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Department of Communications,
Energy & Natural Resources

Draft Renewable Electricity Policy and Development Framework

DRAFT STRATEGIC ENVIRONMENTAL ASSESSMENT SCOPING REPORT - 2016

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Summary

In 2012, the Department of Communications, Energy and Natural Resources published the *Strategy for Renewable Energy, 2012-2020*. This Strategy reiterates the Government's firm view that:

> *"...the development and deployment of Ireland's abundant indigenous renewable energy resources, both onshore and offshore, clearly stands on its own merits in terms of the contribution to the economy, to the growth and jobs agenda, to environmental sustainability and to diversity of energy supply."* [1]

The reduction of greenhouse gas emissions, to combat climate change, and of carbon fuel imports, to safeguard security of energy supply, are among the principal objectives of energy policy in Ireland. To meet these linked objectives will require further significant development of our renewable energy resources.

To assist in the sustainable development of these energy resources, the Minister for Communications, Energy and Natural Resources has decided to formulate a Renewable Electricity Policy and Development Framework (with a spatial dimension), to guide the development of renewable electricity projects of large scale on land.

Under the 2009 Renewable Energy Directive, EU Directive 2009/28/EC: *On the promotion of the use of energy from renewable resources*, Ireland is committed to produce at least 16% of all energy consumed by 2020 from renewable sources. This will be met by 40% from renewable electricity, 12% from renewable heat, and 10% from renewable transport. The EU has recently adopted a target for the year 2030 of at least 27% renewable energy. This target is binding at EU level. In Ireland, by 2013, 7.8% of gross final energy use came from renewable sources, with renewable electricity accounting for 20.9% of all electricity generated.

To ensure that Ireland meets its future needs for renewable electricity, in a sustainable manner, compatible with environmental and cultural heritage, landscape and amenity considerations, the Minister has decided to formulate the Renewable Electricity Policy and Development Framework. It will contribute toward meeting Ireland's future energy needs, particularly up to 2030 and beyond, as informed by national and European policy, and be reviewed at five-yearly intervals.

The Policy and Development Framework will be primarily for the guidance of An Bord Pleanála, planning authorities, other statutory authorities, the general public and persons seeking development consent in relation to large scale projects for the generation of renewable electricity on land. It will set out policy in respect of environmental considerations, community engagement and also in relation to potential, future export of renewable electricity. It will seek to broadly identify suitable areas in the State, where large scale renewable electricity projects can be developed in a sustainable manner. The existing system for planning permission applications to local authorities or An Bord Pleanála will remain unchanged in respect of renewable electricity projects. These will still require planning permission, including environmental impact assessment where appropriate.

A Strategic Environmental Assessment (SEA) of the Draft Policy and Development Framework will be carried out, in accordance with the provisions of EU Directive 2001/42/EC: *On the assessment of the effects of certain plans and programmes on the environment* and the Irish Regulations, S.I. 435/2004: European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations, 2004, as amended by S.I. 200/2011.

Under the provisions of the Directive (Article 3, par.2) an SEA is mandatory for plans or programmes which are prepared for (inter alia) energy and which set the framework for future development consent of projects requiring environmental impact assessment. The proposed Renewable Electricity Policy and Development Framework comes within this definition.

1 The Strategy for Renewable Energy 2012-2020, sec. 1.10, DCENR, 2012

As set out in the Directive, the SEA process includes:

- preparing an Environmental Report where the likely significant environmental effects of the Draft Renewable Electricity Policy and Development Framework are identified and assessed, and reasonable alternatives are described and evaluated;
- consulting the public, environmental authorities and any EU Member State affected on the Environmental Report and Draft Renewable Electricity Policy and Development Framework;
- taking account of the findings of the Environmental Report and the outcome of these consultations in deciding whether to adopt or modify the Draft Renewable Electricity Policy and Development Framework; and
- making known the decision on adoption of the Renewable Electricity Policy and Development Framework and how SEA influenced the outcome.

This paper is a Draft SEA Scoping Report in connection with the later Environmental Report to inform the SEA. It seeks to outline the main considerations to be addressed in the Environmental Report and SEA.

The SEA will consider appropriate technologies for renewable electricity generation and suitable areas for the use of these. It will examine the likely significant effects on the environment of implementing the Renewable Electricity Policy and Development Framework, including on aspects listed in the Directive:

> *"biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors"* [2]

The SEA will examine the likely interaction of the proposed Renewable Electricity Policy and Development Framework with other relevant plans and programmes. It will identify, describe and evaluate reasonable alternatives, taking into account the objectives and the geographical scope of the Renewable Electricity Policy and Development Framework. It will include selecting the most suitable of these alternatives and giving reasons for this choice.

A Natura Impact Statement, in connection with an Appropriate Assessment (AA) of the Draft Renewable Electricity Policy and Development Framework, under the Habitats Directive 92/43/EEC, will be compiled at the same time as the Environmental Report for the SEA.

The Draft Renewable Electricity Policy and Development Framework, the Environmental Report and a Natura Impact Statement will be drawn up in 2016.

Submissions from the public, stakeholders and designated environmental authorities will be sought in relation to the contents of these documents.

Upon completion of the SEA and the AA under the Habitats Directive, it is intended that notice of the finalisation of the SEA and of adoption of the Renewable Electricity Policy and Development Framework will be published in 2016.

The scoping of the Environmental Report is an on-going exercise and the final scope may differ in some significant respects from that now set out.

Submissions are now sought from the public, stakeholders and designated environmental authorities in relation to the contents of this Draft SEA Scoping Report. Details in this regard are set out in Chapter 10 of this Draft SEA Scoping Report. A number of questions are posed at the end of the Draft Report to inform the consultation.

2 Directive 2001/42/EC, Annex I (f)

1. Outline of the Renewable Electricity Policy and Development Framework

1.1 Introduction

This is a Draft Scoping Report in connection with an SEA of the proposed Renewable Electricity Policy and Development Framework, to be carried out in accordance with the provisions of EU Directive 2001/42/EC: *On the assessment of the effects of certain plans and programmes on the environment*, and also the corresponding Irish Regulations, S.I. 435/2004 (as amended by S.I. 200/2011).

The Draft Policy and Development Framework will also be subject to a separate AA process, under the provisions of the Habitats Directive 92/43/EEC and the associated Irish Regulations S.I. 477/2011: European Communities (Birds and Natural Habitats) Regulations, 2011.

The Minister for Communications, Energy and Natural Resources has primary responsibility in Ireland for policy in relation to energy production, use and conservation. In 2013, the Minister announced a proposed framework, with a spatial dimension. Following consideration of the submissions made in response to an initial consultation, the Minister has decided to formulate a Renewable Electricity Policy and Development Framework (with a spatial dimension), replacing the previous approach.

The Renewable Electricity Policy and Development Framework will be aimed at optimising the opportunities for producing electricity from renewable energy sources in projects of significant scale on land, to serve both the All Island Single Electricity Market (SEM) and any future EU regional market. This will, inter alia, provide guidance for planning authorities and An Bord Pleanála. The scale of developments to come within the provisions of the Renewable Electricity Policy and Development Framework is 50MW and upwards. In the case of wind energy developments, this threshold would normally bring a project within the provisions of the strategic infrastructure development procedures set down in the Planning and Development Acts 2000-2014.

It is intended that the Renewable Electricity Policy and Development Framework will:

- set out a clear national policy context to facilitate renewable electricity developments at large scale on land;
- work toward a low carbon future to counter climate change;
- enhance security of supply;
- add to competitiveness and growth in the economy;
- broadly identify a limited number of suitable, strategic areas in Ireland for renewable electricity generation of scale (these can be incorporated into a revised National Spatial Strategy, Regional Guidelines and development plans subsequently) having regard to considerations of amenity, heritage and efficacy;
- provide guidance to planning authorities, including An Bord Pleanála, when considering proposals for renewable electricity generation, supplementing the guidance contained in the existing *Wind Energy Development Guidelines for Planning Authorities, 2006*;
- in consultation with the Department of Environment, Community and Local Government, include guidance in relation to community engagement; and
- set out Government policy in relation to any future trading of renewable electricity within the EU regional market.

The Renewable Electricity Policy and Development Framework will have a time horizon of 2030, and beyond as appropriate, and be reviewed at five-yearly intervals. The initial study area for the Renewable Electricity Policy and Development Framework is the entire State. A separate *Bioenergy Plan* for Ireland is also currently under development.

The *Onshore Renewable Electricity Action Plan* (OREAP) for Northern Ireland, *2013-2020*, adopted by the Northern Ireland Executive in 2013, fulfils a generally similar role for Northern Ireland, but for a more limited period. [3]

The *Offshore Renewable Energy Development Plan* (OREDP), *2014*, sets out equivalent provisions in respect of Ireland's offshore energy development. [4]

In connection with the Renewable Electricity Policy and Development Framework, the following Goal, Objective and Methodology are adopted.

> **Goal:** To optimise the opportunities in Ireland for renewable electricity development on land at significant scale, to serve both the All Island Single Electricity Market and any future regional market within the European Union, in accordance with European and Irish law, including Directive 2009/28/EC: *On the promotion of the use of energy from renewable resources.*
>
> **Objective:** To develop a Policy and Development Framework for renewable electricity generation on land to serve both the All Island Single Electricity Market and any future regional market within the European Union, with particular focus on large scale projects for indigenous renewable electricity generation. This will, inter alia, provide guidance for planning authorities and An Bord Pleanála.
>
> **Methodology:** Development of the Policy and Development Framework is to be informed by the carrying out of an SEA, including widespread consultation with stakeholders and public, and with AA under the Habitats Directive.

1.2 Status of Proposed Policy and Development Framework

This Policy and Development Framework will be primarily for the guidance of An Bord Pleanála, planning authorities, other statutory authorities, the general public and persons seeking development consent in relation to large scale projects for the generation of renewable electricity on land. It will set out policy in respect of environmental considerations, community engagement and governance of potential, future projects for the export of renewable electricity.

The legislative system of development consents for projects, set out in the Planning and Development Acts, will not be changed by virtue of this Policy and Development Framework. The provisions of the *Wind Energy Development Guidelines for Planning Authorities, 2006*, or any amendments thereto, published by the Department of the Environment, Community and Local Government will continue to apply.

The adopted Policy and Development Framework will be reviewed by the Department of Communications, Energy and Natural Resources not later than five years following its adoption. Provision will be made for monitoring of the implementation on an on-going basis.

3 http://www.nigridenergysea.co.uk/plan-and-environmental-report
4 http://www.dcenr.gov.ie/Energy/Sustainable+and+Renewable+Energy+Division/OREDP.htm

1.3 Background and Rationale

Following the signing of a Memorandum of Understanding in January 2013, by the Minister for Communications, Energy and Natural Resources and his counterpart in the United Kingdom, the Secretary of State for Energy and Climate Change, discussions were held over the period 2013-2014 with the UK Government in relation to potential export of renewable energy to that State. An intention to develop a Renewable Energy Export Policy and Development Framework (with a spatial dimension) was announced by the Minister for Communications, Energy and Natural Resources in 2013. These discussions were aimed at achieving an inter governmental agreement (IGA) in respect of potential energy export. However, given the economic, policy and regulatory complexities involved, and the key decisions yet to be taken by the UK, any potential delivery of renewable energy export is realistically a post-2020 proposition.

1.3.1 Public consultation in 2013 in relation to previously proposed Renewable Energy Export Policy and Development Framework

A non-statutory public consultation was carried out, in late 2013, in connection with the then proposed Renewable Energy Export Policy and Development Framework. The views of the public, stakeholders and certain statutorily designated environmental authorities were sought. Almost 1,400 submissions were received from private individuals, landowners, lobby groups, the wind industry, professional institutes, other interested organisations, environmental authorities and government bodies. These submissions are available on the DCENR website.[5]

Analysis of the submissions showed a wide range of opinion, which is also discussed in a report on the DCENR website. Among the views contained in the submissions, a number expressed opposition to the development of energy projects exclusively for export or objected to the proliferation of wind farms. Others called for a more comprehensive plan for renewable energy at national level and highlighted that the SEA process could assist in enhancing the environmental and social benefits of renewable energy, whilst providing a high level of protection for the environment.

1.4 Proposed Renewable Electricity Policy and Development Framework

Following consideration of the submissions made in the course of the 2013 consultation process, it has been decided to formulate a Renewable Electricity Policy and Development Framework so that, in addition to providing for potential, future export possibilities, this will also contribute toward meeting Ireland's own future needs, particularly up to 2030 and beyond, as informed by European and national policy. It will be subject to an SEA, under the provisions of Directive 2001/42/EC.

It is proposed that the Policy and Development Framework will be focused on providing for renewable electricity projects of large scale. It is considered that a threshold of 50MW and upwards would be appropriate, having regard to the provisions of the strategic infrastructure development legislation. Under that process, a wind farm of 50MW or greater is considered to constitute strategic infrastructure development, subject to some additional criteria (per Section 37A(2) of the Planning and Development Acts, 2000-2014).

5 http://www.dcenr.gov.ie/Energy/Sustainable+and+Renewable+Energy+Division/Renewable+Energy+Export/

The main principles of the Renewable Electricity Policy and Development Framework will include:

- maximise the sustainable use of renewable electricity resources in order to develop progressively more renewable electricity for the domestic and potential, future export markets;
- assist the achievement of targets for renewable energy, enhance security of energy supply and foster economic growth and employment opportunities;
- provide for appropriate community engagement and encourage new models thereof; and
- identify a limited number of areas suitable for development of scale, having regard to the protection of natural and cultural heritage, landscape and amenity.

2. United Nations, European Union and Irish National Renewable Energy Policy

2.1 United Nations Report on Climate Change

The United Nations Intergovernmental Panel on Climate Change (IPCC) has published a series of reports on climate change. The latest UN report, IPCC *WGIII AR5, Final Draft*, published in April 2014, indicates that heat trapping gases (so called greenhouse gases) increased on average by 2.2% per annum in the period 2000-2010. Of this increase, 47% came from the energy supply sector. The report predicts that, without additional efforts to reduce greenhouse gas emissions, mean surface temperature increases in 2100 will be between 3.7°C to 4.8°C compared to pre-industrial levels.[6]

A change in energy production from fossil fuels to zero or low carbon forms is necessary to check this increase in temperature. To keep the rise in temperatures to below 2.0°C relative to pre-industrial levels would necessitate, in addition to improved energy efficiency,

> *"a tripling to nearly a quadrupling of the share of zero- and low-carbon energy supply from renewables, nuclear energy and fossil energy with carbon dioxide capture and storage (CCS), or bioenergy with CCS (BECCS) by the year 2050"* [7]

(Note: Government policy currently does not favour development of nuclear energy in Ireland. CCS is a largely unproven technology.)

2.2 EU Policy for Renewable Energy

European energy policy reflects concerns about climate change, but also about security of supply. EU Directive 2009/28/EC: *On the promotion of the use of energy from renewable resources* (Renewables Directive) promotes the harnessing and use of energy from renewable resources. The Renewables Directive introduced legally binding targets on Member States for the consumption of renewable energy (from electricity, heating and cooling, and transport) by 2020. It also introduced mechanisms whereby Member States could enter into co-operation to achieve the set targets. In the case of Ireland, an overall, legally binding target has been set of 16% of our energy requirement to come from renewable sources by 2020.

The EU 2030 Framework for Climate and Energy marks a further development of EU policy, with a time horizon of 2030. The Framework aims to make the economy and energy system of the European Union more competitive, secure and sustainable, whilst driving progress towards a low-carbon economy.

The main targets of the Framework were decided by the European Council at the meeting of 23rd October 2014. A central element of the Framework is the agreed target to reduce EU domestic greenhouse gas emissions by 40% below the 1990 level by the year 2030. Definitive new limits for greenhouse gas emissions for each Member State are to be proposed. Particular emphasis is also placed on energy efficiency, with a 27% energy savings target for 2030. In relation to renewable energy, the Council endorsed a target, binding at EU level, to increase the share of renewable energy to at least 27% of the energy consumption of the EU by 2030.

Member States committed to the European Council in October 2009, to reduce EU greenhouse gas emissions by 80 – 95% below 1990 levels by 2050. At the request of the European Council, the European Commission published its *Communication on an Energy Roadmap 2050* in December 2011. Such reduction in greenhouse gas emissions will require EU energy production to become almost carbon free. The Roadmap analyses a

6 IPCC, WGIII, AR5: Summary for Policy Makers, SPM.3.
7 IPCC, WGIII, AR5: Summary for Policy Makers, SPM.4.1.

number of scenarios through which the consequences of decarbonising the EU energy system are assessed and policy needs identified. Under all of these scenarios, there will be a significant increase required in renewable energy deployment in Europe.[8]

2.3 Irish National Policy for Renewable Energy

The development of renewable energy is central to overall energy policy in Ireland, as set out in the *Strategy for Renewable Energy 2012-2020*. The Strategy is aimed at decoupling energy from reliance on fossil fuels, which are increasingly being sourced from outside the borders of the European Union. Use of indigenous renewable energy improves security of supply, reduces dependence on imported fossil fuels and reduces greenhouse gas emissions.

Each EU Member State was required, by the Renewable Energy Directive 2009/28/EC, to make a *National Renewable Energy Action Plan* (NREAP). Ireland's NREAP was produced in 2010 and sets out the actions to reach the legally binding targets for energy consumed from renewable sources, 16% in Ireland by 2020. This obligation is to be met by contributions of energy from renewable sources of 10% in transport, 12% in heating and 40% in electricity.

The *Strategy for Renewable Energy 2012-2020*, published by DCENR in May 2012, sets out broad policy for the sector, including reiterating the Government's firm view that:

> *"...the development and deployment of Ireland's abundant indigenous renewable energy resources, both onshore and offshore, clearly stands on its own merits in terms of the contribution to the economy, to the growth and jobs agenda, to environmental sustainability and to diversity of energy supply."* [9]

The *Strategy for Renewable Energy* (Sec. 3.1) envisages that Ireland's 2020 renewable electricity target can be met by onshore renewable generation, primarily from wind. The Strategy articulates the Government's high level policy goals and key actions to support the development of each of the renewable energy sectors.

The Strategic Goals include:

- Progressively more renewable electricity from onshore and offshore wind power for the domestic and export markets;
- A sustainable bioenergy sector supporting renewable heat and power generation;
- Green growth through research and development of renewable technologies, including the preparation for market of ocean technologies;
- A more sustainable transport sector through biofuels and electrification; and
- Develop an intelligent, robust and cost efficient energy networks system.

The White Paper *Ireland's Transition to a Low Carbon Energy Future 2015 – 2030*, sets out Ireland's overall policy at a high level, particularly in the period up to 2030. In the White Paper, strong emphasis is placed on the further development of the renewable energy sector.

In accordance with the EU objective of reducing greenhouse gas emissions by 80 – 95% below 1990 levels by 2050, Ireland is developing a National *Low Carbon Roadmap*, which will set out the strategy to be employed to meet these targets. The National Roadmap will encompass a number of sectoral roadmaps, including in respect of electricity generation, which will be undertaken by DCENR.

8 COM(2011) 885/2: Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - Energy Roadmap 2050

9 The Strategy for Renewable Energy 2012-2020, sec. 1.10, DCENR, 2012

2.3.1 Offshore Renewable Energy

A strategy is in place since early 2014 for the development of our offshore energy resources, namely the recently adopted *Offshore Renewable Energy Development Plan* (OREDP). It is Government policy that offshore wind energy should be focussed on the export market, as set out in the *Strategy for Renewable Energy*:

> *"Our offshore wind resource will be developed as an export opportunity to UK and North West Europe, provided this is economically beneficial to the state."* [10]

The prospects for wave and tidal energy are good in the longer term, when the technology has been sufficiently developed. The OREDP envisages that energy from wave and tidal resources is unlikely to be available in significant quantity until after 2030, due to the current state of technological development.

2.3.2 Renewable Electricity Exports

The Government has recognised there is a significant opportunity for the export of electricity generated from renewable sources, as set out in the *Strategy for Renewable Energy 2012-2020*. It is current policy to support the export of renewable energy to other Member States of the EU, in accordance with European law, including Directive 2009/28/EC: *On the promotion of the use of energy from renewable resources*. But it is a precondition that such export would bring clear and significant benefit to the Irish economy, at no net cost to the Irish consumer. However, given the economic, policy, and regulatory complexities involved, any potential delivery of renewable energy export is realistically a post-2020 proposition.

2.4 Security of Supply and Benefit to Economy

The overarching objective of the Government's energy policy is to ensure secure and sustainable supplies of competitively priced energy to all consumers. The development of renewable energy is central to the achievement of this objective. A secure, reliable energy supply is a prerequisite for creating the conditions required for economic growth and job creation.

Ireland is heavily reliant on imported energy, 83% in 2012, (Figure 1). This is well above the EU average dependency rate and places Ireland in a vulnerable position. This contrasts with Denmark, which is the only net energy exporter in the EU, largely due to the development of its extensive wind energy resource. The Danish energy policy envisages 50% of electricity to come from wind energy by 2020. There is a target of 100% renewable energy in the energy and transport sectors by 2050.[11]

10 Ibid, Sec.3.1

11 Accelerating Green Energy Towards 2020: The Danish Energy Agreement of March 2012 issued by Danish Minister for Climate, Energy and Building.

