Buan Ionadaíocht
na hÉireann
chũig an Aontas Eorpach

Permanent Representation
of Ireland
to the European Union

07 February 2020

Ilze JUHANSONE

Secretary General

European Commission,

Rue de la Loi 200,

B-1049 Brussels

Re: Renewable Energy Directive 2009/28/EC – Report under Article 22

Dear Secretary General,

In accordance with the provisions of Article 22 of the Renewable Energy Directive, please find enclosed the fifth progress report on the promotion and use of energy from renewable sources in Ireland.

Yours sincerely,

Maeve Collins

Deputy Permanent Representative to the EU

REPRÉSENTATION PERMANENTE DE L'IRLANDE AUPRÈS DE L'UNION EUROPÉENNE
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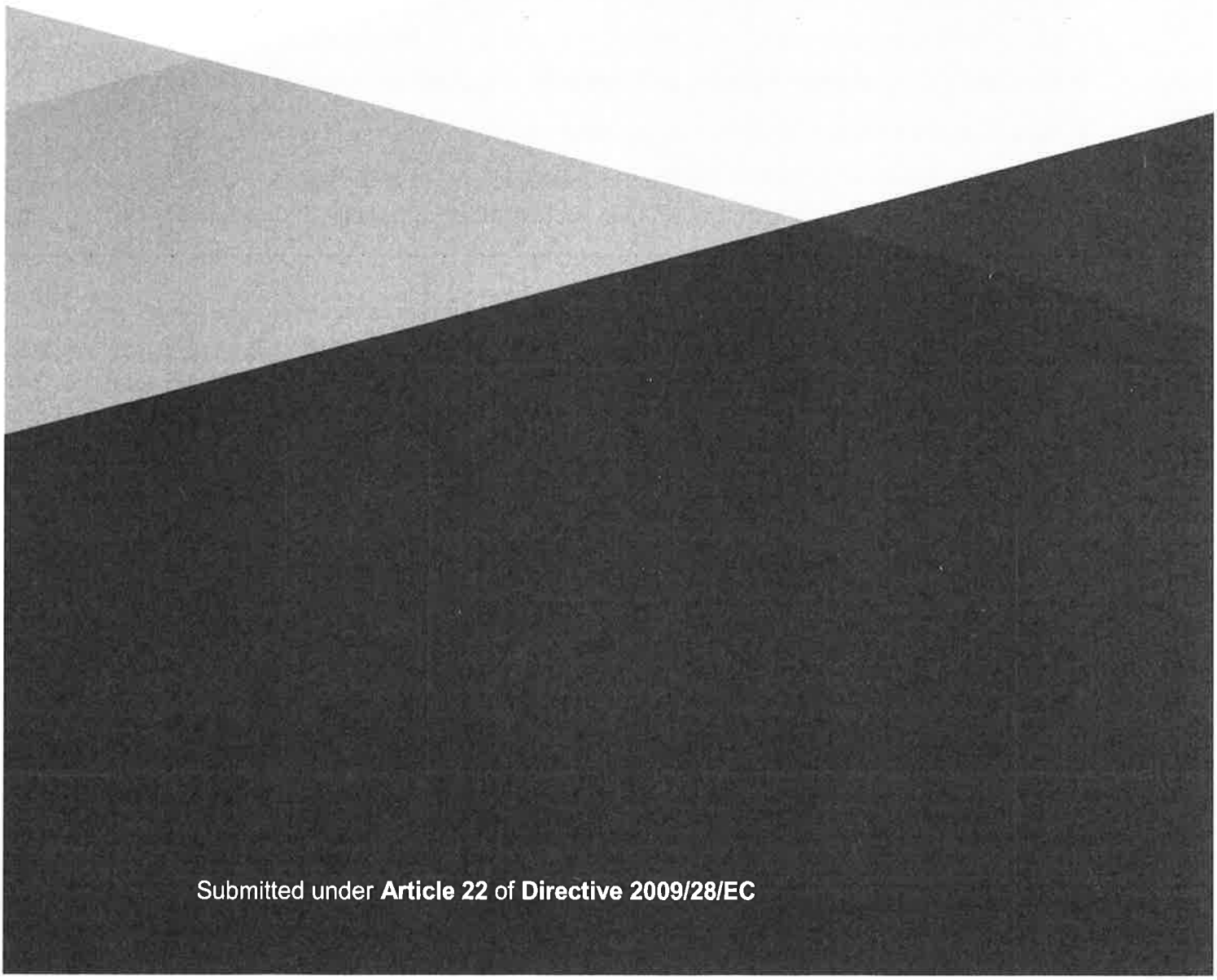
Rialtas na hÉireann
Government of Ireland

National Renewable Energy Action Plan (NREAP)

Fifth Progress Report

January 2020



Submitted under **Article 22** of **Directive 2009/28/EC**

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Introduction

The Irish Government's Energy White Paper, published in December 2015, presents a long-term strategic vision that is intended to guide the direction of Irish energy policy from now until 2030. At its heart is a commitment to transform Ireland into a low carbon society and economy by 2050 and reduce the country's fossil fuel dependency. This ambitious vision for Ireland's energy system envisages a reduction in greenhouse gas emissions from that sector by 80-95% relative to 1990 levels by 2050.

In 2017 work began on the development of a new support scheme for renewable electricity, the primary objective of which was to incentivise sufficient renewable electricity production to enable Ireland to deliver its 2030 renewable electricity contribution to EU wide targets. The design of the new scheme included an extensive independent economic appraisal which compared the cost of supporting a range of commercial renewable technologies, to ensure that the new scheme delivers value for money for energy users whilst also delivering on the energy pillars of sustainability and security of supply. A public consultation on the proposed design principles of the RESS ran from September to November 2017 and there were more than 1,250 submissions received. The RESS High Level Design was approved by Government in July 2018 and the EU State Aid pre-notification process is underway.

The Support Scheme for Renewable Heat (SSRH) was approved by Government in December 2017. The first phase of the scheme, an installation grant for heat pumps, opened for applications in September 2018. Following EU State aid approval, the second phase of the scheme, an operational support for biomass boilers and anaerobic digestion heating systems, opened for applications in June 2019. Under this phase of the scheme, eligible renewable energy technologies are supported through a multi-annual payment, for a period of up to 15 years, on the basis of prescribed tariffs.

In February 2018, the Irish Government, published the National Planning Framework under Project Ireland 2040, the overarching policy and planning framework for the social, economic and cultural development of this country.

In 2017, Ireland's Commission for Regulation of Utilities (CRU) reviewed existing grid connection policies to ensure that they are fit for purpose and following on from a public consultation in November 2017, the CRU published a decision on 27th March 2018 on the Enduring Connection Policy Stage 1 (ECP-1). This decision which sets out the CRU's detailed policy (Ref: **CRU/18/058**) for connection to the electricity system is available on CRU's website.

Following extensive consultation with industry, Ireland's Department of Communications, Climate Action and Environment published a Proposed Decision on adapting the Electricity Support Schemes to the I-SEM in November 2017. The contribution from renewables has risen from the low base of 2.3% in 1990 to 11.0% approx. of Gross Final Consumption in 2018. RES-E increased by 3.1 percentage points in 2018 to 33.2% towards the 40% 2020 target. Increased economic activity has resulted in the RES-T contribution falling to 7.2% in 2018, from 7.4% in 2017. At the end of 2018 RES-H had decreased by 0.2% over the 2017 figure to 6.5% towards the 12% 2020 target.

As outlined in this report, Ireland has not met the interim target set by the Renewable Energy Directive for 2017-2018, reporting an average final energy consumption of 11% over that two-year period, against a target level of 11.51%.

The share of electricity from renewable energy has increased fivefold between 1990 and 2018 – from 5.3% to 33.2% – an increase of over 27% over 28 years. Most of this increase has taken place since 2000 and the vast majority has been attributable to wind energy. Electricity production from wind energy has increased to the point that it accounted for 84% of the renewable electricity generated in 2018. The year 2018 was just as windy as 2017 and electricity generated from wind still accounted for 84% of renewable electricity. Electricity generated from biomass accounted for 8.3% of renewable electricity in 2018.

Glossary of Terms

Carbon Dioxide (CO2): A compound of carbon and oxygen formed when carbon is burned. Carbon dioxide is one of the main greenhouse gases. Units used in this report are t CO2 – tonnes of CO2, kt CO2 – kilo-tonnes of CO2 and Mt CO2 – mega-tonnes of CO2.

Carbon Intensity (kg CO2/kWh): This is the amount of carbon dioxide that will be released per kWh of energy of a given fuel. For most fossil fuels, the value of this is almost constant, but in the case of electricity it will depend on the fuel mix used to generate the electricity and also on the efficiency of the technology employed.

Combined Heat and Power Plants: Combined heat and power (CHP) refers to plants which are designed to produce both heat and electricity, for own use only or third-party owned selling electricity and heat on site as well as exporting electricity to the grid.

CRU: The Commission for Regulation of Utilities (CRU) is Ireland's independent energy and water regulator. The CRU was originally established as the Commission for Energy Regulation (CER) in 1999. The CER changed its name to the CRU in 2017 to better reflect the expanded powers and functions of the organisation.

DCCAE: Department of Communications, Climate Action and Environment

DHPLG: Department of Housing, Planning and Local Government

DSO: The Distribution System Operator (DSO) is the designated authority responsible for the operation of Ireland's electricity Distribution system and were granted the Distribution System Operator License by the Commission for Regulation of Utilities (CRU).

DS3: Ireland's Delivering a Secure Sustainable Electricity System (DS3) programme aims to meet the challenges of operating the electricity system in a secure manner while achieving the 2020 renewable electricity targets

Gross Final Consumption (GFC): Directive 2008/28/EC defines Gross Final Consumption (GFC) of energy as the energy commodities delivered for energy purposes to industry, transport, households, services, agriculture, forestry and fisheries, including the consumption of electricity and heat by the energy branch for electricity and heat production, and including losses of electricity and heat in distribution.

OREDP: The Offshore Renewable Energy Development Plan (OREDP) was published in February 2014. It sets out Government policy in relation to the sustainable development of Ireland's abundant offshore renewable energy resource.

REFIT: Financial supports for renewable energy projects are provided by the Renewable Energy Feed-in-Tariff (REFIT) support schemes run by the Department of Communications, Climate Action and Environment in Ireland. There are three REFIT schemes, i.e. REFIT1, REFIT2 and REFIT3.

SEM: The Single Electricity Market (SEM) is the wholesale electricity market for the island of Ireland. It is regulated jointly by the Commission for Regulation of Utilities (CRU) and its counterpart in Belfast, Northern Ireland, the Utility Regulator. The SEM combined what were two separate jurisdictional electricity markets. The SEM became one of the first of its kind when it went live on 1st November 2007.

SEMO: In Ireland, the all-island wholesale Single Electricity Market (SEM) has been in place since 2007. It is regulated by the SEM Committee. The market is run by the Single Electricity Market Operator (SEMO), a joint venture between EirGrid and SONI.

SSRH: Support Scheme for Renewable Heat.

Total Final Consumption (TFC): This is the energy used by the final consuming sectors of industry, transport, residential, agriculture and services. It excludes the energy sector: electricity generation, oil refining, etc.

TSO: In the electrical power business, a Transmission System Operator (TSO) is the licensed entity that is responsible for transmitting electrical power from generation plants to regional or local electricity Distribution Operators.

1. Sectoral and overall shares and actual consumption of energy from renewable sources in the preceding 2 years (n-1; n-2 e.g. 2016 and 2015)

Article 22(1)a of Directive 2009/28/EC

Progress Over 2017 and 2018

The tables below set out progress in renewables deployment over 2017 and 2018 across heating & cooling, transport and electricity sectors. This is then broken down in more detail, including by technology type.

Tables 1 and 1A show that all sectors (other than transport) have seen a steady increase in renewables deployment over 2017-2018.

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

	2017	2018
RES-H&C[2] (%)	6.7%	6.5%
RES-E[3] (%)	30.1%	33.2%
RES-T[4] (%)	7.4%	7.2%
Overall RES share[5] (%)	10.5%	11.0%
Of which from cooperation mechanism[6] (%)	Nil	Nil
Surplus for cooperation mechanism[7] (%)	Nil	Nil

[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/EC) divided 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.

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

	2017	2018
(A) Gross final consumption of RES for heating and cooling	299	310
(B) Gross final consumption of electricity from RES	776	882
(C) Gross final consumption of energy from RES in transport	162	156
(D) Gross total RES consumption[9]	1,237	1,348
(E) Transfer of RES to other Member States	Nil	Nil
(F) Transfer of RES from other Member States and 3rd countries	Nil	Nil
(G) RES consumption adjusted for target (D)-(E)+(F)	1,237	1,348

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

	2017		2018	
	MW	GWh	MW	GWh
Hydro[11]	529	895	529	932
Non-pumped	237	692	237	694
<1MW	20	42	20	42
1MW–10 MW	21	63	21	63
>10MW	196	586	196	589
Pumped[12]	292	203	292	238
Mixed[13]				
Geothermal				
Solar	15.71	10.80	24.23	16.66
Photovoltaic	15.71	10.80	24.23	16.66
Concentrated solar power				
Tide, wave, ocean				
Wind	3,318	7,444	3,676	8,640
Onshore	3,293		3,651	
Offshore[14]	25		25	
Biomass[15]	83	735	84	844
Solid biomass	27	532	27	660
Biogas	56	203	57	184
Bioliquids				
Total	**3,946**	**9,085**	**4,313**	**10,436**
Of which in CHP	14.53	61	14.98	58

[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.

[10] Facilitates comparison with Table 10A of the NREAPs.

[11] Normalised in accordance with Directive2009/28/EC and Eurostat methodology.

[12] Pumped hydro is not counted as RES-E in the RES-E calculation methodology.

[13] In accordance with new Eurostat methodology.

[14] Wind generated electricity output is not split between onshore and offshore for commercial sensitivity reasons.

[15] 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[16]) from each renewable energy technology in Ireland to meet the binding 2020 targets and the indicative interim trajectory for the shares of energy from renewable resources in heating and cooling (ktoe)[17]

	2017	2018
Geothermal (excluding low temperature geothermal heat in heat pump applications)	Nil	Nil
Solar	12.6	13.5
Biomass[18]		
Solid biomass	237	242
Biogas	9.7	9.8
Bioliquids	-	-
Renewable energy from heat pumps	39	44
Of which aerothermal		
Of which geothermal	39	44
Of which hydrothermal		
Total	**299**	**310**
Of which DH[19]	-	-
Of which biomass in households[20]	27	28

[16] Direct use and district heat as defined in Article 5.4 of Directive 2009/28/EC.

[17] Facilitates comparison with Table 11 of the NREAPs.

[18] Take into account only those complying with applicable sustainability criteria, cf. Article 5(1) last subparagraph of Directive 2009/28/EC.

[19] District heating and / or cooling from total renewable heating and cooling consumption (RES- DH).

[20] From the total renewable heating and cooling consumption.

Table 1D Error! No text of specified style in document.: 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)[21, 22]

	2017	2018
Bioethanol	29.604	27.271
Biodiesel (FAME)	131.037	126.968
Hydrotreated Vegetable Oil (HVO)	-	-
Biomethane	-	-
Fischer-Tropsch diesel	-	-
Bio-ETBE	-	-
Bio MTBE	-	-
Bio-DME	-	-
Bio-TAEE	-	-
Biobutanol	-	-
Biomethanol	-	-
Pure vegetable oil	-	-
Total Sustainable Biofuels	**160.641**	**154.240**
Of which:		
Sustainable biofuels produced from feedstock listed in Annex IX Part A	2.731	4.336
Other sustainable biofuels eligible for the target set out in Article 3(4)e		
Sustainable biofuels produced from feedstock listed in Annex IX Part B	128.464	125.302
Sustainable biofuels for which the contribution towards the renewable energy target is limited according to Article 3(4)d	29.446	24.602
Imported from third countries		
Hydrogen from renewables		
Renewable electricity	1.143	1.395
Of which:		
Consumed in road transport	0.156	0.272
Consumed in rail transport	0.987	1.124
Consumed in other transport sectors	-	-
Others (Please specify)	-	-
Others (Please specify)	-	-

[21] For biofuels take into account only those compliant with the sustainability criteria, cf. Article 5(1) last subparagraph.

