global environmental solutions

Wind Energy: The Challenge of Community Engagement and Social Acceptance in Ireland

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Introduction

By 2050, Ireland's energy system could be transformed to a system built on wind and other renewables, using a smart grid and integrated into a clean EU energy system. This study has sought out insights for Ireland as to how to achieve an effective transformation and reach its renewable targets for 2020 and beyond, with a particular focus on social acceptance and community engagement. Building on the key findings of the Wind Energy: International Practices to Support Community Engagement and Acceptance Report the national study has investigated some of the significant drivers, processes and key components discernible from regional wind energy deployment examples and sought to reflect on the international experience and examine which elements, if any, of these processes, practices and strategies may have applicability nationally in the medium term.

Approach and Methodology

The National study methodology, building on the International study, involved undertaking the following key tasks:

- Desktop review of the existing regime and landscape for wind energy in Ireland, encompassing EU Climate and Energy Policy, the Republic of Ireland's climate and energy policy approach and a review of wind energy planning legislation and policy in Ireland;
- Literature review of academic research on socio-technical transitions, community engagement and acceptance of renewable energy generally and wind energy in particular;
- Conducting primary and secondary research into five examples of niche wind energy developments; and
- Devising future pathways of community acceptance and wind energy development in Ireland.

The research has been conducted through the lens of social acceptance theory in both the national and international studies. As noted in the international report, energy systems are essentially socio-technical systems so any particular pathway will provide different social groups with different opportunities and threats. The degree to which any particular pathway manages to secure broad social buy-in has given rise to the notion of "acceptance". Although this is often focussed on the communities that live immediately around specific projects, it is useful to consider acceptance as a more complex and far–ranging concept. The following table presents the key aspects of social acceptance.

Table 1.1
Aspects of social acceptance

Aspect of social acceptance	Meaning
Socio-political acceptance	"Public opinion" and therefore reflected in the tone of debate in the media and politics about the value and viability of wind as a source of energy. Has a direct impact on the degree of support offered by national institutions, such as subsidies, planning policy etc.

Aspect of social acceptance	Meaning
Market acceptance	The degree to which financial institutions, in the broadest sense, accept wind energy and as such is reflected in the way banks and project developers view wind as a viable area for investment, as well as how energy suppliers, utilities and grid owners and electricity consumers are willing to accept wind energy as part of the energy supply mix of the country.
Community Acceptance	The degree to which people living in the immediate surroundings and who often bearing most of the direct external impacts of wind energy accept specific wind energy projects.

Source: adapted from Wustenhagen et al (2007)

In terms of understanding the future trajectory of the energy transformation in Ireland and how this may be understood and potentially guided, the research looked to Lovins (1977) theory that an energy system can evolve along different pathways, which can be "hard" or "soft". A "hard" energy path is how we have traditionally organised energy systems, largely based around centralised fossil fuel power stations that have high levels of inbuilt inefficiency. In contrast, Lovins suggested that a "soft" pathway can be more socially-orientated and is typified by more decentralised, flexible systems, often based on renewable energy systems that may have local ownership structures with good relationship between energy generators and energy users, giving rise to improvements in energy efficiency. Since Lovin's original conception of energy paths, there has been substantial theoretical development of how this can be used to understand the development trajectory of energy systems.

Background to Wind Energy in Ireland

Ireland has one of the best available wind power capacities in Europe and onshore wind energy is seen as a key component in meeting the renewable energy targets. The current targets are shown in Table 1.2. However, moving beyond 2020 these targets will be subject to review.

Table 1.2
Renewable Energy Targets (Electricity) 2010-2012 & 2020 Targets

Country	*2010 Target*[1]	*2020 Target*
Republic of Ireland	20.4%	40%[2]
Scotland	31% (2011)[3]	100%[4]
Germany	17.4%	35%[5]

[1] All 2010 Targets (excluding Scotland) were obtained from the following report: European Commission (2011) Renewable Energy: Progressing towards the 2020 target, EC, 31st January 2011 (Appendix I). The report sourced data from Eurostat 2008 and Member States NREAPs

[2] Ireland increased its target from 33% under the 2009 Carbon Budget.

[3] Scottish Government (2012) '2020 Renewable Routemap for Scotland- Update'

[4] Scottish Government (2012) '2020 Renewable Routemap for Scotland- Update'

[5] Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (2011) The Federal Government's energy concept of 2010
and the transformation of the energy system of 2011

Country	*2010 Target*[1]	*2020 Target*
Denmark	34.3%	35%[6]
Europe	21%	37%[7]

There has been a relatively steady pace of development of wind energy deployment in Ireland since 1992 with installed wind capacity reaching 1,732 MW by 2012 (SEAI 2013). There are continued pressures and aspirations to develop onshore wind energy in Ireland. In addition to the 2020 targets the SEAI Wind Energy Road Map to 2050 states that:

- Given favourable developments in policy and infrastructure, Ireland can achieve deployment of between 11GW - 16GW of onshore wind and 30GW of offshore wind by 2050.

Ireland's installed capacity indicates the need to develop a considerable number of onshore wind farm sites of medium scale or fewer of large scale. In addition to this there is the potential to generate enough electricity from the wind to exceed domestic demand by 2030 and the potential for Ireland's wind market to become export driven in the 2020–2030 timeframe.

At a national level, research suggests that Irish people are in favour of harnessing wind power (Ipsos/MRBI 2013), which may reflect tacit socio-political acceptance; but as has been found in other contexts such as the UK, public support is fragile and conditional and some local and national public opposition has been in evidence in recent years in Ireland. The level of support and acceptance is questionable at various levels in response to the location, scale and ownership of projects and in response to the potential to develop onshore wind for the export market. It is timely, therefore, to investigate the role of social acceptance in the future development of on shore wind in Ireland.

Key Findings

Five case studies were investigated in the study to help understand the complexities of wind energy deployment in the Irish context and the mix of approaches that might be optimal in terms of depth of engagement and scale of development/carbon emissions reductions. The case studies and their reason for selection were as follows:

Table 1.3 National Case Studies

Wind Farm	Regional Location	Reason for selection
Case Study No 1 Templederry	Tipperary	100% community-owned and commissioned wind farm (2012), the first of its kind successfully developed in Ireland.
Case Study No 2 Oweninny	North-west County Mayo	100% ownership by a joint venture of two semi-state energy bodies (Electricity Supply Board (ESB) and Bord na Mona), currently engaged in an extensive community engagement process for a commercial scale wind farm on cutaway bog in northwest Mayo.

[6] Ministry of Climate, Energy and Building to the Danish Parliament (2012) 'Energy Policy Report 2012'

[7] Renewable Energy: Progressing towards the 2020 target, EC, 31st January 2011.

Case Study No 3 Private developer	Kerry Galway	100% ownership by a privately Irish-owned, commercial developer, with a portfolio of successfully commissioned wind projects, but with little community engagement outside of the statutory process.
Case Study No 4 Meitheal na Gaoithe	Range of projects in Kilkenny/ South Tipp/ Wexford area	A process of wind energy development that results in 100% ownership by a 'community of interest' (landowners) within a community of locality setting, with a moderate degree of local community engagement.
Case Study No 5 Connemara wind energy	Range of projects in Connemara Gaeltacht	An area that initially accepted locally owned small projects, but is now experiencing changing attitudes linked to the cumulative impact of externally developed large projects, within a populated zone, close to Galway city.

The main conclusions from the Case Study research are as follows:

There is no single solution: the research highlights a typology of ownership models, the success or failure of which depends on how the sharing of the costs and benefits is worked out to be acceptable to the developer and to the community (of interests or locality or both). The policy challenge is to find ways to support this process of working out fair benefit both locally and nationally. There are a number of potentially useful ideas, such as guidelines on sharing, the Danish model of equity ownership, the need to recognise impacts on 'nearest neighbour' and the potential role of independent body that merit further exploration.

Growing sophistication: There is more information and NGO support available compared to the early years of wind deployment and there is growing sophistication in communities about the costs and benefits associated with wind. The policy challenge may be to think about how to respond to this and to find ways to replicate success rather than allow negative perceptions and information to dominate community perceptions.