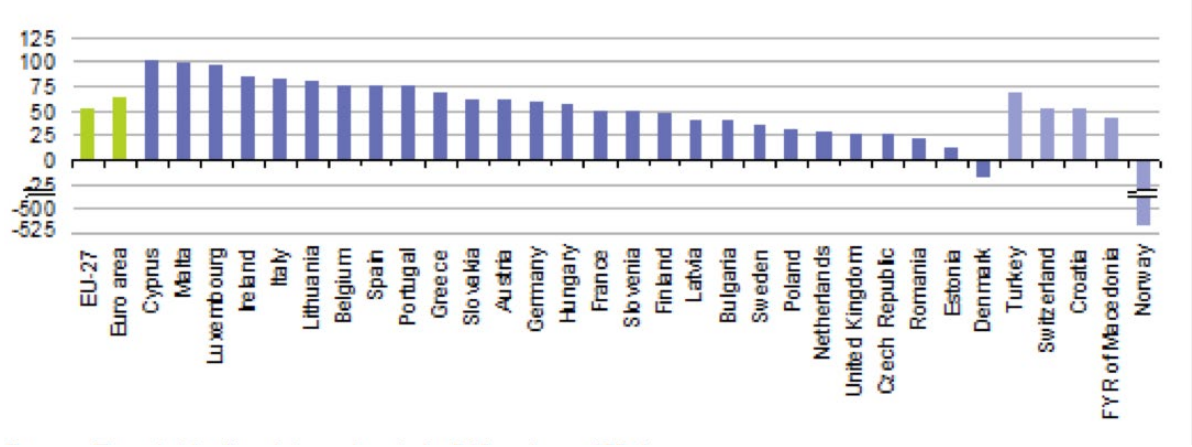


Figure 1. Import Energy Dependence in percentage terms of European States 2013

Source: Eurostat (online data codes: tsdcc310 and nrg_100a)

In Ireland, we are particularly dependent on imported fossil fuels (oil, gas, coal), importing approximately €6 billion of such fuels each year. We use gas for the generation of around 50% of our electricity and over 90% of the gas is imported from Great Britain. This creates a critical interdependence between our gas and electricity supplies. Currently the UK still has substantial reserves of gas in the North Sea, but they are depleting at a significant rate. In 2013, the UK produced 424,153 GWh of gas from indigenous sources and imported 535,105 GWh.[12]

It is likely that the increasing volatility of the global gas market will affect Ireland, due to our dependence on imported gas. However, the development of renewable energy resources holds the prospect of reducing reliance in Ireland on expensive fossil fuel imports. This would reduce our exposure to the volatility that can arise in global fossil fuel markets, due to wider geo-political factors and events.

Increasing the share of renewable energy in Ireland's energy supply and realising the potential for renewables are already helping to address our reliance on imported fossil fuels. Recent estimates, by SEAI, are that renewable energy displaced €305 million of gas imports in 2012 and that, since 2006, wind generation has displaced over €1 billion in fossil fuel imports, mainly gas.

2.5 Performance to 2020

The binding 2020 target for Ireland for renewable energy has been translated into a sectoral contribution of 40% of overall electricity consumption (RES-E).

Figures for 2013 conclude that 20.9% of electricity came from renewable sources. To date wind energy has proved to be the most commercially successful technology in the Irish market and the figures for 2013 indicate that 16.5% of energy demand in the electricity sector was met from this source. Hydroelectricity amounted to 2.6%, with biomass, landfill gas and biogas contributing 1.7% during 2013.

12 DECC, Natural Gas and Consumption, ET 4.1

In terms of installed capacity, table 1 (below) indicates the total renewable generation capacity in Ireland, Northern Ireland, and on an All Island basis.

Table 1. Total Renewable Generation Capacity: Ireland, Northern Ireland, and All Island

Total Renewable Capacities (MW) Qtr.4 2014							
Jurisdiction	*Wind*	*Hydro*	*Bioenergy*	*RES CHP*	*Ocean**	*Solar**	*Total RES*
Northern Ireland	614.0	4.0	15.0	3.0	1.2	5.5	642.7
Ireland	2,238.0	238.0	70.6	5.3	0.0	0.1	2,552.0
All island	2,852.0	242.0	85.6	8.3	1.2	5.6	3,194.7

* Ocean and Solar figures represent Qtr. 4 2013

Source: figures supplied by Eirgrid; SONI; and ESB Networks.

It is estimated that a total of between 3,500MW and 4,000MW of renewable energy generation capacity will be required to allow Ireland meet its 40% renewable electricity needs for 2020 (the renewable electricity contribution to the overall target of 16% of all energy requirements to come from renewable sources, per EU Directive 2009/28/EC). A *Progress Report* on the NREAP was issued in January 2012, showing that 3,900MW of renewable energy grid connection offers had been made. Not all of these projects have planning permission and it is likely that a significant number will not be developed.

2.6 Need for the Renewable Electricity Policy and Development Framework

For the period beyond 2020, the European Commission is further developing energy policy, as set out in previous sections of this report. National policy and targets in Ireland will reflect EU policy, including the requirements for cost efficiency and fairness in the allocation of future effort among Member States.

Given the policy considerations cited above, and notwithstanding current guidelines and county development plan policies, it is considered that there is a need for a focussed Policy and Development Framework at national level in respect of the planning and development of large scale renewable electricity projects.

There is a relatively short time between now and 2020 and energy policy for the intervening period has already been largely determined. Therefore, it is appropriate that any new Policy and Development Framework should be relevant for a longer period. As the EU is currently finalising policy for the year 2030, it is reasonable that the Policy and Development Framework will be focused on this timeframe and that the SEA will examine scenarios for the period up to 2030 and beyond, as appropriate. This period corresponds with the time horizon for the *Offshore Renewable Energy Development Plan.* As Government policy supports the export of surplus electricity, the Renewable Electricity Policy and Development Framework will also provide for potential, future export projects.

3. Nature and Extent of Proposed Renewable Electricity Policy and Development Framework

The goal of the Renewable Electricity Policy and Development Framework is to optimise the opportunities in Ireland for renewable electricity generation development on land at significant scale, to serve both the All Island Single Electricity Market and potential, future export markets.

There is potential for generation of renewable electricity using bioenergy technology. The NREAP envisages a relatively small (9%) contribution from bioenergy resources towards renewable electricity generation up to 2020. Bioenergy is the subject of a separate *Draft Bioenergy Plan*, including SEA and AA.

3.1 Policy and Development Framework Time Horizon

The Renewable Electricity Policy and Development Framework and SEA are to be focussed on the period up to 2030, and beyond as appropriate. Targets for 2020 would remain in force and it is not proposed that arrangements for achievement of these would be affected.

3.2 Geographic Scope

The land area of the State is proposed as the initial study area for the Renewable Electricity Policy and Development Framework. Following initial screening examination, the study may be refined to select more discrete areas for detailed assessment. Subject to the SEA, selection of such detailed assessment areas would be based on the types of projects for consideration; the baseline environmental information; exclusion of areas of natural heritage value, high scenic amenity and cultural heritage value; and areas with intense concentrations of existing or permitted renewable energy projects. Selection of the assessment areas would also have regard to the protection of residential amenity, including areas of high population density, and would take into account the relevant provisions of the *Wind Energy Development Guidelines for Planning Authorities* in respect of setback distances from existing dwellings. Geographic information system technology would be applied in the preliminary screening, in order to focus the scope of the more detailed analysis.

3.3 Planning

Subsequently, a limited number of specific areas might be broadly identified as suitable for consideration for large scale renewable electricity development on land, having regard to access to markets, grid, environmental considerations, amenity of commercial and residential property and cumulative impacts. Such areas could subsequently be included in a revised *National Spatial Strategy* and be incorporated into *Regional Planning Guidelines* and, following a further level of assessment, into *County Development Plans* in a more detailed fashion. In addition, policy would consider greater interconnection to the UK and or France to provide greater energy flexibility and security.

Cognisance would be taken of existing local authority policies in relation to renewable energy. Local authority wind energy strategies, some based on the SEAI published *Methodology for Local Authority Renewable Energy Strategies* (LARES), *2013*, would remain in force.

3.4 Inventory

An inventory of the location and scale of existing renewable energy projects, extant planning permissions and *Gate 3* grid connection consents will be compiled.

3.5 Re-powering

In the case of older wind farms, it may be appropriate to consider re-powering, which is typically the substitution of a smaller number of more efficient turbines in lieu of existing. This issue will be considered in the formulation of the Renewable Electricity Policy and Development Framework.

For comparison, it is proposed that the total number of wind turbines in Denmark will be reduced from the current 5,000 to approximately 3,400 turbines by 2020. But it is planned that output will increase by approximately 83%.[13]

3.6 Grid Access

Issues of grid accessibility and resilience will inform the Renewable Electricity Policy and Development Framework.

3.7 Community Engagement

The 2012 *Government Policy Statement on the Strategic Importance of Transmission and Other Energy Infrastructure* recognises that public and community acceptance are key to the timely development of strategic infrastructure. It emphasises early consultation and engagement with local communities, and building community gain considerations into energy infrastructure planning and budgeting. The *Green Paper on Energy Policy in Ireland*, which was published recently, also recognises building societal acceptance as one of several challenges in further deploying renewable energy. The Renewable Electricity Policy and Development Framework will set out policy in relation to community engagement.

In this regard the National Economic and Social Council published a report entitled "Wind Energy in Ireland: Building Community Engagement and Social Support" in July 2014. Its sets out, inter alia, proposals in relation to community participation and value-sharing. The latter includes proposals in relation to community benefit, equity involvement, energy co-operatives and joint ventures. The full report can be found at the following link: http://files.nesc.ie/nesc_reports/en/139_Wind_Energy_Main_Report.pdf

3.8 Export Policy

The Development Framework will incorporate policy in relation to potential, future energy exports. It will set out the principles and the conditions for potential export projects (subject to any future inter governmental agreements).

13 Danish Wind Energy Association

4. Strategic Environmental Assessment

Strategic Environmental Assessment (SEA) is the formal, systematic evaluation of the likely significant environmental effects of implementing a plan or programme, such as the proposed Renewable Electricity Policy and Development Framework, before a decision is made to adopt the plan or programme. It is intended that the Renewable Electricity Policy and Development Framework will set a framework for future development consents of individual projects.

EU Directive 2001/42/EC: *On the assessment of the effects of certain plans and programmes on the environment*, is the legal instrument whereby the concept of SEA was brought into EU law. This has been subsequently transposed into Irish domestic law by way of regulations, S.I. 435/2004: European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations, 2004, as amended by S.I. 200/2011: European Communities (Environmental Assessment of Certain Plans and Programmes) (Amendment) Regulations, 2011. In addition, there are regulations applying the provisions of the Directive to the Planning and Development regime, namely the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (S.I. 436/2004), as amended by S.I. 201/2011.

Under the provisions of the Directive (Article 3, par.2) an SEA is mandatory for plans or programmes which:

- are prepared for agriculture, forestry, fisheries, energy, industry, transport, waste, water management, telecommunications, tourism, town and country planning or land use and which set the framework for future development consent of projects listed in the EIA Directive [Directive 85/337/EEC as revised per Directive 2011/92/EU]

  or

- have been determined to require an assessment under the Habitats Directive 92/43/EEC.

As set out in the Directive and the Irish Regulations, the SEA process includes:

- preparing an Environmental Report where the likely significant environmental effects of the Draft Renewable Electricity Policy and Development Framework are identified and assessed and reasonable alternatives are described and evaluated;
- consulting the public, environmental authorities and any EU Member State affected on the Environmental Report and Draft Renewable Electricity Policy and Development Framework;
- taking account of the findings of the Environmental Report and the outcome of these consultations in deciding whether to adopt or modify the Draft Renewable Electricity Policy and Development Framework; and
- making known the decision on adoption of the Renewable Electricity Policy and Development Framework and how SEA influenced the outcome.

4.1 Requirement for SEA

Having regard to the nature of the proposed Renewable Electricity Policy and Development Framework, it has been determined that it comes within the scope of Directive 2001/42/EC, Article 3, par 2(a), as also S.I. 435/2004, Article 9(1)(a), as amended by S.I. 200/2011, being a plan for energy, which sets the framework for future development consent for projects listed in Annexes I and II to Directive 85/337/EEC (as revised per Directive 2011/92/EU).

The SEA will be carried out by the Minister for Communications, Energy and Natural Resources, in accordance with the requirements of the Directive and Regulations.

In addition, it has been determined that the Renewable Electricity Policy and Development Framework requires an assessment under the Habitats Directive 92/43/EEC, which also brings it within the provisions of the SEA Directive 2001/42/EC, Article 3, par 2(b). The Habitats Directive AA will be carried out as a separate exercise, in parallel with the SEA. A Natura Impact Statement, in connection with the AA under the Habitats Directive, will be compiled at the same time as the Environmental Report.

4.2 Scoping the Environmental Report

The SEA Directive 2001/42/EC, at Annex I, sets out the general information to be given in the Environmental Report:

- an outline of the contents, main objectives of the plan or programme and relationship with other relevant plans and programmes;
- the relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme;
- the environmental characteristics of areas likely to be significantly affected;
- any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Directives 79/409/EEC and 92/43/EEC;
- the environmental protection objectives, established at International, Community or Member State level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation;
- the likely significant effects on the environment, including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage, including architectural and archaeological heritage, landscape, and the interrelationship between the above factors. (These effects should include secondary, cumulative, synergistic, short, medium and long-term, permanent and temporary, and positive and negative);
- the measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme;
- an outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information;
- a description of the measures envisaged concerning monitoring in accordance with Article 10; and
- a non-technical summary of the information provided under the above headings.

4.3 SEA Topics

The topics to be covered by the environmental assessment and the SEA Environmental Report are those set out above, in particular the likely significant effects on the environment, including on aspects such as:

> *"biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors"*

In the first instance, the likely significant generic impacts of the Draft Renewable Electricity Policy and Development Framework in respect of the foregoing topics will be described and assessed. This will be followed by a more detailed and systematic assessment of the environmental sensitivity and the likely significant effects on the environment in the selected assessment areas of the Draft Renewable Electricity Policy and Development Framework. This will also include consideration of grid accessibility and any necessary improvements thereto. (Development of renewable energy is not precluded in principle outside the assessment areas). Finally, the environmental impacts of the Draft Renewable Electricity Policy and Development Framework, together with the likely cumulative impacts, including transboundary, from other plans, programmes and developments, will be examined and assessed.

Assessment of the likely significant impacts in relation to the foregoing topics is to guide the formulation of the Draft Renewable Electricity Policy and Development Framework. In order to achieve this, a staged process will be adopted in the assessment, which will be reflected in the Environmental Report. This will include consideration of a number of reasonable and realistic alternatives, including the "business as usual" scenario.

4.3.1 SEA Objectives

The SEA will examine the topics and issues set out above and additional SEA objectives specific to the Draft Renewable Electricity Policy and Development Framework will be developed.

4.3.2 Mitigation

In terms of mitigation of impacts, an examination will be undertaken of the measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the Draft Renewable Electricity Policy and Development Framework. The impact of the Draft Renewable Electricity Policy and Development Framework, as modified by the mitigation measures, will be assessed. Such measures will also include those to be undertaken at project level.

4.3.3 Monitoring

The Environmental Report will set out detailed proposals for monitoring of the environmental impacts of implementation of the adopted Renewable Electricity Policy and Development Framework.

4.4 Environmental Report and Draft Renewable Electricity Policy and Development Framework

The Environmental Report and Draft Renewable Electricity Policy and Development Framework will be issued for consultation prior to adoption of the Framework.

4.5 Appropriate Assessment

An AA of the Draft Renewable Electricity Policy and Development Framework will be carried out under the provisions of the Habitats Directive 92/43/EEC (as amended) and as transposed by S.I. 477/2011: European Communities (Birds and Natural Habitats) Regulations, 2011. This will be a separate undertaking to the SEA, but will be integrated into the overall programme for the SEA and Draft Renewable Electricity Policy and Development Framework, (figure 2).

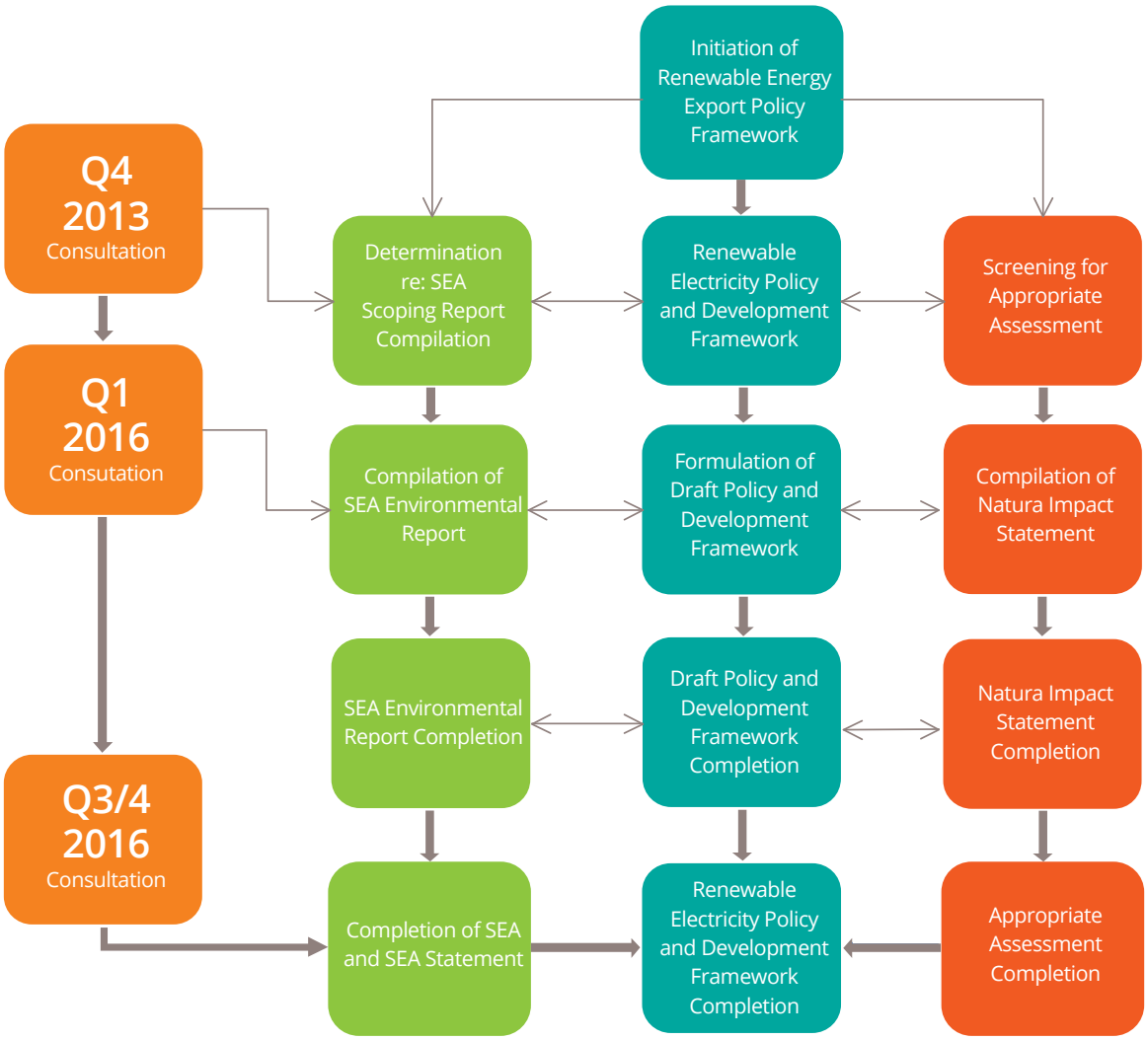


Figure 2. Timelines and Relationship of Policy Framework to Strategic Environmental Assessment and Appropriate Assessment

4.6 Guidance Documents for SEA and AA

- EPA, *Development of Strategic Environmental Assessment (SEA) Methodologies for Plans and Programmes in Ireland,* 2003;
- EPA, *SEA Pack,* 2013;
- EPA, *Strategic Environmental Assessment (SEA) Process Checklist: Consultation Draft,* 2008;
- EPA, *Integrated Biodiversity Impact Assessment – Streamlining AA, SEA and EIA Processes: Practitioner's Manual,* 2013;
- EPA, *SEA Resource Manual for Local and Regional Planning Authorities,* 2013;
- EPA, *SEA and Climate Change,* forthcoming;
- EPA, *Developing and Assessing Alternatives in Strategic Environmental Assessment,* forthcoming;
- EPA, *Guidance on SEA and AA for Energy Sector,* forthcoming;
- IAIA, *Alternatives in Strategic Environmental Assessment of Plans and Programmes,* 2014;
- EPA, *SEA Spatial Information Sources (Datasets),* 2014; and
- EPA, *CEA in SEA Guidance,* forthcoming.

5. Renewable Energy Technologies and Resources

5.1 Technologies

EU Directive 2009/28/EC: *On the promotion of the use of energy from renewable sources*, contains the following definition:

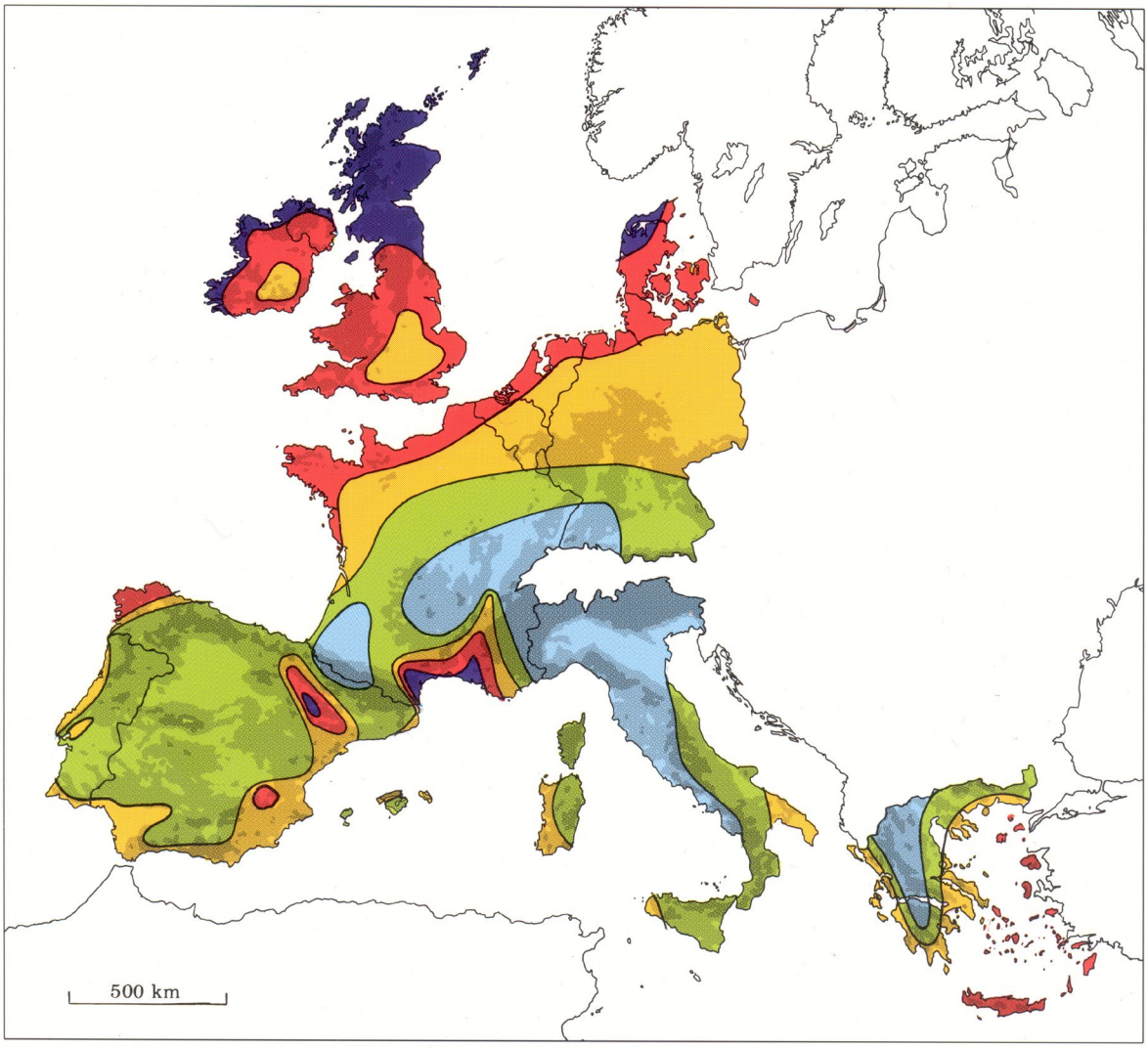
> *" 'energy from renewable sources' means energy from renewable non-fossil sources, namely wind, solar, aerothermal, geothermal, hydrothermal and ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases"* [14]

5.1.1 Wind Energy

Ireland has one of the most favourable climates for harnessing wind energy in Europe and this technology is the largest contributor to renewable electricity generation in the country. As of late 2013, the total contracted capacity of wind energy connected to the Irish grid was approximately 2,000MW. Because of the variability of wind, with consequent effects on the generation of electricity from that source, and the difficulty of storing electricity, the integration of wind generated energy onto the electricity transmission grid presents certain challenges. These include the need for significant back-up generation capacity in the form of gas-fired generators and increased interconnection with other Member States.

