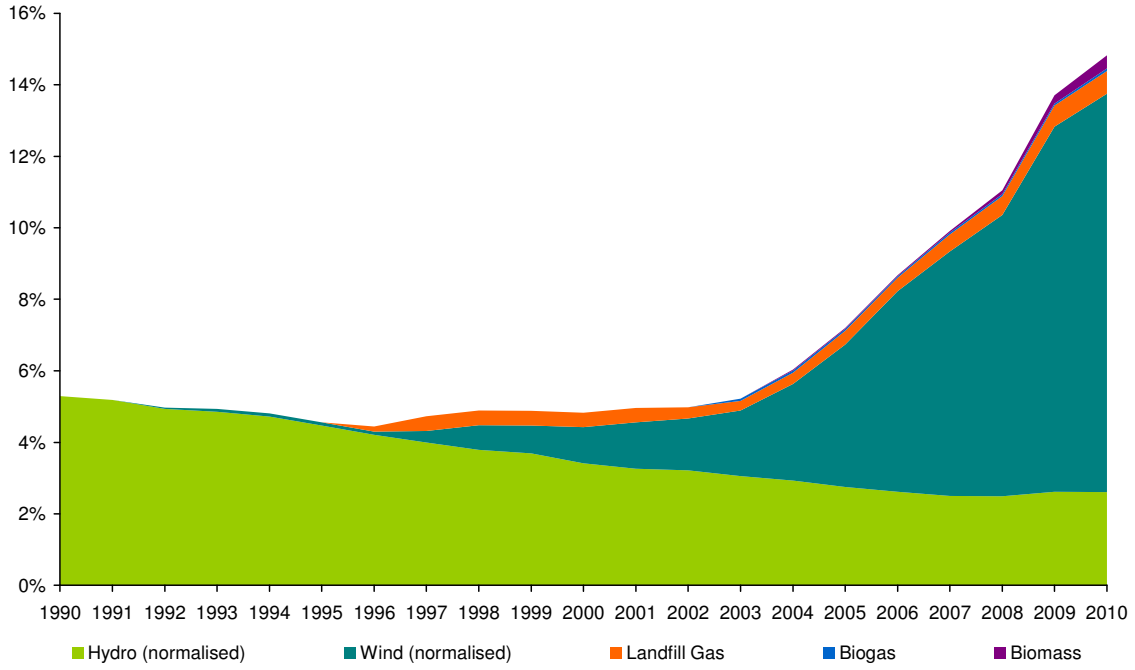


Figure 2: RES-E – Electricity sector: 14.8% in 2010

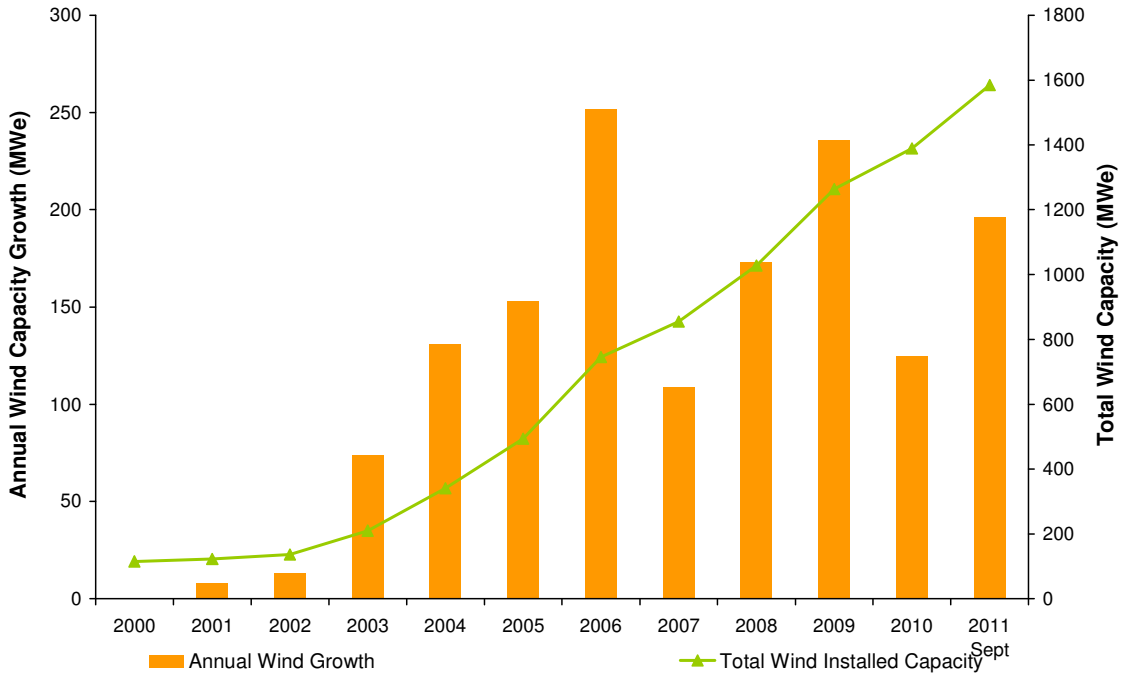


Figure 3: Evolution of wind generating capacity to September 2011

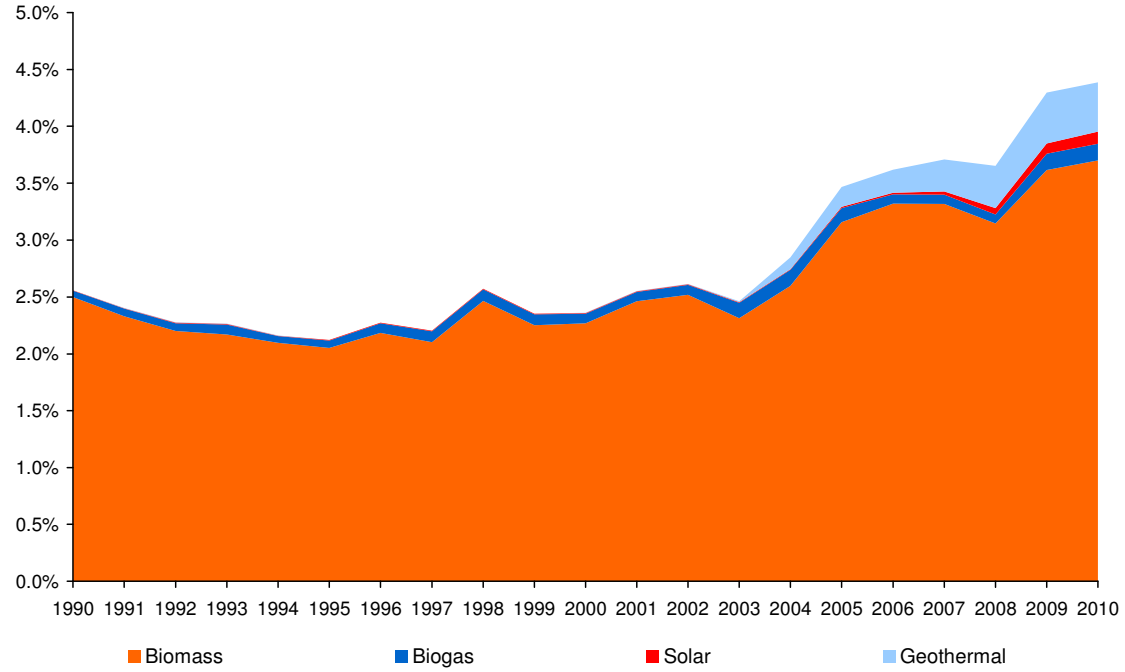


Figure 4: RES-H (Heat Sector) - 4.4% in 2010

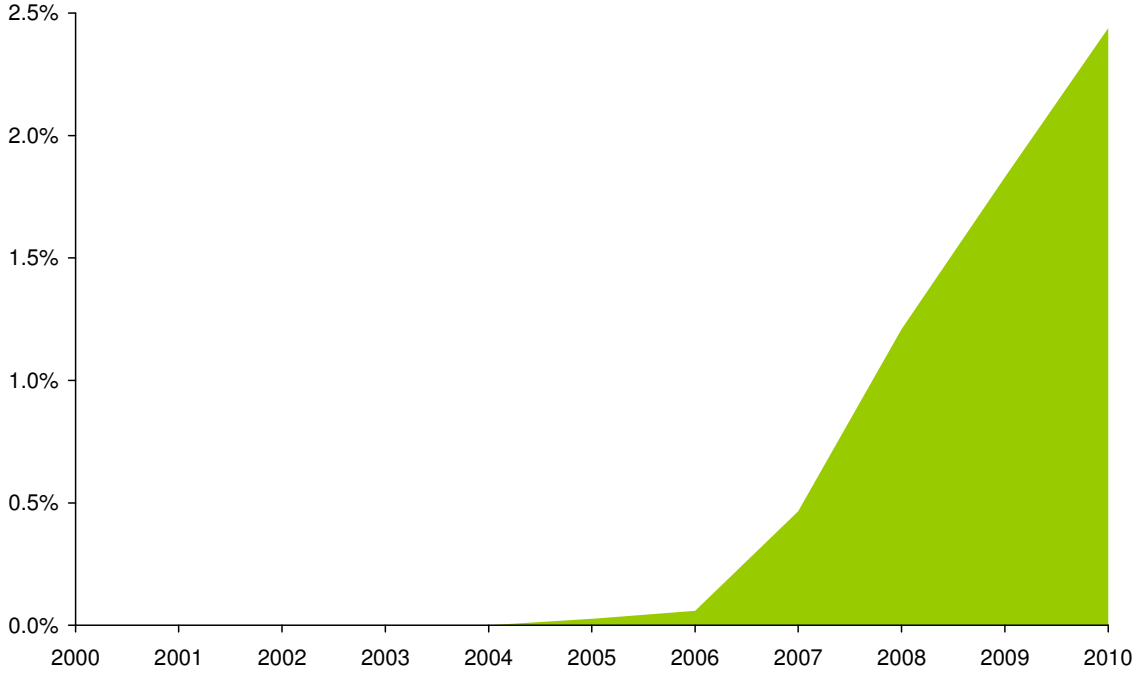


Figure 5: RES-T (Transport sector) – renewable energy (biofuels) as a proportion of petrol and diesel: 2.4% in 2010

Renewables trajectory to meet the 2020 target under Directive 2009/28/EC

The NEEP (National Energy Efficiency Plan)/NREAP (National Renewable Energy Action Plan) scenario modelled by SEAI, requires by 2020, a full implementation of all measures contained in the

NEEP; 4000MW of renewable electricity; 200,000 electric vehicles; around 400 million litres of biofuel sales, and the delivery of 313 ktoe of renewable heat. A reduction of 24% is estimated in energy-related CO_2 emissions through the achievement of the NEEP/NREAP scenario targets.

All sectors require considerable effort to achieve the three-fold increase in renewable energy (from 5.5% in 2010) that is required to meet our 16% target under Directive 2009/28/EC. The planned trajectory towards the 2020 target is as follows:

