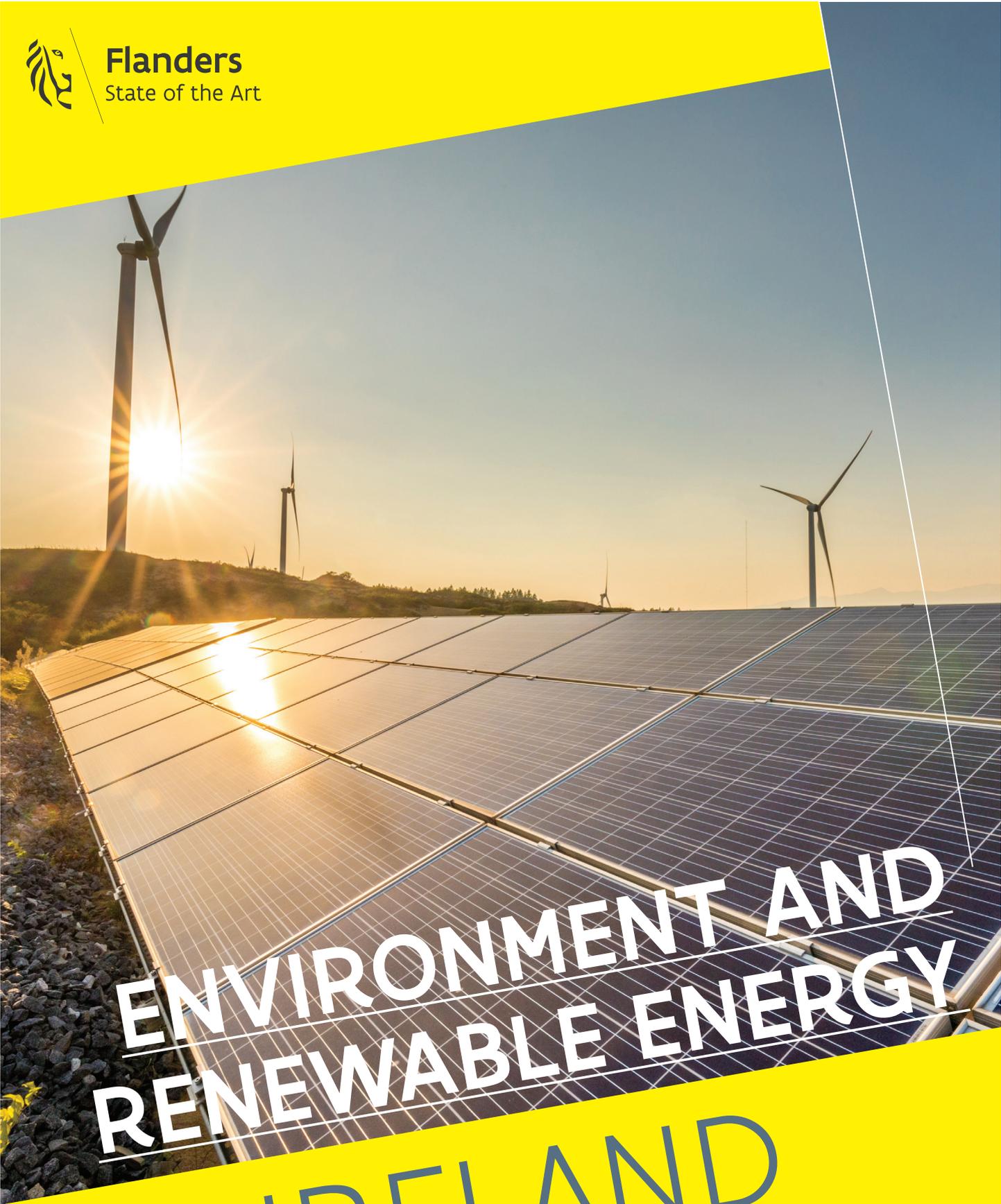




Flanders
State of the Art

A photograph of a solar farm with rows of solar panels in the foreground and several wind turbines in the background. The sun is low on the horizon, creating a bright glow and lens flare. The sky is a clear, pale blue.