Wind turbines have been deployed in arrays or wind farms in Ireland since 1992. Turbine technology is continuously evolving, with significant increases in output and efficiency. The typical rated power output of an onshore wind turbine in Ireland in recent years is between 2.5 and 3MW. Turbines in recent developments, in Ireland, have been commonly of 100m in hub height, of up to 50m in blade length and can have a rated output of up to 3MW. However, larger turbines have been deployed in other countries and offshore.

14 Art 2(a), EU Directive 2009/28/EC



Wind resources[1] at 50 metres above ground level for five different topographic conditions										
	Sheltered terrain[2]		Open plain[3]		At a sea coast[4]		Open sea[5]		Hills and ridges[6]	
	$m\,s^{-1}$	Wm^{-2}	$m\,s^{-1}$	Wm^{-2}	$m\,s^{-1}$	Wm^{-2}	$m\,s^{-1}$	Wm^{-2}	$m\,s^{-1}$	Wm^{-2}
	> 6.0	> 250	> 7.5	> 500	> 8.5	> 700	> 9.0	> 800	> 11.5	> 1800
	5.0-6.0	150-250	6.5-7.5	300-500	7.0-8.5	400-700	8.0-9.0	600-800	10.0-11.5	1200-1800
	4.5-5.0	100-150	5.5-6.5	200-300	6.0-7.0	250-400	7.0-8.0	400-600	8.5-10.0	700-1200
	3.5-4.5	50-100	4.5-5.5	100-200	5.0-6.0	150-250	5.5-7.0	200-400	7.0- 8.5	400- 700
	< 3.5	< 50	< 4.5	< 100	< 5.0	< 150	< 5.5	< 200	< 7.0	< 400

1. The resources refer to the power present in the wind. A wind turbine can utilize between 20 and 30% of the available resource. The resources are calculated for an air density of 1.23 $kg\,m^{-3}$, corresponding to standard sea level pressure and a temperature of 15°C. Air density decreases with height but up to 1000 m a.s.l. the resulting reduction of the power densities is less than 10%.
2. Urban districts, forest and farm land with many windbreaks (roughness class 3).
3. Open landscapes with few windbreaks (roughness class 1). In general, the most favourable inland sites on level land are found here.
4. The classes pertain to a straight coastline, a uniform wind rose and a land surface with few windbreaks (roughness class 1). Resources will be higher, and closer to open sea values, if winds from the sea occur more frequently, i.e. the wind rose is not uniform and/or the land protrudes into the sea. Conversely, resources will generally be smaller, and closer to land values, if winds from land occur more frequently.
5. More than 10 km offshore (roughness class 0).
6. The classes correspond to 50% overspeeding and were calculated for a site on the summit of a single axisymmetric hill with a height of 400 metres and a base diameter of 4 km. The overspeeding depends on the height, length and specific setting of the hill.

Figure 3. European Wind Atlas

Source: Risø DTU National Laboratory, Denmark

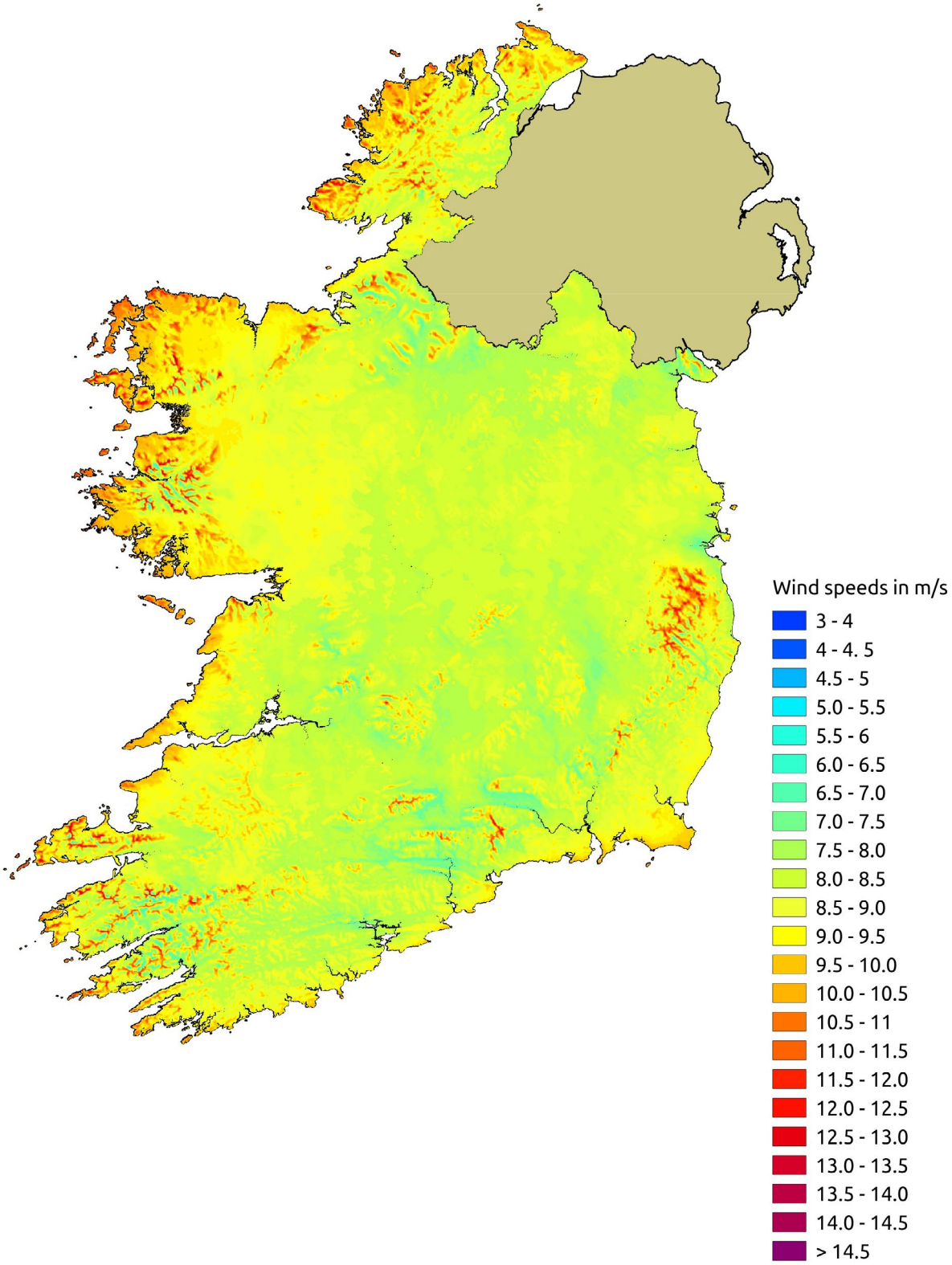


Figure 4. Onshore 100m Wind Speeds

Source: SEAI

5.1.2 Hydropower

In 2012, the total hydro connected to the transmission system in Ireland was 212MW, which accounted for 2.7% of gross electricity consumption.[15] The Ardnacrusha power plant is the largest hydropower facility in Ireland, at 86MW. The NREAP envisages 234MW of hydroelectricity contributing to our renewable electricity 2020 target, mostly from the existing large hydro plants. There are also many smaller hydroelectric plants in operation across the country. A REFIT tariff is available for hydro plants of 5MW or less, and a number of such plants joined the original scheme. There appears to be little scope for additional, orthodox hydropower projects of scale. The potential for further hydropower development was examined in the *All Island Grid Study, Workstream 1, Renewable Energy Resource Assessment*, but effectively dismissed on the basis that "*... there would be very low incremental generation from hydropower...*"[16]

Pumped storage is a form of hydroelectric energy, whereby water is pumped to a high level reservoir for storage pending release into a turbine to generate electricity at times of peak demand, an example being Turlough Hill, County Wicklow. It is doubtful that such electricity can be counted as *renewable*, having regard to the provisions of relevant EU Directives, including Directive 2009/28/EC: (indent 30) *on the promotion of the use of energy from renewable sources,* which states that:

> *"electricity produced in pumped storage units from water that has previously been pumped uphill should not be considered to be electricity produced from renewable energy sources."*

5.1.3 Solar Energy

Solar energy uses the sun's energy for power or heat production. The most suitable form in northern Europe in which solar energy can be converted to electricity is photovoltaic (PV) technology. PV systems use light to convert solar radiation into electricity. The light which shines on the PV cells creates an electric field, causing electricity to flow. The greater the intensity of light, the greater the flow of electricity. This is the system in common use in Germany, where solar power supplies around 5% of electricity, (concentrated solar power is a system more suited to areas with stronger sunlight regimes, such as Spain).

Solar PV power was examined in 2008 in the *All Island Grid Study, Workstream 1, Renewable Energy Resource Assessment*, but *"... it was concluded that there would be very low incremental generation from solar photovoltaic power at any 110kV node by 2020."*[17] The 2010 NREAP does not envisage solar power making a contribution to Ireland's 2020 renewable electricity targets.

However, there has recently been a significant decrease in the cost of solar PV panels and this technology should offer some possibilities in Ireland in the medium term up to 2030. The recently published *Green Paper on Energy Policy in Ireland*, May 2014, DCENR, raises the question of the future role of solar energy.[18]

5.1.4 Aerothermal, Geothermal and Hydrothermal Energy

Directive 2009/28/EC, Article 2 states:

- *" 'aerothermal energy' means energy stored in the form of heat in the ambient air";*
- *" 'geothermal energy' means energy stored in the form of heat beneath the surface of solid earth"; and*
- *" 'hydrothermal energy' means energy stored in the form of heat in surface water".*

It is not considered that there is significant opportunity for large scale electricity generation using aerothermal, hydrothermal or geothermal sources in Ireland.

15 Renewable Energy in Ireland 2012, (February 2014 Report), SEAI, p22
16 All Island Grid Study, Renewable Energy Resource Assessment, Workstream 1, ESB International, 2008, p104
17 Ibid, p104
18 Green Paper on Energy Policy in Ireland, DCENR, 2014, p64

5.1.5 Bioenergy

Energy from renewable sources, as defined in Directive 2009/28/EC, includes, inter alia, energy from biomass, landfill gas, sewage treatment plant gas and biogases.[19]

Directive 2009/28/EC, Article 2(e) states:

> *" 'biomass' means the biodegradable fraction of products, waste and residues from biological origin from agriculture (including vegetal and animal substances), forestry and related industries including fisheries and aquaculture, as well as the biodegradable fraction of industrial and municipal waste"*

Biomass is currently co-fired in traditional fossil fuel power plants, such as Edenderry Power Station. The NREAP *First Progress Report*[20] (January 2012) envisages that bioenergy could contribute 274MW to our renewable electricity capacity by 2020, which represents a significant increase on the current circa 100MW. A new REFIT scheme to support 310MW of electricity from biomass technologies opened in February 2012.

Landfill gas, sewage treatment plant gas and biogases offer additional bioenergy sources, but will be at a relatively small scale in individual cases.

The Minister for Communications, Energy and Natural Resources announced that a *Bioenergy Plan* will be finalised in 2015, following SEA and AA of the *Draft Bioenergy Plan* under the provisions of the Habitats Directive. This will examine, inter alia, the scale of indigenous biomass available in Ireland and the potential for further development of this sector.

5.2 Offshore Energy

The Offshore Renewable Energy Development Plan established a Policy and Development Framework for offshore energy resources in the period up to 2030 and beyond.

5.2.1 Offshore Wind Energy

The capacity factor of offshore wind energy is generally higher than that of onshore, due to the more constant wind conditions at sea. However, the development and maintenance costs, as well as the additional costs of transmission of the electricity, are significantly greater for offshore wind energy than for land based wind farms. Current government policy favours the potential future development of offshore wind energy to serve export markets only.

5.2.2 Ocean Energy

Ocean energy generally refers to electricity extracted from the waves and tides (tidal current or tidal barrage). Ireland has significant potential for the development of ocean energy, but the relevant technologies are as yet not commercially viable. Ocean energy may not make a significant contribution until the medium to long term, notwithstanding the existence of a number of large scale prototypes producing electricity.

19 Directive 2009/28/EC on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directive 2001/77/EC and 2003/30/EC, European Parliament and Council, 2009, Article 2(a)

20 National Renewable Energy Action Plan, First Progress Report, DCENR, January 2012 , Table 2, p35

6. Environmental Baseline Data

This chapter provides a summary of the environmental baseline data which will inform the environmental assessment of the Renewable Electricity Policy and Development Framework. The Environmental Report will include a more comprehensive description of the key issues in relation to the Renewable Electricity Policy and Development Framework.

6.1 Biodiversity, Flora and Fauna

Biodiversity can be defined as the variability among living organisms, including terrestrial and aquatic ecosystems. The loss of biodiversity reduces the ability of an ecosystem to recover from natural or human impacts.

In Ireland, there are a number of categories of protected areas for the conservation and protection of flora and fauna, in the interest of maintaining biodiversity. These include Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Natural Heritage Areas (NHAs), Nature Reserves under the Wildlife Act, 1976, UNESCO World Heritage and UNESCO Biosphere sites, and other designations such as Ramsar Sites.

6.1.1 The Habitats Directive and the Birds Directive

The Habitats Directive, 92/43/EEC of 21 May 1992 *on the conservation of natural habitats and wild fauna and flora*, and the Birds Directive, 2009/147/EC (originally Directive 79/409/EEC) constitute key elements of Europe's nature conservation policy. These are transposed into Irish law by way of a number of legislative instruments, the most relevant of which is S.I. 477/2011: European Communities (Birds and Natural Habitats) Regulations, 2011.

The Habitats Directive, which has been amended on a number of occasions, is built around two pillars: the Natura 2000 network of protected sites and a strict system of species protection. Article 3 (1) of the Habitats Directive states:

> *"A coherent European ecological network of special areas of conservation shall be set up under the title Natura 2000. This network, composed of sites hosting the natural habitat types listed in Annex I and habitats of the species listed in Annex II, shall enable the natural habitat types and the species' habitats concerned to be maintained or, where appropriate, restored at a favourable conservation status in their natural range.*
>
> *The Natura 2000 network shall include the special protection areas classified by the Member States pursuant to Directive 79/409/EEC."*

Annex I of the Habitats Directive designates natural habitat types of community interest the conservation of which requires their designation as SACs, with those of particular sensitivity being designated as *Priority Habitats*. Annex II of the Directive designates certain animal and plant species of community interest the conservation of which also requires the designation of SACs.

Annex IV designates certain animal and plant species of community interest and for which Member States are required to take the requisite measures to establish a system of protection.

There are 423 SACs in Ireland covering an area of approximately 13,500 km^2 per the National Parks and Wildlife Service. Just over half of these are land based, while the rest are marine or large lakes. A further eight sites await formal adoption by the EU Commission.

The original Birds Directive, 79/409/EEC, was replaced in 2009 by a new Directive 2009/147/EC. SPAs are designated under the Birds Directive (Directive 2009/147/EC on the conservation of wild birds). As of January 2014, 144 SPAs have been protected by Statutory Instrument in Ireland. Fourteen other sites enjoy legal protection under the Regulations[21] and will shortly be designated as SPAs.

The concept of an ecological network is that of linking core ecological areas by corridors, with buffer zones, to permit migration and dispersal of species. This is reflected in the Habitats Directive, which refers to: *A coherent European ecological network of special areas of conservation*.[22]

The National Parks and Wildlife Service has published reports on *The Status of EU Protected Habitats and Species in Ireland*.[23]

In Northern Ireland, there are 57 SACs and 15 SPAs making a total of 72 Natura 2000 Sites.[24] A number of Natura 2000 Sites straddle the border with Northern Ireland:

Table 2. Cross-border Natura 2000 Sites

Northern Ireland		Ireland	
Site code	*Site name*	*Site code*	*Site name*
UK0016603	Cuilcagh Mountain	IE0000584	Cuilkcagh-Anieran Uplands
UK0030047	Lough Melvin	IE0000428	Lough Melvin
UK0016621	Magheraveely Marl Lakes	IE0001786	Kilrooskey Lough Cluster
UK0016607	Pettigo Plateau	IE0001992	Tamur Bog
UK0016607	Pettigo Plateau	IE0002164	Lough Golagh and Breesy Hill
UK0030320	River Foyle and Tributaries	IE0002301	River Finn

Source: Joint Nature Conservation Committee.

21 European Communities (Birds and Natural Habitats) Regulations, 2011, Art.35
22 Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, Art. 3(1)
23 Habitats Directive Article 17 Conservation Status Assessment Reports: The Status of EU Protected Habitats and Species in Ireland, Vols. 1&2, NPWS, 2013 http://www.npws.ie/publications/article17assessments/
24 DoE, Northern Ireland: http://www.doeni.gov.uk/niea/protected_areas_home/natura_2000.htm.

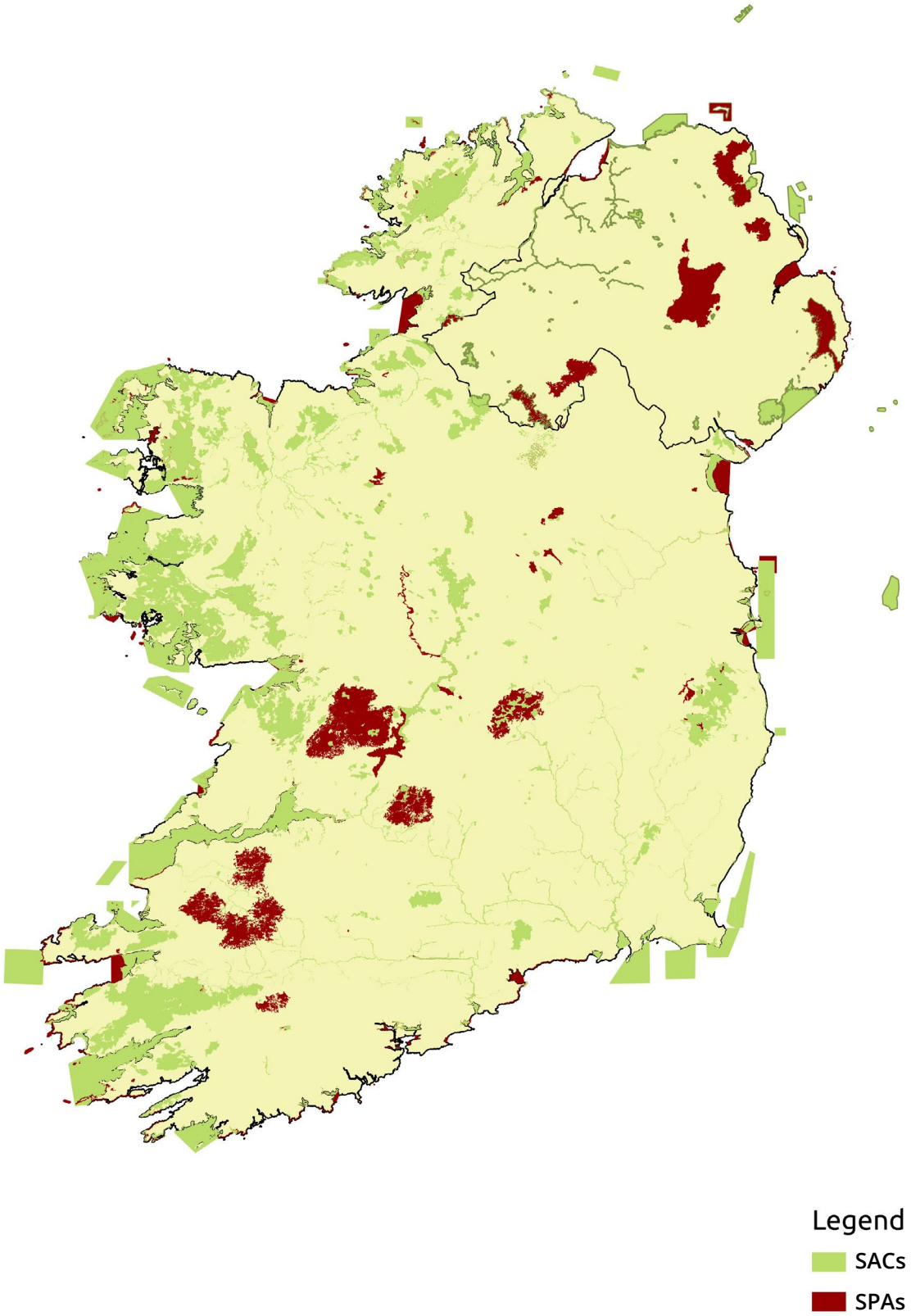


Figure 5. Natura 2000 (SAC/SPA) Sites

Source: National Parks & Wildlife, Dept of Environment, Food & Rural Affairs, natura 2000 websites.