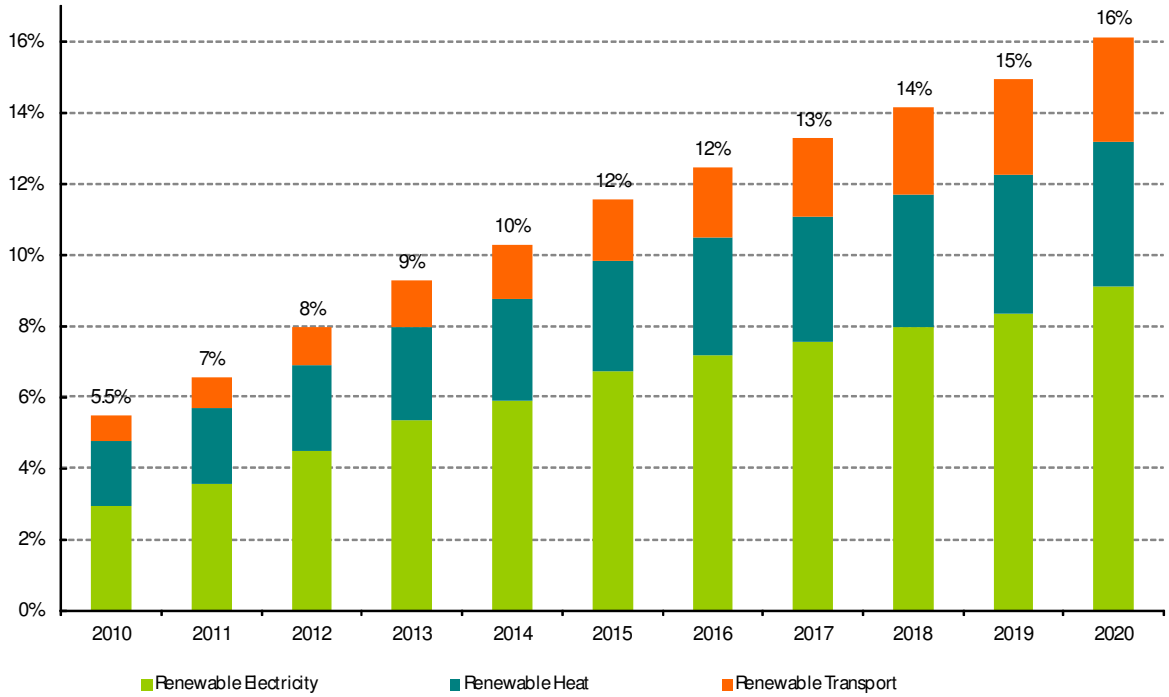


Figure 6: Renewables trajectory to 2020

The forecasted drop in energy demand results in the requirement for the electricity sector falling from 42.5% (as set out in the original NREAP submitted to the EC in July 2010) to 40%, with a continued requirement for 12% RES-H and 10% RES-T. Together these three sectoral contributions add up to the 16% required under Directive 2009/28/EC.

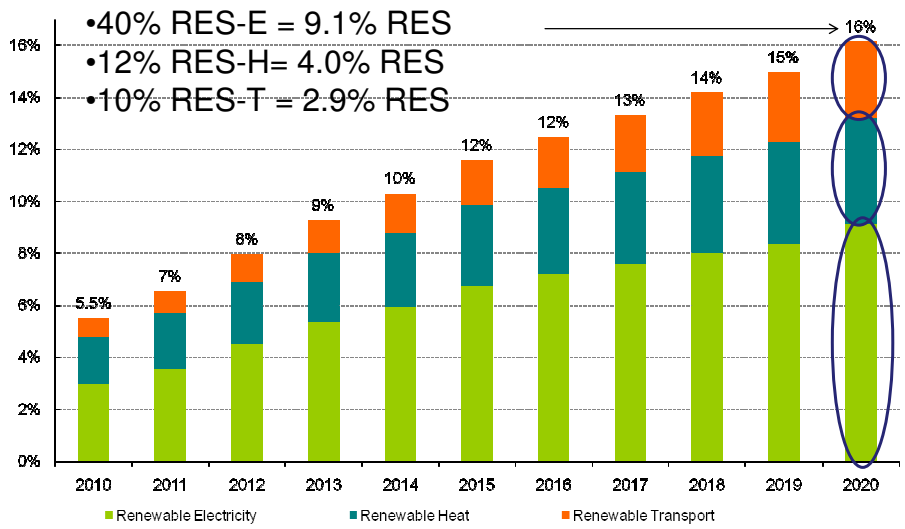


Figure 7: RES-E - Actual versus 2020 target in the electricity sector

Renewable electricity is now the largest contributor to renewable energy consumption and is expected to contribute most to our 2020 target. The largest contribution in the electricity sector is expected to be made through generation from wind technologies, followed by biomass technologies. More biomass generation is expected to contribute to our RES-E target than was set out in the NREAP. This is as a result of the planned introduction in January 2012 of a new REFIT (feed in tariff scheme for electricity exported to the grid) scheme for the biomass sector. The REFIT scheme for electricity generation supports the increase in renewable electricity from a number of different technologies (onshore wind, small hydro and various biomass technologies, including anaerobic digestion and high efficiency CHP.)