Replicating success, role of intermediaries: A core feature of Meitheal na Gaoithe is that it is a vehicle for replicating success as it seeks to transfer lessons across localities (including workshops, educational activity). In certain ways it acts as an intermediary (planning advice and communication), as does the Tipperary Energy Agency (technical advice). The case study interviews also highlighted a demand for a national forum/conversation on wind energy to raise awareness of the potential value (as well as risks) of further wind developments which this type of body may be able to fulfil.

Policy needs to be updated: Drawing on the Irish context in Chapter 2 and the interviews with key players it is evident that there is a need to enhance and update guidelines, including issues like set back distance, creation of dedicated grid access for community projects, national landscape strategy, Visual Impact Assessment. Some of this is beginning to be addressed (Environment and Public Health (Wind Turbines Bill 2011).

Enhanced role for LARES: The case studies indicate the importance of LARES to set an appropriate context for wind energy deployment. This could be enhanced as both a statutory instrument and as template for Regional Development Plans.

Energy Transition Plan: There is a disconnection between the support of overall targets and implementation of wind energy projects. A more holistic 'Energiewende' approach, as found in Germany, would help develop a more comprehensive, consistent view of the need for an energy transition and wind energy's role in that. This could be in the form of an Energy Transition Plan which brings together elements such as, the NREAP, Energy Green Paper, LARES, public discourse, guidelines for procedural justice, place related impacts and distributive justice.

Communication: The case studies illustrated the difficulties of achieving and maintaining open two-way communication channels. Providing information to communities is a one-way process of communication that is not equivalent to more substantial forms of engagement,

which would consist of a two-way dialogue between developer and community (Rowe and Frewer, 2005).

Conclusions and Next Steps

Chapters 6 and 7 of the report consider in detail the potential key practices for greater social acceptance of wind energy in Ireland. Whilst it is recognised that Ireland has much to be proud of in how it has managed the on-going transformation of its energy system the study team concluded that a more focused strategy will be required to achieve greater community engagement and social acceptance for wind energy.

In terms of the international research there is significant potential to learn from how other countries have responded to similar challenges, particularly in relation to:

- The process of engaging local communities in planning decisions and the consenting process;
- Further development of trust between communities, developers and consenting authorities, and the role of intermediaries in developing this;
- Exploring the ways in which the benefits of wind energy developments can be shared amongst a wider set of local and national stakeholders; and
- The promotion of a wider range of ownership models for wind energy projects.

The areas suggested for further consideration are as follows provided in Table 1.4.

Table 1.4 Possible next steps for Ireland's Energy Transformation

Area of consideration	
Public Discourse to increase public participation in wind energy planning	National consultations produced repeated calls for a proper societal debate about where the country was headed and why (this has been echoed in media[8]). The development of an ETP provides a vehicle to consult and debate this as a matter of urgency. Establish a National Directorate for Energy Transition in Ireland (akin to Ireland's ND for Emergency Planning & Management). Inter-Departmental coordinated team, addressing all aspects of energy transition; avoiding current fragmentation. Provide sustained resourcing to the efforts to achieve national transition plan – consider ring-fencing of PSO/ carbon taxes.
Energy Transition Plan	Revise the national REAP/ RE Strategy to a 'transition' focus, with increased 'bottom-up' inputs through public consultation. Develop an action-based Energy Transition Plan (as described earlier). Set ambitious but achievable targets. Define phased approach with 'early wins' to maintain momentum, with more ambitious long term goals.
Participation	Improved participation in development of national and regional/ county plans (based on Aarhus Convention, which Ireland enacted in legislation in 2012) that cover carbon reduction and encompass demand reduction *and* decarbonisation of supply. 'Early and often' engagement by developers with impacted

[8] RTE Prime Time debates on EirGrid's proposals and media questioning of the value of more wind power (see Colm McCann in the Irish Independent)see my last comment on this in the national report- second time raising this- incorrect citation for this programme.

Area of consideration	
	communities relating to specific projects. Inputs to planning policy and execution.
Equity and ownership	State development (via semi-states) of national resource. Options for local participation in wind development. Ownership via equity sharing as a better way of distributing value locally than community benefits, even allowing for equity issues. Funding mechanisms to allow participation so that communities are not excluded from engaging in planning process due to lack of resource.
Informed engagement via pro-active intermediaries	Technical and planning advisory/ intermediary bodies, Energy Agencies/ Meitheal na Gaoithe). Community liaison providing ongoing engagement and capacity building for local communities (through a national advisory body).
Creating Local Value	Establish Register of Community Benefit Ensure distributive justice in relation to impacts and benefits (e.g. compensation schemes). Link local value to energy efficiencies/ reductions/climate adaptation at community level. Community benefit can be used to co-match other funds for e.g. retrofitting / insulation/climate proofing or adoption of other (less risky than wind) renewable energy supply / reduction solutions in host communities. Adopt supply and demand side measures to ensure energy targets are met at county level. Consider contractual models from other sectors such as waste.

1.0 INTRODUCTION

1.1 Background

By 2050, Ireland's energy system could be transformed to a system built on wind and other renewables, using a smart grid and integrated into a clean EU energy system. While the need for this energy transformation may be gaining consensus, there has been less discussion on the process by which this can be achieved. This study has sought out insights for Ireland as to how to achieve an effective transformation and reach its renewable targets for 2020 and beyond, with a particular focus on social acceptance and community engagement.

This report builds on the key findings of the Wind Energy: International Practices to Support Community Engagement and Acceptance Report which provides insights as to the contexts and practices of Denmark, Germany and Scotland. The study has investigated some of the significant drivers, processes and key components discernible from regional examples and sought to reflect on the international experience and examine which elements, if any, of these processes, practices and strategies may have applicability nationally in the medium term.

Where it is more usual to examine the technical and environmental constraints to renewable energy growth the main objective of this project has been to examine what effective approaches might achieve greater social acceptance of wind and grid infrastructure, with increased community engagement and public participation in Ireland. It is through this conceptual framework, discussed in Chapter 3, that research data has been sought and analysed.

1.2 Wind Energy in Ireland

Wind energy is a form of energy conversion in which wind turbines convert the kinetic energy of wind into mechanical or electrical energy that can be used for power. Wind power has been used for centuries for mechanical tasks such as grinding grain and pumping water. The earliest recorded windmill in Ireland dates from 1281 (Kilscanlon, Co. Wexford) and by 1840 the sails of 250 windmills turned on Irish hilltops[9].

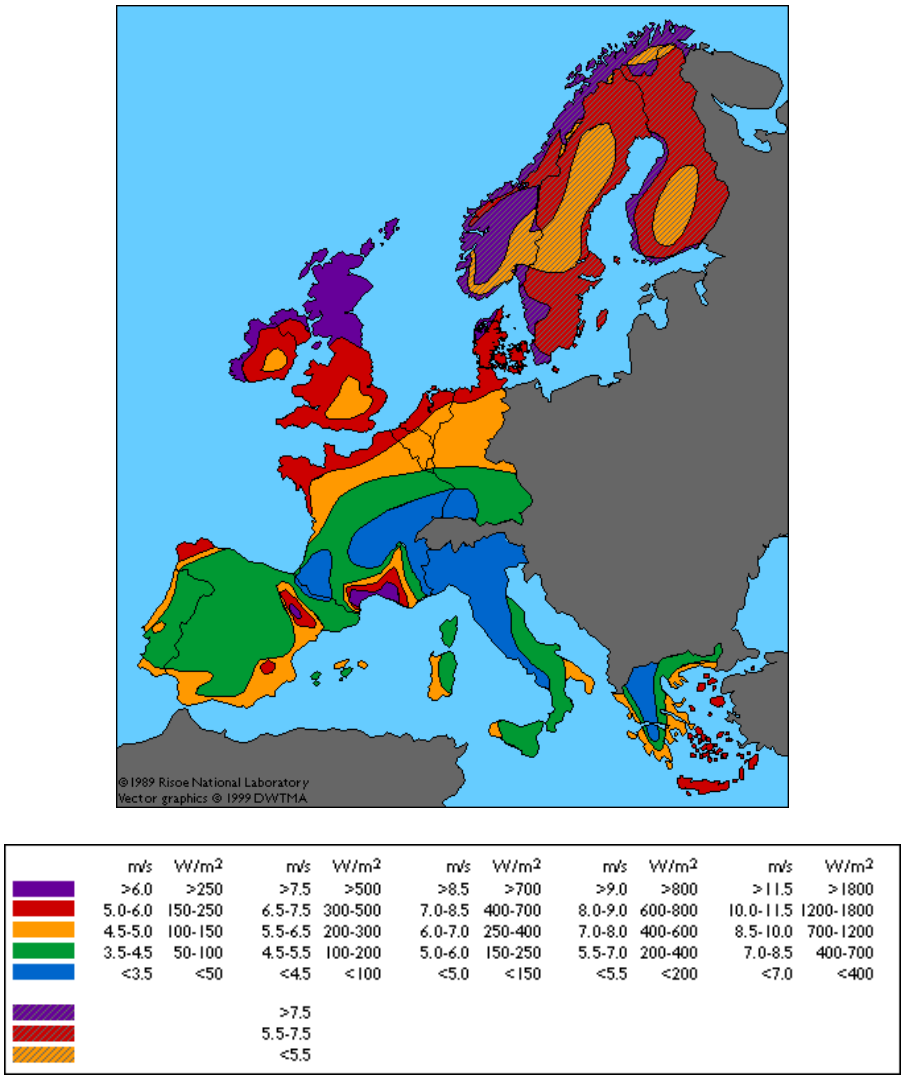
Wind turbines that produce electricity by using rotational energy to drive a generator were first designed in 1887 by Professor James Blyth in Glasgow. From around 1900 -1973 there was widespread use of individual wind generators to replace fossil fuel plants and centrally-generated electricity, especially where these were not accessible. The oil crisis in 1973 led to renewed interest in replacing petroleum based sources with renewable energy sources to improve energy security. From this period to the late 1990s wind energy continued to grow. The next major step change was the Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC). This is an international treaty that sets binding obligations on industrialized countries to reduce emissions of greenhouse gases. As part of the Kyoto Protocol, Ireland, along with many developed countries agreed to legally binding reductions in their emissions of greenhouse gases in two commitments periods; 2008-2012 and 2013-2020. This in turn led to European Union Directive on Electricity Production from Renewable Energy Sources (2001) for promoting renewable energy use in electricity