[22] Facilitates comparison with Table 12 of the NREAPs.

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 Error! No text of specified style in document.: Overview of all policies and measures

New schemes, policies and measures introduced in 2017, 2018 and schemes, policies and measures that existed pre 2017 and continue

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. 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.	Existing	The scheme was formally opened in March 2012. Refit schemes are closed to new applications.
2. 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.	Existing	Refit schemes are closed to new applications.
3. GIS resources	Technical/Soft	Updated wind atlas available on the Sustainable Energy Authority of Ireland (SEAI) web site.	General Public County Councils, Wind Energy Project Developers, Academic Researchers, Consultants, Government bodies.	Planned	Available since Q2, 2015
4. LARES (Local Authority Renewable Energy Strategies)	Technical/Soft	This methodology facilitates a consistency of approach in the preparation of LARES, and to assist local authorities in developing robust, co-ordinated and sustainable strategies in	Planning authorities and the Planning Appeals Board (An Bord Pleanála).	Existing	2013-2020

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
		accordance with national and European obligations.			
5. Marine Energy Development Fund, aimed at supporting industry led development and deployment of ocean energy devices and systems.	Financial	Prototype wave energy converters and component technologies.	Wave energy developers	Existing	Opened in 2008
6. SFI programmes	SFI research programmes (suitable for recruitment, early/mid-career researchers, outstanding individuals, large scale centres, enterprise and industry, infrastructure, international and networking & external engagement)	Research in the area of Energy builds research capacity, scientific expertise, and collaborative relationships between academia, international collaborators and industry.	Researchers in Irish Higher Education Institutions, collaborating industry partners, collaborating international academic partners.	Planned & existing	Ongoing
7. National Research Prioritisation process. Two energy themes prioritised for support: Marine Renewable Energy (wave, tidal, offshore wind) and Smart Grids and Smart Cities.	Financial	To create an early stage industry and research cluster, allowing the sustainable commercialisation of our natural resources including the possibility of exporting electricity from these sources. Using a layer of technologies (including software, sensor hardware and control and interface systems) and design solutions to more effectively and efficiently manage complex infrastructure systems.	Funding agencies, academic and industry researchers in marine renewable energy and in smart grid technologies, plus local authorities, utilities, enterprise agencies and policy makers	Existing, following publication of action plans in 2013.	Commenced in 2013

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
		A coordinated multiannual development and deployment of financial supports for priority topics, applied to delivery of research projects, infrastructure, skills development and commercialisation, leveraging inter alia the EU Horizon 2020 programme.			
8. National Smart Metering Programme (NSMP)	Technical/Soft	The Commission for Regulation of Utilities (CRU) has completed a Cost-Benefit Analysis on the plan and is satisfied that the investment involved represents value for money.	Electricity & Gas consumers, policy makers	Existing	The Commission for Regulation of Utilities (CRU, formerly CER) is the project manager of Ireland's national smart metering programme. It is also Ireland's energy regulator. In September 2017, CRU announced details of the delivery plan for the introduction of smart meters. Initial meter rollout is planned to begin in 2019 and meters will be installed on a phased basis over 6 years.
9. Guidelines for Planning Authorities on Wind Energy Development (published by the former DEHLG which is now the Dept. of Housing, Planning, and Local Government) being reviewed.	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. Also, to reflect the advancements in wind turbine technology, and	Planning authorities and the Planning Appeals Board. (An Bord Pleanála), developers and interested members of the public	Existing Guidelines have existed since 2006 and are currently under review. In line with the 2016 Programme for Government, the review should offer a better balance between the	Ongoing. Draft for consultation issued end of 2013. Since May 2016 extensive engagement between the relevant Government Ministries has been undertaken to

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
in relation to noise, setback distance and shadow flicker		reflect the need to engage with, and be responsive to the needs of communities asked to host this infrastructure		concerns of local communities and the need to invest in indigenous energy projects.	bring this PfG commitment to completion. Significant technical analysis and noise modelling has been commissioned to ensure revisions to the Guidelines reflect robust evidence based standards. A consultation on the Strategic Environmental Assessment (SEA) on the draft guidelines is expected to be undertaken in Q3, 2019.
10. Draft Geothermal legislation	Legislative/ Regulatory	Geothermal Energy Development Bill 2010 published	Industry, policy makers	Existing	The further development of the draft Bill has been postponed due to other priorities and to ensure its compatibility with current mineral development and energy policy and legislation.

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
11. DS3 process (See point 38 below). Updated actions since 2011	Technical				
12. Social acceptance activities Engaging with IEA Wind Task 28 on Social Acceptance	Soft	Disseminated best practice on international social acceptance activities.	Wind energy practitioners and developers, utilities, communities and policy makers in Ireland	Existing	In 2013 IWEA published guidelines for best practice in community engagement and community commitment. In 2016 the Department of Communications, Climate Action and Environment (DCCAE) published a Code of Practice for Wind Energy Development in Ireland. Ireland now leads IEA Wind Task 28 on the Social Acceptance of Wind Energy and led the formation of the new Task 39 on Quiet Wind Turbine Technology in 2017.

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
					SEAI initiated an Irish Wind Energy Research Network with a first meeting in September 2017. The network will provide a forum in which to highlight recent research achievements and for the research community to regularly meet, facilitating collaboration and new research initiatives. It will also provide a connection to the IEA Wind TCP research Tasks and opportunity to become involved in them.
13. Social acceptance activities. Commission policy oriented and public good research under National Energy R&D Programme.	Soft	Provide reliable evidence and information on options and approaches to facilitate enhanced societal acceptance of renewable energy	Wind energy practitioners and developers, industry federations, academics and policy makers in Ireland	Existing	Ongoing since 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
14. Ensuring a secure Reliable and Efficient Power System in a Changing Environment.	Technical	This report augments the results of the Facilitation of Renewables report with additional analysis quantifying the level of change required over a range of key operational and plant portfolio metrics. It also considers the implications of the current levels of performance as of 2011.	TSO	Existing	June 2011
15. Intra-Day Trading (IDT) in the Single Electricity Market	Regulatory/ Financial	Intra-Day Trading (IDT) was introduced in SEM in 2012. The new system promotes more competition in the market by allowing electricity trading closer to real time and enabling the use of increasing amounts of variable renewable generation. The project was launched in July 2012 on time and within budget.	SEMO, Regulators, Policy makers, Industry	Existing	2012 and remains in place

Name and Reference of the Measure	Type of Measure*	Expected Result**	Targeted Group and or Activity***	Existing or Planned****	Start and End Dates of the Measure
16. Renewable Energy RD & D Programme (administered by the Sustainable Energy Authority of Ireland (SEAI))	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 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 and on overcoming barriers to renewable energy deployment and informing national and local policies.	Developing solutions relevant to developers of renewable energy technologies, local authorities, spatial planners and government authorities.	Existing	In place since July 2002
17. 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	Replaced by EII scheme (No. 46)
18. The continuing roll-out of EirGrid's grid development	Infrastructural	Since October 2017, EirGrid has progressed its transmission	Generators of RES-E energy security and conventional	Existing and planned	October 2017 to date.

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
strategy		infrastructure projects in accordance with a structured and consistent approach referred to as the Framework for Grid Development. The Framework is an end-to-end process for all EirGrid's grid development projects, from their conception - the identification of a need to develop the electricity transmission grid - to their eventual construction and subsequent energisation.	generation		
19. Part L of the Second Schedule of the Building Regulations 1997-2008. This has been updated in 2011.	Regulatory	Part L Conservation of Fuel and Energy in Dwellings 2011 came into effect in November 2011. This requires that a typical new dwelling will have a primary energy performance of 59kWh/m2/yr when calculated in accordance with Annex I of the EPBD (recast). This is a significant milestone in the roadmap towards NZEB and also includes requirements for significant levels of renewables onsite or nearby.	Domestic (dwellings)	Existing. The Department of Housing, Planning and Local Government is developing a strategic framework or 'roadmap' to achieve a carbon neutral standard for dwellings. 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 was reviewed in 2014.	2008. This has been amended by Statutory Instrument No. 259 of 2011.
20. SI 666 of 2006 Part 2	Regulatory	Ensure before work commences that	Owners/ Designers of	Existing	2006 onwards.

Name and Reference of the Measure	Type of Measure*	Expected Result**	Targeted Group and or Activity***	Existing or Planned****	Start and End Dates of the Measure
Alternative Energy Systems Replaced by SI 243 of 2012 Part 2Alternative Energy Sys		consideration is given to the technical, environmental and economic feasibility of installing alternative energy systems: this measure should help increase renewables in large buildings	Large new buildings (over 1000m2)		The 2006 arrangements were replaced in 2012 - Statutory Instrument No. 243 of 2012.
21. Statutory Instrument (SI) 83 of 2007 and SI 235 of 2008	Regulatory	Conditional planning exemptions for renewable technologies that meet specified criteria – expected to encourage uptake of energy from renewable technologies.	Domestic, business and agricultural sectors	Existing	2007 and 2008 onwards
22. 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
23. Energy (Biofuel Obligation and Miscellaneous Provisions) Act 2010, SI33/2012, S.I. No. 562/2012 and SI 225/2016	Regulatory	Facilitated the introduction of the Biofuels Obligation Scheme to promote increased production and use of biofuels on the Irish transport fuel market. Biofuel Obligation rate for 2017 and 2018was 8%. The obligation rate was increased to 10% with effect from 1 January 2019 by S.I. No. 198/2018. It will be	Road Transport Fuel Suppliers and Biofuel Producers	Existing	Started 1/7/2010 – on-going. Means of demonstrating compliance with the Sustainability Criteria which were introduced in 2012 by SI33/2012.

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
		further increased to 11% from 1/1/2020 (SI38/2019).			
24. S.I. 158 of 2011 and 2010 Biofuel Obligation Act, S.I. No. 482 of 2014 and SI 483 of 2014	Regulatory/ Legislative	Legal Provisions that transpose Renewable Energy Directive 2009/28/EC in Ireland.	Industry, policy makers	Existing	2010 and 2011 – remains in place
25. SI 581 of 2016, SI 169 of 2018 and SI 115/2019	Regulatory/ Legislative	Legal Provisions that transpose amendments to the Renewable Energy Directive by the Indirect Land-Use Change (ILUC) Directive (EU) 2015/1513 in Ireland.	Industry, policy makers	Existing	2016 and 2018 – remains in place
26. Electric Vehicles	Infrastructural	Increased use of electric vehicles in Ireland. As of the end of 2018 there were over 700 public charge-points installed. This includes 77 DC fast chargers, most of which have been installed on the main interurban routes. In November 2018, funding of up to €10 million was approved to support the development of a nationwide, state-of-the-art electric vehicle fast charging network. The key elements of the infrastructure to be funded include: 1. Six high speed charging hubs on motorways capable of charging eight vehicles simultaneously. 2. 16 high speed charging hubs	General Public	Existing/Planned	Rollout commenced in 2010 and is continuing

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
		capable of charging four vehicles simultaneously. 3. Additional high power chargers at 34 current 50kW DC locations. 4. Upgrading over 50 x 22kW AC chargers to 50kW DC. 5. Replacing up to 264 (528 charge points) pre-existing Pilot Grade 22kW AC chargers to next generation high reliability models.			
27. Electric Vehicles (EVs)	Financial	To incentivise further uptake of electric vehicles, there are a number of financial incentives in place. For example, the Electric Vehicle Purchase Grant Scheme provides grant aid of up to €5,000 towards the purchase of a new EV (including Plug in Hybrid Electric Vehicles). At end 2018, 4,635 grants totalling over €21million had been paid out since the scheme was introduced in 2011. A similar scheme is also in place to incentivise small public services vehicles (taxis etc.). A full list of incentives for EVs can be found online.[23]	Vehicle Purchasers and users (general public companies etc.)	Existing	Schemes commenced at different points from 2011 and are continuing.
28. Electric	Regulatory	Planning exemption for electric vehicle	Installers of charging	Existing	Ongoing

[23] http://www.drivingelectric.ie/

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
Vehicles		charging stations introduced in 2013.	points and users of electric vehicles.		
29. 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.
30. 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 and remains in place.
31. 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)
32. Treatment of Price Taking Generation in Tie Breaks in Dispatch in	Regulatory	The SEM committee is currently consulting with a view to reaching a decision	All participants in the SEM (mandatory pool for those generators	New	SEM Committee Consultation SEM 11-063 published in

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
the Single Electricity Market (SEM) & Associated Issues		on this. This policy will have important implications for the treatment and dispatch of renewable generation in the SEM.	over 10MW)		August 2011. Decision SEM Committee decision published March 2013 (SEM-13-010)
33. Consent process for offshore renewable energy projects	Regulatory	The Minister for Planning 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	Drafting of the Marine Planning & Development Bill is being progressed by DHPLG as a priority business task. The National Marine Planning Framework Baseline Report was published by DHPLG for public consultation in late 2018. It is intended that the MSP will be finalised in 2020.
34. Planning & Development (Amendment) Act 2010	Legislative/ Regulatory	The Act amended the Planning and Development Act 2000 to provide 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.	Now in place	The legislation was enacted in 2010. Renewable generators may now extend the duration of a planning permission for up to 10 years which is generally more satisfactory and projects over a certain size now automatically seek consent under the Strategic Infrastructure Act.
35. Accelerated Capital Allowances (ACA) for Energy	Financial (Tax Relief)	Specifies certain technical standards to be met by renewable energy products to be	Companies paying corporation tax	Existing	In existence since 2009. It has been extended until the end of 2020

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
Efficient Equipment (SI 393 of 2009)		eligible for the ACA tax relief. Technologies covered include wind turbines >5kw, solar PV, CHP, biomass boilers, electric vehicles.			
36. Ocean Energy	Financial/Soft	The Ocean Energy Prototype Development Fund (grants for industry) aimed at stimulating Ocean Energy (OE) devices and systems.	Offshore renewable energy sector	Existing	Prototype Development Fund in operation since 2009.
37. 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. This was updated in May 2017.	Wind Farm Developers/ Forestry sector	Existing	2009 onwards

Name and Reference of the Measure	Type of Measure*	Expected Result**	Targeted Group and or Activity***	Existing or Planned****	Start and End Dates of the Measure
38. The Gate process was fundamental in connecting new renewable energy to the electricity network. 'Gate' is a term used to refer to the processing of batches of connection applications received prior to a Gate closure date. The Gate 3 process issued offers to 4,000 MW of renewable generation. In 2018, the CRU published a decision on The Enduring Connection Policy (ECP-1)[24] 2018 Batch. This decision constitutes the first step in revising the existing policy, allowing the first of a set of more regular batches on connection offers. This batch looks to facilitate 'shovel ready' projects.	Soft	Approximately 4,000 MW of renewable generation capacity received connection offers in the Gate 3 process. Approximately 1300 MW of renewable generation will receive connection offers in the ECP-1 2018 Batch. This rollout and implementation of Gate 3 by the regulator, TSO and DSO will ensure that Ireland can reach its 40% RES-E target.	Generators of RES-E	Existing.	All Gate 3 grid connection offers have issued to those included in the Gate 3 direction. ECP-1 offers will issue between Q4 2018 and Q2 2020 Following the closure of the ECP-1 batch, a new batch is expected to open to continue the connection of additional renewable and assist in the achievement of government decarbonisation targets.