6.1.2 Natural Heritage Areas

Natural Heritage Areas (NHAs) are designated under the Wildlife (Amendment) Act, 2000, and are legally protected from the date on which they are formally proposed for designation. These are areas considered important for the habitats present or which hold species of plants and animals of which the habitat needs protection. To date, 75 raised bogs have been given legal protection, covering some 23,000ha. These raised bogs are mainly located in the midlands. A further 73 blanket bogs, covering 37,000ha, mostly in western areas, are also designated as NHAs. In addition, there are a further 630 proposed NHAs, of varying sizes but covering approximately 65,000ha. The proposal is that these sites will proceed to be designated on a phased basis in the coming years.

6.1.3 National Parks

There are six National Parks located in Ireland, which have been designated by the Department of Arts, Heritage and the Gaeltacht under the criteria and standards set up by the International Union for the Conservation of Nature (IUCN). One of these is in the east of Ireland – the Wicklow Mountains National Park – with the remaining five in the west – Glenveagh, County Donegal; Ballycroy, County Mayo; Letterfrack, Connemara, County Galway; The Burren, County Clare and Killarney, County Kerry.

6.1.4 Nature Reserves

A Nature Reserve is an area of importance to wildlife, which is protected under ministerial order per the Wildlife Act, 1976. The majority are owned by the State.

6.1.5 Ramsar Sites

The *Convention on Wetlands of International Importance*, called the Ramsar Convention, is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. There are at present 45 sites in Ireland designated as Ramsar sites.[25]

The Ramsar Convention defines wetlands as:

> *"areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters."*

The SEA will assess the impacts, including cumulative impacts in conjunction with other plans or programmes, that the development of renewable energy projects could potentially have on natural heritage, for example in respect of noise, disturbance, habitat loss, collisions and construction impacts. It will also examine likely positive impacts on natural heritage arising from greater use of renewable electricity, principally related to mitigating climate change effects. The SEA will also consider the likely environmental impacts arising from connection of large scale renewable electricity projects to interconnectors for linkage to the grid in other Member States. The SEA will consider relevant mitigation measures in respect of the foregoing.

Data sources: National Parks and Wildlife Service (NPWS); Department of Environment, Community and Local Government (DECLG); Irish Ramsar Wetlands Committee.

25 Irish Ramsar Wetlands Committee: www.irishwetlands.ie

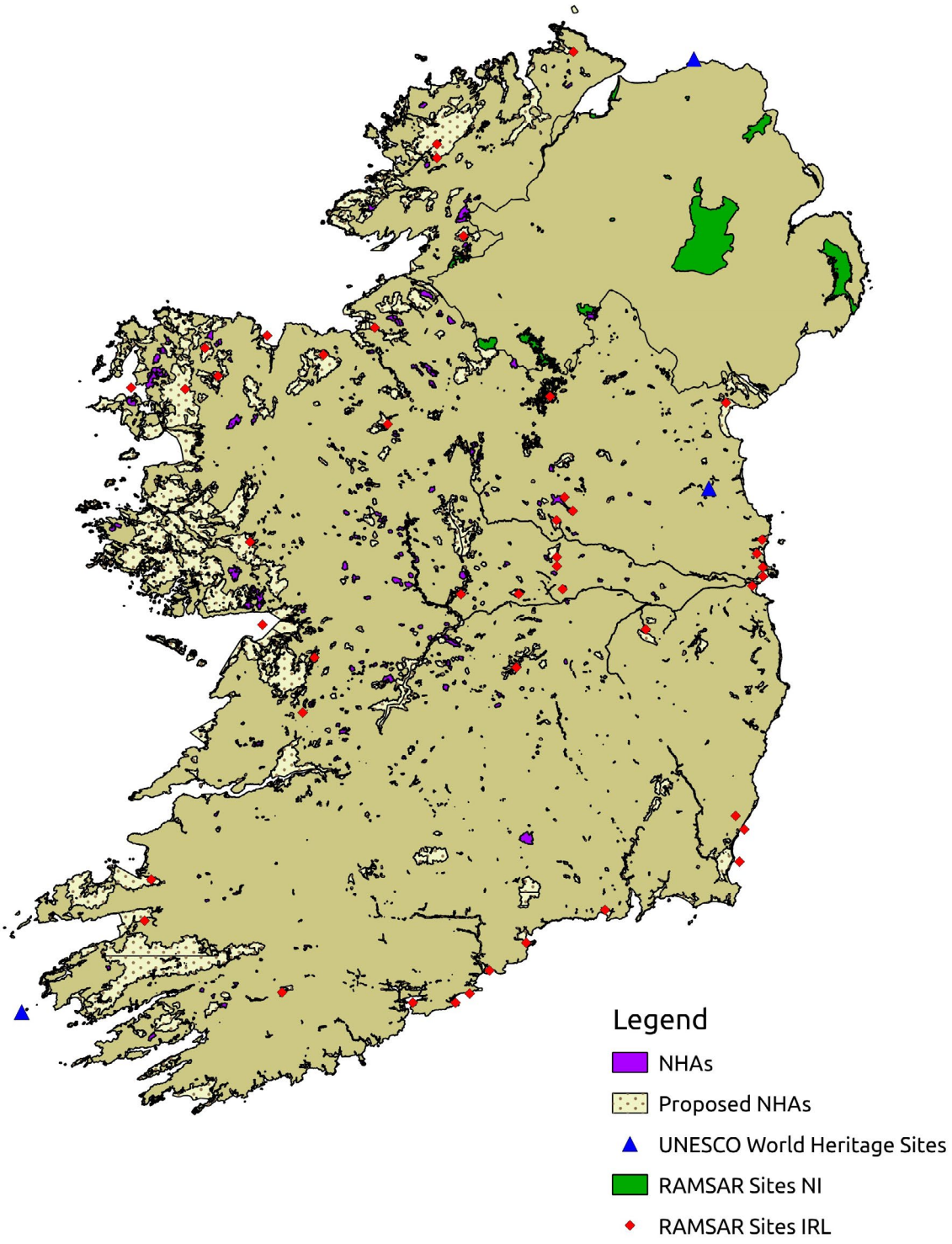


Figure 6. Designated and Proposed Natural Heritage Areas; RAMSAR Sites; UNESCO World Heritage Sites

Source: National Parks & Wildlife, UNESCO, UCC (Mida) and Dept. of Environment Northern Ireland websites.

6.2 Population and Human Health

The total population of Ireland at the time of the 2011 census was 4,581,269, an increase of 341,421 on the 2006 census.[26] Ireland retains a strong pattern of dispersed settlement in rural areas. This can be seen from the map of population density, which was 26 persons per km^2 in rural areas in 2011. This dispersed pattern of rural settlement continues to be strongly reinforced, notwithstanding an overall trend toward urbanisation at national level. The aggregate rural area population across the State increased by 4.6% in the period 2006-2011. In Leinster, the increase in rural area population in the inter-censual period was 5.4%, with certain rural counties, (Carlow, Kildare, Kilkenny, Laois, Louth, Offaly and Westmeath), showing particularly strong growth, partly as a result of migration out of Dublin.[27]

Reflecting this pattern, the rate of house building in rural areas has remained high, including in the recent past. In 2013, of 8,301 housing units completed in the entire State, 4,730 or more than half were classed as individual houses (as distinct from scheme houses or apartments). Of these, 4,449 were constructed in counties outside the cities of Dublin, Cork, Galway, Limerick or Waterford [per Department of Environment, Community and Local Government (DECLG) statistics].[28] (The comparable number of individual houses at the peak of the recent economic boom was 22,806 in 2006). The siting of large scale renewable energy developments must have regard to this pattern of residential development which will be taken into account in the SEA.

The SEA will assess the impacts that the development of renewable energy projects, such as wind farms of significant scale, could potentially have on human health in respect of noise, shadow flicker and construction impacts, such as dust and noise, and the interrelationships between relevant factors. These will be assessed also having regard to the provisions of the *Wind Energy Development Guidelines* published by DECLG originally in 2006 and future amendments thereto. (These guidelines are in course of reappraisal in respect of a limited number of aspects and in December 2013, DECLG published a consultation document with proposed revisions.)

Data Sources: CSO, DECLG, DCENR, An Post (Geodirectory)

26 Central Statisitics Office www.cso.ie
27 Census 2011 – Town and Country, Table 2, Central Statistics Office
28 House Completions by Type, DECLG website

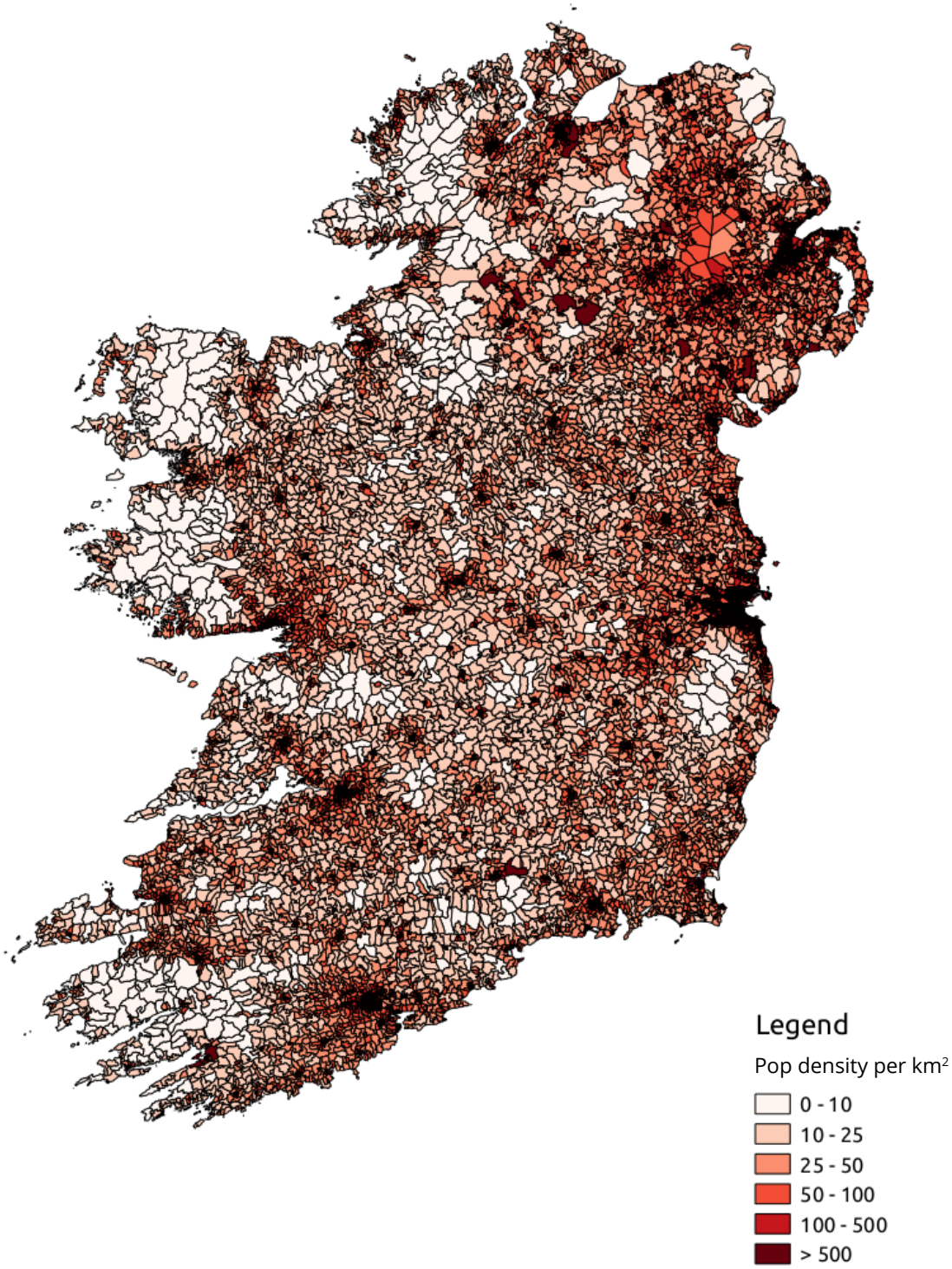


Figure 7. All Ireland Population Density for Small Areas

Source: All Ireland Research Observatory Maynooth University & CSO.

6.3 Geology

Ireland has a complex geology, laid down over hundreds of millions of years. In broad terms, the island is a saucer shape, with a low lying central plain, bordered by coastal uplands. The central plain is composed of carboniferous limestone, for the most part, overlain with a burden of glacial deposits of clay and sand. Peatlands and water bodies also proliferate. In parts of the west of the island, soils are very thin or, in the case of the Burren, non-existent and the limestone bedrock is visible on the surface. The uplands are composed of a range of rock types. These include granites in Wicklow and Down; metamorphic rocks and granites in parts of Connemara, Mayo and Donegal; old red sandstones in Munster, in parts of Cork, Kerry and Waterford; carboniferous limestones in north-east Connacht and south-west Ulster; and volcanic basalts in north-east Ulster.

6.4 Soil

Soil is the top layer of the earth's surface and is formed by mineral particles, organic matter, water, air and living organisms. In Ireland a variety of soils, with different characteristics in texture, structure and fertility, have been formed over the last 12,000 years. Soils are classified into categories based on distinguishing qualities that have developed during soil formation.

Agricultural land makes up about two thirds of the national land cover in Ireland, most of which is in grassland. Peatlands (raised bogs, blanket bogs and fens) and wetlands constitute slightly less than one fifth of the national land cover and forests cover about a tenth.

Most of Ireland's larger peatland areas are owned by Bord na Móna and have traditionally been exploited for use in power stations in the Midlands. The remains are now exposed peat and cutaway bog that may be a suitable location for the development of wind farms.

The *Draft National Peatlands Strategy* (Sec. 2.4) states that:

> *Peat soils cover 20.6% of the national land area. The original area of raised bogs in the State was approximately 311,000 ha and the original area of blanket bogs was approximately 774,000 ha. Fens were once common in Ireland but they have been all reclaimed except for some 20,000 ha of conservation importance. It has been estimated that only 10% of the original raised bog and 28% of the original blanket peatland resource are deemed suitable for conservation (natural peatlands). The remainder of the peatland area has been managed to various extent and the main land use categories are presented in the following table.*[29]

The *Draft National Peatlands Strategy* gives the status of Irish peatlands as follows:

- natural peatlands 269,270ha;
- cutover peatlands (affected by domestic turf cutting) 612,380ha;
- afforested peatlands 300,000ha;
- farmed peatland (grassland) 295,000ha;
- industrial cutaway peatlands 70,000ha; and
- rehabilitated cutaway peatlands 18,000ha.

Data sources: GSI, OSI, DECLG, Bord na Mona

29 Draft National Peatlands Strategy, National Parks and Wildlife Service, Dublin, 2014, Sec. 2.4, p8

6.4.1 Landslides and Susceptibility

The best wind resources in Ireland are in elevated areas, where the majority of earlier wind farm developments took place. These upland areas often contain peat of substantial depths. The construction of wind turbines and grid infrastructure in deep peat can have a negative impact on ground stability, with the potential to adversely affect water courses, habitats and species. The Geological Survey of Ireland (GSI) has compiled a database of landslides in Ireland with 2,265 events recorded. They have also undertaken a Landslide Susceptibility Mapping Project, covering much of east Leinster and the greater Cork City area, with related work in respect of Kerry and Mayo. GSI intend to produce a draft national landslide map in 2014-2015.[30]

The SEA will assess the impacts that renewable energy projects of significant scale could potentially have on soil stability, with reference to soil types and areas of particular susceptibility. Appropriate mitigation measures, including avoidance, will be addressed.

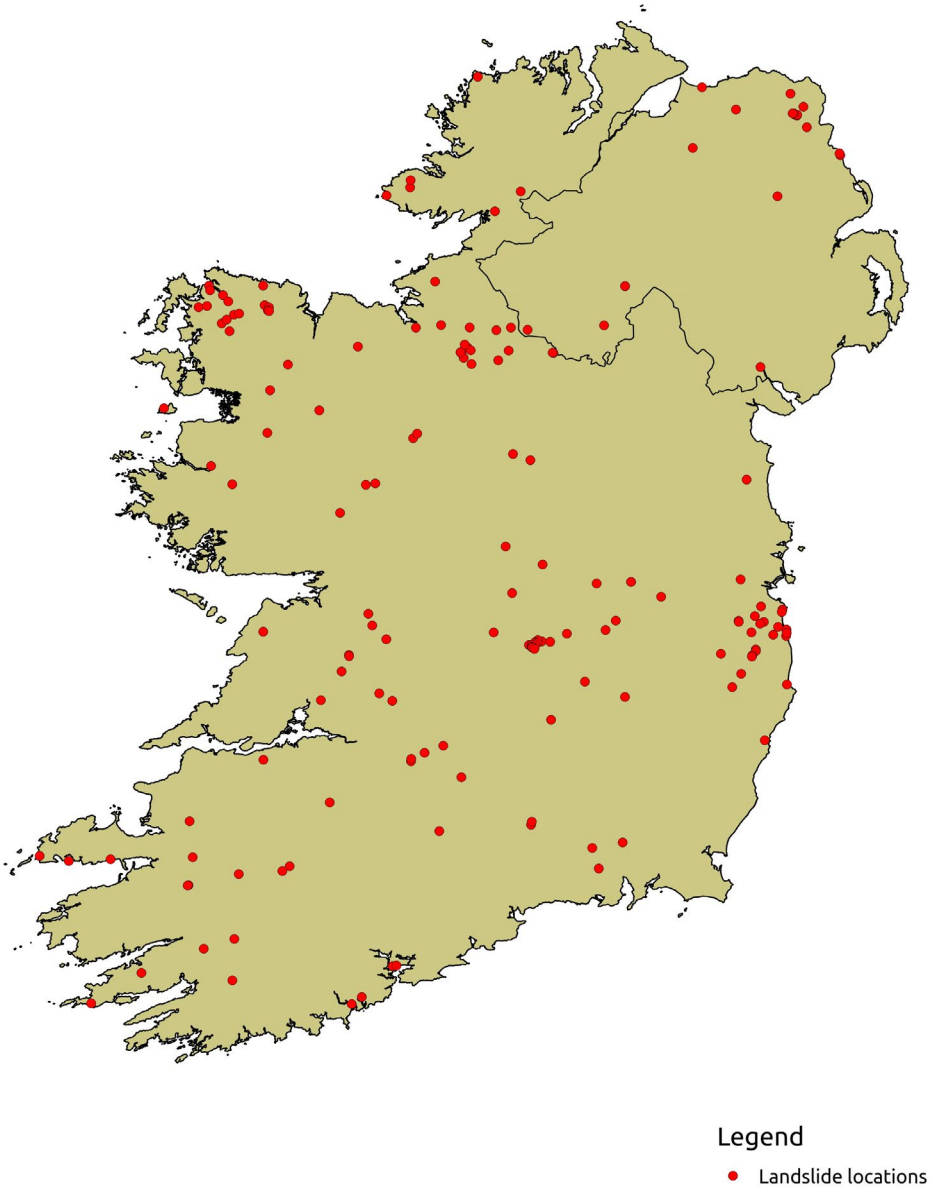


Figure 8. Landslide Locations

Source: Geological Survey of Ireland

30 www.gsi.ie/Programmes/Quaternary+Geotechnical/Landslides/

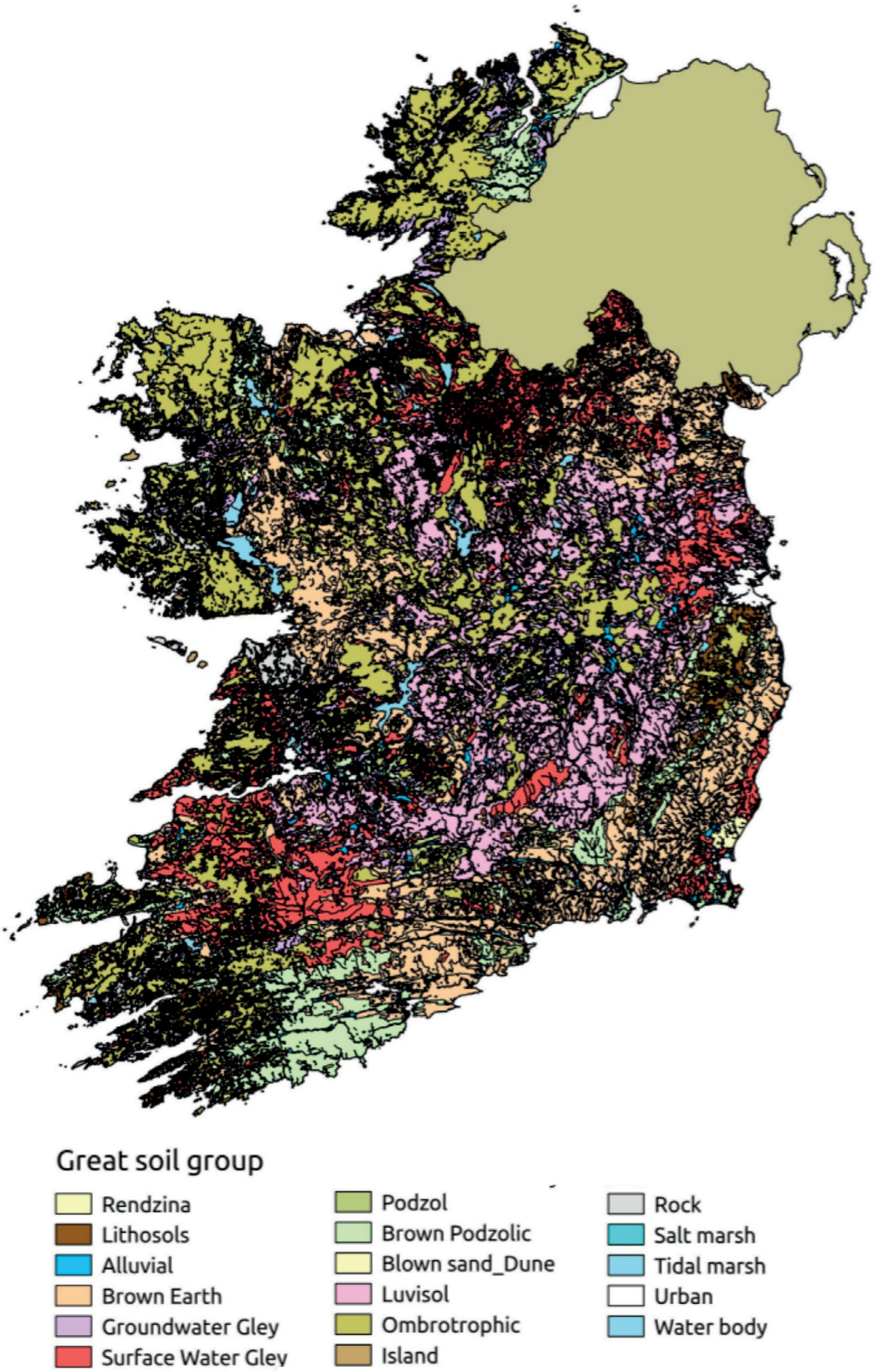


Figure 9. Great Soil Groups

Source: Teagasc

6.5 Water

6.5.1 The Water Framework Directive

The Water Framework Directive: 2000/60/EC is aimed at improving water quality throughout the EU. It applies to rivers, lakes, groundwater, estuaries and coastal waters. The Directive requires an integrated approach to managing water quality on a river basin basis, with the aim of maintaining and improving water quality and achieving *good status* by 2015. The Directive was transposed into Irish law principally by the Water Policy Regulations, S.I. 722/2003.