[9] http://www.seai.ie/Renewables/Wind_Energy/History_of_Wind_Energy

generation. The Renewables Directive officially titled as 2009/28/EC repeals the 2001 Directive and required 20% of energy consumed to be renewable.

Due to its long history onshore wind energy is one of the more established and proven renewable energy technologies. Ireland has one of the best resources of wind power in Europe as shown in Figure 1.1. The map shows wind resources at 50 meters above ground level for five different topographic conditions: 1) Sheltered terrain, 2) Open plain, 3) At a coast, 4) Open sea and 5) Hills and ridges. It can be seen from this that most of Ireland has an excellent or very good wind resource.

Figure 1.1
European wind resources at 50m above ground



	m/s	W/m²	m/s	W/m²	m/s	W/m²	m/s	W/m²	m/s	W/m²
	>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
			>7.5							
			5.5-7.5							
			<5.5							

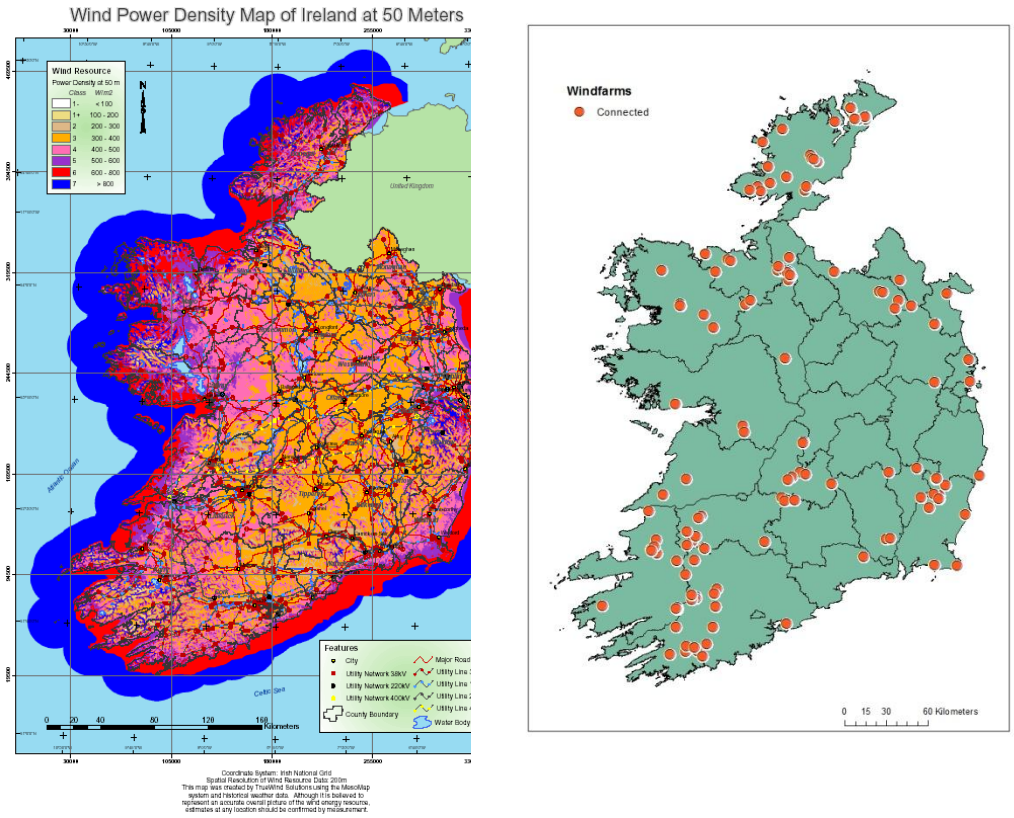
Source: Danish Energy Agency

1.3 Deployment of the Irish Wind Resource

The wind power resource in Ireland has been further explored by developing a power density map which indicates the areas where the wind resource is strongest and generation capacity highest. It is notable that land adjacent to the west coast has a stronger resource than the

east coast, where the equivalent wind speeds sit just offshore. This is reflected in the development of installed capacity to date, with a predominance of development in the North West and South West, the uplands and slightly less on the east. In particular there is minimal development in the eastern inland counties.

Figure 1.2
Power Density Map and Connected Wind Farms (2012)



Source: SEAI

However the exploitation of this resource is constrained by cost, technological development, environmental sensitivity, existing infrastructure and existing patterns of human activity. Indeed, the scattered pattern of settlement across the Irish landscape offers a particularly important constraint on this resource that relates directly to social acceptance, with community concerns potentially resulting in fewer developable sites and a reduction on the overall exploitable wind resource.

In addition to this is the nature of the electrical energy generated from wind which is not as immediately dispatchable[10] as conventional energy sources due to the wind resource being unpredictable and intermittent. To incorporate intermittent energy resources, a category which renewable energy falls into, electricity networks will have to become 'smarter grids', with integrated communication systems and real time balancing between supply, demand,

[10] Dispatchable generation refers to sources of electricity that can be dispatched at the request of power grid operators; that is, generating plants that can be turned on or off, or can adjust their power output on demand. In the case of wind it can be turned off but cannot be turned on if the wind is not blowing at that time.

and storage[11]. Wind generated power will therefore need to be balanced with other sources of energy and additional grid infrastructure is required to achieve this. Social acceptance of wind energy is therefore closely linked to the acceptance of grid improvements including smart grid.

1.4 Wind Energy: The Challenge of Community Engagement and Social Acceptance in Ireland

This report presents the findings of an investigation into the national and local contexts and practices for the deployment of onshore wind in Ireland. To illustrate this, niche examples of technology deployment were examined and analysed in terms of the social acceptance and community engagement. The aim of this was to distil the key markers for success or failure of onshore wind energy projects and associated grid infrastructure. The report includes a narrative of each case study, their enablers and challenges, along with an overall analysis of learning points and insights for national and regional policy. The analysis also provides an understanding of success factors, challenges and barriers for wind energy in Ireland informed by the comparative international analysis.

1.5 Study Method for National Analysis

The National study methodology, building on the International study, involved undertaking the following key tasks:

- Desktop review of the existing regime and landscape for wind energy in Ireland, encompassing EU Climate and Energy Policy, the Republic of Ireland's climate and energy policy approach and a review of wind energy planning legislation and policy in Ireland;
- Literature review of academic research on socio-technical transitions, community engagement and acceptance of renewable energy generally and wind energy in particular;
- Conducting primary and secondary research into five wind energy case studies; and
- Devising future pathways of community acceptance and wind energy development in Ireland.