[24] https://www.cru.ie/wp-content/uploads/2017/04/CRU18058-ECP-1-decision-FINAL-27.03.2018.pdf

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
39. DS3: Delivering a Secure, Sustainable Power System	Technical	The overall aim of the DS3 Programme is to put in place the required changes to system policies, tools and performance to allow the electricity system operate safely with a high penetration of renewable generation.	TSO, regulator, policy makers, and industry	Existing and on-going	2011-to-date
40. System Services – A regulatory decision on System Services was taken in December 2014.	Technical and Regulatory	System Services is a key work stream within the DS3 Programme. The System Services work stream set out to improve the technical capability of the generation fleet and the system more generally (the provision of system services is not restricted to generation). This is being achieved by defining the capability required by the TSO and appropriately incentivising the delivery of that capability. System services are also part of the wider context of the electricity industry which is undergoing significant change. The DS3 System Services programme went live in 2016 and utilised an open tender tariff-based procurement process for the procurement of 11 System services from both	TSO, regulator, industry	On-going	2014-to-date

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
		conventional generators and non-conventional technologies such as DSUs, distributed generators, storage devices etc. In May 2018, enduring tariff arrangements were put in place, using Qualification System-based OJEU procurement. 12 system services were procured. Two additional system services will be added when the penetration of non-synchronous energy on the system exceeds 70%. The TSOs are continuing to conduct trials to afford technologies which currently have not yet proven their ability to provide specific System Services an opportunity to demonstrate their capabilities. In addition, the TSOs are running procurement for fixed contracts for a subset of reserve services to provide incentives to new build service providers.			
41. 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	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/

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
		around offshore grid between Ireland, Northern Ireland and Scotland.			
42. Offshore Renewable Energy Development Plan published in February 2014.	Financial/Soft	Identifies the sustainable economic opportunity for Ireland in the period to 2030 of realising the potential of our indigenous offshore wind, wave and tidal energy resources.	Offshore renewable energy sector	Existing	Implementation commenced in 2014 An interim review of the OREDP was published in 2018. The review is available on this Department's website.[25]
43. Support Scheme for Renewable Heat (SSRH)	Financial	Increase in the adoption of renewable heating systems The first phase of the scheme, an installation grant for heat pumps, opened for applications in September 2018 The second phase of the SSRH, an operational support for biomass boilers and anaerobic digestion heating systems, opened in June 2019 Ireland is also examining potential options to support the production of biomethane from anaerobic digestion and its injection into the gas grid.	Commercial, industrial, agricultural, district heating and other non-domestic heat users.	Existing	Commenced in 2018
44. Draft Bioenergy Plan published October 2014	Soft	The draft Plan was published subject to the completion of SEA and AA. It sets out the broader context for the development of Ireland's bioenergy sector, and the	Energy from Biomass	The draft National Energy and Climate Plan (NECP) now encompasses the policies and measures that would	Draft published in 2014 and included in the NECP

[25] http://www.dccae.gov.ie/

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
		current status with regard to the range of policy areas that must be coordinated in order to create the conditions necessary to support the development of this sector.		have been set out in the Bioenergy Plan.	
45. Employee Investment Incentive (EII) Scheme	Financial (Tax relief)	Employee Investment Incentive (EII) gives individuals relief from income tax for investment in renewable energy generation. The EII scheme has the added benefit of being linked with the provision of additional employment. The legislative basis for the EII (incorporating the Seed Capital Scheme (SCS)) is Part 16 of the Taxes Consolidation Act 1997, as amended.	Individuals and companies.	Existing	Introduced in Budget 2011. Replaced the Business Expansion Scheme (BES) and still in place
46. SI 201 of 2012 Value-Added Tax (Refund of Tax)	Regulatory/ Financial	Incentives for farmers to purchase renewable energy/energy efficient equipment	Farmers	Existing	Effective from 1st January 2012
47. North Seas Countries Energy Co-operation Agreement	Technical/ Infrastructural	Offshore grid development.	Offshore wind project developers/ investors.	New	In June 2016 Ireland became a signatory to the North Seas Countries Energy Cooperation agreement and participates in the work programme
48. Renewable Electricity Support Scheme (RESS)	Financial	3 GW of renewable elec. generation technology.	Generators and suppliers of elec. from renewable sources.	Planned	June 2020 to Dec. 2030
49. National Planning Framework	Regulatory/ Infrastructural	Overarching policy and planning framework for	Industry, policy makers, Enterprise	Planned	February 2018 to 2040

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
(NPF)		social, economic, & cultural development.	Agencies, An Bord Pleanala and Local Authorities.		
50. Regional Spatial & Economic Strategy (RSES)	Infrastructural	Supports the implementation of Project Ireland 2040, the NPF and National Development Plan (NDP).	Key State Agencies and Sectoral Bodies.	Planned	Up to 2031
51. Renewable Electricity Policy and Development Framework (REPDF)	Regulatory	Ensure Ireland meets its' future needs for RES-E in a sustainable manner.	Local Authorities, Enterprise Agencies, and policy makers.	Existing	Up to 2030.
52. Integrated-Single Electricity Market (I-SEM)	Regulatory	Adapt the REFIT schemes to I-SEM.	Generators of renewable electricity.	Existing	June 2018 onwards

* 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.)?

**** Does this measure replace or complement measures contained in Table 5 of the NREAP?

Schemes and measures that existed in 2011 to 2012 **but have now closed**

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. 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. 219MW still in the scheme in 2013/2014.	Generators of electricity from renewable sources.	Closed for new applicants in 2007. Those remaining in the scheme (332MW in AER is still in the scheme in the PSO period 2011/2012) 219MW in AER is still in the scheme in the PSO period 2013/2014.	There were 6 separate calls for tender beginning in the mid 1990s. The last call for tender was in 2003. Closed for new applications. Projects continue to be supported by the PSO levy.
2. Renewable Energy Feed-in Tariff scheme (REFIT 1)	Financial	Support an increase in RES-E via a feed-in tariff mechanism. In 2011/2012, there was 1242MW of renewable generation in receipt of REFIT. For the PSO period 2013/2014, there was 1365MW of renewable generation in receipt of REFIT 1.	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. 1365MW in REFIT 1 was included in the 2013/2014 PSO decision	2007-2009 (New developments accepted before the closing date that have been granted an extension of time continue to build out.) Closed for new applications. Projects continue to be supported by the PSO.
3. 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 and is now closed.
4. 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	Energy researchers, universities, industry, policy makers.	Closed for new applications.	Closed for new applications in October 2006.[26]

[26] http://www.sfi.ie/investments-achievements/investments/charles-parsons-energy-research-awards/

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
		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.			
5. 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.	The relief is no longer available.	Introduced in 1999. In 2012 the scheme was extended to 31/12/14.

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

CRU (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.

The DS3 Programme

DS3 stands for "Delivering a Secure, Sustainable electricity System". It is a programme of work, being undertaken by the Transmission System Operators (TSOs) in Ireland and Northern Ireland (EirGrid and SONI), that aims to meet the challenges of operating the electricity system in a secure manner while achieving Ireland's 40% RES-E target by 2020. As the levels of intermittent renewable generation increase, i.e. wind and solar, this can pose challenges to the real-time operation of the system. DS3 aims to put in place the key

policies, procedures and system services to allow the system to operate with up to 75% renewable generation at any one time (at the start of the programme in 2012, the TSOs only allowed up to 50% instantaneous penetration of renewables). The Commission for Regulation of Utilities (CRU) is involved in overseeing the entire project and is involved in policy design with respect to the DS3 System Service programme and market creation.

The ongoing DS3 programme being undertaken by EirGrid is designed to manage the achievement of our renewable electricity target from a grid perspective over the coming years. October 2016 saw the implementation of the first procurement of DS3 System Services. Since then, more enduring regulated arrangements have been put in place (as of May 2018) in line with the SEM Committee decision on System Services Contractual Arrangements (SEM-17-094). The aim of DS3 System Services is to put in place the correct structure, level and type of service in order to ensure that the system can operate securely with higher levels of intermittent wind penetration (up to 75% instantaneous penetration).

Grid Connection Policy

The CRU's policy for connection to the electricity grid has been largely designed to facilitate the development of renewable energy sources (RES) and storage capacity.

In March 2018, the CRU published a decision on the Enduring Connection Policy – Stage 1 (ECP-1, CRU/18/058). This decision introduced a new system for issuing connection offers for new generation and storage capacity, replacing the older system of "gates"[27] with more frequent batches. The principal objective guiding the first batch of ECP (2018 batch) was to allow those projects which are 'shovel ready' to have an opportunity to connect to the network in the first place. ECP-1 also supported the delivery of the DS3 programme by facilitating connection offers to providers of DS3 system services who are required by the system to accommodate increasing volumes of variable non-synchronous generation.

The batch process allows projects to connect as part of a sub-group, under a specific transmission node. This lowers the cost of connection assets for individual projects, as this cost is now shared among the sub-group. The application window for the 2018 batch closed in May 2018, providing for 905MW of capacity for new connection offers, including 368MW for the providers of DS3 system services. The 2018 batch also provided for processing connection offers for 843 MW of existing applications and re-processing connection offers for

[27] Previously, the system operators issued offers in "gates" under the so-called Group Processing Approach (GPA). Under the last iteration of the GPA, gate 3, the system operators have issued an unprecedented number of offers to renewable projects (4,000 megawatts (MW) mostly wind) in order to meet the 40% RES-E target. The uptake of those offers has been high and amounts to approx. 3,300MW of wind generation. See the CRU decision on Criteria for Gate 3 Renewable Generator Offers & Related Matters (CER/08/260).

426 MW of relocated projects. The system operators have commenced issuing connection offers under the 2018 batch, and this process will continue throughout 2019.

Applications from small-scale generation (11kW-500kW), auto producers and DS3 system services qualifying trial projects are processed outside the batch, on a rolling basis.

In parallel, the CRU started developing the rules for the second stage of the ECP (ECP-2), aiming to hold the next batch in 2020.

Offshore Renewable Energy Development Plan (OREDP)

The 2014 Offshore Renewable Energy Development Plan (OREDP) sets out Government policy in relation to the sustainable development of Ireland's abundant offshore renewable energy resource. The Strategic Environmental Assessment carried out for the OREDP found that 4,500 MW of offshore wind and 1,500 MW of wave and tidal generation could be sustainably developed in Irish waters, and the Plan identifies policy actions and enablers that are key to the development of this sector. These include, among others, increased Exchequer Funding for ocean research, development and demonstration, the introduction of an initial Market Support Tariff for ocean energy, ensuring the development of appropriate infrastructure, exploring options for international collaboration and work in relation to environmental monitoring. Implementation has commenced and is ongoing across relevant Government Departments and Agencies through work streams on Environment, Infrastructure and Job Creation.

The OREDP Interim Review was published in May 2018. The Working Groups under the remit of the Offshore Renewable Energy Steering Group (ORESG) have been tasked with implementing the recommendations and actions set out in the Interim Review.

Offshore Renewable Energy Steering Group (ORESG)

Progress on these policy actions and enablers is on-going under the aegis of the Offshore Renewable Energy Steering Group (ORESG). The ORESG is responsible for the implementation of the Plan across three work-streams: Job Creation; Infrastructure; and Environment. A Working Group for each stream was established with a view to ensuring that offshore renewable energy is developed in line with EU environmental obligations and best practice and significant progress is being made on a number of fronts.

Work items progressed by end 2016 included the creation of an inventory of environmental, social and economic data relevant to offshore renewable energy developments; the development of guidance documents for industry on the preparation of Environmental Impact Statements, Natura Impact Statements and on environmental monitoring requirements; and

work on mapping opportunities and constraints for the development of offshore renewable energy projects around Ireland. The latter will be a useful tool to help inform future decision making in relation to the most suitable locations for offshore renewable energy development. A Communications Strategy has also been developed to showcase Ireland's significant potential and strong offering in this area, to raise the profile of the Irish ocean energy industry and to communicate that Ireland is "open for business".

Planning and Consent Architecture

A further key enabler with regard to the development of Ireland's offshore renewable energy resource is the introduction of a new planning and consent architecture for development in the marine. Work is continuing on the drafting of new primary legislation, the Maritime Area and Foreshore (Amendment) Bill, to streamline the development consent process, to include the onshore and offshore elements of strategic infrastructure developments, with a modern and coherent consent framework for offshore renewable energy developments.

The Marine Coordination Group (MCG) decided in the summer of 2018 to establish a Marine Legislation Steering Group, chaired by the Department of Taoiseach, to progress legislative priorities in the marine area, including the Maritime Area and Foreshore Amendment Bill, being led by the Department of Housing, Planning and Local Government. The Bill, when enacted, will provide for a regime to regulate certain activities in areas beyond the foreshore.

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

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

DS3 Programme

Several studies have been carried out by the TSOs 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.

Recognising the importance of these studies, the SEM Committee requested the TSOs to put in place measures to address the challenges of operating the system with increasing levels of wind. This provided the basis for the DS3 programme,[28] formally commenced by EirGrid and SONI in September 2011.

DS3 System Services is one of the main workstreams under the programme which aims to incentivise the provision of valuable system support services from generators, demand side units and other technologies to allow the system to operate with high levels of wind. These services were previously known as ancillary services. The DS3 programme has expanded the range and scope of these services and, at present, Ireland is the European member state with the highest levels of non-synchronous generation integrated into a single synchronous grid area, and is leading the way in terms of development of new ancillary services. In 2017, EirGrid successfully completed a Qualification Trial Process[29] which tested and proved the ability of additional technologies such as wind and DSUs to provide system services.

DS3 System Services are procured under an open, tariff-based framework. Any provider, who qualifies, receives a contract and is paid the tariff rate for the level of available service provision. DS3 System Services went live in 2016 with the procurement of 11 distinct services which resulted in 107 providing units contracted. These arrangements were due to expire in October 2017, but, the SEM Committee decided to extend the existing contracts

[28] See above, section 2.a. Further information on the DS3 programme is available at: http://www.eirgridgroup.com/how-the-grid-works/ds3-programme/.

[29] http://www.eirgridgroup.com/site-files/library/EirGrid/DS3-System-Services-Qualification-Trials-Process-Outcomes-and-Learnings-2017.pdf

until April 2018. In October 2017, the SEM Committee then published a decision on the DS3 System Services Regulated Tariff Arrangements[30] which puts in place a procurement framework until 2023. These arrangements went live on 1 May 2018 and resulted in 129 providing units contracted, a number of providers improving their service capability and new providers, such as wind and DSUs, being contracted to provide valuable services to the TSO for the first time. An additional new Fast Frequency Response service also went live in October 2018 bringing the total number of procured services to 12. Two further system services will be procured beginning in 2019.

The SEM Committee also decided that there would be a separate procurement process on a competitive basis to procure up to 140MW of System Services from high-availability technologies, such as battery storage, on fixed term six-year contracts. The SEM Committee published its decision on the procurement arrangements for these Fixed Contracts in September 2018. These arrangements will encourage the development of new technologies that can provide valuable system support to the TSOs as more intermittent renewable generation comes on the system. It is planned that the qualification and auction process will take place in Q2 2019 with contract execution for successful providers scheduled for September 2019.

At present Ireland is the European member state which has the highest levels of non-synchronous generation integrated into a single synchronous grid area, and is leading the way in terms of development of new ancillary services. While primarily aimed at facilitating the introduction of significant levels of renewable energy into the Irish grid, the DS3 programme also includes the development of financial incentives for better plant performance, and the development of operational policies and system tools to use the portfolio to the best of its capabilities.

As part of the programme, the DS3 System Services workstream has enabled a transition from 7 ancillary services to 12 "System Services" to facilitate secure system operation while integrating significant levels of renewable energy onto the Irish grid. Two additional system services will be added when the level of non-synchronous generation on the system increases further. Up until (and including) 2015 the TSOs procured ancillary services on a bilateral contract basis with individual generators. The DS3 System Services programme went live in 2016 and utilised an open tender tariff-based procurement process for the procurement of 11 system services. This has since (2018) been increased to 12 system services. Service provision is open to all potential providers of system services including

[30] https://www.semcommittee.com/news-centre/ds3-system-services-tariffs-and-scalars-sem-committee-decision

non-conventional technologies such as DSUs, distributed generators, storage devices etc. In addition, the TSOs are currently conducting trials to afford technologies which have not yet proven their ability to provide specific system services an opportunity to demonstrate their capabilities. The trials are also assessing how the 2 remaining System Services which have yet to be procured can best be measured, in order to establish reliable performance metrics.