ENVIRONMENT AND RENEWABLE ENERGY

IN IRELAND

FLANDERS INVESTMENT & TRADE MARKET SURVEY

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ENVIRONMENT AND RENEWABLE
ENERGY IN IRELAND

January 2020

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1. PREFACE

The Irish Parliament declared a Climate Emergency in May 2019 as a response to a Parliamentary report on Climate Action.¹ With a growing body of environmental legislation and regulation, businesses are challenged to work within a sustainability framework while at the same time maximising employment provision and profitability. There is now a focused policy on the development of principal types of renewable energy, including solar, thermal photovoltaics, bioenergy, hydro, tidal, wind, and wave energy.

The Irish Government has committed to maximising renewable energy resource exploitation, finding the best efficiencies in energy generation and mitigating environmental damage. This goes hand in hand with business innovation and job creation opportunities in renewable technologies, plant biotechnology and entrepreneurship.

“Under the Government’s Climate Action Plan, we want to increase the amount of energy produced from renewable sources from the 30 per cent we produce today, to 70 per cent by 2030,” -Leo Varadkar, Taoiseach (Prime Minister).²

Ireland’s waste management practices, infrastructure and regulation have matured significantly over the last 20 years. This change has been driven by EU and national legislation, national policy and economic initiatives. Government policy focusses on waste as a resource and the virtual elimination of landfilling. The current and future focus is on circular economy - preventing waste, reuse, maximising recycling and using waste as a fuel in replacement of fossil fuels: all elements of the strategy to boost competitiveness, foster sustainable economic growth and generate new jobs.

There are currently many developments in a multitude of sub-sectors within the environment and renewable energy industries that are worth looking at from a supplier point of view.

This document will set out the developments and the opportunities that are evident to support the completion of the many projects that are getting Ireland to transition to a carbon neutral state and at the same time increase its amount of energy produced from renewable sources.

Flanders Investment and Trade – Dublin Office
January 2020

¹https://data.oireachtas.ie/ie/oireachtas/committee/dail/32/joint_committee_on_climate_action/reports/2019/2019-03-28_report-climate-change-a-cross-party-consensus-for-action_en.pdf

² <https://www.nweurope.eu/projects/project-search/gencomm-generating-energy-secure-communities/news/energia-to-invest-3billion-in-renewable-energy/>

2. THE IRISH ECONOMY

Despite operating in the presence of a considerable degree of uncertainty due to Brexit, the Irish economy continues to grow at a robust rate. Most recent figures show that the domestic economy grew with 3.8% in 2019, with a further expected growth of 3.4% in 2020. Unemployment levels in December 2019 were at 4.8% and are set to fall to 4.5% by the end of the present year and to 4.1% in 2021.

The Irish economy appears to be operating at its full potential level. The continued strong performance of the labour market has resulted in a significant increase in both nominal and real wages in recent years. Fiscal policy is important in balancing the degree of demand-side pressures in the domestic economy and vigilance will be required to ensure that large infrastructural projects, which are essential for sustainable growth, are delivered on an efficient basis.

Given the pace of growth in the economy at present, increases in expenditure must therefore focus on capital projects that increase the productive capacity of the economy.

SUMMARY TABLE

	2016	2017	2018	2019	2020
Output (Real Annual Growth %)					
Private Consumer Expenditure	5.2	3.0	3.4	2.7	2.5
Public Net Current Expenditure	3.6	3.9	4.4	4.2	3.6
Investment	50.8	-6.8	-21.1	45.0	4.7
Exports	4.1	9.2	10.4	9.6	6.3
Imports	18.4	1.1	-2.9	20.2	7.2
Gross Domestic Product (GDP)	3.7	8.1	8.2	5.8	3.3
Gross National Product (GNP)	9.7	5.2	6.5	5.2	3.8
Prices (Annual Growth %)					
Consumer Price Index (CPI)	0.0	0.3	0.5	1.0	1.2
Growth in Average Hourly Earnings	2.5	3.4	3.0	3.5	4.0
Labour Market					
Employment Levels (ILO basis ('000))	2,132	2,194	2,258	2,310	2,353
Unemployment Levels (ILO basis ('000))	195	158	137	125	114
Unemployment Rate (as % of Labour Force)	8.4	6.7	5.8	5.0	4.6
Public Finance					
General Government Balance (€bn)	-1.8	-0.8	0.0	0.0	-1.1
General Government Balance (% of GDP)	-0.7	-0.3	0.0	0.0	-0.3
General Government Debt (% of GDP)	73.9	67.8	63.6	57.8	53.5
External Trade					
Balance of Payments Current Account (€bn)	-11.4	1.5	34.3	-2.5	-3.1
Current Account (% of GNP)	-5.2	0.6	13.6	-0.9	-1.1