1.6 Structure of Report

The report is structured as follows:

Section 2: explores the contexts and processes for socially acceptable wind energy in Ireland, including drivers for wind energy deployment and social acceptance in the future; it provides a summary of existing policies and practices concerning wind energy development in Ireland, including grid infrastructure, wind resource, deployment at national and county level;

Section 3: provides the conceptual framework of the study in terms of transition theory, future energy pathways and social acceptance;

Section 4: provides an overview of the key players in the wind sector and an analysis of the case studies which illustrate the existing and emerging challenges and opportunities affecting the wind energy sector in Ireland;

Section 5: offers a range of future pathways that suggest diverse ways in which context and process may shape the trajectory of a low carbon transition in Ireland;

[11] Professor Peter Crossley and Agnes Beviz, Joule Centre for Energy Research Smart Grids (2011): *Low carbon electricity for the future*

Section 6: summarises the conclusions and recommendations put forward throughout the report and reflects on the key findings from the National Analysis report.

1.6.1 Authorship

This report is the product of an SLR project led by Jean Welstead and Nick O'Neill with Dr Deirdre Lewis providing field research and case study consultations. The study also involved contributions by two academics based in Queen's University Belfast (Professor Geraint Ellis) and University of Exeter (Professor Patrick Devine-Wright).

1.7 Definitions

Scale: For the purposes of this report a small scale wind project is <5MW, medium is <20MW and large is over 20MW.

Community Wind Farm: A wind generation project owned by farmers, businesses, schools, governments, or locally owned utilities in the area where the wind power is used. The majority of ownership benefits stay in the local community, it is typically a single turbine or a small cluster of turbines, and it is often connected to the local distribution system. Can also be defined by who develops the project and the level of engagement in the wider community in addition to how the benefits are spatially and socially distributed, i.e. to some degree local, collective and participatory (Comhar 2011).

Dispatchable generation: refers to sources of electricity that can be dispatched at the request of power grid operators; that is, generating plants that can be turned on or off, or can adjust their power output on demand. In the case of wind it can be turned off but cannot be turned on if the wind is not blowing at that time.

Shadow Flicker: Under certain combinations of geographical position, time of day and time of year, the sun may pass behind the rotor and cast a shadow over neighbouring properties. When the blades rotate, the shadow flicks on and off; the effect is known as "shadow flicker". It occurs only within buildings where the flicker appears through a narrow window opening. The seasonal duration of this effect can be calculated from the geometry of the machine and the latitude of the potential site. (Scottish Government 2012).

Noise: Technically, there are two quite distinct types of noise sources within a wind turbine - the mechanical noise produced by the gearbox, generator and other parts of the drive train; and the aerodynamic noise produced by the passage of the blades through the air. (Scottish Government 2012).

1.8 Abbreviations

AA	Appropriate Assessment
EIA	Environmental Impact Assessment – the process
EIS	Environmental Impact Statement – the output
ELC	European Landscape Convention – also known as the Florence Convention
EPA	Environmental Protection Agency
EU	European Union

IWEA	Irish Wind Energy Association
HLC	Historic Landscape Characterisation
LARES	Local Authority Renewable Energy Strategies
LCA	Landscape Character Assessment
SEA	Strategic Environmental Assessment
SEAI	Sustainable Energy Authority of Ireland
UNECE	United Nations Economic Commission for Europe
UNESCO	United Nations Educational, Scientific and Cultural Organisation.

2.0 UNDERSTANDING THE CONTEXTS AND PROCESSES FOR WIND ENERGY DEVELOPMENT IN IRELAND: LANDSCAPE AND REGIME ISSUES

2.1 Introduction

This chapter sets out some of the current dominant features that make up the wider energy landscape in which Ireland develops its own proposals for the regulation of wind energy development, which plays a large part in determining the overall national level regime. It then reflects on how this could inform the understanding of future pathways for the transformation of Ireland's energy system. Specific examples of how individual actors then exploit these in specific deployment niches are explored in the chapter 4.

2.2 The energy landscape

2.2.1 Development of electricity supply in Ireland

In order to understand some of the constraints on future options for energy transformation in Ireland, it is worth briefly explaining the main milestones since its evolution which have had a major influence in determining the nature of the current system and the degree to which this has become locked into certain processes. Both current electricity systems on the island of Ireland had their foundations in small private enterprises built to supply local lighting and industrial capability in the late 1890s (Eirgrid 2012). These systems grew and formed the basis of industrial expansion in the early part of the twentieth century. However, it was increasingly recognised that the electricity networks and the utility of large interconnected synchronous systems required central control. In 1919 the Electricity Act of Great Britain was introduced and led the way for similar legislation in Ireland and Northern Ireland, both governed directly from Westminster at the time.

By 1925, the Irish Free State government in Ireland had founded the vertically integrated Electricity Supply Board (ESB), Ireland's first state enterprise. In 1927 work began on the Ardnacrusha hydroelectric power station, followed by the roll-out of the electricity network across Ireland. As stated in Eirgrid's Annual Report (2012) this set the country on a path of economic and social development that has had a profound effect on the lives of generations of Irish citizens, and represented the "foresight, imagination and enterprise" of the government at the time"[12].

Table 2.1
History of power generation in Ireland

Date	Type of power station
1930s	Hydroelectric schemes Peat electricity stations (to control limited resources during war time).
1950s	Rural electrification and further peat generating stations
1950s and 1960s	Move to oil generated power stations

[12] Former Taoiseach Liam Cosgrave address at the 85th anniversary of the Ardnacrusha power station July 2012

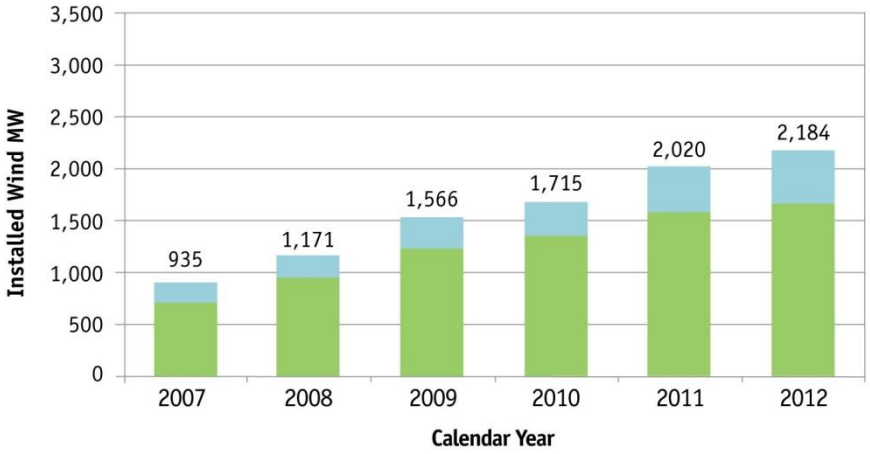
Date	Type of power station
1973 and 1979	Oil crisis and strategic imperative to lessen dependence on oil.
1985	Development of coal fired power station at Moneypoint. Move to combined cycle natural gas generation.
1992	Construction of 6.5 MW wind farm, Bellacorrick, County Mayo
2007	40% National Renewable Energy target adopted
2013	Installed wind capacity of 1,755 MW, with wind achieving 58.6% penetration in September 2013.

Source: Eirgrid Group Annual Renewable Report 2012

By 2000, the electricity system in Ireland had grown to over 3,300 km of 220 kV transmission lines with 10,000 km of 110 kV lines. The peak demand had risen to over 3700 MW with an energy requirement on 20 Terawatt hours (TWh). In 2000 over 96% of the energy was generated from fossil fuels

Since 2000 the grid connections from wind generating capacity have grown, and the grid network has continued to expand. The highest peak demand ever on the system of 6,305 MW occurred in December 2012, with the amount of wind generation capacity on the island (covering both Ireland and Northern Ireland) exceeding 2,100 MW.