The Water Framework Directive requires the preparation of a management plan for all the waters in a River Basin District (RBD). For the purpose of implementing the Water Framework Directive, some 400 river basins on the island of Ireland have been divided into eight RBDs. Four RBDs are wholly within the State (Eastern, South Eastern, South Western and Western), three are shared with Northern Ireland (Shannon, Neagh Bann, and North Western), and one is wholly within Northern Ireland (North Eastern).

A River Basin Management Plan has been produced for each RBD, valid for the period 2009-2015. The Management Plans were subject to SEA and AA. They provide an indication of the existing status of all our waters and set out programmes of measures required to improve the status, where it is currently less than good, and protect it, where it is currently good or better.

Under the provisions of the Water Framework Directive, monitoring is carried out of rivers, lakes, groundwater and transitional and coastal waters under the auspices of the Environmental Protection Agency. This data will be used in the SEA to establish the environmental baseline of the water quality information of Ireland's rivers, lakes, estuarine and coastal waters.

In Ireland the majority of drinking water originates from surface water (82%) and the remainder originates from groundwater (10%) and springs (8%).[31] Water bodies, such as rivers and lakes, also provide an important recreational and tourism resource.

The SEA will assess the impacts that renewable energy projects of significant scale could potentially have on water quality and relevant mitigation. For example, runoff of polluting matter during construction can have adverse effects on the habitats of protected species, such as the fresh water pearl mussel.

6.5.2 The Floods Directive

The EU Directive 2007/60/EC: *on the assessment and management of flood risks*, or Floods Directive, came into force in 2007. It was transposed into Irish law by the European Communities (Assessment and Management of Flood Risks) Regulations 2010, S.I. 122/2010.

The Flood Risk Directive requires that flood maps and flood risk management plans be produced by Member States. In this regard, Catchment Flood Risk Assessment and Management studies (CFRAMs) were initially carried out in Ireland for three pilot areas – the Lee and Dodder catchments and the Fingal-East Meath area. A national programme of CFRAMs has now been undertaken by the OPW for each River Basin wholly or partly in the State (seven in total) in cooperation with the authorities in Northern Ireland. Areas for further assessment have been identified in each River Basin and these will be the focus of the CFRAM studies. The CFRAMs are to be completed by 2015. Detailed flood maps and flood risk management plans will be produced subsequently.

31 The Provision and Quality of Drinking Water in Ireland: A Drinking Water Report for the Year 2011, EPA (2012)

The CFRAM Programme comprises three phases:

- the preliminary flood risk assessment, in 2011;
- the CFRAM studies and parallel activities, during 2011-2015 period; and
- implementation and review, from 2016 onwards.

The SEA will assess the potential impacts, direct and indirect, of large scale renewable electricity development, inter alia, in relation to the principles set out in the Floods Directive and to the guidance in *The Planning System and Flood Risk Management: Guidelines for Planning Authorities*, published by the Department for the Environment, Heritage and Local Government in 2009.

Data sources: EPA, DECLG, OPW

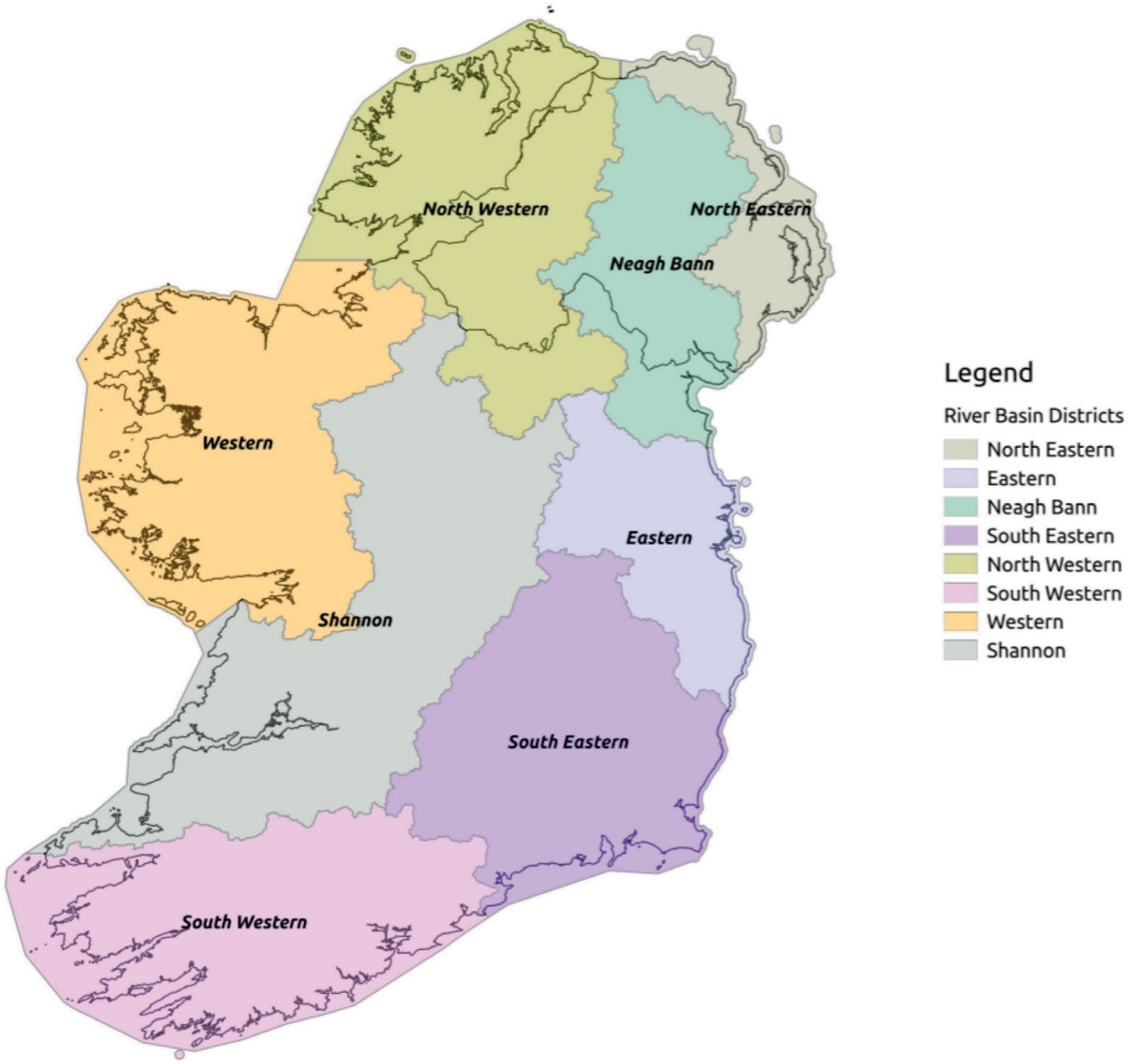


Figure 10. River Basin Districts

Source: http://spatial.dcenr.gov.ie/imf/imf.jsp?site=Groundwater

6.6 Air and Climate

6.6.1 Air

Directive 2008/50/EC: *On ambient air quality and cleaner air for Europe*, replaced a number of previous Directives. The Directive deals with each EU Member State in terms of Zones and Agglomerations for the purpose of assessing air quality. The provisions of the Directive have been transposed into Irish law by the Air Quality Standards Regulations, 2011 (S.I. 180/2011). For Ireland, the four designated zones, as amended in 2013, are:

- zone A - Dublin Conurbation;
- zone B - Cork Conurbation;
- zone C - 24 other cities and large towns; and
- zone D - rural Ireland, i.e. the remainder of the State excluding Zones A, B and C.

The most recent report of air quality in Ireland states that Ireland continues to enjoy good air quality, with no exceedances for the pollutants measured in 2012.[32]

The SEA will examine the potential impacts of renewable electricity generation on air quality. Wind generated electricity does not have significant environmental impacts measured against air quality criteria, but has positive impacts on air quality in terms of replacing polluting forms of energy generation. There is potential for emissions from some bioenergy developments, but these will be assessed under the SEA for the *Draft Bioenergy Plan*. The interrelationship of such impacts will also be considered in the SEA.

Noise is transmitted through the air. The SEA will have regard to the *Wind Energy Development Guidelines* in relation to noise emissions from wind farms.

6.6.2 Climate

Policy on the development of renewable energy, at the level of both the EU and of Irish national policy, is significantly driven by concerns regarding climate change arising from the burning of fossil fuels.

The *National Climate Change Strategy 2007-2012*, states that:

> *"Electricity generation from renewable sources provides the most effective way of reducing the contribution of power generation to Ireland's greenhouse gas emissions."* [33]

The SEA will consider the impacts of renewable electricity generation on climate change and the potential likely impacts of climate change on electricity generation, including renewable technologies.

6.7 Material Assets

Material assets of particular relevance to renewable electricity generation projects include, inter alia, energy infrastructure such as the electricity transmission grid. The interconnectivity of the system to the UK or, potentially, to France also is of relevance. Other assets of significance for the environmental assessment include existing energy generators.

32 Air Quality in Ireland 2012, Key Indicators of Ambient Air Quality, EPA 2013
33 Ireland's National Climate Change Strategy 2007-2012, Department of the Environment, Heritage and Local Government, 2007, p20

6.7.1 Grid

The Renewable Electricity Policy and Development Framework is aimed at guiding the development of large scale renewable energy projects. Availability of grid connection is an important factor in assessing suitability of particular areas for renewable electricity projects. In the event of there being a potential export component to such developments in the future, to the UK or to France, it is possible that significant interconnection benefits for Ireland may accrue.

In 2008, the *All Island Grid Study* was published, of which *Workstream 1* was an assessment of the Renewable Energy Resource.[34] This provided for a number of scenarios, with different portfolios envisaged for renewable energy. *Portfolio 4* was chosen as most advantageous, which provided for 4,000MW of renewable electricity by 2020. *Portfolio 5* envisaged a larger renewable energy component, amounting to 6,000MW of renewable electricity by 2020.

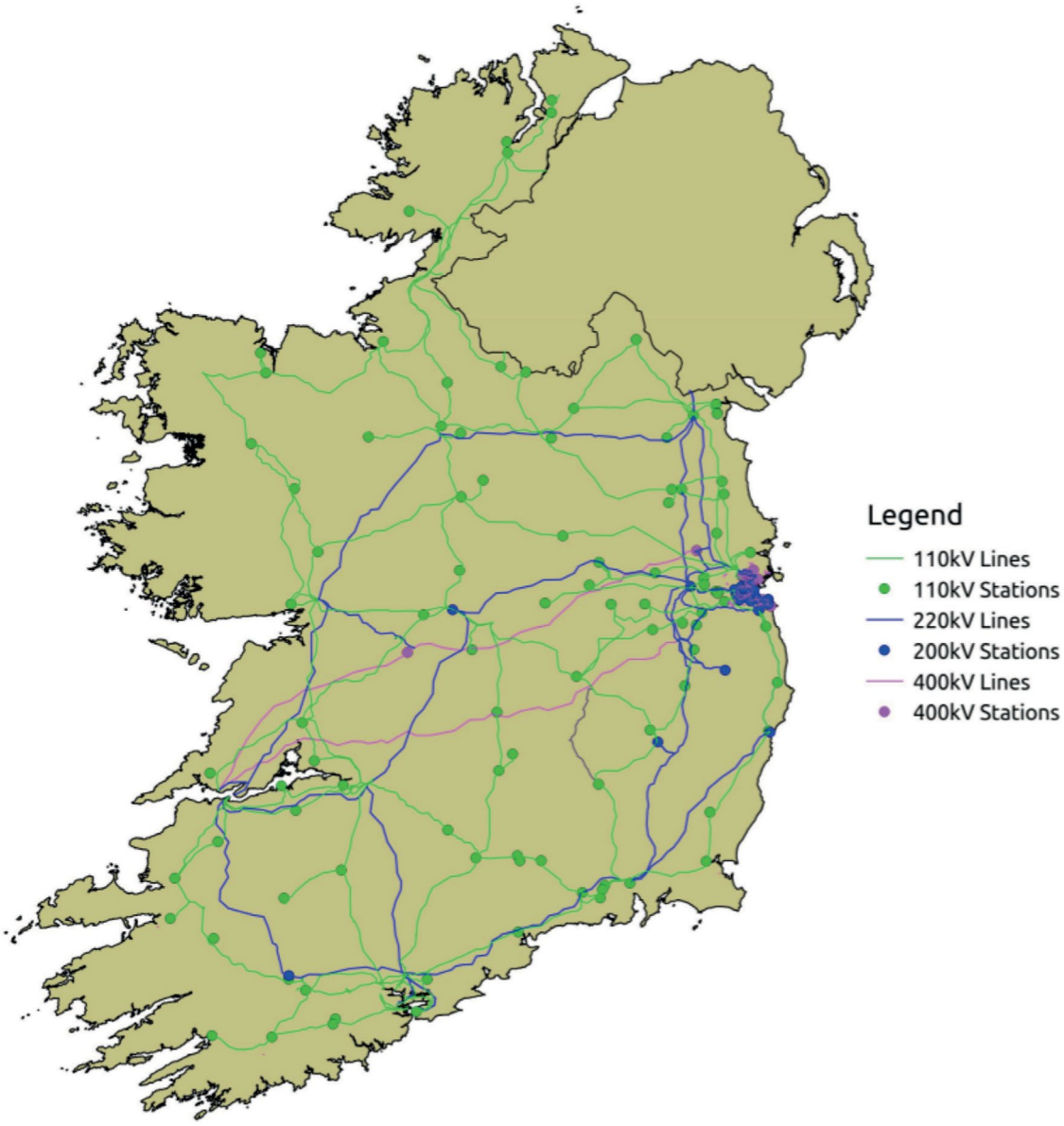


Figure 11. Electricity Transmission System: 110kV, 220kV and 400kV

Source: EirGrid

34 All Island Grid Study, Renewable Energy Resource Assessment, Workstream 1, ESB International, 2008

There is widespread recognition that the Irish transmission grid must be developed and modernised in order to meet Ireland's future energy needs. To this end, EirGrid have published a grid development strategy called Grid25.[35] Similar transmission grid improvements are required and also in train in Northern Ireland.

EirGrid's Grid25 Development Strategy has recently been through a comprehensive review period and has been updated to take account of the new economic context and the availability of new cost effective grid technologies.[36] The most significant modifications to the original Grid25 Strategy is in respect of the grid proposals to serve the East and South of the State, whereby the Grid Link project is being developed using a new and innovative technical solution referred to as the "regional option". This option minimises the need for new transmission lines by using "series compensation" technology on existing lines.

The integration of smart grid technologies is one key aspect of EirGrid's plan to modernise Ireland's transmission grid. The use of smart grid technology is an important part in managing increasing levels of variable energy from renewable sources, including wind generation. At present, the grid can manage grid instantaneous penetration levels of renewable generation of up to 50% of system demand at any one time. To meet a yearly average of 40% renewable electricity in 2020, the grid will need to be able to accommodate and securely manage instantaneous penetration levels of up 75% electricity demand.

6.7.2 Interconnectivity

European policy favours enhanced interconnectivity between the energy systems of Member States and gives preference to *Projects of Common Interest*, including electricity interconnectors.[37] Interconnectivity will be a vital element in facilitating large scale development of renewable electricity on the island of Ireland, particularly given the small size of the stand alone Irish grid system.

There is an existing interconnector between Northern Ireland and Scotland – the 500MW Moyle Interconnector. A new 500MW HVDC connection has been recently commissioned between Ireland and Britain – the East West Interconnector. Options for further interconnection between Ireland and Britain and also with France are under consideration.

Interconnectivity between the electricity transmission systems within the island of Ireland is currently limited, the main connection being a 275kV double circuit connection between County Louth and Tandragee, County Armagh. A major North-South 400kV interconnection is proposed linking Woodford, County Meath, to Turleenan, County Armagh.

The SEA will examine how large scale renewable electricity generation might be accommodated and related environmental impacts, having regard to the existing transmission grid configuration, as well as future planned improvements, including greater interconnectivity with other EU Member States.

6.7.3 Existing Renewable Generating Capacity

Wind Farms

Existing and permitted wind farms constitute a significant material asset in relation to the Renewable Electricity Policy and Development Framework. By the end of the year 2013, there was a total of approximately 2,000MW of wind energy generation capacity in the State, either in operation or due to be commissioned.

35 Grid25 – A Strategy for the Development of Ireland's Electricity Grid for a Sustainable and Competitive Future, Eirgrid
36 Your Grid, Your Views, Your Tomorrow. A Discussion Paper on Ireland's Grid Development Strategy.
37 Decision No 1364/2006/EC of the European Parliament and of the Council of 6 September 2006 laying down guidelines for trans-European energy networks (TEN-E)

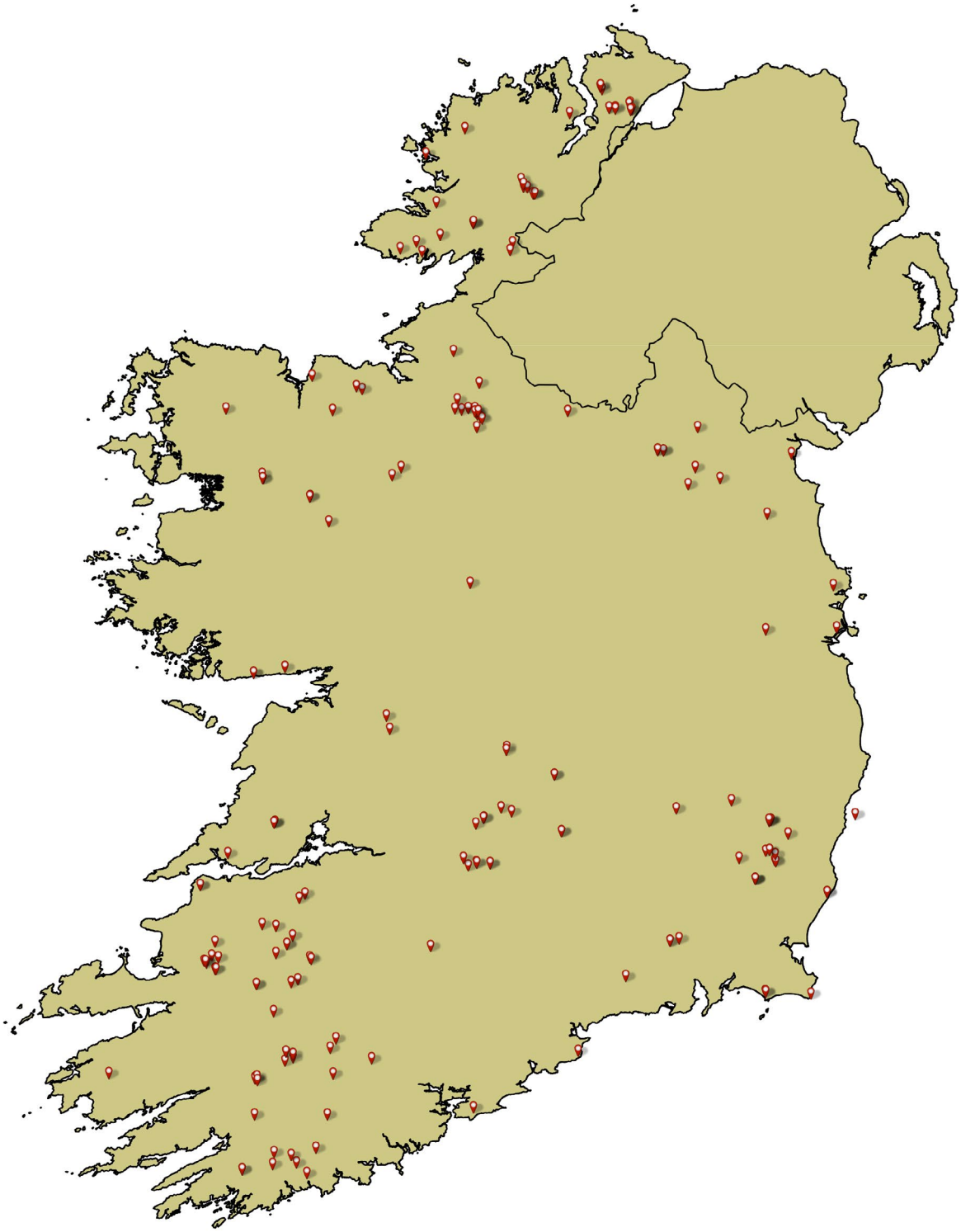


Figure 12. Connected Wind Farms

Source: SEAI

Hydro

There are nine large, hydro power stations on rivers in Ireland, all operated by ESB. These are on the Shannon (Ardnacrusha), Liffey (3 no.), Erne (2 no.), Lee (2 no.), and Clady Rivers. In addition, the Turlough Hill pumped storage power station in Wicklow is a form of hydro station.

Bioenergy

There are no major power stations in Ireland employing bioenergy alone, although some co-firing of biomass with other fuels is in place, for example in Edenderry Power Station. In 2012, bioenergy generated 1.6% of total electricity, mainly from co-firing biomass and some landfill gas.[38]

Other Renewable Energy Technologies

There are no large scale generating plants using other renewable energy technologies in place on land in Ireland.

6.7.4 Existing Non-Renewable Generating Capacity

Existing production of electricity in Ireland remains heavily dependent on carbon fuel burning power stations. Both EU and Irish energy policy is directed toward a low carbon economy, whereby the contribution of non-renewable energy power stations to electricity generation would reduce over several years.