Source – ESRI Quarterly Economic Survey Dec 2019 ³

³ <https://www.esri.ie/system/files/publications/OEC2019WIN.pdf>

3. IRISH ENERGY MARKET

Energy policy has traditionally been orientated towards ensuring a secure and affordable supply of energy. Over time, other factors, such as fossil fuel divestment and reducing carbon emissions, have become increasingly prominent. Ireland is currently embarking on an “energy transition”.

The Government’s energy White Paper (2015) sets out a framework for energy policy to 2030 and outlines a transition to a low carbon energy system for Ireland by 2050.⁴ Significantly, it is the first time the Irish government has outlined a path to the eventual elimination of fossil fuels from its energy system.

The Government has also recently detailed its commitments to transition Ireland to a low-carbon and climate-resilient society in the National Development Plan 2018-2027. National energy policy does not, however, operate in a vacuum. There is a close interaction between energy and climate policies, with Ireland’s European and international climate obligations an important consideration when formulating energy policy. In this context, energy and climate policy in Ireland have operated under one Government Department since 2016, the Department of Communications, Climate Action and Environment.

The influence of energy policy at EU level is also apparent on national policy. The EU has long worked on creating an internal energy market in order to make cross-border trading of electricity and natural gas easier, more transparent and more efficient. An EU Energy Union, which aims to provide secure, sustainable, competitive, affordable energy for Member States, is a current priority of the European Commission. The integration of the Internal Energy Market (IEM) for electricity and natural gas is one of the most important parts of the Energy Union initiative.

Ireland also co-operates closely with Northern Ireland on energy matters. An all-island wholesale Single Electricity Market (SEM) operates on the island of Ireland. The SEM became one of the first of its kind in Europe when it combined what were two separate jurisdictional electricity markets. Energy security, i.e. having uninterrupted availability of energy sources at an affordable price, is considered a key element of overall energy policy.

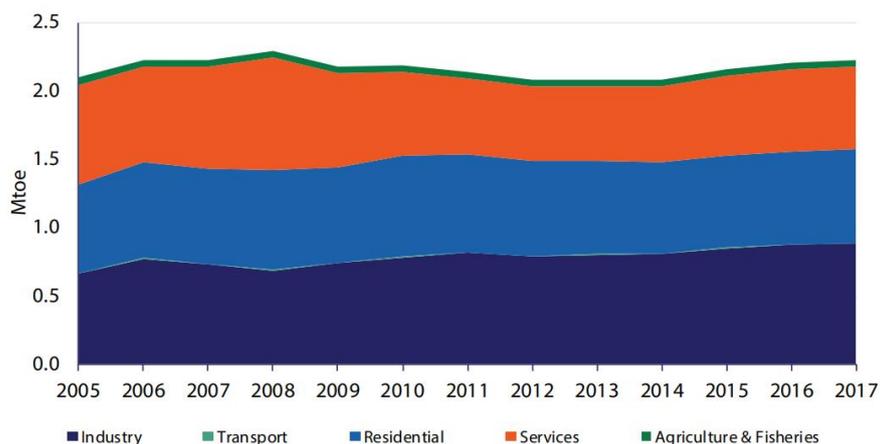
The degree to which a country sources its energy externally can be significant. Ireland was the 10th most energy dependent EU Member State in 2016, importing 69.1% of the energy it consumed, a sharp decline from 2015 when it imported 88.6% (4th most dependent). This consumption level further declined to 66% in 2017.⁵

Total final consumption of energy in Ireland was 12,324 ktoe in 2018, an increase of 4.5% on 2017. When corrected for weather, it increased by 4.0%. Final energy use of fossil fuels increased by 4.8%. Direct use of coal, peat, oil and natural gas all increased. These latest figures are published, with further breakdown by sector and fuel types, in the **SEAI Energy in Ireland** document published in December 2019, see the graphic in figure 18 and the link to download the document below.