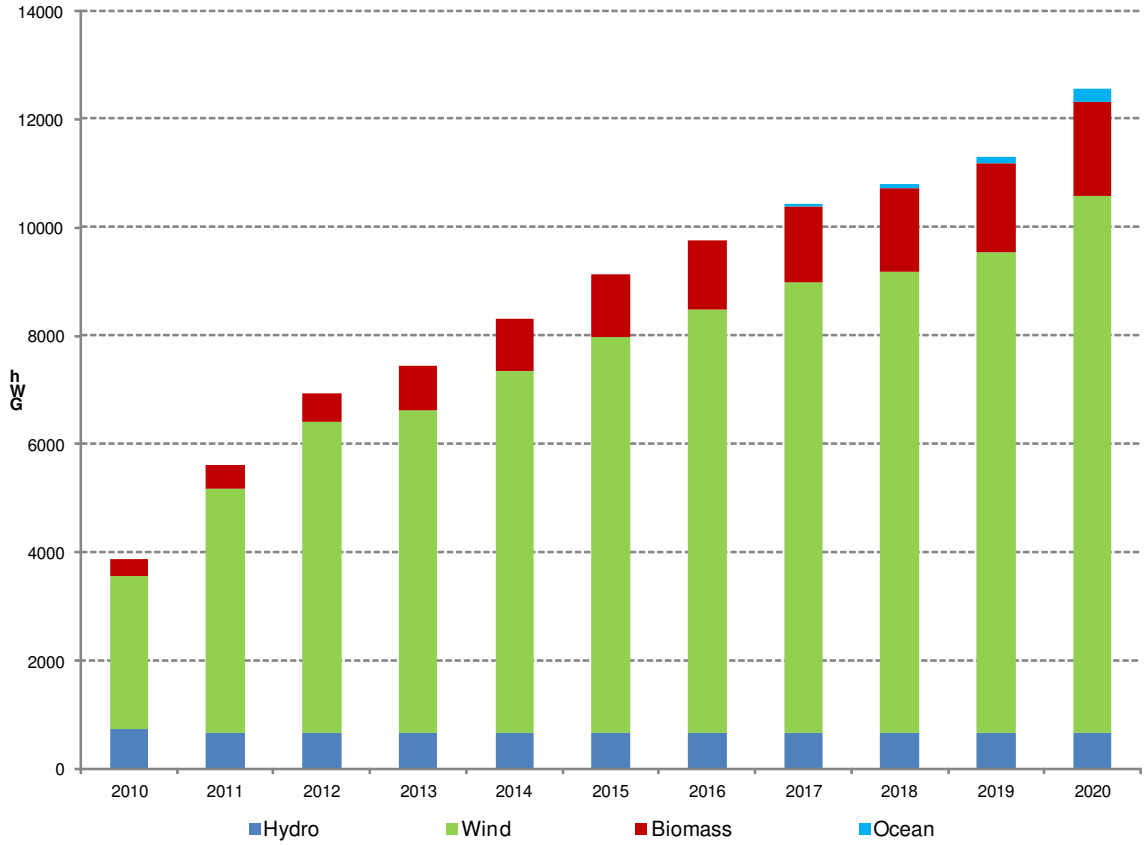


Figure 8: Renewable RES-E Technology Trajectory to 2020

Table 2: Trajectory of grid connected renewable electricity generation capacity MW

	Grid Connected Generation Capacity MW										
Generation Type	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Renewables	1,467	1,776	2,268	2,358	2,633	2,902	3,009	3,213	3,339	3,496	3,968
of which:											
Wind	*1,421*	*1,700*	*2,170*	*2,239*	*2,472*	*2,605*	*2,697*	*2,867*	*2,959*	*3,083*	*3,521*
Wave	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*19*	*38*	*56*	*75*
Hydro	*234*	*234*	*234*	*234*	*234*	*234*	*234*	*234*	*234*	*234*	*234*
Biomass	*47*	*77*	*98*	*119*	*141*	*198*	*213*	*228*	*244*	*259*	*274*

The change in the contribution in biomass (now expected to be 274MW, up from 153MW in the original NREAP) is due to the inclusion of additional high efficiency biomass CHP, in view of the introduction of a new REFIT scheme for biomass technologies.

As set out in the NREAP, the development of ocean energy devices is being supported in Ireland at present through the Ocean Energy Prototype Research and Development Programme. [38] Commercially viable devices must be available before 2020 in order to reach 75 MW in that year.

Wind generation will provide the bulk of Ireland's renewable energy in 2020. To meet the RES-E target, it is expected that 3,521MW of wind needs to be connected. This is down from the 4,649MW of wind generation envisaged to be required in the original NREAP.

[38] http://www.seai.ie/Renewables/Ocean_Energy/

At end September 2011, EirGrid[39] indicates 1585MW of installed wind capacity. The average annual capacity added must increase to over 200MW so that the required 3,521MW is attained by 2020. The growth in wind in the trajectory set out follows published data on those that have contracted with the system operator and are scheduled for connection up to 2014. Following that the profile is based on published data on those projects due to receive a grid connection under Gate 3 in the period to 2020, scaled for each year.

The National Renewable Energy Action Plan (NREAP) indicated a particular expected breakdown in the trajectory between onshore and offshore wind. In the current economic circumstances and in light of advice from various sources, including the Economic and Social Research Institute[40], the Government has decided that in meeting our legal obligation to deliver the 2020 renewables target, onshore rather than offshore wind should be pursued in the first instance, in order to minimise any support scheme costs borne by electricity consumers. This is a change from what was indicated in the original NREAP.