The DS3 programme which includes wider work on grid control center tools frequency control, voltage control and enhanced forecasting abilities has delivered increases in the ability of the grid system to operate with high levels of renewables. In 2015 the level of permitted non-synchronous generation on an instantaneous basis was set by the TSOs at 50%. Through the delivery of the DS3 programme this has increased significantly, first in 2016 to 55%, to 60% in March 2016 and since April 2018 the TSO's operational policy has now enabled operation of the grid system with 65% non-synchronous generation.

Grid Development Strategy

Since October 2017, EirGrid has been progressing its transmission infrastructure projects in accordance with a structured and consistent approach referred to as the Framework for Grid Development.

The Framework is an end-to-end process for all EirGrid's grid development projects, from their conception - the identification of a need to develop the electricity transmission grid - to their eventual construction and subsequent energisation. It integrates the technical development of a project with enhanced engagement (with stakeholders, communities and landowners), environmental assessment and social assessment. It also provides enhanced governance points throughout the process.

The Framework addresses the three strategy statements in EirGrid's 'Ireland's Grid Development Strategy' (2016). These are:

- Inclusive consultation with local communities and stakeholders will be central to our approach;
- We will consider all practical technology options; and
- We will optimise the existing grid to minimise the need for new infrastructure.

It also has had regard to EirGrid's statutory obligations under legislation, and key policy documents which govern EirGrid's activities and processes in respect of the development of the electricity transmission grid. The Framework significantly assists in the sustainable and efficient development of the transmission grid to facilitate the connection of renewable generation onto the system, and to the benefit of all Customers and stakeholders.

The table below sets out an overview of the type and km of lines energised in 2017 and 2018. These were all at 110 kV. This is in addition to maintenance and refurbishment projects.

Circuit Type	2017	2018	Total
110kV New Line (km)	24	19	43
220kV New Line (km)	0	0	0
110kV Line Uprate (km)	81	100	181
220kV Line Uprate (km)	0	0	0

Connection Costs

Under the current charging policy, generators or storage providers which connect to the grid (either individually or as part of a sub-group) are charged based on the Least Cost Technically Acceptable (LCTA) connection method (unless they themselves request an alternative, more expensive solution). The charging policy for connection to grid is commonly referred to as "shallow" charging, i.e. generators (or storage providers) pay the full cost of their shallow connection to the transmission or distribution system but are not liable, however, for the cost of reinforcing the transmission network.[31]

The full connection charge is split into stage payments. Each payment is scheduled to ensure that the system operator is kept cash positive throughout the construction. The initial payment, i.e. the first stage payment (FSP) covers 10% of connection charges and is due on offer acceptance.

The CRU's direction on FSPs (CER/11/083) treats all developers seeking a connection in a fair and equal manner regardless of size, scale or ownership structure. The most significant share of connection charge is due prior to construction, while generators and storage providers are required to provide financial security to the relevant system operator in the form of bonds as part of their connection agreement. The ECP-1 decision restricted the bonding arrangements for the 2018 batch projects requiring them to provide financial security at offer acceptance in respect of shared works being undertaken on behalf of groups of projects connecting in the same part of the network. As a result, projects in a sub-group that do not progress are required – through their securities – to cover their proportion of the shared costs. This strengthens project commitment and aims to protect consumers from financial exposure in the event of projects dropping out of a subgroup.

[31] But note, however, that parties connecting to the distribution network are liable for the cost of reinforcements at the distribution level.

The bonding policy for shared assets' costs only applies if connection to the system is built by the system operator. Under the current policy, projects can also build their connection contestably. This also applies to shared connection works which can be built jointly by projects within the sub-group. This allows projects to opt out from this bonding policy and instead have their own arrangements to effectively hedge themselves against the risk of projects dropping out of a sub-group at a later stage.

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

AER (Alternative Energy Requirement) was a series of tender competitions that were run from the mid-1990s to the mid-2000s to support RES-E schemes. The AER MW included in the 2017/2018 PSO decision has fallen to just 31.1 MWs as the earlier projects exit the scheme.

REFIT (Renewable Energy Feed-In-Tariff) is the primary support scheme for RES-E in Ireland and there are three such schemes in place. The original version of the scheme (REFIT 1) got state aid clearance in 2007 and was open for new applications until 31/12/09. Currently 1405.7MW of renewable generation in REFIT 1 are eligible for payment under the 2018/2019 PSO Decision.[32] REFIT 1 will end in 2027.

The REFIT 2 scheme, open since March 2012, covers onshore wind, small hydro and landfill gas. Support under REFIT 2 cannot exceed 15 years and will not extend beyond the end of December 2032.

It is intended to continue to offer REFIT to support RES-E (including CHP) and ensure delivery of our 2020 renewable target. Support tariffs for biomass technologies ('REFIT 3') were introduced in February 2012 to add diversity to the renewable electricity generation portfolio and assist with the development of a sustainable biomass supply sector in Ireland. Technologies supported include Anaerobic Digestion, biomass combustion and co-firing of biomass with peat, opened in February 2012. The scheme also offers supports for high efficiency Combined Heat and Power (CHP). REFIT 3 will end in 2030.

[32] Available at: https://www.cru.ie/document_group/pso-levy-2018-19/
https://www.dccae.gov.ie/en-ie/energy/topics/Renewable-Energy/electricity/

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 and electric vehicles being added in 2011.

The Energy White Paper, published in December 2015, sets out a high-level framework for Ireland's energy transition to a low carbon economy and society and identifies a range of measures and actions to support the development of renewable technologies. One key action is to explore the scope to provide market support for micro generation technologies.

Renewable Electricity Support Scheme (RESS)

The Department of Communications, Climate Action and Environment is currently developing a new support scheme for renewable electricity, the primary objective of which will be to incentivise sufficient renewable electricity production to enable Ireland deliver its' 2030 renewable electricity contribution to EU wide targets. Other policy objectives that will be delivered under RESS include; increasing community participation in and ownership of renewable electricity projects; increasing renewable technology diversity; enhancing security of supply.

The scheme will be subject to the 2014 EU State Aid Guidelines, which seek to promote a gradual move to market-based support for renewable energy. This will result in a shift from guaranteed fixed prices for renewable generators (existing REFIT feed in tariffs) to a more market oriented mechanism (renewable auctions) where the cost of support will be determined primarily by competitive bidding between renewable generators.

Approval for the new RESS was received from Government in July 2018. It will now be subject to an EU State Aid approval process in line with the 2014 EU State Aid Guidelines. The RESS will be characterised by a series of renewable electricity auctions, aligned with the ambition set out in Ireland first National Energy and Climate Plan (NECP).

A key component of the new RESS will be the provision of pathways for community participation in renewable energy projects. This action delivers on the 2015 Energy White Paper commitment to ensure communities and citizens are at the centre of the future energy transition in Ireland. Communities are effectively being designed into the fabric of the new RESS with policy measures to incentivise community-led and developer-led community projects being assessed.

An Enabling Framework for Community Participation will be developed as part of RESS and measures included within this Framework will include:

- A mandatory requirement for all projects looking for support under RESS to offer investment opportunities to local citizens and communities.
- Within each auction round there will be a ring fenced capacity for community-led projects.
- Financial supports for community-led projects.
- Independent legal, technical and financial advice for community-led projects.
- The establishment of a national community benefit register.
- A requirement for all projects to pay a community benefit of circa €2/MWh

It is proposed that the new RESS will be funded via the Public Service Obligation (PSO) mechanism. Currently, RESS is progressing on three main fronts:

- The development of the Enabling Framework for Community Participation
- The detailed RESS-1 auction design and implementation
- The State Aid notification process

RES-H

The REFIT 3 scheme, although payable on exported electricity, through the encouragement of biomass high efficiency CHP technologies also incentivises renewable heat production which along with the migration by certain heat users to renewable heat in response to market forces (where biomass is a cheaper alternative to oil), will make a contribution to achieving the RES-H target.

The recast Energy Performance of Buildings Directive (EPBD) was transposed in 2012 by the European Union (Energy Performance of Buildings) Regulations to further include that a building's energy performance indicator be stated in advertisements relating to the sale or letting of the building. It also further provided that on or after 9 January 2013, any building in excess of 500 m2 which is frequently visited by the public is required to display either a BER certificate or a Display Energy Certificate (DEC) in a prominent place clearly visible to members of the public and that from 9 July 2015, this requirement is extended to all buildings in excess of 250 m2 which are frequently visited by the public when occupied by public bodies.

Part L Conservation of Fuel and Energy in Dwellings 2011 came into effect in November 2011. This requires that a typical new dwelling will have a primary energy performance of 59kWh/m2/yr when calculated in accordance with Annex I of the EPBD (recast). This is a significant milestone in the roadmap towards Near Zero Energy Buildings (NZEB) and also includes requirements for significant levels of renewables onsite or nearby.

The Support Scheme for Renewable Heat (SSRH)

The first phase of the scheme, an installation grant for heat pumps, opened for applications in September 2018. Following EU State aid approval, the second phase of the scheme, an operational support for biomass boilers and anaerobic digestion heating systems, opened for applications in June 2019. Under this phase of the scheme, eligible renewable energy technologies will be supported through a multi-annual payment, for a period of up to 15 years, on the basis of prescribed tariffs. Under Project Ireland 2040, the National Development Plan sets out an allocation of €300 million for the roll-out of the scheme for the period up to 2027.

RES-T

The Energy (Biofuel Obligation and Miscellaneous Provisions) Act 2010 became law on 1 July 2010 and is designed to increase the penetration of biofuels in the fuel mix. 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, road transport fuel suppliers must ensure that biofuels represent a certain percentage of the national annual fuel sales. The percentage is being increased periodically, taking account of, inter alia, the Fuel Quality Directive requirements and the requirements in respect of complying with the provisions of the Indirect Land Use Change (ILUC) Directive (2015/2513).

Biofuels Obligation Certificates are awarded for the supply of one litre of sustainable biofuel. To incentivise the use of biofuels from wastes and residues, two certificates are awarded for each litre placed on the road transport fuel market. In this regard, the National Oil Reserves Agency (NORA), which administers the scheme, had, at the end of 2018 determined that biofuel from five feedstocks are eligible for double certificates. (A sixth feedstock was added in 2019).

At the end of each year, fuel suppliers must have a certain percentage of certificates in proportion to the amount of petroleum based fuel placed on the market. In 2017 and 2018, the obligation was 8% by volume, meaning that obligated parties must hold 8 certificates per 92 litres of petroleum based fuels placed on the road transport fuel market. The obligation rate was increased to 10% (or 10 certificates per 90 litres of petroleum based fuels) at the beginning of 2019 and will be further increased to 11% from 2020. Almost 226 million litres of biofuels were placed on the market in 2015 with over of 216 million placed on the market in 2016.

Electric Vehicles (EVs)

In 2009, Electric Vehicles (EVs) were identified as an important element in efforts to achieve both energy efficiency and renewable energy targets. Ireland set an initial target of converting 10% of its passenger and light commercial vehicle stock to EVs by 2020 (c. 230,000 vehicles). However, the initial uptake of EVs was lower than anticipated thus the target was revised to 50,000 in the third National Energy Efficiency Action Plan (NEEAP). Despite a range of supports being in place, the uptake remains relatively low. At the end of 2016 there were approximately 2,000 EVs licensed in Ireland. Low uptake can be attributed to a number of barriers, not least, the high cost and limited choice of vehicles on the market as well as low consumer acceptance and awareness. The target for EV uptake was revised to 20,000 electric vehicles by 2020 in the National Policy framework on Alternative Fuel Infrastructure for Transport published in May 2017.

The Electric Vehicle Purchase Grant Scheme was introduced in April 2011 to incentivise and support, through grants of up to €5,000, the early deployment of electric vehicles in Ireland. These grants are in addition to the Vehicle Registration tax (VRT) reliefs of up to €5,000 which apply to electric vehicles. Up to end of 2018, grant support was provided for the purchase of 4,635 new vehicles of which 908 were grant aided in 2017 and 1,999 grant aided in 2018.

In addition, in 2018, the Department of Transport, Tourism and Sport introduced the Electric SPSV (eSPSV) Grant Scheme to support the uptake of electric vehicles in Ireland's small public service vehicle (SPSV) industry (taxis/hackneys/limousines). The scheme offers grants for the purchase of new and second-hand electric vehicles. A grant of up to €7,000 will be available for battery electric vehicle (BEVs), and up to €3,500 for plug in hybrid vehicles (PHEVs), in addition to the range of other incentives available to EV drivers. Fully hybrid vehicles and vehicles older than 6 years do not qualify for grant support under this scheme.

Other incentives available include tax incentives such as Vehicle Registration Tax Relief for EVs, Accelerated Capital Allowances for EVs and charging infrastructure, favourable Benefit in Kind allowances for Battery Electric Vehicles and reduced rates of motor tax. In addition, EV owners can avail of cheaper tolls on tolled roads.

The ESB, through its 'ecars' programme continued to roll out both publicly accessible charging infrastructure and domestic charge points. Over 700 public charge-points have been installed including 80 DC fast chargers installed primarily on the main interurban routes. Additionally, until the end of 2017, the ESB supplied over 2,000 home chargers free of charge to anyone qualifying for a grant under the EV Grant Scheme.

In 2018, the Electric Vehicle Home Charger Grant was introduced to incentivise more EV owners to install chargers in their homes and over 1,000 grants were paid out under the scheme.

There has also been a marked increase in the number of publically available chargers installed by private companies such as supermarkets, hotels and EV OEMs.

At the end of 2017, 3,799 electric vehicles were under taxation in Ireland. This figure increased to 7,647 by the end of 2018.

Table 3: Support schemes for renewable energy

RES support schemes 2017/2018		Per Unit Support	Total (M€)*
[(sub)category of specific technology or fuel]			
Instrument (provide data as relevant)	Obligation/quota (%)	8% 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	Not known/determined by market	Not known/ determined by market
	Tax exemption/ refund	Not available	Not available
	Investment subsidies (capital grants or loans) (€/unit)		
	Electric Vehicle Grant Scheme	Up to €5,000 per vehicle	€13.4m paid over the two years
	VRT Relief for Electric Vehicles	Up to €5,000 per vehicle	Not known, This is a tax relief scheme
	Support Scheme for Renewable Heat (SSRH)	**Phase 1:** The installation grant will support up to 30% of the installation cost of eligible heat pump technologies. **Phase 2:** Operational aid will be provided for approved projects that invest in eligible renewable technologies by way of a multi-annual payment (for a period of up to 15 years), based on prescribed tariffs.	
	Production incentives		
	Feed-in tariff	2017 Rates From €69.7 MWH for large scale wind up to €157.6 per MWh for small AD CHP. Also a fixed payment of €9.9 MWh for all technologies.	€287.8m in 2017 (PSO levy for REFIT) *****
	Feed-in premiums	n/a	n/a
	Tendering	AER Rates vary according to the prices bid in.	€7.8m ***
Total annual estimated support in the electricity sector		*REFIT/AER/Tax Relief*	€295.5m *** (see below re cost offset)
Total annual estimated support in the heating sector			
Total annual estimated support in the transport sector		*Biofuels Obligation/Electric Vehicles*	n/a/€7.4 million

*** Note that total annual cost was achieved by averaging the estimated costs to the Public Service Obligation (PSO) from the AER and REFIT schemes during the PSO years 2016/2017 and 2017/2018. The PSO year runs from October to September.

A study carried out by EirGrid/SEAI in 2011[33] shows that the costs of REFIT and AER in that year were offset by the reduction in wholesale electricity prices.