⁴ <https://www.dcae.gov.ie/documents/Energy%20White%20Paper%20-%20Dec%202015.pdf>

⁵ <https://ec.europa.eu/eurostat/statistics-explained/pdfscache/1216.pdf>

Figure 18: Final consumption of electricity by sector



Final electricity demand peaked in 2008 at 2,294 ktoe and was 3.1% lower than that in 2017 at 2,223 ktoe.

Source: [Energy in Ireland 2019 by SEAI - link to pdf](#)

The Irish energy market is highly reliant on imports, 66% of energy was imported in 2017. This is because the country has few indigenous fossil fuel resources. With the increased production from renewable resources, it can gain more energy independence. Particularly in wind and ocean energy there are numerous opportunities on the island of Ireland. 33% of electricity came from renewables in 2018, and only 9% from coal, marking a new record. However, Ireland is far from meeting its 2020 targets on reducing carbon emissions.⁶

The Renewable Energy Directive (RED) is the most important legislation influencing the growth of renewables in the European Union and Ireland. The RED set out two mandatory targets for renewable energy in Ireland to be met by 2020. The first relates to overall renewable energy share (RES) and is commonly referred to as the overall RES target. For Ireland, the overall RES target is for at least 16% of Ireland’s gross final energy consumption (GFC) to come from renewable sources in 2020. The below graphic shows the breakdown in contributors to the target.

⁶ <https://www.irishtimes.com/news/environment/ireland-goes-25-days-without-using-coal-to-generate-electricity-13888166>



- **Transition to Electric Vehicles:** Government grants have supported a 5-fold increase in electric vehicle purchases since 2016. Budget 2020 will see €36m allocated in 2020 (compared €18m in Budget 2019) to further incentivise uptake. We will double the number of home chargers installed and the fast charger network will also double in 2020. We will further rollout the nationwide network of on-street chargers.
- **Warmer Homes, Cheaper Energy Bills:** In 2020, an allocation of €146m (€29m increase on 2019) will be used to upgrade 24,000 homes and businesses. This is a nearly 3-fold increase on 2016 funding. A new Retrofitting model will deliver upgrades to large groups of houses at the same time to drive down cost, develop easy pay back mechanisms making the works easier and more affordable. This work will commence in 2020 with a programme targeting social houses in the Midlands.
- **Radical Action on Waste:** A radical new waste strategy will be developed in 2020. Increased funding for anti-dumping initiatives will be maintained, with €3m from the environment fund ring-fenced to help communities tackle illegal dumping. A further €12m is being allocated in 2020, including a significant landfill remediation project.
- **Decarbonising our Energy Supply:** €3.7m to support installation of solar panels on homes. €9.7m to support emerging technologies which harness the power of the Ireland's ocean resources and research into how we can move away from fossil fuels, while ensuring energy security. €5m to support the uptake of alternative fuels such as biomass in the heat sector. A new Scheme will be launched by the end of the year which will see a 60% increase in the amount of renewable energy on the national grid.
- **Protecting Our Environment:** €59.4m to support the sustainable development of Ireland's natural and inland fishery resources

3.2 ELECTRICITY NETWORK

The Irish energy market is liberalised, but state-owned bodies control and manage the network.

The Commission for Regulation of Utilities is Ireland's independent energy regulator. It governs the all-island Single Electricity market, together with its Northern Irish counterpart. The general goal of the CRU is to protect the interests of energy customers, to maintain security of supply, and to promote competition in the energy market.¹⁰

Eirgrid is the state-owned power transmission operator. The company operates the flow of power on the grid. "Generally, the high voltage lines deliver electricity from Ireland's generation sources to the transformer stations, where the electricity voltage is reduced and taken onwards through the distribution system to individual customers' premises. There are also about 18 very large commercial customers directly connected to the transmission system."

The Electricity Supply Board controls and develops Ireland's electricity distribution network. "The Distribution Network is the medium and low voltage electricity network used to deliver electricity to

¹⁰ <https://www.cru.ie/professional/energy/>

connection points such as houses, offices, shops, and streetlights. The Distribution Network includes all overhead electricity lines, poles and underground cables used to bring power to Ireland’s customers.”