Figure 2.1
All Island Wind Capacity 2007-2012



Source: Eirgrid Group Annual Renewable Report 2012

2.2.2 Energy Policy

The context for Irish renewable energy policy has changed dramatically in recent years. The economic crisis, the evolving EU policy context and recent developments in technology require new approaches to domestic energy policy. While the objectives of policy remain the enhancement of competitiveness, ensuring a secure energy supply, and tackling the problem of climate change, the changing external context requires some new solutions.

The phrase 'green economy[13]' has become commonplace and it is now seen as a key driver of future economic growth. NESC has examined 'greening the economy' as a broader process and inclusive of societal as well as economic concerns (Moore et al, 2013)[14]. Greening the economy can bring employment opportunities, particular in renewable energies. A Forfás report on the green economy, published in 2009[15], stated that employment in the sector in the Republic as of November 2010 stood at 18,750 (to put it in context the ICT sector has approximately 70,000 employees), and is projected to rise to either 23,350 or 29,000 by the end of 2015, using two different projections. However, although this provides context, employment figures can shift with changing definitions and different interpretations.

The renewable energy component in Ireland's fuel use continues to grow, with the SEAI's 2013 energy report stating that overall renewable energy output constituted 7.1 per cent of gross final energy use and 19.6% of gross electricity consumption in 2012 (an increase from 14.1% in 2010). Wind generated electricity fell by 8.4% in 2012 to 4.0 THh due to lower wind speeds than 2011.

Targets and ambitions set by both the Irish Government and the previous administration express confidence that the renewable energy sector will continue to grow in the coming years. The Government has a target of 40 per cent of electricity to be sourced from renewables by 2020. Furthermore, the Programme for Government states:

"We will seek to establish Ireland as a renewable manufacturing hub to attract international and domestic investment."

However, on 22nd January 2014 the European Commission published new proposals which include a binding EU-wide renewable target "of at least 27%" but stated that there would be no individual targets for Member States. Instead, the Commission intends to introduce a "new governance system" based on national energy plans.

The importance of renewable energy in the years ahead is underlined by EU targets. Greenhouse gas emissions must be reduced by 20 per cent (from baseline 1990 levels) by 2020. 16 per cent of Ireland's total energy consumption is to come from renewables, and 10 per cent of transport consumption and 12 per cent of heat consumption from renewable sources by the same year. DCENR 2012 also states the strategic importance of transmission and other energy infrastructure to facilitate this.

2.2.3 Renewable Energy Export

Ireland has an abundant wind energy resource with the capability to achieve its national targets for renewable electricity from onshore renewable generation alone with capacity to spare (SEAI 2013). Under the EU Renewable Energy Directive it is possible for a Member State to make an agreement with another Member State to contribute to its targets. A Memorandum of Understanding (MoU) was signed between Ireland and the UK in January

[13] The green economy is seen as having six sub-sections: energy efficiency and management; waste management and recovery; green ICT; environmental consultancy services; water and wastewater treatment services; and renewable energy.

[14] Moore, J., O'Connell, L. & O'Donnell, R. (2013), *Greening the Economy: Challenges and Possibilities for Integrating Sustainability into Core Government Policy, Dublin*: National Economic and Social Council.

[15] http://www.forfas.ie/media/dete091202_green_economy.pdf

2013 to trade in renewable energy to the mutual benefit of both countries. The next stage is to develop and Inter Governmental Agreement (IGA) for signature in 2014. Analysis of how Ireland's onshore and offshore wind resource might be developed for export to the UK, including transmission infrastructure, is currently underway. To assist this, the Department of Communications Energy and Natural resources are developing a Renewable Energy Export Policy and Development Framework which will guide an Bord Pleanála when considering planning applications for renewable energy export projects.

The development of the Renewable Energy Export Policy and Development Framework will be informed by a Strategic Environmental Assessment (SEA) accompanied by a Habitats Directive Assessment. This will involve widespread consultation with the public, stakeholders and statutory organisations. Stage 1 public consultation to inform preparation of Renewable Energy Export Policy and Development Framework closed in November 2013.

2.2.4 Wider energy landscape issues

In addition to the immediate economic and physical constraints that underlie the potential for energy transformation, it is also important to note some of the wider features of the international context for the Irish energy system that would constrain and provide opportunities for development of future energy pathways. This reflects the globalised nature of energy markets and includes:

- Security of supply;
- Agreements on GHG;
- Free trade agreements; and
- Interconnected EU smartgrid.

2.2.5 European Policy

According to the European Commission (2012); '*energy is the life blood of our society… and the energy challenge is one of the greatest tests which Europe has to face'* (EC, 2012: 21). Indeed, membership of the European Union both constrains and opens up opportunities for the development of renewable energy in Ireland, and its influence can be seen in two main areas; environment/decarbonisation policy and energy regulation.

The EU's Energy Policy, under the control of the *European Commission Directorate General for Energy*[16], is effectively the key driver of the emerging clean energy/renewable energy sector at a pan-European level, including Ireland. In developing its policy, the EU has sought to balance and promote three key principles:

- Competitiveness;
- Sustainability; and
- Security of supply.

This has led to the establishment of stringent renewable targets for each of EU's member states, accompanied by a drive to reduce overall energy consumption levels across the EU and to promote intelligent energy. The current European renewable energy policy framework is the three main headline targets, adopted in December 2008, to be achieved by 2020 as set out in

[16] See http://ec.europa.eu/energy/index_en.htm.

Table **2.2**.

Table 2.2
European Climate and Energy Headline Targets

European Climate and Energy Headline Targets	
1.	*An EU based target for GHG emission reductions of 20% relative to emissions in 1990;*
2.	*A 20% share for (total) renewable energy sources in the energy consumed in the EU with specific targets for the Member States;*
3.	*20% savings in energy consumption compared to projections.*

The following Directives, Green Papers and Strategies from 2009 onwards are relevant to the developing wind farm sector in Ireland:

- March 2013 – *European Commission Green Paper - A 2030 Framework for Climate and Energy Policies*[17];
- December 2011 – *EC Energy Roadmap 2050;*
- November 2010 – *EC Energy 2020; and*
- April 2009 - *EC Directive – 2009/28/EC*[18]*.*

In addition to this, since 1996, EU member states have been obliged to introduce legislation in their jurisdictions to provide for an electricity regulator, an independent system operator of the transmission system and a fully functioning wholesale electricity market with 100% retail market from 2005. For Ireland this process can be summarised as follows:

- the establishment of the Commission for Electricity Regulation (CER) to oversee the industry – subsequently named the Commission for Energy Regulation following a widening of its remit.
- a new independent Transmission System Operator (TSO), EirGrid, was developed from expertise within ESB National Grid and the system control element of the ESB with responsibility for planning, operation and development of the transmission network. This became fully operational and separated in 2006, although the assets remain under the ownership of state owned ESB.
- Gradual introduction of competition into the electricity market commencing with large customers in 2000. Full market opening occurred in 2005, but the CER continued to regulate electricity prices for ESB customers. By April 2011, when full market competition was deemed to have been established, all price controls were lifted.
- Establishment of a wholesale Single Electricity Market (SEM) to cover Ireland and Northern Ireland. This is a joint venture between Eirgrid and SONI (System Operator for Northern Ireland) run on an all-island basis. SEM began development in 2004 and opened for trading of wholesale electricity in 2007.
- SEM consists of a gross mandatory pool market, into which all electricity generated on or imported onto the island of Ireland must be sold, and from which all wholesale electricity for consumption or export must be purchased.

The European Union has also influenced the process of developing energy infrastructure with the Aarhus Convention[19]. This provides for the protection of the environment, but

[17] Adopted by the European Commission on the 27th March 2013 in accordance with the International Energy Agency (IEA).

[18] This Directive follows on from Directive 2001/77/EC.

[19] The UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters is the official name of the Aarhus Convention.

fundamentally acknowledges the right to public participation in environmental and planning decision making, linked to government accountability. It focuses on the interaction between the public and authorities in a democratic context, and underpins much of the discussion on social engagement in energy transition in Ireland. Aarhus also provides for the right to challenge the substantive or procedural legality of public decision making. This is becoming increasingly important in the Irish context since the Environmental (Miscellaneous Provisions) Act 2011 provided for the requirement that judicial notice be taken of the Convention.