6.7.5 Other Material Assets

Other material assets which will be taken into account in the environmental assessment include transport infrastructure, communication infrastructure, agricultural and forestry land, minerals, fisheries, commercial and residential property and tourism infrastructure.

Data Sources: EirGrid, SEAI, DCENR, ESB Networks

6.8 Cultural Heritage including Archaeological and Architectural Heritage

6.8.1 World Heritage Sites

The United Nations Educational, Scientific and Cultural Organisation (UNESCO) *World Heritage List* comprises sites of outstanding universal value: cultural, natural or mixed. At present, there are two such sites located in Ireland: Skellig Michael, County Kerry and Brú na Bóinne in County Meath; and one located in Northern Ireland: the Giants Causeway in County Antrim.

There is also a tentative list of world heritage sites, which consists of seven properties, or series of properties, which the Department of Arts, Heritage and the Gaeltacht has submitted to UNESCO. A tentative list is an inventory of those properties which each State Party intends to consider for nomination. The tentative list includes the following:

- the Burren;
- Céide Fields and North West Mayo boglands;
- the monastic city of Clonmacnoise and its cultural landscape;

38 Renewable Energy in Ireland 2012, SEAI, Feb 2014, p3

- Dublin - the historic city of Dublin;
- early medieval monastic sites (Clonmacnoise, Durrow, Glendalough, Inis Cealtra, Kells and Monasterboice);
- the royal sites of Ireland (Cashel, Dún Ailinne, Hill of Uisneach, Rathcroghan Complex and Tara Complex); and
- western stone forts.

6.8.2 Archaeological Heritage

The Archaeological Survey of Ireland (ASI) branch of the National Monuments Service of the Department of Arts, Heritage and the Gaeltacht has compiled the *Record of Monuments and Places*, under Section 12 of the National Monuments (Amendment) Act, 1994. This is an inventory of archaeological monuments in the State, which enjoy statutory protection. The information gathered is stored on a database (the Archaeological Survey Database) and in a series of paper files (known as the *Sites and Monuments Record*). The latter are stored in the National Monuments Service Archive. The database and archive contain records of all known or possible monuments pre-dating AD 1700, that have been brought to the attention of the ASI, and also include a selection of monuments from the post-AD 1700 period. There are in excess of 150,800 records in the database and over 138,800 of these relate to archaeological monuments. Also of heritage value are the sites of major battles, such as the Battle of the Boyne.

6.8.3 Architectural Heritage

The *National Inventory of Architectural Heritage* (NIAH) is being compiled by the Department of Arts, Heritage and the Gaeltacht.[39] It contains a representative sample of buildings of architectural heritage value for each county surveyed to date. The initial survey for the country, excluding Dublin City and Dún Laoghaire Rathdown, will be published in 2015. Fieldwork is ongoing in Dublin City and Dún Laoghaire Rathdown. The NIAH has also published, on its website, a *Survey of Historic Gardens and Designed Landscapes*, based on the OS First Edition 1" and 6" mapping.

Each planning authority is obliged to maintain a Record of Protected Structures, under the provisions of the Planning and Development Acts, for its own administrative area. Planning authorities are also obliged to include objectives to preserve the character of a place, area or group of structures or townscape of special interest or contributing to the appreciation of protected structures, referred to as Architectural Conservation Areas (ACAs). In some cases ACAs may be in rural areas. Guidelines on the extension of the protection of the settings of ACAs, of protected structures and also of associated designed landscapes and attendant grounds are included in Chapters 3 and 13 of the Department of Arts, Heritage and the Gaeltacht's Architectural Heritage Protection Guidelines for Planning Authorities (2004/reissued 2011).

The Heritage Council recently prepared an in-depth policy research report in relation to onshore wind farm developments in Ireland entitled – The Onshore Wind Farm Sector in Ireland – Planning in Harmony with Heritage, October 2013. The report provides seven key recommendations and sixteen further recommendations related to planning, landscape and heritage protection and, inter alia, refers to state-wide planning and development of the onshore (and off-shore) wind farm renewable energy sector in Ireland.

Issues arising in the SEA in relation to renewable energy may include, for example, direct impacts on architectural heritage and less direct impacts on the setting or character of buildings or areas of architectural heritage value. The SEA will assess such impacts, having regard, inter alia, to the considerations and information sources set out above.

Data Sources: National Parks and Wildlife Service, Heritage Council, National Monument Service, National Inventory of Archaeological Heritage, Record of Protected Structures

39 www.buildingsofireland.ie

6.9 Landscape

" 'Landscape' means an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors." (European Landscape Convention, Article 1a)

Ireland has a rich and diverse landscape which is vital to sectors such as tourism and agriculture. It is therefore important that any large scale renewable energy generation development is appropriately sited in order to minimise unnecessary adverse effects.

Landscape assessments have been carried out by many of the local authorities throughout the country as part of county and regional development plans. In most cases, GIS data is available which provides information on the landscape, the different land uses and various sensitivities. This information, where available, will be used to inform the Environmental Assessment.

The *CORINE Land Cover* (CLC) is a map of the European environmental landscape based on interpretation of satellite images. (CORINE stands for Coordination of Information on the Environment). The CORINE maps have some limited application to planning in Ireland, as the mapping unit is relatively coarse grained, at 25ha, and the maps are to a scale of 1:100,000.

The *Inventory of Outstanding Landscapes in Ireland*, published in 1977 by An Foras Forbartha, remains an authoritative source of information, although now almost four decades old.

6.9.1 National Landscape Strategy

A Draft National Landscape Strategy for Ireland, 2014-2024, has recently been issued by the Department of Arts, Heritage and the Gaeltacht. It is a strategic statement of high level objectives and actions.

It sets out six main objectives:

- recognition of landscapes in law;
- development of a National Landscape Character Assessment;
- development of landscape policies;
- increasing landscape awareness;
- identification of education, research and training needs; and
- strengthening public participation.

The *Draft National Landscape Strategy* sets out 19 actions to achieve its objectives, of which Action 19 is to set in place an implementation programme to assist in the delivery of the actions.

In relation to the objective to recognise landscapes in law, the Planning and Development Act, 2000-2014, has already been amended, in 2010, to include a definition of *landscape* taken from the *European Landscape Convention*. It is also stated in the Act that development plans shall include objectives in relation to landscape, in accordance with the:

> *"relevant policies or objectives...relating to providing a framework for identification, assessment, protection, management and planning of landscapes having regard to the European Landscape Convention."* [40]

Landscape impacts arising from renewable energy projects have been a cause for concern, particularly in relation to wind farms. Issues concerning the appropriate location, the cumulative impact and the vertical scale of wind turbines have been the focus of much of this concern.

40 Planning and Development (Amendment) Act 2010, Section 2 and Section 7 (b)(ii).

The SEA process will assess these impacts in terms of landscape sensitivity, including the cumulative impact with other plans and programmes. The methodological framework outlined in the *Draft National Landscape Strategy* will inform this work. The SEA will take cognisance of local authority development plan policy and of the *Wind Energy Guidelines for Planning Authorities*, 2006, published by the Department of the Environment, Communities and Local Government. The SEA will seek to identify areas where large scale renewable energy development can be accommodated without undue landscape impacts.

Data sources: Local Authority Plans, Draft National Landscape Strategy, CORINE

6.10 Interrelationship between the Foregoing Factors

It is a requirement of the SEA Directive that the interrelationship between the foregoing factors be described and assessed.

6.11 Transboundary Impacts

The SEA will take into consideration potential transboundary effects from the development of renewable energy projects. This will entail consultation with the UK, particularly Northern Ireland.

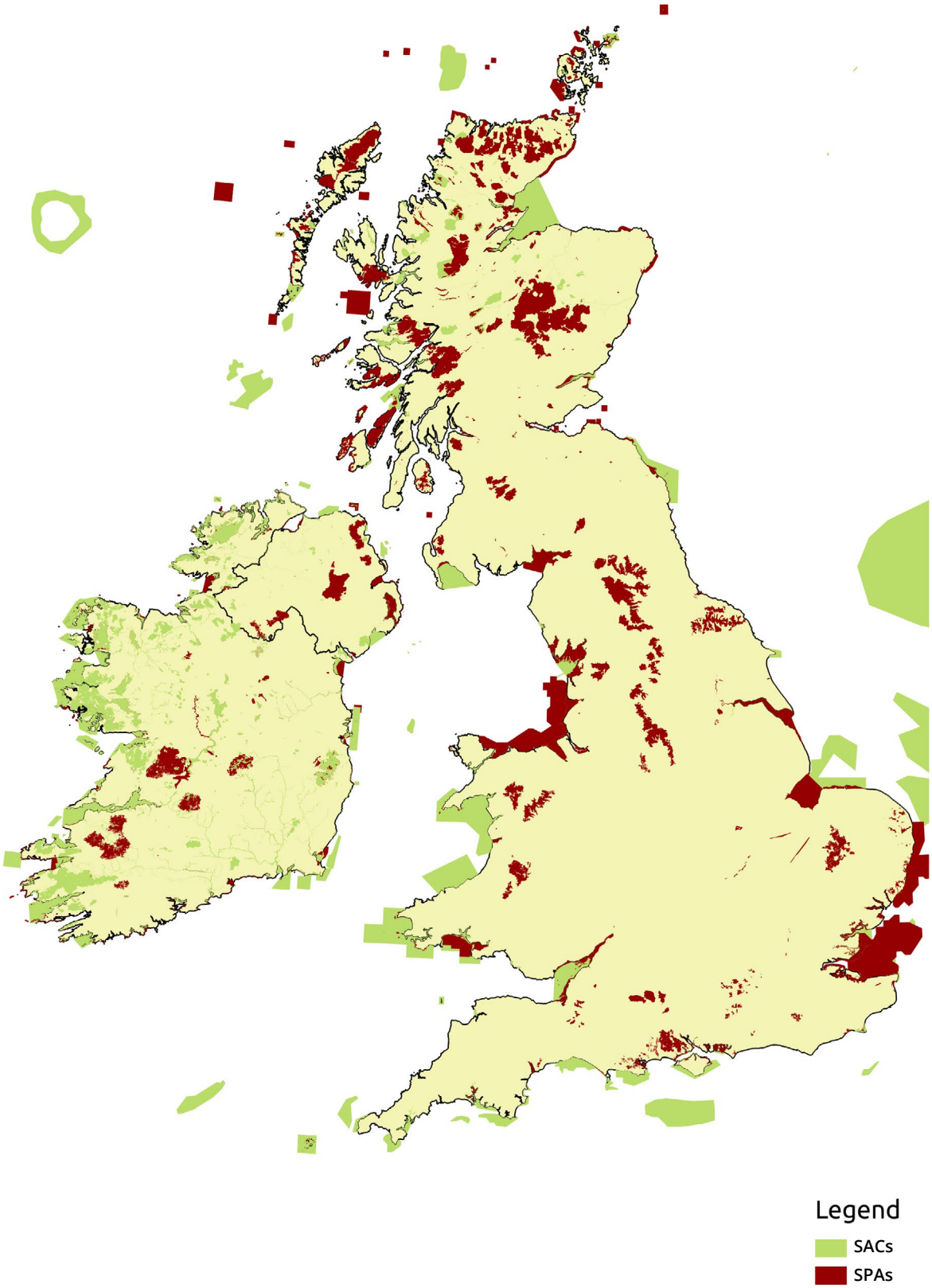


Figure 13. UK and Ireland Natura 2000 Sites

Source: Natura 2000 website

6.12 Summary of Environmental Baseline Issues

SEA Topic	Significant Issues
Population and Human Health	Settlement patterns and policy, residential amenity, noise, shadow flicker, electromagnetic fields, interference with aircraft
Biodiversity, Fauna and Flora	Protected Sites: Special Areas of Conservation, Special Protection Areas (Birds Directive), Natural Heritage Areas, Ramsar Sites, National Parks Protected Species: birds (including migratory birds and birds in the open countryside), mammals (including bats), and aquatic species (including freshwater pearl mussel and fish species) Wider biodiversity issues, including habitats and species of ecological value, including ecological networks
Soils	Peatlands, including intact and cut-over Agricultural lands Forestry Soil stability and landslide susceptibility Geology and minerals Sedimentation
Water	Water Framework Directive and ecological status of water bodies Surface water quality and contamination Catchment flood risk assessment and management Ground water resources Marine environment (where relevant to grid interconnection)
Air	Air quality impacts Emissions Noise
Climate	Climate change Climate adaptation Carbon emissions (positive and negative impacts)
Material Assets	Grid connection and capacity Existing and permitted wind farms Transport network Agriculture and forestry Amenity including tourism Commercial and residential property

Cultural Heritage	World Heritage Sites Tentative list of World Heritage Sites Record of Monuments and Places Record of Protected Structures Architectural Conservation Areas Battle sites
Landscape	European Landscape Convention Draft National Landscape Strategy Inventory of Outstanding Landscapes (1977) Foras Forbartha Areas of Special Amenity (P&D Act) Landscape Conservation Areas (P&D Act) Landscape characterisations County Development Plan designations Architectural Conservation Areas Historic landscapes, including demesnes Brownfield sites, including cut-over bogs
Interrelationship	Cumulative impacts with other plans, programmes and developments County renewable energy strategies Existing and permitted renewable energy developments Offshore Renewable Energy Development Plan Northern Ireland: Onshore Renewable Electricity Generation Strategic Action Plan 2013
Transboundary Impacts	Northern Ireland, Wales, England

7. Relevant Plans and Programmes

7.1 Local Authority Renewable / Wind Energy Strategies

To facilitate and guide the development of renewable energy a number of local authorities have prepared renewable energy policies and strategies. Many of these strategies were produced in response to the *Wind Energy Development Guidelines for Planning Authorities, 2006*, introduced to assist local authorities in identifying suitable locations for wind energy in local development plans and in assessing planning applications.

Aiming to facilitate greater consistency and co-ordination in the generation of local authority wind energy strategies, SEAI published a *Methodology for Local Authority Renewable Energy Strategies* (LARES), *2013,* building upon and updating the methodological approach included in the *Wind Energy Development Guidelines for Planning Authorities, 2006.*

A review was carried out by the National Institute for Regional and Spatial Analysis (NIRSA) on 29 out of a total 34 local authorities in relation to their wind energy strategies (the five city councils of Dublin, Cork, Galway, Limerick and Waterford are not included given their urban context which is unsuited to large scale wind farm development).

The review establishes that 24 local authorities have developed wind energy strategies. These reflect an array of approaches and methodologies that can lead to some apparent lack of consistency between neighbouring counties.[41]

7.2 Wider Irish Policy

The SEA for the proposed Renewable Electricity Policy and Development Framework will take into account the potential interaction with other Irish and European policies, plans and programmes. Below is a non-exhaustive list of policies to be considered:

- *Draft Bioenergy Plan*;
- *National Climate Change Adaptation Framework*;
- *Food Harvest 2020 – A vision for Irish agri-food and fisheries*;
- *National Landscape Strategy 2014-2024*;
- Future National Low Carbon Roadmaps;
- *Draft National Peatlands Strategy*;
- *Draft Rural Development Programme*;
- *Forests, products and people – Ireland's forest policy: a renewed vision*;
- *Forestry Programme 2014-2020: Ireland*;
- Sectoral Climate Adaptation Plans; and
- *Wind Energy Development Guidelines for Planning Authorities.*

41 http://airo.maynoothuniversity.ie/mapping-resources/airo-research-maps/environmental-research-projects/nirsa-wind-strategy-mapping

7.3 Other Plans and Programmes

Appendix 1 to this Draft Scoping Report sets out a provisional list of other plans and programmes of particular relevance to the SEA for the Renewable Electricity Policy and Development Framework.

A list of information, plans and programmes of relevance to SEA has been compiled on behalf of the EPA and is available on the EPA website at: http://www.epa.ie/monitoringassessment/assessment/sea/#.VIgPudKsXO4

8. Draft Alternatives

8.1 Requirements of the SEA Directive in Respect of Alternatives

Article 5(1) of Directive 2001/42/EC: *on the assessment of the effects of certain plans and programmes on the environment*, states:

> *"Where an environmental assessment is required under Article 3(1), an environmental report shall be prepared in which the likely significant effects on the environment of implementing the plan or programme, and reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme, are identified, described and evaluated."*

Similar requirements are set out under Article 12(1) of S.I. 435/2004.

Annex I to the Directive requires that the Environmental Report should set out:

> *"an outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information."*

Schedule 2 to S.I. 435/2004 contains similar requirements.

The treatment of alternatives at this scoping stage of the SEA process is in terms of outline or draft alternatives only. Development and consideration of alternatives will be contained in the Environmental Report, potentially including some not set out here. Alternatives will be compared against the objectives of the Renewable Electricity Policy and Development Framework and in terms of environmental impact. The reasons for rejecting some and choosing a preferred one will be given in the Report.

Alternatives to be considered must be realistic, reasonable, viable and implementable:

- realistic - The alternative must achieve the objectives of the Renewable Electricity Policy and Development Framework;
- reasonable - The alternative must take account of socio-economic and environmental evidence, including protecting sensitive areas;
- viable - The alternative must be technically possible and institutionally feasible; and
- implementable - The alternative must be capable of being put into operation within the plan period.

8.2 Strategic Choices Scenarios

Some strategic draft alternatives have been identified, as set out below. It is envisaged that further development in this regard will follow from a workshop with key stakeholders.

Alternatives can be considered under the headings of:

- the business as usual scenario;
- alternative locations and methodologies;
- preferred technologies and combinations of technologies; and
- timescale scenarios.

8.3 Business as Usual Alternative

The SEA Directive, at Annex I, (b), requires that the Environmental Report contains a description of "... *the relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme*."

Essentially "business as usual" is the existing baseline without the proposed Renewable Electricity Policy and Development Framework. This will be assessed having regard, inter alia, to the ability of the State to meet its obligations for 2030 and the objective of a low carbon economy by 2050.

8.4 Alternative Locations and Methodologies

Subject to further policy development and the result of the SEA, the Renewable Electricity Policy and Development Framework is likely to include the identification of suitable areas, at a broad scale, as preferred areas for large scale renewable electricity projects. A range of alternative locations may be available, subject to examination in the Environmental Assessment and associated conclusions and recommendations. There could be a ranking of the areas, for example in terms of phasing over time. Different approaches to area identification and analysis might include the prioritisation of particular technologies, prioritisation of economics, optimisation of use of renewable resources, prioritisation of environmental considerations and or of landscape protection.

8.5 Preferred Technologies and Combinations of Technologies

The range of technologies for large scale renewable electricity generation projects has been set out in this report. Currently, the range in practicable terms appears limited by cost and the state of technical development. This situation is likely to change over time.

8.6 Timescale Scenarios

The working out of EU energy policy will have a significant influence on realistic timescale scenarios. In the first instance, targets for energy for the year 2030 will be of particular importance. Ongoing review by the EU of policy and targets may modify target dates over the next years.

It is envisaged that the Renewable Electricity Policy and Development Framework will likely reflect the timescale of the OREDP, in terms of review frequency. This is likely to be more significant when the technology for offshore energy becomes more cost efficient.

8.7 Environmental Report and Alternatives

The Environmental Report will initially examine a broad range of alternatives, subsequently focus on a more limited number of final alternatives, examine their likely environmental impacts, including cumulative effects and set out reasons for their inclusion or omission. It will also set out the reasons for the choice of the adopted alternative.

9. Consultations

9.1 Requirements of the SEA Directive in Respect of Consultations

Article 6 of Directive 2001/42/EC: *on the assessment of the effects of certain plans and programmes on the environment* sets out provisions for consultations in connection with an SEA.

Article 6(3) states:

> *"Member States shall designate the authorities to be consulted which, by reason of their specific environmental responsibilities, are likely to be concerned by the environmental effects of implementing plans and programmes."*

Article 5(4) states:

> *"The authorities referred to in Article 6(3) shall be consulted when deciding on the scope and level of detail of the information which must be included in the environmental report."*

S.I. 435/2004, as amended by S.I. 200/2011, designates certain environmental authorities in relation to consultation. These include the Minister for Environment, Community and Local Government; the Minister for Communications, Energy and Natural Resources; the Minister for Agriculture, Food and the Marine; the Minister for Arts, Heritage and the Gaeltacht and the Environmental Protection Agency.

S.I. 435/2004 states, under Article 11:

" *1. Prior to making a decision on the scope and level of detail of the information to be included in an environmental report, the competent authority shall give notice in accordance with sub-article (2) to the environmental authorities specified in article 9(5), as appropriate.*

2. A notice under sub-article (1) shall:

(a) state that, as part of the preparation of a plan or programme, or modification to a plan or programme, the competent authority will prepare an environmental report of the likely significant effects on the environment of implementing the plan or programme, or modification to a plan or programme,

(b) state that the environmental report is required to include the information that may reasonably be required taking into account—

(i) current knowledge and methods of assessment,

(ii) the contents and level of detail in the plan or programme, or modification to a plan or programme,

(iii) the stage of the plan or programme, or modification to a plan or programme, in the decision-making process, and

(iv) the extent to which certain matters are more appropriately assessed at different levels in the decision-making process in order to avoid duplication of environmental assessment, and

(c) indicate that a submission or observation in relation to the scope and level of detail of the information to be included in the environmental report may be made to the competent authority within a specified period which shall be not less than 4 weeks from the date of the notice."

9.1.1 Consultation on previously proposed Renewable Energy Export Policy and Development Framework, 2013

In late 2013, in connection with the previously proposed Renewable Energy Export Policy and Development Framework, submissions were sought from the public, stakeholders and the statutorily designated environmental authorities, in a non-statutory consultation process. The following environmental authorities, which are given statutory position in the SEA Regulations, S.I. 435/2004 (as amended), were consulted directly as part of the pre-draft consultation:

- Environmental Protection Agency;
- Minister for Agriculture, Food and the Marine;
- Minister for Arts, Heritage and the Gaeltacht;
- Minister for Communications, Energy and Natural Resources; and
- Minister for Environment, Community and Local Government.

Also the following bodies were consulted directly:

- An Chomhairle Ealaíon;
- The Commissioners for Public Works;
- Eirgrid;
- Enterprise Ireland;
- Electricity Supply Board Networks;
- Fáilte Ireland;
- Forfás;
- Health and Safety Authority;
- Health Service Executive;
- The Heritage Council;
- Industrial Development Authority Ireland;
- Inland Fisheries Ireland;
- Irish Aviation Authority;
- Minister for Defence;
- Minister for Education and Skills;
- Minister for Transport, Tourism and Sport;
- National Parks and Wildlife Services;
- National Roads Authority; and
- An Taisce.