Single Electricity Market Operator (SEM-O) is the wholesale electricity market operating in the Republic of Ireland and Northern Ireland. The SEM provides for a competitive, sustainable and reliable wholesale market in electricity, a joint venture between Eirgrid plc and SONI Limited. Suppliers of electricity and gas operate in the SEM and are authorized by the CRU.

4. RENEWABLE ENERGY TECHNOLOGIES & SOURCES

In this chapter the various technologies and available renewable energy resources in Ireland will be closely examined.

The Sustainable Energy Authority of Ireland distinguishes six types of renewable energy:

1. Bioenergy
2. Wind energy
3. Ocean energy
4. Hydro energy
5. Solar energy
6. Geothermal energy

In the following chapter we will assess their presence and potential in Ireland. We will look at the currently deployed capacity, the government support schemes, the available resources and recent developments and/or projects.

4.1 BIOENERGY

There are multiple sources of bioenergy; biomass, landfill gas, sewage treatment plant gas and biogases. Biomass is the most used source of bioenergy in Ireland.

Ireland has the highest potential for biogas production per capita within the EU by 2030¹¹. The construction sector is a great beneficiary of the investments in the bioenergy sector. New plants and installations need to be built by 2030. The agriculture and forestry sectors are expected to grow as a result of the need for solid biomass. The biggest opportunities here lie in wood chip production and energy crop farming. This could create up to 1,600 jobs, and if solid biomass demands from the heat sector is added, this number may rise to 3,700 jobs.

There are interesting opportunities for manufacturers or exporters of anaerobic digestors to farms, small industry or domestic markets.

¹¹ <https://www.gasnetworks.ie/corporate/company/our-commitment/environment/renewable-gas/>

The manufacturing sector is also expected to gain benefits from the alternative energy sector growth. Although many manufactured products are being imported, manufacturing jobs will be created in the supply chain, goods and services for household consumption, and export related manufacturing.

4.2 WIND ENERGY

4.2.1 General overview

Due to the country being so exposed as an island, wind is an inexhaustible renewable energy source for Ireland. The first Irish wind farm was founded in 1992 at Bellacorrick, Co. Mayo. Today over 350 wind farms are in service in Ireland, employing over 3,400 people. The overall level of wind energy capacity in all Ireland has reached 3,990MW and is set to rise further in the coming years.¹²

If the current urgency of Government policy and the public demand for clean energy continues, Ireland can achieve deployment of between 11GW - 16GW of onshore wind and 30GW of offshore wind by 2050. Wind energy has the potential to generate enough electricity to exceed domestic demand by 2030.

Therefore, the Irish energy market benefits in terms of cost reduction, competitiveness increases and improved independence if investments in wind energy meet or exceed the targets. If not, forecasts are that fuel prices will increase and additional imports will be needed to meet the demand, putting the isle of Ireland in a vulnerable position.

4.2.2 On Shore Wind

In 2018 wind provided 85% of Ireland's renewable electricity and 30% of total electricity demand. It is the second greatest source of electricity generation in Ireland after natural gas. Ireland is one of the leading countries in its use of wind energy and 3rd place worldwide in 2018, after Denmark and Uruguay. Onshore and Offshore wind represent a significant carbon abatement opportunity (wind could abate between 400 and 450 Mt of CO2 by 2050).

The Wind Energy Road Map <https://iwea.com/about-wind/interactive-map>, gives a good visual of the wind farms around the country. The main wind generating companies are listed in the [directory of the Irish Wind Energy Association](#).

The vast majority of wind energy development has so far taken place onshore, because this type of wind farm requires less capital investment and can be installed easily. Both small and big wind farms are present in Ireland. All the answers towards the compulsory permissions to exploit a wind farm can be found on the Irish Wind Energy Association website¹³.

Opportunities:

- Suppliers of civil engineering services;
- Supply, installation and maintenance of domestic or commercial wind turbines;
- Producers of steel and concrete sub structures;

¹² <https://www.iwea.com/about-wind/facts-stats>

¹³ Planning, Regulations and Administration – IWEA (www.iwea.com)

- Innovation in this area;

4.2.3 Offshore Wind

There is potential to have Ireland at the centre of the world offshore wind energy generation by focusing on how the sector can be established in the country. While attempts have been made to generate electricity through offshore wind farms in the past, difficulties around legislation, planning regulations and associated costs have kept this development on hold in previous years.