Given the falling demand and the amount of onshore renewable generation already provided for in Gate 3 (over 3000MW), together with the renewable generation already connected (1868MW at end September 2011) and the additional renewable generation outstanding from Gate 1 and Gate 2 that is contracted and scheduled (1000MW), we believe that there is sufficient onshore renewable generation scheduled to meet the 40% RES-E target without offshore wind, given that the latest estimates from SEAI are that 4,000MW of renewable generation in total is required to deliver the 40% RES-E. The evolving situation in this regard will be kept under review.

The explanation of the Gate 3 and Grid 25 programmes are set out in the original NREAP. EirGrid's Incremental Capacity Transfer (ITC) programme links the Gate 3 process and Grid 25 investment and plans to deliver the required increase in annual construction. The Programme for Government has also committed that should any further Gate be required to deliver increased renewable generation, then other conditions apart from date of application should be taken into consideration in terms of the allocation of grid connections. It is noted that the energy regulator (CER) has the statutory function in relation to grid connections and introduced the Gate process.

All Gate 3 offers have now issued to those included in the CER Gate 3 direction, however the take-up rate of these offers is not yet known. This should become apparent later in 2012 when EirGrid issues constraint reports and developers are required to make an initial down payment on acceptance of the grid connection offer. Clarity on Gate 3 take-up will influence whether a further Gate is considered necessary for delivery of the renewable energy target. Even allowing for attrition in the planned connection rate (the 3 Gate processes to date), there is still a fair amount of leeway in the overall figures to allow for the national target to be delivered. There is also the scope to put in place at an appropriate time a follow on a plan led onshore connection programme in the event of any necessary further capacity required to meet the 2020 target.

The Government is actively involved in discussions with the UK, through the British Irish Council, on use of the co-operation mechanisms under Directive 2009/28/EC for renewable trading purposes. It is anticipated that our significant offshore renewable energy potential may offer

[39] http://www.eirgrid.com/customers/connectedandcontractedgenerators/
[40] www.esri.ie

opportunities in the context of these mechanisms for renewable export, particularly offshore wind, as it is already commercially viable. Such offshore marine electricity for export would not be eligible for a domestic support scheme and would have to be supported by the importing country.

Renewable Transport (RES-T)

The biofuels obligation introduced in 2010 under the Energy (Biofuel Obligation and Miscellaneous Provisions) Act 2010 requires transport fuel suppliers to provide a specified amount of their sales in the form of biofuels. The obligation currently stands at 4% by volume which is equivalent to 3% in energy terms. The biofuel obligation must increase over the horizon to 2020 to meet the RES-T target of 10% in 2020. This increase is shown in the trajectory modelled by SEAI as gradual, but it is likely it will take the form of step changes as the technical aspects of using increasing blends under the Fuel Quality Directive are incorporated into the supply chain. The 345 ktoe of biofuel required in 2020 is equivalent to around 400 million litres. This equates to the average passenger car in Ireland covering 2,300 km powered by biofuels in 2020.

Electric Vehicles (EVs) and Plug-in hybrid vehicles (PHEVs) are currently available for purchase from many of the major car manufactures. Ireland's EV target would see over 200,000 such vehicles on the road by 2020. The large increase in renewable electricity for transport consumption is driven by two factors – (1) the increase in EVs on the road and (2) the increase in RES-E towards 40% in 2020. EVs account for only 1% of the RES-T target by 2020 when the Directive's weighting methodology is accounted for in the calculation. The EV target is supported by an upfront grant and VRT relief for consumers. [41]

The RES-T target of 10% by 2020 is set out as a minimum binding target in the transport sector in the Renewable Energy Directive. A separate calculation methodology is specified to calculate this target in the directive. Total transport energy consumption is calculated differently for the denominator in the overall (16%) RES target compared with the 10% RES-T target, in accordance with the EU Directive. [42] When calculating the overall RES target, total gross final consumption includes aviation as well as domestic road & rail and inland marine. When calculating the RES-T target, only road & rail consumption are included in the denominator, with electricity and second generation biofuels receiving a weighting in the calculation.