The broad conclusion of the study was that:

- The wind generation in 2011 reduced 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 (including REFIT scheme and the predecessor of REFIT, known as AER), estimated as €50 million, and the increased dispatch constraint costs incurred due to wind in 2011.
- Thus the total cost did 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.

The existing feed-in tariff schemes are a very cost effective tool to support renewable energy development relative to other EU Member States. Ireland's approach was confirmed as one of the most cost effective within the EU by a report published by the Council of European Energy Regulators in January 2015.

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

The energy regulator (CRU) Decision CER 11/824 made in accordance with Statutory Instrument 483 of 2014, provides that 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

[33]http://www.seai.ie/Publications/Energy_Modelling_Group/Energy_Modelling_Group_Publications/Impact_of_Wind_Generation_on_Wholesale_Electricity_Costs_in_2011.pdf

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. 483 of 2014, a GO is therefore not issued in respect of PSO supported generation (REFIT is 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 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 biofuel placed on the market and produced from wastes, residues, non-food cellulosic material, and ligno-cellulosic material per article 22 of the Directive. To date, the National Oil Reserves Agency, which administers the scheme, has determined that five categories of fuel qualify for double certificates: tallow category 1, used cooking oil, palm oil mill effluent, spent bleaching earth and whey permeate. The list of determinations is available online.[34]

The structure of the biomass REFIT tariffs also provides for higher tariffs depending on size and for different biomass technology categories, with 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 (particularly environmental benefits) are rewarded. Premium rate is also offered for electricity from combustion of purpose grown energy crops.

[34] http://nora.ie/determinations/list-of-determinations.146.html

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

SEMO is the issuing body of Guarantees of Origin (GO) in Ireland; to date for electricity only.

Interested parties have been able to apply for the GO scheme since 2011, however only companies registered in Ireland, holding a valid generation or supply licence from the Commission for the Regulation of Utilities (CRU) are eligible for an account. As of June 2019, there are 41 Account Holders registered in the GO scheme. The restriction on the type of companies eligible for GO accounts helps to prevent fraudulent applicants gaining access to the GO scheme in Ireland.

To be eligible for GOs, the Production Device registered by Account Holders must generate electricity from a renewable source, and must not be in receipt of support from a support scheme. During registration of Production Devices, SEMO liaises with the Department to confirm that the Production Device has either exited a REFIT scheme, or has never been in receipt of support. As of June 2019, there are 105 Production Devices registered in the GO scheme.

SEMO uses the online registry **CMO.Grexel**, for issuing, transferring, importing, exporting and cancelling GOs (since January 2015). CMO.Grexel is compliant with the **EECS** (European Energy Certificate System), a standardisation system for European GOs. SEMO is a member of the **Association of Issuing Bodies** (AIB) (since May 2015). AIB develop, use and promote the EECS rules, and facilitate the international exchange of GOs via an inter-registry telecommunications hub.

(Since January 2015) GO Certificates are issued on a monthly basis. The table below illustrates the number of GO certificates that have been issued, imported and exported over the last 5 years.

	Note	2014	2015	2016	2017	2018
Issued	Production Periods Jan – Dec	1,821,977	2,321,526	2,038,069	2 064 629	2,082,016
Exports	Transactions between April Year X – March X+1	73,323	626,091	909,921	493,606	634,656
Imports	Transactions between April Year X – March X+1	4,957,392	9,582,554	8,339,443	8,151,671	10,847,553

The sole purpose of GOs is for use in Fuel Mix Disclosure. SEMO is the calculating body for the Fuel Mix Disclosure of both Ireland and Northern Ireland. The Fuel Mix Disclosure calculation is completed in accordance with SEM Committee decision paper **SEM-11-095**. Since 2011, suppliers can declare GOs in their annual Fuel Mix Disclosure supplier declaration submissions. In order to be included in the supplier declaration submission, the GOs must first be cancelled in the GO online registry for use in Fuel Mix Disclosure. Although suppliers can commit cancellation transactions in the GO online registry, the transaction must be approved (or rejected) by SEMO before the transaction is completed. This allows SEMO to have oversight of cancellations, and ensure that GOs are only cancelled by suppliers for use in the relevant disclosure year.

SEMO calculates the supplier mixes and circulate firstly to suppliers for review, and then to the CRU. The CRU publishes the fuel mixes in August each year, with suppliers declaring their supplier mix to customers in October, either on bills or promotional materials.

6. Please describe the developments in the preceding 2 years in the availability and use of biomass resources for energy purposes

Article 22(1)g of Directive 2009/28/EC

Indaver's waste to energy plant in Co. Meath is an operational waste-to-energy facility which manages 200,000 tonnes of residual waste per annum and with a capacity of 15 MW. In 2013, 53% of the waste used as fuel was classified as renewable (26 ktoe). Indaver is a private company.

Co-firing of biomass continued at the Edenderry Power facility in Co. Offaly.

22 letters of offer were issued for biomass projects under the REFIT3 scheme which was opened in early 2012 to support up to 310MW of biomass-powered electricity. Fourteen of the projects are Anaerobic Digestion projects. There are seven solid biomass CHP projects including one Waste-to-Energy project with a capacity of 72MW using approximately 50% renewable fuel to be built in Dublin. REFIT3 also supports co-firing of 30% biomass with peat and the Edenderry peat power station has been accepted into the REFIT 3 Scheme which is already co-firing in excess of 50% biomass with peat. Completion of these projects will add approximately 172MWs of additional renewables electricity capacity to the grid.

Table 4: Biomass supply for energy use

	Amount of Domestic Raw Material*		Primary Energy in Domestic Raw Material (ktoe)[35]		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)	
	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018
Biomass Supply for Heating and Electricity:												
Direct supply of wood biomass from forests and other wooded land energy generation (fellings etc.)**[36]	378,000 m^3	386,000 m^3	56.42	57.61	4,000 m^3	14,000	0.60	2.10	0	0	0	0
Indirect supply of wood biomass (residues and co-products from wood industry etc.)**[37] Sawmill and wood-based panel residues	533,000 m^3	657,000 m^3	79.56	N/A	0	0	0	0	0	0	0	0
Energy crops (grasses, etc.) and short rotation trees *(please specify) Short rotation coppice (SRC) i.e. willow*	20,000 m^3 *(SRC)*	*N/A*	2.99	N/A	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** e.g. Palm kernel shells etc.	27,547 tonnes	28,528 tonnes	22.81	23.19	N/A	N/A	N/A	N/A	114,000 m^3	None	17.01	None

[35] Conversion factor used: 1 TJ = 23.88459 toe. **Source:** https://www.iea.org/statistics/resources/unitconverter/

[36] This includes firewood, lop & top and round wood chipped in forest

[37] This includes sawdust, bark and wood chip as produced by the sawmilling and wood-based panel (WBP) sectors

Biomass from waste (municipal, industrial etc.)**	589,760 tonnes	820,655 tonnes	157.63	200.50	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Post consumer recovered wood (PCRW)	77,000 m^3	80,000 m^3	11.51	11.96	N/A	N/A	N/A	N/A	77,000 m^3	80,000 m^3	11.51	11.96
Biomass Supply for Transport:												
Common arable crops for biofuels (please specify main types)	None	None	None	None	None	None	None	None	None	None	None	None
Energy crops (grasses, etc.) and short rotation trees for biofuels (please specify main types)	None	None	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Others (please specify)	21.8 million litres from wastes such as UCO, Cat1 Animal Fats & Whey Permeate	24.5 million litres from wastes such as UCO, Cat1 Animal Fats & Whey Permeate	16.9	17.7	None	None	None	None	None	None	None	None

* 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.

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 that a category is confidential if any one of the following conditions applies: (1) there are less than three units; (2) one unit accounts for more than 80% of the total (dominance rule 1); (3) 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)	
	2017	2018
1. Land used for common arable crops (wheat, sugar beet, maize, barley, oats.) and oilseeds (rapeseed.) - potentially available for energy crop production	292,529	288,494
2. Land used for short rotation trees (willows, poplars). (Please specify main types): Willow and other Short Rotation Coppice.	830	843
3. Land used for other energy crops such as grasses (reed canary grass, switch grass, Miscanthus), sorghum. (Please specify main types): Miscanthus.	973	863

7. Please provide information on any changes in commodity prices and land use within your Member State in the preceding 2 years 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

Bioenergy accounted for 4.02% of Ireland's 2017 Gross Final Consumption (GFC), equivalent to 471 ktoe (5,477 GWh) and with 3.92% of GFC (479 ktoe, 5,566 GWh) coming from bioenergy in 2018. Forest-based biomass is the largest single contributor to total biomass for bio-energy supply in Ireland. The balance of biomass for bio-energy was provided by landfill gas, anaerobic digestion, waste-to-energy plants and combustion of residues and biofuels. In 2017 and 2018, all of biofuels placed on the Irish market and produced from Irish feedstock were from waste materials (used cooking oil, whey and category 1tallow). The renewable portion of waste used for energy increased by 106% in 2017 to 53 ktoe (621 GWh) and further by another 86% in 2018 to 99 ktoe (1,155 GWh) as a result of the coming on line of the Ringsend waste to energy plant during 2017 and full operation in 2018.

8. Please describe the development and share of biofuels made from wastes, residues, non-food cellulosic material, and ligno-cellulosic material

Article 22(1)i of Directive 2009/28/EC

At the end of 2016 there was no production or consumption of biofuels derived from non-food cellulose material or lignocellulose material in Ireland. In relation to wastes and residues, biofuels from used cooking oil (UCO), category 1 tallow, spent bleached earth, palm oil mill effluent and whey permeate have been consumed in Ireland. In 2017 and 2018, all biofuels produced in Ireland and placed on the market here were from UCO and tallow.

In 2017, almost 226 million litres of biofuels was placed on the Irish road transport fuel market, of which 167 million was biodiesel. All of this biodiesel was made from waste and residues. The remaining 58 million litres was bioethanol, of which less than 1% of which qualified for double counting.

In 2018, 216 million litres of biofuels was placed on the Irish road transport fuel market, of which 162 million was biodiesel. All of this biodiesel was made from waste and residues. The remaining 53 million litres was bioethanol, of which 5 million litres l was from wastes and residues.

Table 5: Development in Biofuels – Please provide the total amounts of biofuels made from the feedstocks listed in Annex IX of Directive 2009/28/EC (ktoe)

Feedstock as Listed in Annex IX Part A of Directive 2009/28/EC	2017	2018
(a) Algae if cultivated on land in ponds or photobioreactors	0	0
(b) Biomass fraction of mixed municipal waste, but not separated household waste subject to recycling targets under point (a) of Article 11(2) of Directive 2008/98/EC	0	0
(c) Bio-waste as defined in Article 3(4) of Directive 2008/98/EC from private households subject to separate collection as defined in Article 3(11) of that Directive	0	0
(d) Biomass fraction of industrial waste not fit for use in the food or feed chain, including material from retail and wholesale and the agro-food and fish and aquaculture industry, and excluding feedstocks listed in part B of this Annex	0.338	2.881
(e) Straw	0	0
(f) Animal manure and sewage sludge	0	0
(g) Palm oil mill effluent and empty palm fruit bunches	2.393	1.455
(h) Tall oil pitch	0	0
(i) Crude glycerine	0	0
(j) Bagasse	0	0

(k) Grape marcs and wine lees	0	0
(l) Nut shells	0	0
(m) Husks	0	0
(n) Cobs cleaned of kernels of corn	0	0
(o) Biomass fraction of wastes and residues from forestry and forest-based industries, i.e. bark, branches, pre-commercial thinnings, leaves, needles, tree tops, saw dust, cutter shavings, black liquor, brown liquor, fibre sludge, lignin and tall oil	0	0
(p) Other non-food cellulosic material as defined in point (s) of the second paragraph of Article 2	0	0
(q) Other ligno-cellulosic material as defined in point (r) of the second paragraph of Article 2 except saw logs and veneer logs	0	0
Feedstock as Listed in Annex IX Part B of Directive 2009/28/EC	**2017**	**2018**
(a) Used cooking oil	110.493	104.875
(b) Animal fats classified as categories 1 and 2 in accordance with Regulation (EC) No 1069/2009 of the European Parliament and of the Council	17.791	20.426

Resource Assessment

Please provide a resource assessment of the feedstock listed in Annex IX of Directive 2009/28/EC focusing on the sustainability aspects relating to the effect of the replacement of food and feed products for biofuel production, taking due account of the principles of the waste hierarchy established in Directive 2008/98/EC and the biomass cascading principle, taking into consideration the regional and local economic and technological circumstances, the maintenance of the necessary carbon stock in the soil and the quality of the soil and the ecosystems.

Biofuels from feedstocks listed in Annex IX part A were:

- Spent Bleaching Earth, imported from Malaysia (category d)
- Whey Permeate produced in Ireland (category d)
- Palm Oil Mill Effluent imported from Indonesia and Malaysia (category g)

Their sustainability was verified by a voluntary scheme (ISCC).

In both 2017 and 2018, biodiesel from Used Cooking Oil and Category 1 Animal Fats made up circa 74% of the biofuels used in Ireland. Over 10% of this biodiesel was produced in Ireland. As these are waste products or residues from meat processing, these do not have an impact on food or feed or on soil and the ecosystem. As they cannot easily be reused or recycled, it is appropriate that they are used for energy.

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 in the preceding 2 years. 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

All feedstocks for domestic biofuel production over the two years have been waste and residues – i.e. used cooking oil and category 1 animal fats.

The annual reports for the Biofuels Obligation Scheme for 2017 and 2018 are available online.[38]

Domestic production of biofuels has produced no detectable impacts in terms of biodiversity, water resources, water quality or soil quality in Ireland in 2017 or 2018.

More information on compliance with the sustainability criteria for biofuels can be found at Annex 2.

[38] http://www.nora.ie/biofuels-obligation-scheme/bos-annual-reports.225.html

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	2017	2018
Total estimated net GHG emission saving from using renewable energy[39]	4,354,827	4,919,604
Estimated net GHG saving from the use of renewable Electricity	3,493,368	4,016,289
Estimated net GHG saving from the use of renewable energy in heating and cooling	388,852	431,974
Estimated net GHG saving from the use of renewable energy in transport	472,607	471,341

Installed wind capacity reached 3,676 MW by the end of 2018 and generated 8.64 TWh of electricity. Wind generation resulted in the avoidance of approximately 3.15 Mt CO2 and approximately €432 million of fossil fuel imports.

Since 2005, the share of high carbon content fuels, such as coal and oil, has generally been reducing, and there has been a corresponding rise in the relatively lower carbon natural gas, and zero carbon renewables. Imported electricity is also considered as zero carbon from Ireland's perspective as emissions are counted in the jurisdiction in which they are emitted. This resulted in the carbon intensity of electricity dropping by 49%, from 896 gCO2/kWh in 1990 to a low of 455 gCO2/kWh in 2014. The intensity increased to 465 gCO2/kWh in 2015 due to increased coal generation and a reduction in net imports. It increased further in 2016, to 480 gCO2/kWh as a result of lower wind and hydro resources. Better wind and hydro resources in 2017, coupled with increased wind capacity, saw the intensity of electricity fall to 437 gCO2/kWh. Similarly in 2018, with the additional effect of coal generation being offline for approximately 3 months, the emissions intensity fell below 400 gCO2/kWh for the first time, to a new low of 375 gCO2/kWh.

Estimation of GHG Emissions Avoided Due to the Use of Renewable Electricity

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

[39] 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 and final energy consumption for non-combustible renewable energy sources such as wind and hydro is very similar. For most combustible 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.

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 considered to be equivalent to 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 considered to be equivalent to the electricity output from a non-combustible renewable energy plant, such as a wind farm or hydropower plant.