Offshore turbines can be built much taller and therefore electricity can be generated at a better rate. There is currently not much regulation in the area of offshore or foreshore planning applications.

On shore wind farms are connected to the national electricity grid which is overseen by the Commission for Regulation of Utilities (CRU); however, the CRU doesn't process offshore applications and EirGrid (National Grid) has no function either so there is a legislative vacuum. The Marine Planning and Development Management Bill (2019), proposed to reform this area of building or developing on sovereign waters.

Activities around Off-shore wind farms are only recently being established in Ireland. Denmark, the UK and also Belgium are perceived as examples in Europe in this field. Off-shore development of wind farms is encouraged by the Irish government through grants that are offered to private companies to develop off-shore wind farms. Off-shore developers need to secure an foreshore licence from the Department of Environment, Heritage and Local Government in order to proceed with offshore works or development.

Case -> Parkwind / Oriel Wind Farm

Parkwind, with HQ in Flanders and established in 2012, is a 360 degree company that develops, finances, builds and operates offshore wind farms. With 552MW under operational management, 219MW under construction and 577MW under development, it has become one of Europe's industry leaders. Ireland is to become the second largest market for Parkwind after Belgium.

The Oriel offshore wind farm is in the development stage and is located approximately 22 km off the coast of Dundalk. It represents a significant investment in the decarbonisation of the Irish electricity system and represents a significant investment from both ESB and Parkwind.

Once operational, the Oriel Windfarm will generate enough capacity to cover the needs of approximately 280,000 households – most of the population in counties Louth and Meath. Oriel will furthermore contribute to the reduction of Ireland's carbon emissions by 600,000 tonnes per annum. Ireland's semi-state Electricity company, the ESB, has a 35% interest in the development. ESB and Parkwind will also work together on the nearby Clogherhead project for which ESB holds a foreshore license to commence site investigations.

Opportunities:

- Supply chain engineering for the offshore industry;
- Support vessels for offshore works;
- Innovation and research in the floating wind sector;



- Operation and maintenance services;
- Digital modelling;
- Remote monitoring and testing systems.

4.3 OCEAN ENERGY

Ocean energy has the potential to play an important role in providing clean and sustainable energy in Ireland. There are however challenges regarding technology readiness.

As an island, surrounded by oceans, the country has substantial potential for the development of ocean energy, but ocean technologies aren't ready for commercial deployment yet. The government doesn't expect them to make a large contribution to the supply of energy in the short term. Nonetheless, ocean energy is expected to contribute largely to Ireland's energy transition in the medium to long term.

The 2014 Offshore Renewable Energy Development Plan (OREDP) sets out government policy in relation to the sustainable development of Ireland's offshore renewable energy resource.

There are three goals to be reached:

1. Harness the market opportunities offered by offshore renewable energy to the economy.
2. Increase awareness of the value, opportunities and social benefits of the development.
3. To not have a negative impact on the marine environment.

The Strategic Environmental Assessment carried out for the OREDP found that a capacity of 1,500 MW of wave and tidal generation could be developed in Irish waters. Governmental support for the development of ocean energy technologies has started to grow.

The 2014 OREDP was [reviewed in 2018](#). While progress has been made, there is still lack of central funding, private investment and reform of the planning and consent regulations.

4.3.1 Wave Energy

The best wave resources can be found in areas where strong winds have travelled over long distances. For that reason, the Irish west coast offers an ideal zone for wave energy, with big waves coming in from the Atlantic Ocean. The OREDP identifies three districts as very suitable for the instalment of wave energy devices: the South West Coast, the North West coast, and the middle West Coast.

The following link shows an interactive map of the wave climate in Ireland:

www.arcgis.com/apps/OnePane/basicviewer/index.html?webmap=ab86a9db6bbf45fba28a8608da5d346c

4.3.2 Tidal Energy

Tides are created by the changing gravitational pull of the sun and the moon on the ocean. This creates a highly predictable continuous kinetic energy. The OREDP has identified three regions as highly suitable for the instalment of tidal energy devices: the South East coast, the Shannon estuary, and the North West coast.