[41] http://www.seai.ie/Grants/Electric_Vehicle_Grant_Scheme/

[42] See article (3) of the directive 2009/28/EC

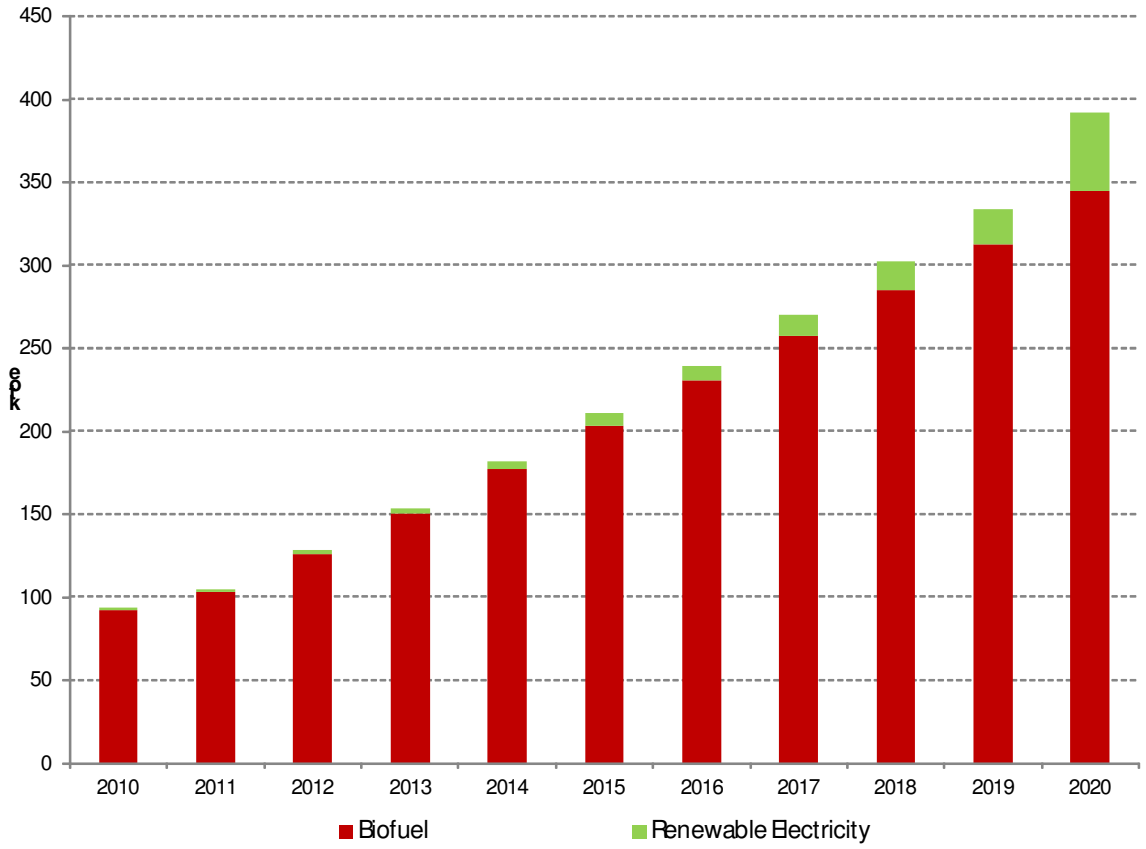


Figure 9: Renewable transport trajectory to 2020

Renewable Heat (RES-H)

Due to the cost of transport, heat is generally consumed at the point of generation to maximise efficiency. Transportation costs have typically limited the use of biomass resources for heat. RES-H has remained largely static in Ireland from 1990 to the mid 2000s. Policy action has changed this somewhat in recent years with growth in biomass usage, solar thermal and heat pump technology.

Policy instruments to end 2010 have focused on grants for renewable energy installations through schemes such as the Greener Homes scheme for households and the ReHeat scheme for businesses[43]. These were designed to build market capacity for various renewable heating technologies. The new biomass REFIT for electricity exported to the grid to be opened in 2012 provides for up to 310MW of new biomass generation to be constructed. This will affect RES-H by stimulating the production of renewable heat by improving the financial viability of many more potential sites.

The use of renewable heat must grow by over 7% per annum to reach a RES-H of 12% by 2020. Renewable heat use in the industrial sector predominates over the period to 2020 – accounting

[43] Both of these schemes were closed to new applicants at the end of 2010. GHS was incorporated into Better Energy Homes and support limited to Solar Thermal.

for 8% of RES-H by 2020. The residential sector sees growth projected at 4% per year driven by newly built homes complying with the renewable energy requirement in Part L of the 2008 Building Regulations.