An alternative approach is to consider the primary energy of the non-combustible renewable source to be equivalent to the primary energy of the fuel that would have been required to produce the same amount of electricity. This is the principle behind the primary energy equivalent (PEE) method. By quantifying the combustible 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? This is a critical factor as different fossil fuel types and power plants have significantly different energy efficiencies and carbon intensities. For example, displacing generation from an inefficient, CO2 intensive coal powered plant will lead to significantly greater energy and carbon emissions reductions than displacing generation from a more efficient gas powered plant. Previously, the calculation of PEE was based on the assumption that each kWh of electricity generated from non-combustible renewable generation displaced a kWh of electricity from across the entire fossil fuel plant mix. The methodology used now draws on approaches that have been developed for use in base-lining studies in credit-based emissions trading systems. Renewable energy plants are primarily displacing electricity from the last fossil fuel plant dispatched to meet electricity demand. In the Republic of Ireland this comprises primarily of gas-fired plant. Calculating the

PEE based on such plant provides a more accurate estimate than using the entire plant mix and the approach is known as the Operating Margin Approach.

A key limitation of this methodology is that it ignores the interaction between renewable electricity generation and both fossil generation and cross-border trade. A much more detailed and sophisticated analysis of the amount of fossil fuels and carbon emissions that are avoided by renewable energy was carried out by SEAI for a single year (2012) using a detailed dispatch model. This work is presented in the SEAI report Quantifying Ireland's Fuel and CO2 Emissions Savings from Renewable Electricity in 2012 which was published in May 2014. The advantage of such a model is that it is capable of comprehensively accounting for the extensive range of dynamic factors that influence the interaction of renewable plant and fossil fuel generators and which affect the savings attributed to renewable generation, such as ramping and cycling effects, contingency reserve, network constraints, cross-border electricity trade etc. The disadvantage of dispatch models is that because of the level of detail involved they are very labour intensive to build, update and maintain. For this reason it is not practical to routinely use a dispatch model to estimate the annual avoided fossil fuel usage and carbon emissions from renewable energy. Instead, the results of the single year analysis using the dispatch model have been used to inform and refine the results of the simplified PEE approach, in particular by enabling the emissions resulting from ramping and cycling of fossil fuel plant in response to renewable electricity generation to be estimated and accounted for. There are clear limitations in this analysis but it does provide useful indicative results.

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 CO2 avoided from thermal renewable energy is equated with the CO2 emissions that would have arisen from this oil consumption.

The avoided CO2 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 CO2 avoided from bio-ethanol in transport is equated with CO2 emissions that would have arisen from petrol consumption and CO2 avoided from biodiesel and pure plant oil is equated with diesel consumption.

11. Please report on (for the preceding 2 years) and estimate (for the following years up to 2020) 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)[40,41]

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total GFC* (including Aviation adj as per Article 5)	11,280	10,876	11,060	10,944	11,380	11,731	11,732	12,226	**12,807**	**13,068**
Of Which										
GFC Electricity	2,401	2,345	2,342	2,332	2,412	2,464	2,501	2,605	**2,798**	**2,893**
GFC Heat	4,523	4,420	4,430	4,209	4,369	4,486	4,491	4,793	**4,910**	**4,943**
*TFC** Transport (as per Article 3(4))*	3,657	3,524	3,612	3,714	3,876	4,020	3,971	4,024	**5,099**	**5,232**
Total Renewable Energy	775	751	815	929	1,076	1,047	1,223	1,341	**1,562**	**1,725**
Of Which										
Renewable Electricity	466	452	484	550	676	646	764	877	**990.44**	**1079.60**
Renewable Heat	211	214	229	263	271	282	299	310	**405**	**444**
Renewable Transport	98	85	103	117	129	119	162	156	**167**	**201**
Renewable Transport for RES-T	139	142	177	195	228	208	295	288	**291**	**352**
RES %	6.58%	7.07%	7.59%	8.63%	9.06%	9.22%	10.53%	11.01%	**12%**	**13%**
Indicative Trajectory	n/a	**671**	**844**	**835**	**1017**	**1047**	**1388**	**1411**	**1801**	**2091**
Actual/estimated excess	n/a	**93**	**-14**	**111**	**79**	**26**	**-142**	**-12**	**-239**	**-366**

* **GFC:** Gross Final Consumption of energy

** **TFC:** Total Final Consumption.

[40] 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.

[41] When filling in the table, for deficit production please mark the shortage of production using negative numbers (e.g. –x ktoe).

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

Following the signing of a Memorandum of Understanding on Energy Cooperation with the UK Government in January 2013, a joint programme of work was undertaken to consider how Irish renewable energy resources, onshore and offshore, might be developed to the mutual benefit of both Ireland and the UK.

Economic analysis conducted on the Irish side clearly indicated that, under agreed policy and regulatory conditions, renewable energy trading could deliver significant economic benefits to Ireland and the UK, as well as being attractive to developers. However, given the economic, policy and regulatory complexities involved, and some key decisions that the UK was not prepared to take, delivery by 2020 of renewable energy trading was determined not to be a realistic proposition in 2014.

In relation to statistical transfers, Ireland has not yet entered into any bilateral arrangements with other member states though it is considering such as part of achieving overall compliance with legally binding targets under the Directive.

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

The renewable fraction of waste used in producing energy is calculated in accordance with the standard I.S. EN 15440:2011 "Solid recovered fuels – Methods for the determination of the biomass content". This standard specifies a number of methodologies that may be used i.e. the selective dissolution method, the manual sorting method and the Carbon 14 method.

The data obtained in accordance with I.S. EN 15440:2011 may be combined with waste characterisation survey data that is demonstrated to the satisfaction of the CRU (as administrator of the PSO in Ireland) to be representative of the waste composition at the generation facility, in order to determine the renewable fraction.

Calculations of the renewable fraction of waste must be verified by an independent third party on an annual basis.

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 by 31 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 Housing, Planning, and Local Government 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 situated.
- Would have a significant effect on the area of more than 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 25 turbines or having a total output greater than 50 megawatts.

The licence to generate electricity for example must be issued by the Commission for Regulation of Utilities (CRU). The CRU 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. Projects involving development on the foreshore will require permission under the Foreshore Act from the Minister for Housing, Planning and Local Government. Applications for the REFIT scheme are processed by the Department of Communications, Climate Action and Environment.

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 operate. 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?

At the end of 2018 there were no proposals to change planning legislation to provide for automatic approval of planning and permit applications for renewable energy installations where the authorising body has not responded within set time limits.

The provisions in section 34 of the Planning and Development Act 2000 as amended by section 23 of the 2010 Planning & Development Act 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.

These provisions were included to ensure compliance with our obligations under the Environmental Impact Assessment Directive and the Habitats Directives. At the end of 2018 there were no proposals to change these provisions. There are various objectives statutorily provided to ensure projects are dealt with as expeditiously as possible. As the transmission and distribution system operators have responsibility for the operation of the electricity system taking due account of safety considerations, it is not proposed 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 under each of the identified renewable energy sources.[42] 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.

Many counties in Ireland have developed wind energy strategies identifying areas that are suitable for wind energy development. Under planning legislation, planning authorities and An Bord Pleanála are obliged to have regard to any guidelines that are issued by the Minister for Housing, Planning and Local Government, including the Wind Energy Development Guidelines published by the Department of Environment in 2006. These

[42] https://www.seai.ie/

guidelines recommend that planning authorities prepare a Wind Energy Strategy to identify geographic areas which are suitable or otherwise for the development of wind energy and to include such strategies in the development plan for the area. These guidelines are currently being updated.

Local authorities, and in particular the planning function within these, will, by identifying and designating areas suitable for renewable energy projects and infrastructure and implementing appropriate project permitting processes, play a key role in achieving Ireland's renewable energy targets. Local authorities now deliver wind energy development plans in response to the statutory requirement to identify areas suitable for wind farm development and some authorities are engaging in developing holistic renewable energy strategies encompassing all available renewable energy resources.

SEAI has developed tools to assist spatial planners in defining the spatial energy landscape of the future. One such spatial planning tool is the SEAI methodology for Local Authority Renewable Energy Strategies (LARES). Local authorities are required to adopt wind energy strategies in response to the statutory requirement to identify land for windfarm development. SEAI convened a steering group to oversee the preparation of a methodology and template to act as a guide for local authorities in preparing more holistic Renewable Energy Strategies (RES).

The LARES methodology aims to facilitate consistency of approach in the preparation of RES, and to assist local authorities in developing robust, co-ordinated and sustainable strategies in accordance with national and European obligations. The methodology also aims to address common issues encountered with renewable energy (RE) resources, technologies and projects.

The methodology defines the actions in the key steps to deliver a LARES, these are:

- The Preliminary Phase, which clarifies the local need for a LARES and identifies whether Strategic Environmental Assessment or Appropriate Assessment are required;
- **Step 1:** The Policy Review, identifying all renewable energy and other relevant policies
- **Step 2:** Identify the Renewable Energy Resources and their potential for exploitation
- **Step 3:** Review the Constraints and Facilitators that might affect exploitation
- **Step 4:** Develop the Local Renewable Energy Policy

The methodology provides an outline LARES structure and detailed guidance for planning authority staff on the execution of each of the steps to complete a LARES. It also details the primary sources of information and data, relevant stakeholder organisations and land use interactions for renewable energy developments. The timing and scope of public consultation at key stages in the development of a LARES is also highlighted.

Preparation of a LARES will:

- Align County Development Plans with National Targets
- Facilitate Consistent Approach to RE by Local Authorities
- Ensure Alignment with Regional Development Plans
- Ensure All Available Resources are Considered
- Provide Appropriate Signals to RE Project Developers
- Facilitate Planning and Development of Electricity Infrastructure for Renewable Energy Projects

To date LARES have been published and/or adopted by the following planning authorities: Mayo 2011 - 2020, Kerry 2012 - 2015, Roscommon 2013, Clare 2014 – 2020, South Tipperary 2014 and Kilkenny County & Kilkenny City 2014 – 2020, Waterford City and County 2016 -2020 and Tipperary 2017 (draft). Preparatory work for LARES's has also been undertaken in Louth and South Dublin.

In order to support the robust implementation of LARES SEAI has, in cooperation with the Irish Planning Institute, developed the following suite of accredited LARES training courses:

A. Renewable Energy Policy, Resources and Conversion Technologies
B. Renewable Energy Utilisation in an Urban Environment
C. Environmental Considerations for Renewable Energy Developments
D. Planning and Implementing Community Engagement Programmes to Promote Social Acceptance of Renewable Energy Strategies

Under its Sustainable Energy Communities programme SEAI has also funded several local authorities and communities to develop their local Sustainable Energy Action Plans (SEAP), which were initiated under the Covenant of Mayors. It is recognised that, in order to embed SEAP energy targets in spatial plans, additional tools will be required. After funding the development of South Dublin County Council's SEAP in 2013, SEAI provided a grant to the Council in 2014 to carry out energy demand mapping to inform its LARES and to provide a

basis for incorporating the SEAP within the County Development Plan. The City of Dublin Energy Management Agency (CODEMA) assisted in developing the methods to be applied to the energy mapping and have since applied these to energy mapping for Dublin City Council and are carrying out similar exercises for Fingal and Dun Laoghaire Rathdown Councils and the resulting energy demand mapping outputs have been published. Heat demand mapping was also carried out in 2016 for Tralee and Killarney as a precursor to developing renewable energy strategies for those towns.

Separately, the Department of Communications, Climate Action and Environment is preparing a Renewable Electricity Policy and Development Framework, which is to be underpinned by a Strategic Environmental Assessment and an Appropriate Assessment and focusing on requirements out to 2030. The Environmental Report is being developed to inform the Strategic Environmental Assessment and will include areas designated pursuant to the Birds Directive and the Habitats Directive, and will also assess any effects on the environment including on issues such as biodiversity, population, human health, fauna, flora, soil, water, climatic factors, material assets and cultural heritage and the interrelationship between the above factors.

The proposed Framework will be a high level strategic policy, which is intended for the guidance of persons seeking development consent primarily in relation to large scale renewable electricity projects, as well as for the guidance of planning authorities, statutory authorities and the public.

District Heating

The level of renewable energy in the heating sector in Ireland has increased in recent years, rising from 2.4% in 2000 to 6.9% in 2017. District heating currently accounts for a very small share of the Irish heating sector; estimated to be significantly less than 1%, representing one of the lowest shares of district heating in Europe. National policy recognises the contribution that district heating can make to Ireland's energy and climate goals.

In 2018 the Irish District Energy Association (IrDEA), together with the ESB, commissioned Dr Bernd Moeller and his research team at the Centre for Sustainable Energy Systems at the Europa-Universitat Flensburg to conduct a study in order to examine the potential for developing district heating networks across Ireland.

13. Please provide the amounts of biofuels and bioliquids in energy units (Ktoe) corresponding to each category of feedstock group listed in part A of Annex VIII taken into account by that Member State for the purpose of complying with the targets set out in Article 3(1) and (2), and in the first subparagraph of Article 3(4)

Feedstock Group	2017	2018
Cereals and other starch-rich crops	24.404	23.881
Sugars	5.260	0.898
Oil crops	0.00	0.407

Annex 1

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

Total final energy consumption increased again in 2018, by 4.5% (4.0% weather corrected). After the economic crisis of 2008, total final consumption fell to a low of 10,671 ktoe in 2012, but it has increased in five of the six years since then. In 2018 it was 15% above the 2012 low point, but was 6.6% lower than the peak in 2008.

Ireland's overall import dependency reached 90% in 2006. It varied between 85% and 90% until 2016 when it fell to 69%. It fell further, to 66%, in 2017, but increased to 67% in 2018.

In 2018 gross final energy use from renewable energy was 11.0%. Electricity generated from renewable energy (normalised in accordance with Directive 2009/28/EC methodology) reached 33.2% of gross electricity consumption (RES-E) in 2018. Renewable energy contribution to thermal energy (RES-H) was 6.5% in 2018. Renewable energy in transport (RES-T) reached 7.2% in 2018 when the weightings for double certificates are applied in accordance with the Directive. Considerable effort is required under all sectors 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 2019: Energy in Ireland 1990-2018 (2019 report) and Ireland's Energy Projections (Progress to targets, challenges and impacts). Both of these publications are available at www.seai.ie.

Table 15

% of Each Target	2010	2011	2012	2013	2014	2015	2016	2017	2018
RES-E (Normalised)	15.6	17.3	19.8	21.3	23.5	25.5	26.8	30.1	33.2
RES-T	2.5	3.8	4.0	4.9	5.2	5.9	5.2	7.4	7.2
RES-H	4.3	4.9	4.8	5.2	6.3	6.2	6.3	6.7	6.5
% of Renewables in Consumption Across the 3 Sectors	5.7	6.5	7.1	7.6	8.6	9.1	9.2	10.5	11.0

TFC: Total Final Consumption

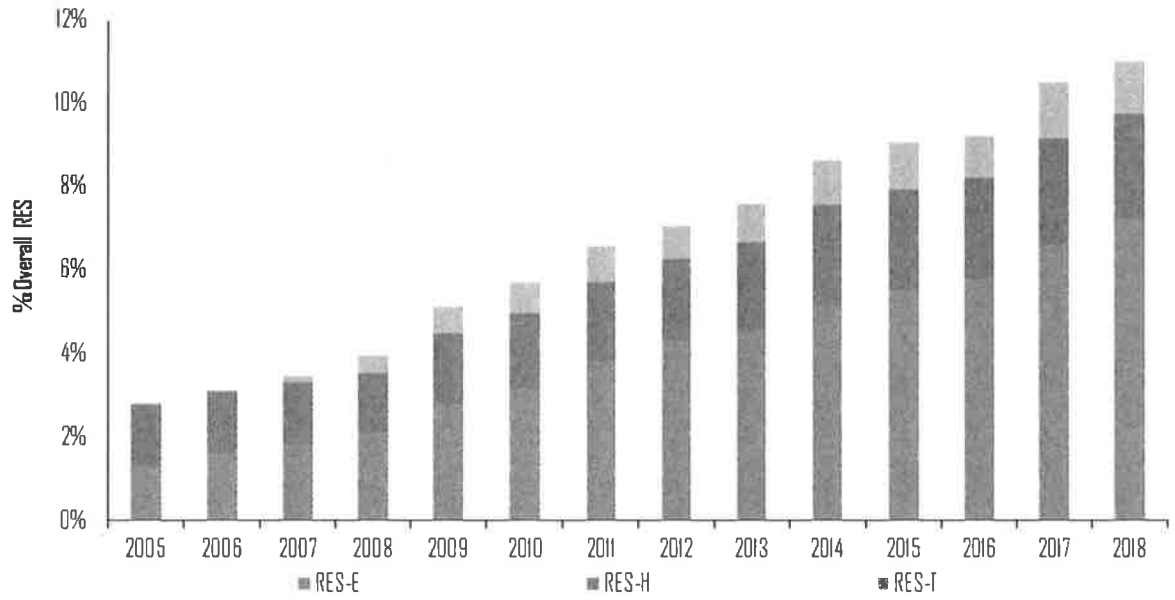

Figure 1: Renewable energy (%) contribution to gross final consumption by mode.
In 2018, gross final energy use from renewable energy was 11.0%.