The public consultation was open between 23rd October and 22nd November 2013 and almost 1,400 submissions from private individuals, land owners, lobby groups, the wind industry, professional institutes, environmental authorities, other organisations and government bodies were received. A separate report available on the DCENR website outlines the main issues raised. The submissions received have helped inform the current Draft SEA Scoping Report.

9.1.2 Consultation on Draft SEA Scoping Report for the Renewable Electricity Policy and Development Framework, 2016

This report (called a *Draft SEA Scoping Report*) sets out the broad scope of the proposed Environmental Report for the SEA. The views of the public, stakeholders and designated environmental authorities are sought and will be taken into account in compiling the main Environmental Report and a Natura Impact Statement (for an AA under the Habitats Directive 92/43/EEC).

9.1.3 Consultation on Environmental Report, 2016

It is intended that, in 2016, submissions from the public, stakeholders and environmental authorities will be sought in relation to the Environmental Report and the Draft Renewable Electricity Policy and Development Framework. This will be a statutory consultation process. Submissions will also be sought in relation to the Natura Impact Statement in connection with the proposed AA under the Habitats Directive.

The submissions will be considered and taken into account by the Minister for Communications, Energy and Natural Resources in completion of the SEA, the AA under the Habitats Directive and finalisation of the Renewable Electricity Policy and Development Framework.

10. Next Steps for SEA of the Renewable Electricity Policy and Development Framework

10.1 Questions

The following are put forward to aid consideration of the issues. Responses should be included in any submissions on the Draft SEA Scoping Report.

Q.1	Have all relevant energy policy considerations been described in Ch.2?
Q.2	What is the best way to facilitate community engagement?
Q.3	Are there other important issues to be addressed by the proposed Policy and Development Framework as set out in Ch.3?
Q.4	Are there other appropriate renewable energy technologies not included in Ch.5?
Q.5	Are there other significant baseline data sources not mentioned in Ch.6?
Q.6	In addition to those cited in Ch.7 and Appendix I of this Draft SEA Scoping Report, are there other plans and programmes which will significantly interact with the proposed Renewable Electricity Policy and Development Framework?
Q.7	Are there particular alternatives you would suggest for examination per Ch.8?

10.2 Programme

The Draft Renewable Electricity Policy and Development Framework, the Environmental Report and a Natura Impact Statement will be drawn up in 2016. The Environmental Report will include an outline of the contents and main objectives of the Draft Renewable Electricity Policy and Development Framework and will, inter alia, consider the existing environment and the likely effects of the proposed policy and development framework on it.

A Natura Impact Statement, in connection with an AA under the Habitats Directive 92/43/EEC, and the associated Irish S.I. 477/2011: European Communities (Birds and Natural Habitats) Regulations, 2011, will be compiled at the same time as the Environmental Report.

Submissions from the public, stakeholders and environmental authorities will be sought in relation to the contents of the Environmental Report, the Natura Impact Statement and the Draft Renewable Electricity Policy and Development Framework. These submissions will be considered and taken into account by the Minister for Communications, Energy and Natural Resources in completion of the SEA, the AA under the Habitats Directive and finalisation of the Renewable Electricity Policy and Development Framework.

Upon completion of the above, and subject to the AA under the Habitats Directive, it is intended that notice of the finalisation of the SEA and of adoption of the Renewable Electricity Policy and Development Framework will be published in 2016.

An SEA Statement will be prepared and made available, setting out how environmental considerations have been integrated into the Renewable Electricity Policy and Development Framework, how the Environmental Report and the submissions made in relation thereto have been taken into account, the reasons for choosing the Renewable Electricity Policy and Development Framework, as adopted, in the light of the reasonable

alternatives considered and monitoring measures.

Monitoring of the implementation of the Renewable Electricity Policy and Development Framework will be ongoing and there will be a review at five-yearly intervals.

10.3 Submissions

Submissions are now sought in relation to the scope of the Environmental Report for the Renewable Electricity Policy and Development Framework.

Submissions may be made by e-mail to:

Renewableelectricityconsultation@dcenr.gov.ie

Or by letter to:

Renewable Electricity Policy and Development Framework

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The scope of the Environmental Report may be further reviewed and modified following consultation with the public, stakeholders and the environmental authorities, subsequent to publication of this Draft SEA Scoping Report. Submissions in relation to the Draft SEA Scoping Report will be published on the website of the Department of Communications, Energy and Natural Resources. Subsequently, scoping for the Environmental Report will continue in an iterative fashion to facilitate incorporation of additional key issues.

Appendix 1: Relevant Plans and Programmes

Review of Legislation, Plans, Policies and Programmes – Ireland

Topic: Electricity	
Items Reviewed	*Summary of Relevant Objectives*
Government White Paper: Delivering a Sustainable Energy Future for Ireland, 2007-2020, DCMNR	Sets out a target of 33% of electricity from renewable sources by 2020.
National Renewable Energy Action Plan (NREAP), 2010, DCENR	Sets out the actions and measures across relevant government departments, agencies and state bodies to reach the legally binding targets for energy consumed from renewable sources (16% by 2020) as specified in the Renewables Directive.
The Strategy for Renewable Energy 2012-2020, DCENR May 2012	Sets out a broad strategy for the sector including seeking to develop progressively more renewable electricity from onshore and offshore wind production for the domestic and export markets.
Policy Statement on the Strategic Importance of Transmission and Other Energy Infrastructure, DCENR July 2012	Highlights the strategic importance of investment in networks and energy infrastructure including EirGrid's Grid 25 Programme. Local Government planning authorities and An Bord Pleanála are required to have regard to the policy as are EirGrid, ESB Networks and Bord Gáis. The policy statement refers to the need to adhere to national and international standards on health, the environment, biodiversity, landscape and safety as intrinsic parts of consultation with local communities and local authorities.
Energy White Paper: Ireland's Transition to a Low Carbon Energy Future 2015 – 2030	The White Paper set out a vision and a framework to guide Irish energy policy from 2015 – 2030. It is a complete energy policy update and its actions have been informed by Government's vision to transform Ireland into a low carbon society and economy by 2050, with 2030 representing a significant milestone.
2030 Policy	This will follow the EU 2030 Policy Framework for Climate and Energy.
2050 Policy	Irish policy for 2050 is to work towards a low carbon society. Policy, including an SEA, is being elaborated by DECLG in consultation with other bodies.
Offshore Renewable Energy Development Plan (OREDP) 2014, DCENR February 2014	A strategy for the development of Ireland's offshore energy resources. Government policy is that offshore development should be focussed on the export market. The OREDP envisages that wind and tidal resources may not make a significant contribution until after 2030.
2050 Low Carbon Roadmaps: DECLG co-ordinate the sectoral roadmaps. DCENR Roadmaps: • a future National Low Carbon Roadmap for the Electricity Generation Sector; and • a future National Low Carbon Roadmap for the Transport Sector.	It is planned to formulate a National Low Carbon Roadmap, encompassing a number of sectoral roadmaps. The primary objective of the roadmaps is to bring a clear and strong focus on both challenges and opportunities of transitioning to a low carbon future. Among the sectoral roadmaps will be one related to energy and electricity generation.

Bioenergy in Ireland: Strategic Report of the Bioenergy Strategy Group 2004, DCMNR/SEI	Bioenergy supports a wide range of national policy goals: • key energy goals, including security and diversity of supply and the development of indigenous renewable energy sources; • key environmental goals such as greenhouse gas emissions reduction and waste management; • key agricultural goals offering new opportunities for farmers in the context of CAP reform; and • key social goals such as employment generation in rural areas and enhancement of local economies.
Draft Bioenergy Plan, DCENR October 2014	The Bioenergy Plan will be implemented through a number of policy and enabling actions. The actions fall into five broad, high-level, categories: • demand-side measures that contribute directly to delivering renewable energy; • enabling policies that address the supply-chain challenges faced by domestic producers of biomass; • measures to support research, demonstration and development; • further market support and sustainability measures; and • governance of the plan.

Topic: Biodiversity	
Items Reviewed	*Summary of Relevant Objectives*
The National Biodiversity Plan (2011-2016) National Parks and Wildlife Service November 2011	The enhancement and conservation of biodiversity builds on achievements of the previous plan and focuses on actions that were not fully completed and addresses emerging issues. Development should be in line with EU and International Biodiversity strategies and policies. The plan should have regard to these objectives where possible.
The Wildlife Act, 1976 The Wildlife (Amendment) Act, 2000 The Wildlife (Amendment) Act, 2010 The Wildlife (Amendment) Act, 2012	The Acts cover: • the physical statutory provisions providing for the protection of wildlife, flora and fauna; • control of activities which may adversely impact on the conservation of the wildlife; and • designation of Natural Heritage Areas under the Wildlife (Amendment) Act, 2000.
European Communities (Birds and Natural Habitats) Regulations S.I. 477/2011	The European Communities (Birds and Natural Habitats) Regulations, 2011 consolidate the transposition of the main provisions of the Habitats Directive and the Birds Directive, including in respect of Appropriate Assessment.
The Fisheries (Consolidation) Act, 1959 The Fisheries Act, 1980, and subsequent amendments	The Acts provide for: • the management, conservation, protection, development and improvement of fisheries, hatcheries and fish farms; • consideration of conservation of biodiversity in water ecosystems; and • the implementation authority being Inland Fisheries Ireland.

Flora (Protection) Order, 1999 S.I. 94/1999	It lists protected plant species, under the provisions of the Wildlife Act, 1976, and includes the objective that it is illegal to alter damage or interfere with the habitats whether or not the plants are found in designated nature conservation areas.
S.I. 293/1988: European Communities (Quality of Salmonid Waters) Regulations, 1988 (gives effect to Council Directive No. 78/659/EEC: *On the quality of fresh waters needing protection or improvement in order to support fish life)*	It sets quality standards for salmonid waters and designates waters to which they apply, together with sampling programmes and methods of analysis and inspection to be used by local authorities to determine compliance with the standards.
Freshwater Pearl Mussel Strategic Environmental Assessment Environmental Report, DEHLG March 2010	The Environmental Report contains the findings of the assessment of the likely significant effects on the environment resulting from implementation of the freshwater pearl mussel sub-basin plans. The purpose of the sub-basin management plans is to address the catchment-wide issues that are contributing to the decline of the freshwater pearl mussel and to develop a strategy for implementing measures that will bring the catchment and thus the populations back to favourable condition.

Topic: Climate	
Items Reviewed	*Summary of Relevant Objectives*
National Climate Change Strategy (2000) and National Climate Change Strategy 2007- 2012, DECLG	The National Climate Change Strategy, 2007 - 2012 sets out a range of measures, building on those already in place under the first National Climate Change Strategy (2000) to ensure Ireland reaches its target under the Kyoto Protocol. The Strategy provides a framework for action to reduce Ireland's greenhouse gas emissions.
National Climate Change Adaptation Framework - Building Resilience to Climate Change, DECLG December 2012	It provides the policy context for a strategic national adaptation response to climate change in Ireland and is designed to evolve over time as planning and implementation progresses, and as further evidence becomes available. It provides a clear mandate for the relevant government departments, agencies and local authorities to commence the preparation of sectoral and local plans, and to publish drafts of these plans.

Topic: Cultural, Architectural and Archaeological Heritage	
Items Reviewed	*Summary of Relevant Objectives*
The National Heritage Plan 2002 - 2006, DAHG	The core objective is to protect Ireland's heritage. The plan sets out the "polluter pays principle" and the "precautionary principle".
National Monuments Act, 1930 National Monuments (Amendment) Acts, 1954, 1987, 1994, 2004	They seek to protect Ireland's recorded monuments by reason of their historical, architectural, traditional, artistic or archaeological interest, including the site, monument, means of access and any land required to preserve the monument from injury or to preserve its amenities. Provisions include the establishment of the Register of Historic Monuments and the Record of Monuments and Places. The RMP is the most widely applying provision of the National Monuments Acts. It comprises a list of recorded monuments and places, and accompanying maps on which such monuments and places are shown for each county.
The Architectural Heritage (National Inventory) and Historic Monuments (Miscellaneous Provisions) Act, 1999, DAHG	It provides for the establishment of a National Inventory of Architectural Heritage (NIAH), with the objective to protect and conserve the built heritage and advise planning authorities on the inclusion of structures on the Record of Protected Structures.
The Planning and Development Acts, 2000-2014	They include a requirement for local authorities to compile and maintain a Record of Protected Structures in county development plans.
Framework and Principles for the Protection of the Archaeological Heritage (1999), DAHG	It sets out the broad principles for the protection of archaeological heritage.
Policy and Guidelines on Archaeological Excavation (1999), DAHG	They set out policy on licensing excavations and strategies, method statements, reports, and publications.
Architectural Heritage Protection Guidelines for Planning Authorities, DAHG	A guide for planning authorities and others on compliance with Part IV of the Planning and Development Act, 2000 on the protection of Ireland's architectural heritage.
Shipwreck Inventory of Ireland National Monuments Service, DAHG	Lists the underwater archaeological heritage of Ireland.

Topic: Population and Human Health	
Items Reviewed	*Summary of Relevant Objectives*
Bathing Water Quality Regulations, 1988 (S.I. 79/1988) and amendments, DECLG	They set out bathing water standards, sampling programmes and methods of analysis and inspection to be used by local authorities for compliance with the standards.
Air Quality Standards Regulations, 2002 (S.I. 271/2002)	They require the reduction of certain airborne pollutants for the protection of human health and the environment.
Ozone in Ambient Air Regulations, 2004 (S.I. 53/2004)	They require the reduction of certain airborne pollutants for the protection of human health and the environment.
Water Policy Regulations (S.I. 722/2003), DECLG	They transpose the main provisions of the Water Framework Directive, giving a central role to the Environmental Protection Agency as competent authority in coordinating scientific and technical issues, including geographic information systems and research. They also set out the legal obligations to ensure compliance with the Directive of any impacts on the water environment.

Topic: Environment and Planning	
Items Reviewed	*Summary of Relevant Objectives*
European Communities Environmental Assessment of Certain Plans and Programmes Regulations, 2004 (S.I. 435/2004), as amended by S.I. 200/2011 Also S.I. 436/2004, as amended by S.I. 201/2011	They transposed the SEA Directive 2001/42/EC, in respect of environmental assessment of plans and programmes. Objectives include the protection of the environment and integration of the plan-making process into proper planning and sustainable development.
Planning and Development Acts, 2000-2014 and Planning and Development Regulations, 2001 and subsequent amendments	They transposed the Environmental Impact Assessment Directive 85/337/EEC and subsequent amendments. All projects listed in Annex I are considered as having significant effects on the environment and an EIA is mandatory. In relation to projects listed in Annex II, the competent authority must decide whether an EIA is needed. This is done by the "screening procedure", which determines the effects of projects on the basis of thresholds/criteria on a case by case examination.
Environmental Protection Agency Act, 1992 and subsequent amendments	It established the EPA with a central role in licensing, regulating and controlling certain activities in the interests of environmental protection.
The Waste Management Act, 1996 and subsequent amendments	It regulates waste management, with a central role for the EPA.
Ireland's Habitats Directive Article 17 Conservation Status Assessment, 2013, NPWS	Under Article 17 of the EU Habitats Directive, Ireland (through NPWS) has an obligation to report on the conservation status of all habitats and species listed on the Annexes of the Habitats Directive. The report is published in 3 volumes: • Volume 1 (an overview report), was released in November 2014 and provides more detail on the methodologies, an easy-to-read summary of the results and a list of contributors to the assessments; and • Volume 2 (Habitats) and Volume 3 (Species) contain the detailed reports and relevant scientific information.
The National Development Plan 2007-2013: Transforming Ireland - A Better Quality of Life For All	It contains objectives to promote balanced spatial and economic development.
National Spatial Strategy 2002- 2020, DECLG	It is a 20-year coherent national planning framework for Ireland, which aims to achieve a better balance of social, economic and physical development across Ireland, supported by more effective and integrated planning.
Regional Planning Guidelines (RPGs), 2010 - 2022 Regional Authorities	The RPGs link national strategic spatial planning policies to the planning process at city and county council level by co-ordinating the development plans of the local authorities.

County Development Plans (reviewed every 6 years)	They set out the overall strategy for the proper planning and sustainable development of each county and the likely significant effects on the environment of implementing the plan. Objectives as set out in the Planning Act, 2000 include: • zoning of land; • provision or facilitation of infrastructure including water supply, waste water, waste, and ancillary facilities, transport, energy and communication facilities; • conservation and protection of the environment, including the archaeological and natural heritage, and the conservation and protection of European sites; • integration of proper planning and sustainable development; • preservation of the character of the landscape, including views and prospects and features of natural beauty; and • protection of structures of special architectural, historical, artistic and cultural interest. Environmental designations to be assessed in the SEA are set out in each county development plan.
Local Area Plans	Local Area Plans (LAPs) set out a strategy for the proper planning and sustainable development for a specific area and for a time scale as specified by the local authority. They include information on the likely significant effects on the environment of implementing the plan.
Wind Energy Development Guidelines 2006, DEHLG	They set out advice to planning authorities on planning for wind energy through the development plan process and in determining applications for planning permission. They contain guidelines to ensure consistency of approach throughout the country in the identification of suitable locations for wind energy development.
Proposed Revisions to the Wind Energy Development Guidelines 2013, DECLG	They represent a targeted review in relation to noise, proximity and shadow flicker.
County Wind Energy Strategies	To facilitate and guide the development of renewable energy a number of local authorities have prepared renewable energy policies and strategies. Many of these strategies were produced in response to the Wind Energy Development Guidelines for Planning Authorities, 2006, introduced to assist local authorities in identifying suitable locations for wind energy in local development plans and in assessing planning applications. Twenty four local authorities have developed wind energy strategies. These reflect an array of approaches and methodologies in the implementation of the strategies.
Methodology for Local Authority Renewable Energy Strategies (LARES) 2013, SEAI	This methodology facilitates greater consistency and co-ordination in the generation of local authority renewable energy strategies and builds upon and updates the methodological approach included in the Wind Energy Guidelines for Planning Authorities, 2006.
Grid 25: A Strategy for the Development of Ireland's Electricity Grid for a Sustainable and Competitive Future 2008, EirGrid	It sets out Ireland's grid strategy for improvements to the network.

River Basin Management Plans, EPA	They implement the Water Framework Directive for the island of Ireland setting out objectives and targets. The geographic boundaries for plans are determined by river basin catchment.
Offshore Renewable Energy Development Plan (OREDP) - the Framework for the Sustainable Development of Ireland's Offshore Renewable Energy Resource February 2014, DCENR	The OREDP identifies the opportunity for Ireland to increase indigenous production of renewable electricity, thereby contributing to reductions to greenhouse gas emissions, improving the security of energy supply and creating jobs in the green economy. The implementation of the OREDP will be the mechanism through which government action across the environmental, energy policy and economic development dimensions will be coordinated to support the offshore renewable energy sector to reach commercial viability.
Draft National Peatlands Strategy National Parks and Wildlife Service, 2014	The Draft National Peatlands Strategy document incorporates a National Peatlands Strategy, a National Raised Bog SAC Management Plan (bogs protected at a European level) and a review of the network of Natural Heritage Areas (NHAs, protected under national legislation). The strategy applies to all 1.47 million hectares of peat soils in the State whether privately or publicly owned.
Irish Peatland Conservation Action Plan, 2020 Irish Peatland Conservation Council, 2009	The Irish Peatland Conservation Council (IPCC) published a new action plan entitled Ireland's Peatland Conservation Action Plan 2020 – halting the loss of peatland biodiversity. The aim of this plan is to develop a national strategy for the conservation and management of all peatland types in Ireland.
All-Island Research Observatory (AIRO) NUI Maynooth	The census mapping section provides users with detailed mapping tools focused on census information from both the Republic of Ireland (CSO) and Northern Ireland (NISRA). Data is generally mapped at the most detailed spatial scale, electoral divisions and small areas for Ireland and wards and output areas for Northern Ireland. This section contains pure census tools and census by-products such as the all-island deprivation index and travel to work mapping. See more at: http://www.airo.ie/mapping-resources/overview#sthash.q00oMHaJ.dpuf
EPA Environmental Sensitivity Mapping 2014, EPA	The environmental sensitivity mapping project aims to deliver an online tool to support environmental assessment processes in Ireland. In order to achieve this, it will map national environmental sensitivities on the basis of existing and available environmental data and public perceptions.
CORINE Land Cover Map (Coordination of Information on the Environment) 2012, EPA on behalf of the European Environment Agency	The CORINE 2012 data series exercise is being undertaken by the EPA on behalf of the European Environment Agency. For the 2012 series, the EPA will be using a new semi-automatic methodology to produce the dataset. CORINE land cover deals with land cover and not land use.
A Draft National Landscape Strategy for Ireland, 2014-2024 July 2014, DAHG	The Strategy sets out Ireland's high level objectives and actions with regard to the landscape. It positions landscape in the context of existing Irish and European strategies, policies and objectives, and outlines methods of ensuring co-operation at a sectoral level and at European level by the State. It sets out specific measures to integrate and embed landscape considerations in all sectors which influence the landscape and improve and enhance the quality of decision-making.