2.2.6 National Policy

It is against this context that Ireland has developed its own policies for energy. This report does not review the entire extent of energy policy and law in Ireland, but focuses on that governing renewables. The first Renewable Energy Action Plan (REAP) was prepared by the Department of Communications, Energy and Natural Resources and submitted to the EC in 2010. The Plan highlights the following:

- *In energy terms, 2020 is rapidly approaching;*
- *A joined up and integrated approach, involving all appropriate public sector bodies at national, regional and local level will be critical for delivery over the next decade;*
- *In setting out to achieve a significant transformation of the energy landscape, the Government does not underestimate the challenge of winning the hearts and minds of local communities, in support of the new infrastructure required to deliver change.*

In terms of social acceptance the role of the public in the delivery of the plan is unclear. There is no Action Plan, which accords with the ELC and UNECE Aarhus Convention. However, the SEAI Methodology for Local Authority Renewable Energy Strategies (LARES) does refer to public consultation as part of the LARES process.

The *Strategy for Renewable Energy 2012-2020* follows on from Ireland's submitted *Renewable Energy Action Plan 2010* and the publication of *Energy Roadmap 2050* in December 2011. The 2012-2020 strategy sets out five strategic goals, as follows:

- *Progressively more renewable electricity from onshore and offshore wind power for the domestic and export markets;*
- *A sustainable bioenergy sector supporting renewable heat, transport and power generation;*
- *Green growth through research and development of renewable technologies including the preparation for market of ocean technologies;*
- *Increase sustainable energy use in the transport sector through biofuels and electrification* (e.g. 10% by 2020); *and*
- *An intelligent, robust and cost efficient energy networks system,* e.g. modernisation and expansion of the national grid.

The Strategy also sets out specific actions which it will take to further develop wind energy, ocean energy, bioenergy, R&D, sustainable transport energy, and the supporting energy infrastructure. The delivery of the Strategy for Renewable Energy will be a key element in developing the Green Economy in Ireland and will require a cohesive approach across Government, enterprise and other key stakeholders. The Strategy identifies acceptance as one of the significant challenges inherent in successfully going beyond the current deployment levels of renewable energy in electricity, heat and transport to ensure delivery of targets. Relevant challenges stated include:

- the need for predictable and transparent support frameworks to attract investment at a cost which is competitive;
- the need for regulatory certainty which supports renewable energy development in the long term interest of consumers;
- the need for cost effective timely investment in electricity transmission and distribution;
- ensuring best practice planning and permitting procedures and coherence between environmental and renewable energy objectives;
- the impact of large scale penetration of renewable technologies on the overall energy system with regard to overall cost efficiency and system reliability;
- winning public acceptance around environmental and other impacts and securing benefits for local communities; and
- a Renewable Energy Development Group, which was established by the Government in 2004 to bring all the Departments, agencies and stakeholders together, is due to be re-launched under the aims of the strategy.

More recently (2013) the Communications, Energy and Natural Resources Department have led the development of an energy Green Paper. Workshops were held in October and November of 2013 and the Paper is due to be consulted upon in spring 2014.

2.2.7 Renewable Energy Targets

The above policy framework at a European level along with a policy response at a national level has produced the following electricity renewable energy targets (RES-E) for Ireland which are listed in Table 2.3. Targets for other European areas are included for comparison purposes.

Table 2.3
Renewable Energy Targets (Electricity) 2010-2012 & 2020 Targets

Country	***2010 Target***[20]	***2020 Target***
Republic of Ireland	20.4%	40%[21]
Scotland	31% (2011)[22]	100%[23]
Germany	17.4%	35%[24]
Denmark	34.3%	35%[25]
Europe	21%	37%[26]

[20] All 2010 Targets (excluding Scotland) were obtained from the following report: European Commission (2011) Renewable Energy: Progressing towards the 2020 target, EC, 31st January 2011 (Appendix I). The report sourced data from Eurostat 2008 and Member States NREAPs

[21] Ireland increased its target from 33% under the 2009 Carbon Budget.

[22] Scottish Government (2012) '2020 Renewable Routemap for Scotland- Update'

[23] Scottish Government (2012) '2020 Renewable Routemap for Scotland- Update'

[24] Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (2011) The Federal Government's energy concept of 2010
and the transformation of the energy system of 2011

[25] Ministry of Climate, Energy and Building to the Danish Parliament (2012) 'Energy Policy Report 2012'

[26] Renewable Energy: Progressing towards the 2020 target, EC, 31st January 2011.

There are currently no sub-national targets in place for Ireland, i.e. Planning Legislation does not currently require that the Regional Planning Guidelines or County Development Plans) set out targets for renewable energy sectors (RES), namely E - electricity, H - heat and T – transport.

The 2010 targets illustrated in Table 2.3 show Ireland and Germany on similar levels (20.4% and 17.4%) and Denmark and Scotland on similar levels (31% and 34.3%). These figures diverge when considering the 2020 targets with Scotland aiming for 100%, Ireland 40% and Denmark and Germany 35%. Table 2.4 shows the 2012 deployment figures for each country including per capita (MW/1000 population) this again shows a grouping of Denmark and Scotland with higher per capita deployment (0.74MW/1000 population and 0.76MW/1000 population) and Ireland and Germany with the same, lower per capita deployment (0.38MW/1000 population). This is likely to indicate the influence of the 2010 target driving the development of wind energy in the respective countries.

Table 2.4
Wind Energy Deployment in Ireland, Denmark, Germany and Scotland

Installed capacity onshore/offshore wind energy	Ireland	Denmark	Germany	Scotland
Population	4.6 million	5.6 million	82 million	5.3 million
Total MW	1763 MW (SEAI 2013)	4162 MW (EWEA 2012)	31,308 MW (EWEA)	4508 MW (Scottish Renewables) UK has 8445 MW (EWEA)
Installed in 2012	125 MW (EWEA)	216 MW (EWEA)	2,415 MW (80 MW offshore) (EWEA)	769 MW (Scottish Renewables)
MW per thousand population	0.38 MW	0.74 MW	0.38 MW	0.76 MW

2.2.8 Renewable Energy Fiscal Incentives & Investment Subsidies

The Renewable Energy Feed-in Tariff (REFIT) is the support mechanism used in Ireland. REFIT sets reference prices for renewable technologies. Generators and electricity suppliers negotiate a price for the off-take of the electricity from a site using a 15 year 'power purchase agreement' (PPA). The price is negotiable but a supplier is only insulated from losses to the level set by the reference prices. If a supplier contracted to a generator finds that they could have purchased energy elsewhere at a lower price they are compensated for the opportunity cost but only up to the reference price. This compensation is funded through a public service obligation (PSO) which is an item on all consumers' electricity bills. Overall, the aim of REFIT is to provide security to and limit the exposure of suppliers so that they might engage in a long term power purchase agreement with renewable generators.

The Business Expansion Scheme[27] allows individual investors to obtain income tax relief on investments in wind energy in each tax year. There is no tax advantage for the company in receipt of the BES, but securing this funding may enhance their ability to attract other external funding. Business Expansion Tax Relief was introduced as an incentive to private investors to invest long-term equity capital in companies (particularly new and smaller ones) where it would be otherwise difficult to raise funding. Investments in renewable energy qualify for BES relief. Individual investors holding a BES equity investment for a minimum period of five years can benefit from tax relief, at their marginal rate, in respect of investments of up to € 31,750 per year. The aggregate that a company can raise was increased under the Finance Act 2004 from €750,000 to €1,000,000.

It is proposed that the BES company limit be increased from its current level of €1million to €2million, subject to a maximum of €1.5 million to be raised in a twelve month period. It is also proposed that the investor limit be increased from its current level of €31,750 to €150,000. The new investor and company limits for BES will apply as respects the tax year 2007 and subsequent years, once the relevant provisions of the Finance Act have come into operation and approval from the European Commission has been received.

There is no government supported incentive mechanism in Ireland for small scale wind but there are a number of indirect incentives, such as the Energy Performance in Building Directive. Comhar previously commissioned a report on Community Renewable Energy in Ireland (2011) as a first step in identifying potential mechanisms for encouraging community renewable energy. The report notes there are several examples of community and locally based wind energy initiatives in Ireland that have been completed or are in development stages. Most of the projects have been established as limited companies, although there are some co-operatives.