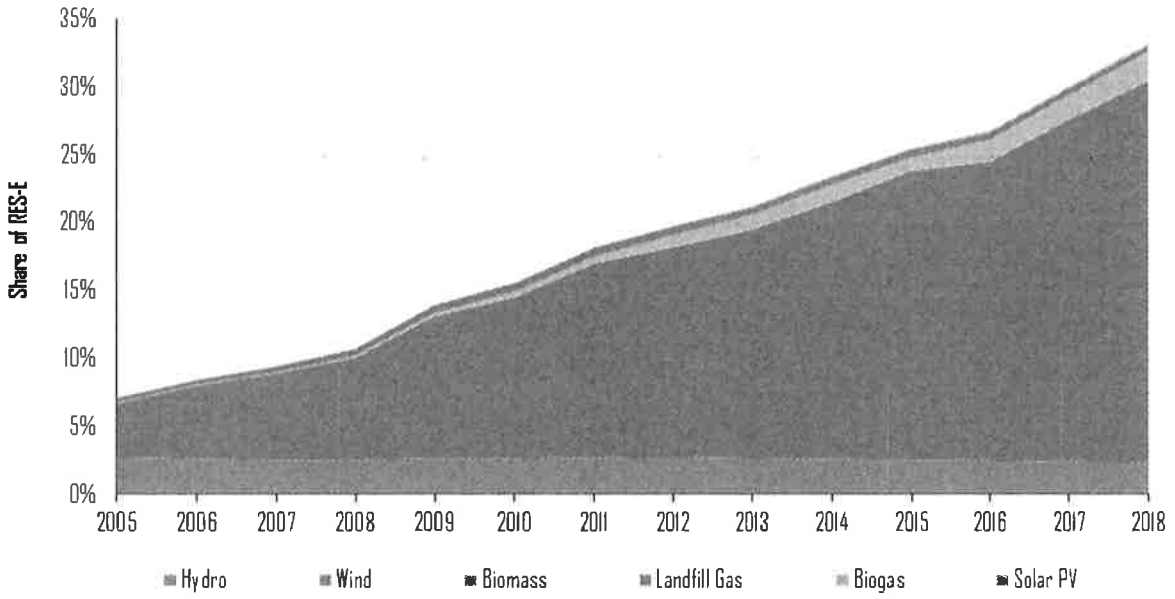

Figure 2: Renewable energy contribution to gross electricity consumption (RES-E normalised).
RES-E – Electricity sector: 33.2% in 2018

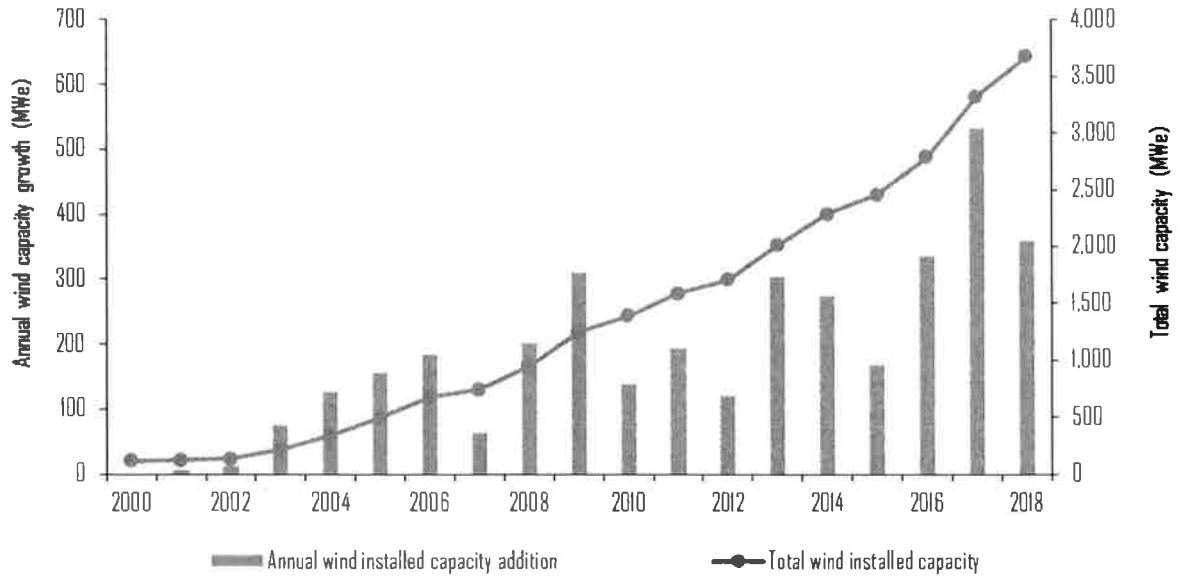

Figure 3: Installed wind generating capacity, 2000 – 2018.

Evolution of wind generating capacity to 2018

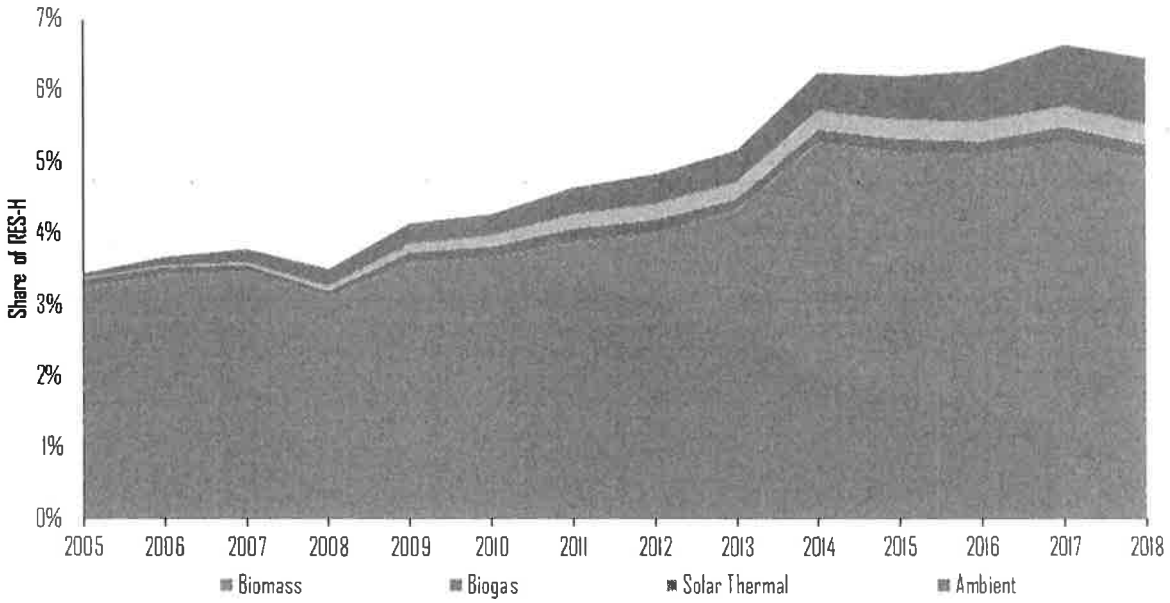

Figure 4: Renewable energy contribution to thermal energy (RES-H).

RES-H (Heat Sector) – 6.5% in 2018

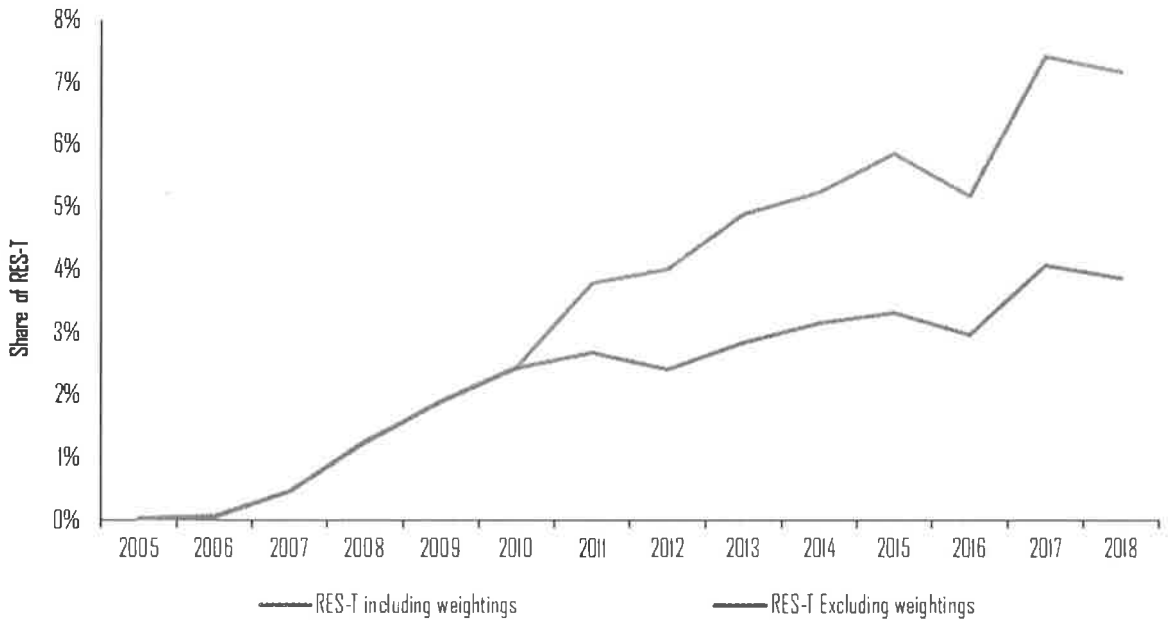

Figure 5: Renewable energy as a proportion of (road and rail) transport (RES-T).

The figure for RES-T in 2018 was 3.9%, or 7.2% when the weightings for biofuels and renewable electricity are applied in accordance with the Directive

Renewable RES-E Technology Trajectory to 2020

Electricity is the smallest sector in terms of energy end-use demand, historically accounting for less than a fifth of final energy demand. Therefore, the 40% renewable electricity target (RES-E) contributes considerably less to the overall renewable energy target when compared to heat and transport contributions. The share of electricity in total final consumption is not anticipated to change significantly from its historical share to 2020, yet approximately half of the total renewables contribution is expected to come from renewable electricity, predominantly from wind energy. It is evident that the significant progress in renewable electricity deployment will need to continue to 2030 but with further contributions required from the heat and transport sectors also.

Wind energy deployment has made the most significant contribution to RES-E to date. The historic build rate (2005–2010) was 180 MW per year. Since 2010 the build rate has increased to an average of over 200 MW per year. In 2017 the installed capacity increased by 335 MW to just over 3.3 GW total installed capacity.

As set out in the NREAP, the development of ocean energy devices is being supported in Ireland through the Ocean Energy Prototype Development Fund.[43]

Wind generation will provide the bulk of Ireland's renewable energy in 2020. To meet the RES-E target, it is expected that between 3,900 MW and 4,300 MW of wind needs to be connected. This is down from the 4,649MW of total wind generation envisaged in the original NREAP.

At the end of 2018, EirGrid[44] indicated 3,676 MW of installed wind capacity was connected to the national grid with total renewable generation connected at just over 4,388 MW. The average annual capacity added must increase to over 250MW if the required 2020 target is to be reached (approximately 350 MW was connected in 2018). 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 2020. Following that, the profile is based on published data on those projects expected 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 breakdown 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,[45] 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.

A new Renewable Electricity Support Scheme (RESS) was approved by the Irish Government in July 2018. The scheme aims to assure a minimum achievement of 70% RES-E by 2030 through an auctions-based mechanism. The scheme will include community-led projects and community capacity building measures. The first RESS auction in June 2020 will deliver 'shovel ready' projects, with the expectation of reducing the existing gap to meet 40% RES-E by 2020. While wind energy and particularly offshore wind energy are anticipated to grow under the scheme, it also aims to diversify the renewable electricity portfolio.

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[43] The Scheme closed in 2019. However the SEAI National Energy Research Development and Demonstration (RD&D) Funding Programme invests in innovative energy RD&D projects which contribute to Ireland's transition to a clean and secure energy future which Ocean Energy projects may apply to.

[44] http://www.eirgridgroup.com

[45] www.esri.ie

The new scheme is framed within the context of the European Union's Clean Energy Package, in particular the recast Renewable Energy Directive and the development of Ireland's draft National Energy and Climate Plan (NECP).

Renewable Transport (RES-T)

The biofuel 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 was increased from 6% to 8% by volume with effect from 1 January 2017 and remained at that rate until end of 2018. In 2017, 226 million litres of biofuel was placed on the Irish market with 216 million litres of biofuel placed on the market in 2018.

Electric Vehicles (EVs) and Plug-in hybrid vehicles (PHEVs) are currently available for purchase from many of the major car manufactures. The deployment of EVs have been supported by an upfront grant (of up to €5,000) and substantial Vehicle Registration Tax relief (worth up to €5,000) for consumers as well as other tax incentives such as lower motor tax and accelerated capital allowances for business. New incentives introduced in 2017 and 2018 include grants for EVs in the taxi sector, the installation of home chargers and reduced tolls.

Increasing numbers of electric vehicles were purchased in 2017 and 2018. At the end of 2017, there were 3,798 electric vehicles under taxation in Ireland. By the end of 2018, this has doubled to 7,647. (It is expected that circa 15,000 EVs will be under taxation at the end of 2019). However, even with multiple counting of the energy used by EVs, they are estimated to make only make a small contribution to the RES-T target.

The deployment of publicly accessible charging infrastructure continued and as of the end of 2018, approximately 700 public charge-points were installed, including over 70 DC fast chargers installed on the main interurban routes. Additionally over 4,000 domestic/commercial installations were in place at the end of 2018 including home chargers.

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.[46] When calculating the overall RES target, total gross final consumption includes aviation as well as domestic road & rail and inland

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

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.