Ireland's Rural Development Programme 2007-2013 DAFF	The Rural Development Programme is funded by the European Agricultural Fund for Rural Development (EAFRD) and by the National Exchequer. The programme is structured around 3 core Axes which have the aim of (a) improving the competitiveness of agriculture, (b) improving the environment and (c) improving the quality of life in rural areas. A fourth Axis defines the LEADER approach towards achieving the objectives of the RDP.
Rural Development Programme 2014-2020 DAFM	Ireland's Rural Development Programme will be co-financed by the European Union. The European Commission's policy framework for the Common Agricultural Policy (CAP) after 2013 encompasses draft legal proposals relating to the CAP for the period 2014-2020 including the EAFRD. Within the overall CAP, rural development policy in the period 2014 to 2020 is intended to contribute towards the following objectives: the competitiveness of agriculture; the sustainable management of natural resources, and climate action; and a balanced territorial development of rural areas.
Regional Operational Programme for the Border, Midlands, Western Region and the Southern and Eastern Region. Regional Planning Guidelines	The main purpose of the Regions' assemblies is to manage the Regional Operational Programmes under the National Development Plan. The Regional Planning Guidelines (RPGs) aim to give regional effect to the National Spatial Strategy and to guide the development plans for each county. The RPGs inform the development plans in each council area and have effect for six years.
National Forestry Policy Review 2013, DAFM	It reviews and updates national forest policy goals with reference to the level of afforestation, taking into account its contribution to rural development and employment generation, the funding of the afforestation programme, and the provision of public goods and services, including climate change mitigation.
National Forestry Programme 2014-2020 2014, DAFM	A new forestry programme has been launched which will end in the formal adoption of a plan for forestry. The overall plan will be in line with the needs identified for Ireland which are consistent with EU-wide priorities.
The Planning System and Flood Risk Management Guidelines for Planning Authorities 2009, DEHLG	They set out the key principles of the assessment of flood risk, and how these are applied at the different spatial scales within the hierarchy of the planning system.
Best Practice Guidelines for the Wind Energy Industry 2012, IWEA	The purpose of the Guidelines is to encourage responsible and sensitive wind farm development, which takes into consideration the concerns of local communities, planners, and other interested groups. It outlines the main aspects of wind energy development. Its emphasis is on responsible and sustainable design and environmental practices, on aspects of development which affect external stakeholders, and on good community engagement practices. The Guidelines are aimed primarily for the developer as promotor and project manager of the wind farm development process. However, they are also of interest to others who have an interest in wind farms. The guidelines describe the standards which the Irish wind energy industry sets itself in developing wind farms.

Best Practice Principles in Community Engagement and Community Commitments 2013, IWEA	The best practice document on community engagement and commitment is an extension to the IWEA Best Practice Guidelines for the Wind Energy Industry and aims to set out clear best practice recommendations for IWEA members. These Best Practice principles in Community Engagement and Commitment set out the recommended practice to provide a commitment through the development of a project and also for continuous engagement through the life span of a project.
Appropriate Assessment of Plans and Projects in Ireland : Guidelines for Local Authorities 2010, DEHLG	The obligation to undertake appropriate assessment derives from Article 6(3) and 6(4) of the Habitats Directive and both involve a number of steps and tests that need to be applied in sequential order. Article 6(3) is concerned with the strict protection of sites, while Article 6(4) is the procedure for allowing derogation from this strict protection in certain restricted circumstances. Each step in the assessment process precedes and provides a basis for other steps. The results at each step must be documented and recorded carefully so there is full traceability and transparency of the decisions made. They also determine the decisions that ultimately may be made in relation to approval or refusal of a plan or project. AA is not a prohibition on new development or activities but involves a case-by-case examination of the implications for the Natura 2000 site and its conservation objectives. In general terms, implicit in Article 6(3) is an obligation to put concern for potential effects on Natura 2000 sites at the forefront of every decision made in relation to plans and projects at all stages, including decisions to provide funding or other support.
Principles for Sustainable Development 2001, Comhar	A set of principles for sustainable development, which could be used to determine whether policies, existing or future, are likely to lead to sustainable development. These principles can be used as a benchmark for policies. Members of Comhar are agreed that sustainable development must encompass environmental protection, economic development, and social development in an integrated manner. Sustainable development is a process in which these three objectives, which can be mutually reinforcing, are addressed on an equal footing. Actions which fail to take account of the need for a harmonious balance between the three objectives may undermine the system as a whole, even if progress is made in one particular area. Implementation of sustainable development requires a consensus-based decision making process involving all parties concerned.
Strategic Environmental Assessment Environmental Report, Ireland Wales Cooperation Programme 2014-2020 Welsh European Funding Office and Southern and Mid-Eastern Regional Assembly Bangor University in association with Old Bell 3 Ltd. on behalf of the Welsh European Funding Office (WEFO) July 2014	This Strategic Environmental Assessment report of the Ireland Wales Operational Programme (IWOP) has been carried out in accordance with the requirements of the European SEA Directive (2001/42/EC) and the implementing regulations for Wales and for Ireland. It aims to ensure that the IWOP contributes positively to a high level of environmental protection, as well as supporting the goal of the Welsh and Irish Governments of working towards sustainable development. It does this by: • setting out the environmental parameters within which the IWOP will operate; • identifying, describing and assessing likely significant effects on the environment arising from IWOP's implementation; and • considering reasonable alternatives.

Main Transboundary (Northern Ireland) Plans and Programmes

Plans and Programmes	*Summary of Relevant Objectives*
Northern Ireland Onshore Renewable Electricity Action Plan (OREAP) Strategic Action plan for Onshore Renewable Electricity Generation 2013, DETI	The overall objective of the OREAP is to maximise onshore renewable electricity generation in order to enhance diversity and security of supply, reduce carbon emissions, contribute to the 40% renewable electricity target by 2020 and beyond and develop business and employment opportunities for Northern Ireland companies.
Northern Ireland Network 25 Strategy 2013-2025 Northern Ireland Electricity (NIE)	The key objectives of the Strategy are to: • comply with the NIE's and System Operator for Northern Ireland's regulatory and licence obligations; • conform to environmental best practice; • develop the transmission network that will support a long term, sustainable and reliable electricity supply; • contribute towards the achievement of the 40% renewable energy target and actions outlined in the Strategic Environmental Framework; and • ensure that the NIE network delivers safe, reliable and cost effective performance to meet the requirements of stakeholders and customers.
All Island Grid Study 2008, DETI/DCENR	The study examines a range of generation portfolios for Ireland, the ability of our power system to handle various amounts of electricity from renewable sources, the investment levels required, and the climate change and security of supply benefits that would accrue.
The Offshore Renewable Electricity Action Plan 2012-2020 DETI	The Offshore Renewable Energy Strategic Action Plan presents the vision for the delivery of offshore renewable energy in Northern Ireland waters. It contains actions to facilitate the opportunities and also address the challenges of offshore development. The Plan sets the framework for the development of renewable and sustainable energy, reduced emissions, less reliance on imported fossil fuels and new business opportunities. It aims to strike a balance between economic, social and environmental needs in a way which realises the ambition for renewable energy and associated economic development, which minimises the impacts on the environment, other marine users and consumers.

Climate Change

Useful EPA publications

- Browne, David, Brian Caulfield and Margaret O'Mahony, *Barriers to Sustainable Transport in Ireland (CCRP Report Series 7)*, 2011
- Desmond, Margaret, Phillip O'Brien and Frank McGovern, *A Summary of the State of Knowledge on Climate Change Impacts for Ireland (CCRP Report Series 1)*, 2009
- Dunne, Susan, Jenny Hanafin, Peter Lynch et al., *Ireland in a Warmer World - Scientific Predictions of the Irish Climate in the Twenty-First Century (STRIVE Report Series 27)*, 2009
- Dwyer, Ned, *Climate Change - Implementation of the Global Climate Observing System in Ireland Environmental Research Centre (ERC Report Series 8)*, 2008
- Dwyer, Ned, *Current Status and Required Actions for National Climate Observing Systems (ERC Report Series 14*), 2009
- Fealy, Rowan, *An Assessment of Uncertainties in Climate Modelling at the Regional Scale: The Development of Probabilistic Based Climate Scenarios for Ireland (STRIVE Report Series 48)*, 2010
- Hall, Julia, Conor Murphy and John Sweeney, *Robust Adaptation to Climate Change in the Water Sector in Ireland (CCRP Report Series 16)*, 2012
- Kiely, Gerald, Paul Leahy, Francis Ludlow et al., *Extreme Weather, Climate and Natural Disasters in Ireland (CCRP Report Series 5)*, 2010
- McElwain, Laura and John Sweeney, *Key Meteorological Indicators of Climate Change in Ireland Environmental Research Centre (ERC Report Series 6)*, 2007
- Murphy, Kevin, Ann Irwin and Tadhg O'Mahony, *Strategy Guide on Climate Change: Implications and Strategies for the Community (CCRP Report Series 14)*, 2012
- Shine, Tara and Margaret Desmond, *Ireland Adapts to Climate Change (CCRP Report Series 9)*, 2011
- Shine, Tara and Margaret Desmond, *Integrating Climate Change Adaptation into Sectoral Policies in Ireland (CCRP Report Series 10)*, 2011
- Sweeney, John, Alison Donnelly, Laura McElwain et al., *Climate Change Indicators for Ireland, 2002*
- Sweeney John, Fabrizio Albanito, Anthony Brereton et al., *Climate Change: Refining the Impacts for Ireland (STRIVE Report Series 12)*, 2008
- Sweeney, John, Tony Brereton, Clare Byrne, et al., *Climate Change: Scenarios and Impacts for Ireland (ERTDI Report Series 15)*, 2003

Other useful publications

- Forfás Adaptation to Climate Change: Issues for Business http://www.forfas.ie/media/Adaptation%20to%20Climate%20Change%20Summary%20Report%20ONLINE%20FINAL.pdf
- Climate Change Heritage and Tourism Implications for Ireland's coast and Inland Waterways http://www.heritagecouncil.ie/fileadmin/user_upload/Publications/Marine/ClimateReportWeb_version_june_09FINAL.pdf
- Ireland at Risk – Critical Infrastructure – Adaptation for Climate Change http://www.iae.ie/publications/publication/critical-infrastructure-adaptation-for-climate-cha/document/

- Adapting to Climate Change – An Introduction for Public Sector Policy Makers, Resource Managers, and Practitioners (Scottish Climate Change Impacts Partnership) http://www.adaptationscotland.org.uk/3/107/0/Adapting-to-Climate-Change--An-introduction-for-the-public-sector.aspx
- Managing Adaptation: Linking Theory and Practice (UK Climate Impacts Programme) http://www.ukcip.org.uk/wordpress/wp-content/PDFs/UKCIP_Managing_adaptation.pdf
- Urban Adaptation to Climate Change in Europe (European Environment Agency) http://www.eea.europa.eu/publications/urban-adaptation-to-climate-change
- Adapting to Climate Change the Role of Public Procurement (London Climate Change Partnership) http://www.iae.ie/publications/publication/critical-infrastructure-adaptation-for-climate-cha/document/

A list of publications by ICARUS can be found at http://icarus.nuim.ie/publications-1

A list of other useful publications can also be found at http://www.ukcip.org.uk/?s=publications

Useful websites

- http://climate-adapt.eea.europa.eu/ (This website acts as a portal to numerous other web tools on adaptation)
- http://www.epa.ie
- http://www.opw.ie/en/FloodRiskManagement/
- http://www.flooding.ie/en/Intheeventofaflood/
- http://www.met.ie
- http://icarus.nuim.ie
- http://www.coford.ie
- http://www.c4i.ie/
- http://www.marine.ie
- http://www.cmrc.ie
- http://www.ukcip.org.uk/news/#1
- http://www.eea.europa.eu
- http://eucities-adapt.eu/cms/
- http://www.imcore.eu
- http://www.circle-era.eu/np4/WS_UNCERT.html
- http://www.defra.gov.uk/environment/climate/government/departmental-adaptation-plans/
- http://www.wri.org/
- http://www.ipcc.ch/publications_and_data/publications_and_data_reports.shtml
- http://www.oecd.org

Key Relevant Energy and Climate Obligations and Regulatory Instruments – International and European Union

Topic: Biodiversity		
Level	*Items Reviewed*	*Summary of Objectives*
International	UN Convention on Biological Diversity (1992)	The principal objectives are the maintenance and enhancement of biodiversity, the sustainable use of its components and the sharing of the benefits.
	The Ramsar Convention The Convention of Wetlands of International Importance (1971 and amendments)	Protection and conservation of important wetlands for both ecosystem habitat and species conservation, particularly those of importance to waterfowl as waterfowl habitats.
	Ospar Convention (1992) The Convention for the Protection of the Marine Environment of the North East Atlantic.	Objectives for the protection of the marine environment of the North East Atlantic.
	Bern Convention on the Conservation of European Wildlife and Natural Habitats (1979)	Conservation of wild flora and fauna.
	Bonn Convention on the Conservation of Migratory Species and Wild Animals (1979)	Conservation of species and wildlife on a global scale.
European Union	The EU Biodiversity Strategy Communication on a European Community Biodiversity Strategy	Prevent and eliminate the causes of biodiversity loss and maintenance and enhancement of current levels of biodiversity.
	Directive 79/409/EEC Conservation of Wild Birds	Protection of wild birds and the designation of Special Protection Areas (SPAs) in accordance with Article 4 of the Directive.
	The EU Habitats Directive (92/43/EEC) Conservation of Natural Habitats and Wild Fauna and Flora	It seeks to prevent and eliminate causes of habitat loss and maintain and enhance current levels of biodiversity. Establishment of Special Areas of Conservation (SACs), which must not be adversely affected.
	The EU Birds Directive (2009/147/EC) (codifies 79/409/EEC and amendments)	Its objectives seek to prevent and eliminate the causes of bird species loss and maintain and enhance current levels of biodiversity.
	The EU Freshwater Fish Directive (78/659/EEC)	Its objectives seek to protect those fresh water bodies identified by Member States as waters for sustaining fish populations. It sets physical and chemical quality objectives for salmonid waters and cyprinid waters.
	The New EU Forest Strategy September 2013	It responds to the new challenges facing forests and the forest sector. Highlights the importance of forests for rural development, the environment, biodiversity, forest based industries, bioenergy and the fight against climate change.

Topic: Climate		
Level	*Items Reviewed*	*Summary of Objectives*
International	UN Kyoto Protocol The United Nations Framework Convention on Climate Change (UNFCCC) Kyoto Protocol, 1997 Integrated Energy and Climate Change Package, 2007	It aims to alleviate the impacts of climate change and reduce global emissions of green house gases.
European Union	Second European Climate Change Programme (ECCP II), 2005	Its objectives seek to develop the necessary elements of a strategy to implement the Kyoto Protocol.
	Adapting to Climate Change in Europe - Options for EU Action SEC (2007) 849	Its objective is to start European wide public debate on actions for climate change at EU level.

Topic: Environmental / Sustainable Development		
Level	*Items Reviewed*	*Summary of Objectives*
International	UN Conference on the Human Environment, Stockholm, 1972	Sustainable Development Principles - the Rio Principles.
	The UN Conference on Environment and Development (UNECD, Earth Summit) Rio de Janeiro, Brazil, 1992	Seeks that social and economic development be promoted in a way that will not be detrimental to environmental protection.
	The World Summit on Sustainable Development (WSSD), Johannesburg, 2002	Sets out steps with targets and goals for the implementation of sustainable development.
	The UN Millennium Declaration (2000) and Millennium Goals	Goal Seven relates to environmental sustainability and seeks the integration of sustainability into development policies and programmes.
	The Convention on EIA in Transboundary Context, 1991 (Espoo Convention)	Facilitation of transparent and wider consultation for projects which will have, or potentially have, cross-boundary impacts.
European Union	The Gothenburg Strategy (2001)	It informs the Irish sustainable development strategy.
	The SEA Directive (2001/42/EC)	Its objective is to provide a high level protection of the environment and integrate environmental considerations into the preparation and adoption of plans and programmes to promote sustainable development and ensure compliance with the Directive. Environmental assessment is to be carried out on certain plans and programmes, which are likely to have significant effects on the environment.
	The EIA Directive (85/337/EEC)	Environmental Impact Assessment of the environmental effects of those projects (both public and private) likely to have significant effects on the environment.
	Directive 2011/92/EU of 13 December 2011 - EIA Codification	On the assessment of the effects of certain public and private projects on the environment (codification).
	EIA Directive 2014/52/EU of 16th April 2014	Amends Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment.
	Environmental Liability Directive 2004/35/EC	Establishment of a common framework for liability to prevent and remedy damage to the environment, using "the polluter pays principle".
	EU Rural Development Programme 2014-2020 European Commission Agriculture and Rural Development	In line with Europe 2020 and CAP objectives, the main mission of the EU Rural Development Policy for 2014-2020 can be stated in terms of the long term strategic objectives which are to contribute to the competitiveness of agriculture; the sustainable management of natural resources; climate action; and a balanced territorial development of rural areas.

Topic: Air and Water		
Level	*Items Reviewed*	*Summary of Objectives*
International	World Health Organisation (WHO) Air Quality Guidelines for Particulate Matter, Ozone, Nitrogen Dioxide and Sulphur Dioxide. (global update 2005)	They seek the elimination or minimisation of certain airborne pollutants on human health.
	Montreal Protocol (UN September 1987)	Protection of the ozone layer and phasing out of ozone depleting substances.
	Geneva Convention on Long Range Transboundary Air Pollution, 1979	Controls and reduces environmental damage caused by transboundary air pollution.
European Union	EU Water Framework Directive (2000/60/EC)	It aims to maintain and enhance the quality of water in the EU.
	Groundwater Directive (2006/118/EC)	It sets out ground water quality standards and introduces measures to prevent or limit inputs of pollutants into the groundwater.
	EU Floods Directive (2007/60/EC)	It applies to river basins and coastal areas at risk of flooding. Climate change and increased economic development in flood risk areas poses threats in coastal areas and river basins.
	Directive on National Emission Ceilings for Certain Atmospheric Pollutants (2001/81/EC)	It limits national emissions of certain airborne pollutants for protection of human health and the environment.
	Directive 2008/50/EC of European Parliament and Council	It seeks to improve ambient air quality and ensure cleaner air for Europe to control and limit levels of airborne pollutants.
	Bathing Water Directive (2006/7/EC)	It seeks the protection of public health while bathing, improvement of management practices at bathing waters, and the standardising of information at beaches across Europe.
	Drinking Water Directive (98/83/EC)	It protects the health of consumers, ensuring clean drinking water.
	Marine Strategy Framework Directive (2008/56/EC)	The framework aims to achieve or maintain good environmental status in the marine environment by 2020.

Topic: Archaeology / Cultural Heritage (Cultural, Architectural, Archaeological Heritage and Landscape)		
Level	*Items Reviewed*	*Summary of Objectives*
International	The UNESCO World Heritage Convention Concerning the Protection of the World Cultural and Natural Heritage (Paris 1972)	It seeks the identification, protection and preservation of cultural heritage, natural heritage and impacts on world heritage sites.
Council of Europe	Convention for the Protection of the Archaeological Heritage of Europe (Valetta 1992)	It aims to protect the archaeological heritage of Europe.
	Convention for the Protection of the Architectural Heritage of Europe (Granada 1985)	It seeks the protection of architectural heritage, setting out conservation principles, including definition of monuments, groups of buildings and sites by setting out a standard of protection and legal obligations that signatories undertake to implement.
	The European Landscape Convention Council of Europe (ETS No. 171)	The European Landscape Convention obliges parties to establish procedures for the participation of the general public, local and regional authorities, and other interested parties in landscape matters. This indicates that the views of all interested groups should be considered. Participatory, dialogue-based approaches mean that values and meanings attached to landscapes by different groups need to be negotiated between competing interests.

Topic: Landscape		
Level	*Items Reviewed*	*Summary of Objectives*
European Union	CORINE Land Cover Map (Coordination of Information on the Environment) 2012, EPA on behalf of the European Environmental Agency	CORINE Land Cover is a map of the European environmental landscape based on interpretation of satellite images. It provides comparable digital maps of land cover for each country for much of Europe. This is useful for environmental analysis and for policy makers. The EU established CORINE in 1985 to create pan-European databases on land cover, biotopes (habitats), soil maps and acid rain.

Topic: Population and Human Health		
Level	*Items Reviewed*	*Summary of Objectives*
International	UNECE Aarhus Convention on Access to Information, Public Participation in Decision Making and Access to Justice in Environmental Matters	It sets out the right for everyone to see public information held by public authorities and the right to participate in environmental decision making.
	The Stockholm Convention (2001)	It is a global treaty to protect human health and the environment from persistent organic pollutants and reduce impact of airborne pollutants.
European Union	The Integrated Pollution Prevention Control Directive (96/61/EC)	It establishes a procedure for authorising industrial and agricultural activities and sets minimum requirements to be included in all permits, particularly in terms of pollutants released. The aim is to prevent or reduce pollution of the atmosphere, water and soil, as well as the quantities of waste arising from industrial and agricultural installations, to ensure a high level of environmental protection.
	Directive 2002/49/EC (the Environmental Noise Directive)	Avoid, prevent or reduce on a prioritised basis the harmful effects, including annoyance, due to exposure to environmental noise.

Topic: Electricity		
Level	*Items Reviewed*	*Summary of Objectives*
European Union	Renewables Directive (2001/77/EC)	Aims to promote and maximise renewable electricity sources. Article 3 of the Directive requires Member States to "take appropriate steps to encourage greater consumption of electricity from Renewable electricity sources in conformity with national indicative targets". It provides for support schemes and binding technical standards to increase renewable electricity production.
	Single Electricity Market Directive (2003/54/EC)	It sets out the means of implementing objectives of social and economic cohesion, environmental protection and the means to combat climate change and security of supply, including national and community tools for maintenance and construction of network infrastructure. It seeks to link national grids in Europe.
	Directive 2005/89EC – Measures to Safeguard Security of Electricity Supply and Infrastructure Investment	It imposes obligations for investment in electricity transmission infrastructure to ensure proper functioning of EU internal market for electricity.
	Electricity End Use Efficiency and Electricity Services Directive (2006/32/EC)	It imposes obligations on energy providers to supply information on energy efficiency.
	Renewable Energy Directive (2009/28/EC) Repeals Directive (2001/77/EC)	It sets out legally binding targets for Member States, including 20% share of energy from renewable sources by 2020 and a 10% share in the transport sector. It also includes mechanisms where Member States can enter into co-operation to achieve set targets.
	Emissions Trading System Directive (2009/28/EC)	Its objective is the revision of the emissions trading system to encourage development of renewable energy sources. It implements the integrated Energy and Climate Change Package, 2007.
	EU 2030 Policy Development Framework for Climate and Energy	It aims to make the economy and energy system of the EU more competitive, secure and stable. The target is to reduce domestic greenhouse gas emissions by 40% below the 1990 level by 2030.
	Communication on an Energy Roadmap 2050, December 2011	Member States committed to reducing EU greenhouse gas emissions by 80-90% below 1990 levels by 2050. The Roadmap explores the challenges of delivering decarbonisation objectives for the energy sector while ensuring security of supply and competitiveness.
	Overview and assessment of the Renewable Energy Directive 2009/28/EC with regard to its sustainability requirements for biofuels, bioliquids and other energy uses of biomass (Updated version – September 30, 2011)	Directives 98/70/EC and 2009/28/EC lay down that biofuels and bioliquids may only be counted towards the established targets (and economic operators may only benefit from public support) if they comply with the sustainability criteria laid down in those Directives i.e. they must generally not come from highly biodiverse grassland (certain exceptions apply).

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PLANNING & ARCHITECTURE