Table 2.5
Summary of Ireland's Support Mechanisms compared to international

Mechanism	Ireland	Denmark	Germany	Scotland
Public Service Obligation	€0.06/KWh[28]	around DKK 0.10 per kWh (€0.01)		
Price/Feed-in-Tariff	Onshore wind (above 5MW) €0.07/KWh.	DKK 0.25 (€0.03) supplement to the market price is paid for electricity produced by wind turbines	€8.93/kilowatt-hour (kWh) will be decreased every year for new installations by 1.5%.	Contracts for Difference has replaced Renewable obligation Certificates. Strike price for onshore wind has been reduced by £5/MWh (£95 for 2014/15 to 2016-17 and then £90[29])
Householder/micro	Onshore wind	DKK 0.60 per kWh		£21.65p

[27] See http://www.seai.ie/Renewables/Renewable_Energy_Policy/Policy_Support_Mechanisms/

[28] Commission for Energy Regulation (2012), Public Service Obligation Levy 2012/2013

[29] Scottish Government (2013) '2020 Renewable Routemap for Scotland- Update'

Mechanism	Ireland	Denmark	Germany	Scotland
Price/Feed-in-Tariff	(equal to or less than 5MW) €0.07/KWh.	(€0.08)		(€26.39) kWh up to 100kWH
Repowering			€0.5/kWh (to support the replacement of old turbines by new ones) is restricted to wind turbines that were put into operation before the year 2002	

Two companies typify the changing emphasis in Ireland's energy demand. In its strategic framework to 2020 (published in 2008) the ESB, which showed a €339 million operating profit for 2010, aims to invest approximately half of its total €22 billion investment in renewables, aiming to deliver over 1,400 MW of electricity (one-third of its electricity generation) from such sources. Airtricity, which has invested €1 billion in Irish renewables, sourcing 500MW of renewable energy, announced the creation of a further 105 full-time jobs last October, bringing its total workforce on the island to over 930.

Also, EirGrid has recently made a substantial investment of €600 million in the East-West Interconnector which started commercial operation on 21st December 2012. The Interconnector connects the Irish and UK Grids. The 500 MW interconnector capacity equates to enough electricity to power 300,000 homes. The interconnector paves the way for Ireland to trade renewable energy with the UK.

In a review of Irish energy policy Energy Institute Republic of Ireland (Making the Right Decisions: Irish Energy Policy in Review, April 2011) ESRI's Professor John FitzGerald highlighted that difficulties remain in the form of a backlog of foreshore license applications, barriers to micro-generation, public acceptance of grid development and perceived over-generous on-shore wind supports. However, as we can see from Table 2.5 Ireland's subsidises are lower than the other countries investigated. The next few years will be crucial for the renewable energy sector. The Forfás report (2009) states that progress has been made lately in investing in the grid and by building an East-West interconnector, providing incentives for farmers to produce renewable energy, the development of regional sustainable energy action plans and lowering the capacity threshold for wind farms under the planning laws. With immediate action on removing the remaining barriers (technological, regulatory and planning), the report claims, the employment target of 29,000 green sector jobs could be reached, with renewable energy playing a significant role within that growth.

2.3 Planning Regime

2.3.1 Planning Legislation and Guidance

While the various aspects of energy policy provide the context for the regulation and incentivisation of investment in renewable energy, it is the planning system that plays a key role in facilitating individual projects and determining the ultimate spatial distribution wind energy developments.

National planning legislation in Ireland is set out under the provisions of the Planning and Development Acts 2000-2010 and the Planning and Development Regulations 2001-2013. The Acts set out the primary legislation in relation to the planning system and the

accompanying regulations provide an interpretation of the primary legislation. Planning law makes provision for the preparation of development plans (Part II, Chapter I, Sections 9-17), regional planning guidelines (Part II, Chapter II, Sections 21-27C) and for the determination of planning applications for proposed development (Part III, Sections 32-50B).

Table 2.6 summarises the key legislation and guidelines related to the planning and development of wind energy projects.

Table 2.6
Legislation and Guidelines relating to wind energy

Legislation and Guidance	Purpose and relevance to wind
The Strategic Infrastructure Act 2006 (2006 SI Act)	Amends the Planning and Development Act 2000, makes provision [generally] for applications for permission/approval for specified private and public strategic infrastructure developments to be made directly to An Bord Pleanála. Section 5 (Seventh Schedule) of the 2006 SI Act introduced a specific threshold in relation to large scale wind farm developments (originally >50 turbines or total output >100 megawatts), which has since been amended by the provisions of Section 78 of the Planning and Development (Amendment) Act 2010 to include a reduced threshold of '>25 turbines or total output >50 megawatts'.
Strategic Environmental Assessment (SEA)	Applicable to development plans, renewable energy plans and strategies as land use/town and country planning and energy are mandatory sectors covered by the EU SEA Directive 2001/42/EC, which was transposed into Irish planning law through Statutory Instruments (No. 435 and 436 of 2004, as amended)
Appropriate Assessment (AA)	The requirement for Appropriate Assessment (AA) derives from the Birds Directive 2009/147/EC (codified version of 79/409/EEC) and the Habitats Directive 92/43/EEC. AA, which is linked to SEA and EIA, is the primary mechanism for ensuring the protection of Natura 2000 sites (i.e. natural heritage) and their conservation objectives when considering whether to authorise or adopt a plan or project.
Habitats Directive	Article 6(3) of the Habitats Directive requires an Appropriate Assessment (AA), - (also referred to as Habitats Directive Assessment or Natura 2000 Assessment) to be carried out, where any plans or projects that are not directly linked to the management of a Natura 2000 site, may have a significant effect (either on its own or in combination with other plans or projects) on the conservation objectives and would ultimately affect the integrity of the site. Integrity in relation to Natura 2000 sites can be defined as: 'the ability of the site to fulfil its function to continue to support protected habitats or species'. Annex I to the Habitats Directive includes a full list of protected habitats and Annex II a list of protected species.
DoECLG Wind Energy Development Guidelines (2006)	Provide guidance to Local Authorities on planning for wind energy through the statutory development plan process and in the determination of planning applications. It should be noted that the Guidelines were published before the Strategic Infrastructure Act 2006. There has been no update, or external independent monitoring or evaluation of the 2006

Legislation and Guidance	Purpose and relevance to wind
	Guidelines since their publication.
European Landscape Convention (ELC)	ELC covers the integration of landscape management in all public policy and not just planning policy. In addition, the 2006 Guidelines do not make any provision for the accrual of what is known as 'planning gain'30 nor do they include provision for the creation of a social dividend associated with the development of the onshore wind farm sector in Ireland, e.g. for example the setting up of Community Energy Saving Trust[31].
Local Authority Renewable Energy Strategies (LARES)	Sustainable Energy Authority Ireland (SEAI) initiated a project in 2011 to assist local authorities in the development of Local Authority Renewable Energy Strategies (LARES), which are broader than just wind energy strategies. As part of the strategy development, local authorities are encouraged to use the SEAI methodology on the assessment and definition of renewable energy resources.

2.3.2 Local Authority Renewable Energy Strategies

There are various options in producing a LARES, which are entirely at the discretion of each local authority. The options include:

- Integrate Renewable Energy Strategy (RES) into the review of the statutory County Development Plan and carry out one Strategic Environmental Assessment (SEA), e.g. Waterford County; and
- Carry out RES separately to the statutory County Development Plan and undertake Strategic Environmental Assessment, e.g. Clare, Mayo, Galway, Kerry. The RES can then be adopted by way of an amendment to the CDP.
- Incorporate the LARES entirely into the CDP.

The extent to which a SEA is carried out, or required to be carried out, will be affected by the decision taken in this regard.

The SEAI methodology aims to facilitate consistency of approach in the preparation of RES, and to assist local authorities in developing robust, co-ordinated and sustainable strategies in accordance with national and European obligations. The methodology also aims to address the most common issues regarding RE technologies and projects. However, issues discussed are not exhaustive and local authorities are advised to always analyse and amend in the context of their own jurisdiction and setting. It should also be acknowledged that, while local authorities have a responsibility for their own organisational energy performance, this is not the primary focus of the LARES methodology.

Local authorities are the agencies of first contact in Ireland for developers pursuing wind energy projects. Each local authority publishes County Development Plans which should

[30] In the UK, planning gain (also known as planning agreements) is provided for under Section 106 Agreements, under S106 of the *Town and Country Planning Act 1990 (as amended)*.
[31] See http://www.energysavingtrust.org.uk/Communities

identify areas suitable for wind energy development following SEAI's methodology. This provides guidance to developers with regard to zones within which wind energy projects will be encouraged, considered or discouraged. This helps mitigate the potential impacts on place through the published spatial guidance from the planning authority. An example of this is provided in Figure 2.2 showing Clare County Development Plan's Wind Energy Designations.