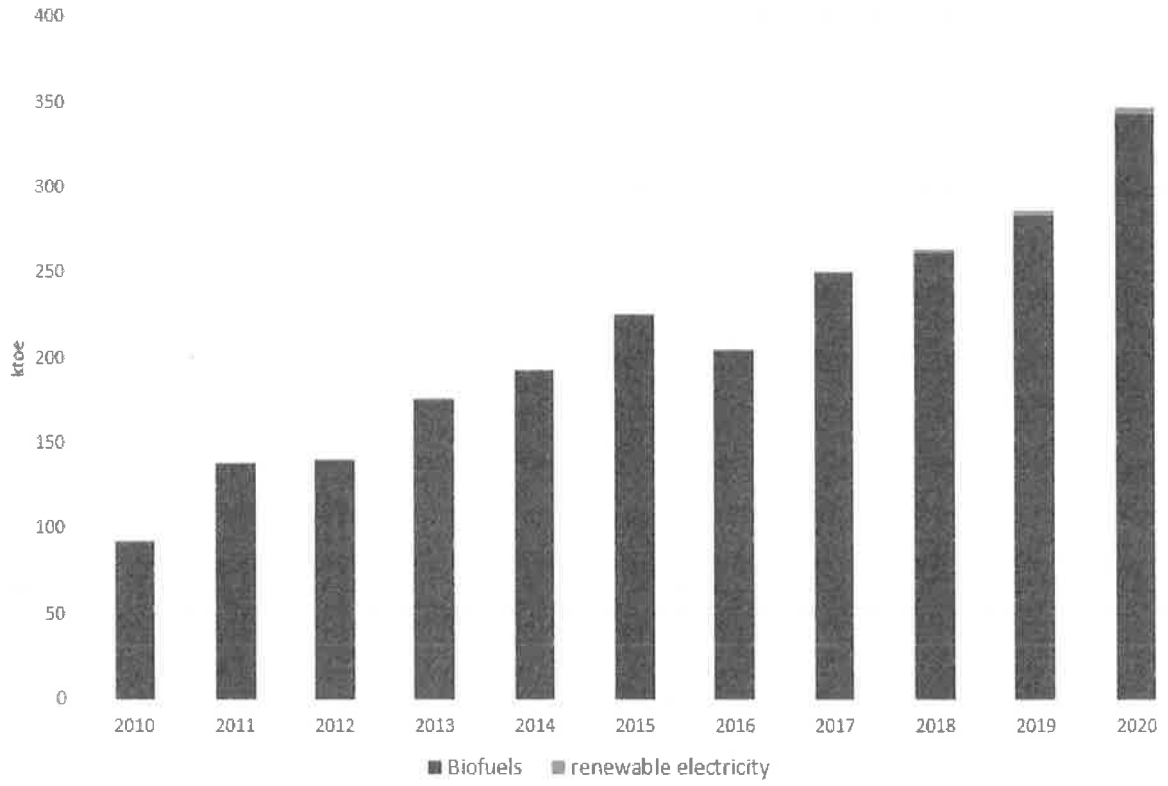

Figure 6: Renewable transport trajectory to 2020

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.[47] These were designed to build market capacity for various

[47] 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.

renewable heating technologies. REFIT 3 provides incentives for up to 185 MW of new biomass Combined Heat and Power (CHP) to be constructed.

The Support Scheme for Renewable Heat ((SSRH) – see Introduction, Page 2, para. 3), was designed to support the switch from fossil fuels to renewable heating systems. The scheme was developed to financially support the adoption of renewable heating systems by commercial, industrial, agricultural, district heating operators and other non-domestic heat users not covered by the EU Emissions Trading System (ETS). The SSRH supports eligible projects through one of the following support mechanisms:

- An installation grant, of up to 30% of the installation cost, for ground, water, or air source electric heat pumps; or
- Ongoing operational support for a period of up to 15 years, on the basis of prescribed tariffs, for biomass boilers and anaerobic digestion heating systems.

The use of renewable heat must grow by 5.5% (RES-H in 2018 was 6.5%) in order to reach the RES-H target of 12% by 2020. Renewable heat use in the industrial sector predominates over the period to 2020 – accounting 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. REFIT 3, through its support of high efficiency cogeneration is also expected to contribute to achieving the RES-H 12%.

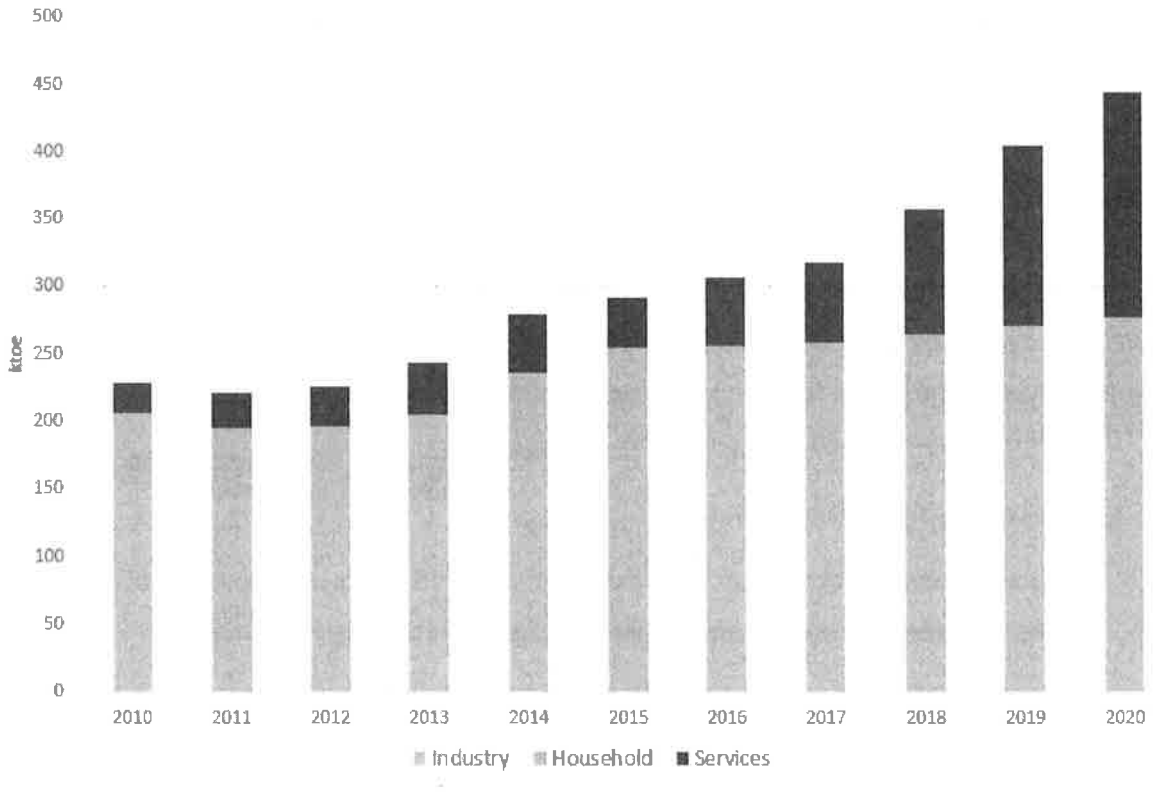

Figure 7: Renewable heat trajectory to 2020

Annex 2

Submission of information on compliance with the sustainability criteria per Article 18(3) fifth indent

The information required is set out in the Biofuels Obligation Scheme Annual Reports produced by the National Oil Reserves Agency (NORA). The reports for 2017 and 2018 can be downloaded here. In particular, Sections 4.6 to 4.8 are relevant in both reports.

Voluntary Schemes

In 2017 and 2018, only one Voluntary Scheme (International Sustainability and Carbon Certification) was utilised. In 2017 and 2018, almost all biofuels were covered by a Voluntary Scheme.

GHG savings

The following tables set out the carbon intensities of biofuels deployed in 2017 and 2018.

Table 1: Breakdown in carbon Intensities reported in sustainability statements, by feedstock

Year	Fuel Type	Feedstock	Description	Carbon Intensity (g CO2e/MJ)			Default Values
				Min	Avg	Max	
2017	Bioethanol	ECCORN	Corn – EC	31.0	31.1	31.0	42.7
		NECCOR	Corn – Non EC	14.0	28.3	37.0	-
		SCANE	Sugar Cane	14.0	19.9	21.0	24.3
		WHEAT	Wheat	29.0	35.9	42.0	-
		TRICAL	Triticale	42.0	42.0	42.0	-
		WHEYP	Whey permeate	17.0	17.0	17.0	
		SBEET	Sugar Beet	40.0	40.0	40.0	40.2
	Biodiesel	UCO	Used Cooking Oil	4.0	12.5	14.0	14.2
		TALL1	Tallow – Category 1	14.0	14.0	14.0	14.2
		SBE	Spent Bleached Earth	8.0	8.0	8.0	
		POME	Palm Oil Mill Effluent	8.0	15.6	27.0	
		PFAO	Poultry Feather Acid Oil	14.0	14.0	14.0	
2018	Bioethanol	ECCORN	Corn – EC	22	30.5	31	42.7
		NECCOR	Corn – Non EC	24	30.9	38	-
		WHEAT	Wheat	25	38.2	40	-
		WHEYP	Whey permeate	12	13.1	17	-
		SBEET	Sugar Beet	27	38.1	40	40.2
	Biodiesel	UCO	Used Cooking Oil	4	11.7	14	14.2
		TALL1	Tallow – Category 1	8	13.5	14	14.2
		SBE	Spent Bleached Earth	8	8	8	-
		POME	Palm Oil Mill Effluent	8	13.4	27	-
	BioLPG	PALM	Palm Oil	17	17	17	-

Table 2: Breakdown of Reporting of Actual Carbon Intensity Values, by Feedstock

Year	Fuel Type	Feedstock	Description	Total Volume (l)	Volume Reported as Actual Values (l)	Percentage of Total Volume of Feedstock (%)
2017	Bioethanol	ECCORN	Corn – EC	5,220,999	5,220,999	100
		NECCOR	Corn – Non EC	10,571,948	10,571,948	100
		SCANE	Sugar Cane	9,945,416	9,945,416	100
		WHEAT	Wheat	31,040,730	28,521,841	91.9
		SBEET	Sugar Beet	367,936	0	0
		TRICAL	Triticale	1,017,047	1,017,047	100
		WHEYP	Whey permeate	311,949	311,949	100
	Biodiesel	UCO	Used Cooking Oil	141,066,931	28,984,823	21
		TALL1	Tallow – Category 1	22,943,933	2,160,118	9
		SBE	Spent Bleached Earth	230,000	230,000	100
		POME	Palm Oil Mill Effluent	3,055,515	3,055,515	100
		PFAO	Poultry Feather Acid Oil	1	1	100
2018	Bioethanol	ECCORN	Corn – EC	20,267,277	20,267,277	100
		NECCOR	Corn – Non EC	12,754,169	12,754,169	100
		WHEAT	Wheat	13,804,257	13,597,245	98.5
		SBEET	Sugar Beet	1,760,106	135,243	7.7
		WHEYP	Whey permeate	5,272,430	5,272,430	100
	Biodiesel	UCO	Used Cooking Oil	133,912,693	77,516,315	57.9
		TALL1	Tallow – Category 1	26,082,095	3,318,283	12.7
		SBE	Spent Bleached Earth	269,898	269,898	100
		POME	Palm Oil Mill Effluent	1,858,308	1,858,308	100
	BioLPG	PALM	Palm Oil	512,857	512,857	100

Annex 3

Description of measures and procedures in force to ensure public participation in decision making in accordance with the requirements of Article 6, paragraphs 3, 4 and 8, of the Convention referred to in Article 7, including reasonable timeframes

In Ireland, the then Minister for the Environment, Community and Local Government (now Communications, Climate Action and Environment) issued guidelines under Article 14 of the European Communities (Access to Information on the Environment) Regulations 2007 to 2014. Under Article 14, public authorities are obliged to take account of these guidelines in performing their functions under the Regulations.

The principle of public access to information on the environment has been accepted for some time in Ireland. It has been given statutory effect by regulations on access to information on the environment and by the Freedom of Information Acts. Many public bodies perform environmental functions. A well informed public can promote the effective and timely discharge of these functions. The provisions of the amended AIE regulations give added impetus to this.

The 2014 regulations amend the European Communities (Access to Information on the Environment) Regulations 2007 and 2011 (S.I. No 133 of 2007, S.I. No. 662 of 2011 and S.I. 615 of 2014) and also transpose the Directive 2003/4/EC. This Directive replaced Council Directive 90/313/EEC, which was the previous EU instrument providing for access to environmental information.

The New Renewable Electricity Support Scheme (RESS)

A public consultation on the proposed design principles of the RESS ran from September 4th to November 10th 2017 and there were more than 1,250 submissions received. The RESS High Level Design was approved by Government in July 2018 and the EU State Aid pre-notification process is now underway.

https://www.dccae.gov.ie/en-ie/energy/consultations/Pages/Renewable-Electricity-Support-Scheme-Design-Consultation.aspx

Ireland's Draft National Energy and Climate Plan 2021-2030

In accordance with the Governance of the Energy Union and Climate Action Regulation, Ireland's first Draft National Energy & Climate Plan (NECP) 2021-2030 was to be submitted to the European Commission by 31/12/2018. There was an initial consultation on 9th October 2018 on Ireland's 2021-2030 National Energy & Climate Plan (NECP) based on the template which Ireland is required to complete.

The Draft NECP was open for public consultation until 22 February 2019. A final version of the NECP is to be submitted by 31/12/2019. The first draft of the NECP takes into account energy and climate policies developed to date, the levels of demographic and economic growth identified in the Project 2040 process and includes all of the climate and energy measures set out in the National Development Plan 2018-2027. It is the first step in the process of putting together our final National Energy and Climate Plan and further iterations of the plan will take into account additional policies and measures and the all-of-Government Climate Action Plan to be completed in early 2019. The Draft NECP was open for public consultation until 22 February 2019.

https://www.dccae.gov.ie/en-ie/energy/consultations/Pages/Ireland%E2%80%99s-Draft-National-Energy-and-Climate-Plan-2021-2030.aspx

Electricity Support Schemes: Transitioning to I-SEM Arrangements Consultation

The Department of Communications, Climate Action and Environment (DCCAE) updated existing electricity support schemes supported by the Public Service Obligation (PSO) Levy (primarily for renewable energy). This updating was necessary as some of the key concepts and parameters which underlie the PSO schemes were replaced by the new wholesale electricity market design which came into effect from October 2018.

In May 2017, DCCAE published an information paper (the Options Paper) which outlined a number of options considered as part of this decision making process and set out the Department's emerging thinking on the optimal outcome. Following extensive consultation with industry, the Department published a Proposed Decision on adapting the Electricity Support Schemes to the I-SEM in November 2017. The Department received 20 responses to the Consultation and the non-confidential responses are published here. The final decision paper following this consultation is available here.

Public Consultation on the Mid-Term review of the OREDP

The Offshore Renewable Energy Development Plan (OREDP), published in February 2014, identified the opportunity for the sustainable development of Ireland's abundant offshore renewable energy resources. It set out key principles, policy actions and enablers for delivery of Ireland's significant potential in this area. The OREDP and its implementation is overseen by a Steering Group established by the Minister for Communications, Climate Action and Environment. As part of an interim-term review of the OREDP, focused on progress to date and challenges arising, a draft document was launched for public consultation in October 2017.

This Public Consultation Closed on 19 December 2017. A summary of the responses received to this public consultation can be found in the OREDP Interim Review Public Consultation Report. The Interim Review Report of the OREDP has been published here.

Public Consultation on the Biofuel Obligation Scheme

In December 2017, a public consultation was announced seeking views in relation to implementing a phased increase in the biofuel obligation rate, how the Biofuels Obligation Scheme could be developed in the future and the potential for a similar obligation scheme in the domestic heating sector. The closing date for submissions was 19 January 2018 and 22 submissions were received.

https://www.dccae.gov.ie/en-ie/news-and-media/consultations/Pages/Biofuel-Obligation-Rate-Consultation.aspx

Renewable Heat Incentive - Design Options and Implementation Consultation

In early 2017, a public consultation took place in relation to the design of a scheme to support large heat users to replace fossil fuel heating systems with renewable energy technologies. The consultation which closed on 3 March 2017, received 116 submissions.

https://www.dccae.gov.ie/en-ie/energy/consultations/Pages/Renewable-Heat-Incentive-Consultation.aspx

Draft National Policy on Electricity Interconnection in Ireland: Public Consultation

This document was published for consultation on 30th January 2018. There were a total of 13 submissions received. The document contains Ireland's current policy on interconnection from a national and European point of view. The closing date for submissions was 2 March 2018. The final document was published in July 2018.

https://www.dccae.gov.ie/en-ie/energy/consultations/Pages/Draft-National-Policy-on-Electricity-Interconnection-in-Ireland-Public-Consultation-Aim-of.aspx