4.4 HYDRO ENERGY

Hydropower electricity is the product of transforming potential energy stored in water into the kinetic energy of the running water. Since the late 1990s, the relative contribution from hydropower has declined in favour of wind energy. There are nine large, hydro power stations on rivers in Ireland, all operated by ESB. These are located on the Shannon, Liffey, Erne, Lee, and Clady rivers. The largest hydropower facility in Ireland is the Ardnacrusha power plant, at a capacity of 92MW. The plant was built by Siemens and opened in 1929 and is considered as a symbol of forward thinking in Ireland.

There are 15 hydroelectric generators connected to the electricity transmission system, 14 of which have a maximum export capacity (MEC) of more than 4 MW. The total hydro connected to the transmission system is 212 MW. There are a further 5936 hydroelectric generators connected to the electricity distribution system, with a total installed capacity of 26 MW.¹⁴

The Irish government encourages small hydropower (SHP) development by embedding SHP in the REFIT-schemes and by offering additional funding and information for their deployment. A SHP commonly has a maximum capacity of 10MW. SHP mostly use the power available in flowing waters, such as rivers, canals and streams with a certain descent.

Opportunities:

- Sales and service of hydropower turbines;
- Planning and design services;
- Maintenance and operation engineering services;

4.5 SOLAR ENERGY

The focus in Irish renewable energy policy goes mainly to wind and biomass energy, solar energy only making up a small amount. Solar energy however can add to Ireland's carbonless society. A vast growth in solar PV, in Ireland, is predicted by the *Global Market Outlook for Solar Power 2016-2020* report, published by SolarPower Europe. The total installed solar PV capacity in Ireland was only 6 MW in 2016, but is estimated to reach a market size of €51 million a year by 2030.

Opportunities:

- Supply, installation and servicing of solar PV panels and systems for both the domestic and industrial market;
- Data Centre and modular building sector where panels will be required in large quantities.

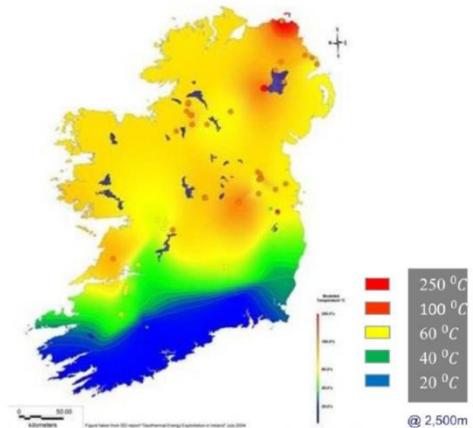
¹⁴ <http://www.eirgridgroup.com/customer-and-industry/general-customer-information/connected-and-contracted-generators/>



4.6 GEOTHERMAL ENERGY

Geothermal energy is heat energy stored in the ground. There are two sources of geothermal energy, the sun and the hot core of the earth. There are respectively referred to as shallow or deep geothermal energy. Geothermal energy can be used for various applications¹⁵:

- Heating or cooling our homes
- Heating for district heating networks
- Generate power (if hot enough)



Source: A prospective study on the geothermal potential in the EU – GeoElec

Although the potential seems to be smaller and more difficult to access compared to other European countries, the Irish government plan to establish a regulatory framework for the exploration and development of geothermal energy resources.¹⁶ The EU is also involved and one of the most successful projects ReGeoCities, which promoted the integration of shallow geothermal energy at a local level.

Opportunities:

- Supply, installation and servicing of Heat Pumps (ground to heat/air to heat), both in the domestic and commercial setting;
- Retrofitting of domestic heating systems;
- Construction opportunities – all new homes and extensions on homes must meet NZEB (Near Zero Carbon Emissions) standards;
- Suppliers of modular, timber frame, passive housing, carbon neutral homes.

5. RELATED SUB-SECTORS

5.1 WASTE MANAGEMENT

There was a reduction in waste accepted at landfill in 2017, due to a fall in construction and demolition waste. This waste stream dropped from 1.7 million in 2016 to 1 million in 2017. An increase in construction and demolition waste brought to soil recovery facilities is likely to have contributed to this trend. Municipal waste was the largest component of waste accepted at landfill in 2017, even though the amount of municipal waste accepted at landfill decreased from over 744,000 tonnes in 2016 to approximately 685,000 tonnes in 2017. Indications suggest that this tonnage dropped further in 2018.

The [Environment Protection Agency](#) is charged with monitoring and leading on innovation in this area. There is a push to create more energy from municipal waste, so there will be a demand for services in this area. Ireland does not have the facilities required to treat the full range of hazardous wastes it

¹⁵ Geothermal Energy – The Geothermal Association of Ireland (www.geothermalassociation.ie/geothermal-energy-2)

¹⁶ Ireland's Transition to a Low Carbon Energy Future 2015-2030 – DCENR (www.dcae.gov.ie/energy/SiteCollectionDocuments/Energy-Initiatives/Energy%20White%20Paper%20-%20Dec%202015.pdf)

www.eaireland.com – Electricity Association of Ireland

EAI is the representative body for the electricity sector operating within the Single Electricity Market (SEM) on the island of Ireland.

www.energyireland.ie – Energy Ireland

Industry-driven cluster pursuing actions to strengthen enterprise and employment within the energy sector in the Cork region.

www.ipcc.ch – Intergovernmental Panel on Climate Change

The Intergovernmental Panel on Climate Change (IPCC) is the international body for assessing the science related to climate change.

7.1 BIOENERGY

www.irbea.org – Irish Bioenergy Association

Ireland’s independent energy and water regulator.

7.2 WIND

www.iwea.com – Irish Wind Energy Association

IWEA is committed to the promotion and education of wind energy issues and plays a leading role in the areas of conference organisation, lobbying and policy development on the island of Ireland.

www.nowireland.ie – National Offshore Wind Association of Ireland

NOW Ireland was established to promote the development of Ireland’s substantial offshore wind resource and to ensure that our island leads the way in building a sustainable, green economy.

<http://mnag.ie> – The Irish Wind Farmers Association

The Irish Wind Farmers’ Association is Ireland’s representative body and lobby group for independent wind farm developers.

7.3 OCEAN

www.marei.ie – Centre for Marine and Renewable Energy

MaREI is the marine and renewable energy research, development and innovation Centre supported by Science Foundation Ireland.

www.oceanenergyireland.com – Ireland Ocean Energy Expertise

The portal, managed by SEAI and the Marine Institute, acts as a ‘sign-post’ to guide you through the supports available in Ireland for the development of the marine renewable energy sector.

www.iweda.ie – Irish Wave Energy Developers Association

We believe that a viable Wave Energy Industry can be created in Ireland with huge economic benefits for the country. Our members will be the basis on which this industry will be built.



www.marine.ie – Marine Institute

State agency responsible for marine research, technology development and innovation in Ireland.

www.mria.ie – Marine Renewables Industry Association

The common concern of those who established the MRIA is to promote the development and implementation of policy concerning the Wave and Tidal (Ocean Energy) aspects of Marine Renewables.

7.4 HYDROPOWER

www.irishhydro.com – Irish Hydropower Association

The association is open to all commercial organisations, academia, charities, community groups and individuals involved with or having an interest in hydropower.

7.5 SOLAR

www.irishsolarenergy.org – Irish Solar Energy Association

ISEA is committed to bringing attention to the value of solar energy’s contribution to Ireland’s economic and environmental future.

www.solarireland.wordpress.com – Solar Energy Society of Ireland

SESI’s mission is to promote and assist the development of solar energy in Ireland and to become a leader in promoting solar and sustainable energies.

7.6 GEOTHERMAL

www.geothermalassociation.ie – Geothermal Association of Ireland

The Geothermal Association of Ireland (GAI) was formed to promote the development of geothermal resources in Ireland. The GAI is a member of the European Geothermal Energy Council (EGEC) and of the International Geothermal Association (IGA).

www.hpa.ie – Heat Pump Association of Ireland

Industry representative body of manufacturers and importers of heat pumps in the Republic of Ireland.

8. EVENTS

Energy in Agriculture – www.energyinagriculture.ie

Conference with seminars, demos and trade exhibitions on how renewable energy can benefit the agricultural sector. Date 2020 tbc (Gurteen Agricultural College, Ballingarry, Roscrea, Co. Tipperary)

IrBEA National Bioenergy Conference - <http://bioenergyfutureireland.com/>

Conference on bioenergy in Ireland. 26/02/2020 (Croke Park Conference Centre, Dublin)

IWEA Annual Conference 2020 – www.iwea.com/events/2390-irish-wind-industry-awards-2020

Conference on wind energy in Ireland. April 2020 (Dublin)