Figure 2.2
Clare County Development Plan 2011-2017: Wind Energy Designations

Source: County Clare Development Plan

The Department of the Environment, Community & Local Government (DoECLG) published guidelines in 2006 for local authorities to develop their wind strategies which include guidance on distance from dwellings, items to be contained in environmental impact studies, noise levels and shadow flicker mitigation. These guidelines provide a guide to local authorities for determining their own policies on wind energy development and in determining applications for wind turbines and wind farms. While these guidelines have been invaluable in orientating the planning system to consider wind energy development, it is notable that the issue of community acceptance is not explicitly considered, with an emphasis on the technology and environmental impacts of wind energy development, rather than its social consequences.

Table 2.6 compares Ireland's 'impacts on place' regulations with the international cases. Further information on noise can be found in Marshall Day Acoustics (2013).

Table 2.6
Ireland's regulations compared to international

Regulation	Ireland	Denmark	Germany	Scotland
Distance from residences	500m between commercial scale turbine and curtilage of property. (Less can be accepted with written agreement from owner).	Four times total height of turbine.	200 metres to 1500 metres depending on nature of region.	Ten rotor diameters.
Noise (frequency)		20 dB indoor night-time limit for low frequency (pitch) noise during wind speeds of 6 and 8 meters/second	Residential areas, the night time limit is 35 dBA. Up to 55dBA absolute limit.	
Noise (level)	40dBA outdoor limit at any wind speed day or night. (consultation until 21st February 2014)	Residential areas, the outdoor limit is 39 dBA at wind speeds of ~18 mph (8 meters/second) and 37 dBA at ~13 mph (6 meters/second)		35 dB(A) to 40 dB(A) for the daytime; 43 dB(A) for the night-time; and 45 dB(A) for 'involved' properties regardless of the time of day or night. (i.e. ETSU-R-97)
Shadow flicker			Maximum 30 minutes/day.	No regulations or guidelines but scope to vary layout / reduce the height of turbines in extreme cases

At present there is however a substantial variation in how counties consider the variables which determine their wind energy strategies. SEAI recommends the adoption of a standardised methodology for preparing wind energy strategies and policies for county development plans and proposes Local Authority Renewable Energy Strategies (LARES) could lend themselves to easy adaption and adoption for regional development plans.

An example of how different counties are developing their own policy relates to community benefit. Some counties, such as Mayo County Council have prepared a draft policy document on Community Benefit Contributions for certain major developments. An installation for the harnessing of wind power for energy production (a wind turbine) would be required to pay €2,500/MW per annum, high voltage electricity lines will be required to pay for 110kV €500/kilometre; 220kV €1000/kilometre and 400kV €3000/kilometre per annum. The Community Fund would be managed by the Community and Integrated Development Section of Mayo County Council and be used for the purposes of supporting community initiatives. Projects or programmes that may be funded will be limited to; the provision or improvement of amenity facilities, recreational facilities, cultural or heritage facilities; the protection or enhancement of the environment and programmes to promote social inclusion and community development.

Another key aspect of regulating wind energy development relates to the impact on landscape. The Landscape and Landscape Assessment Consultation for Local Authorities Guidelines (2000) were published by DoELG in June 2000 and have remained in draft form for more than 13 years, – they are pre the European Landscape Convention (ELC), pre the UNECE Aarhus Convention, omit Historic Landscape Characterisation (HLC), omit the concept of setting, omit landscape assessment for urban areas, lack robust seascape assessment guidance, and are generally not 'fit for purpose'.

Ireland is currently without a National Landscape Strategy (NLS) or any regional landscape strategies to inform the spatial planning of wind farm development. County-wide Landscape Character Assessments (LCAs) vary greatly in methodology, consistency and quality (Heritage Council, 2009).

Clearly, the environmental assessment of proposed onshore wind farm developments is a complex and multi-layered issue, which has implications for Ireland's national heritage and the overall management of such shared landscapes, which have evolved over many centuries. The evolution and growth of the sector has resulted in a growing awareness that the specific cumulative impacts need to examined and assessed more rigorously and thoroughly than before when the sector was in its infancy. It should be noted that Visual Amenity Studies[32] can be a useful part of statutory land-use plans but are not a widely used landscape management tool in Ireland, at present.

2.4 Industrial Practice

The Irish Wind Energy Association (IWEA) first published its "Wind Energy Development Best Practice Guidelines" in 1994. This was updated in 2008 to reflect the significant changes in the industry in the intervening years and have been revised more recently in 2012. The revised and updated guidelines encourage and define best practice development in the industry.

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 impact on landscape and having a fair and open planning process, are key factors influencing community acceptance of wind farms. The IWEA Best Practice Guidelines for the Irish Wind Energy Industry (2012) address both these issues, in Chapter 6 (Environmental Impact Assessment) and Chapter 11 (Community Engagement) respectively.

Section 6.3.8 (Landscape and Visual Impact Assessment) of the IWEA Guidelines states that landscape has two separate but closely related aspects. The first is visual impact, i.e. the extent to which a new structure in the landscape can be seen. The second is landscape character impact, i.e. effects on the fabric or structure of the landscape. Landscape character is derived from the appearance of the land, and takes account of natural and manmade features such as topography, landform, vegetation, land use and built environment and their interaction to create specific patterns that are distinctive to particular

[32] See Campaign to Protect Rural England website - http://www.cpre.org.uk/what-we-do/countryside/tranquil-places.

localities. Landscapes also embody the history, land use, human culture, wildlife and seasonal changes of an area.

The IWEA Guidelines contend that visual impacts are subjective; however the Guidelines present a methodology whereby they can be assessed objectively and using professional judgement. This involves an assessment of the sensitivity of potential views (receptors) which will depend on a number of factors relating to the viewpoints such as the recreational use of the area, cultural or historical significance, number of potential viewers, natural features in the area, general impression of the views, etc. The effect of the proposed development needs to be determined in order to define the potential significance of impact on selected viewpoints. Landscape impacts are concerned with the effects of development on the elements, characteristics and the character of the landscape.

The IWEA Guidelines (2012) note the requirements for detailed landscape and visual impact assessment for any wind farm of a scale that requires an EIS. Sub-threshold development will also need to address landscape and visual impacts but this can usually be done in more compact form subject to the sensitivity of surrounding landscape conditions. With regard to cumulative landscape impacts, the IWEA Guidelines note that as the wind energy industry has developed and more wind farms are permitted, the potential cumulative impacts are increasing in significance. This needs to be clearly addressed in the cumulative landscape and visual impact assessment. For wind farm developments with a proposed tip height of over 100 m, the Guidelines recommend the cumulative impact should be assessed over an area at least 20 km from the proposed development as set out in the DoEHLG Wind Energy Development Guidelines. For smaller tip heights, an area of at least 15 km from the proposed development will need to be considered.

The Guidelines endorses the advice be found in the document ‘Visual Representation of Windfarms Good Practice Guidance’ published by Scottish Natural Heritage ‘and Guidelines for Landscape and Visual Impact Assessment (Third Edition)’ published by The Landscape Institute and IEMA, 2013.

Section 6.3.12 focuses on the Human Impacts associated with Windfarms and considers the following key potential human impacts:

- socio-economic i.e. the interaction of social and economic factors
- recreation and amenity
- roads, traffic & transport
- land use
- health and safety
- noise (see Section 6.3.2)
- shadow flicker (see Section 6.3.3)

IWEA recommends that the socio-economic assessment will need to consider the impact of the proposed development on employment, economic, tourism and population issues. The Guidelines observe that to date these assessments have been largely broad based estimates; however, there is a trend towards increasingly detailed economic and social assessments.

Community Engagement is covered within the guidance and highlights a number of publications which provide guidelines and methodologies for undertaking community engagement such as the DoEHLG Wind Energy Development Guidelines 2006 and the

Monaghan Model[33]. The legislative requirement for community engagement is based on the requirements set out in various EU directives, particularly the Environmental Impact Assessment Directive (85/337/EEC).

The IWEA Guidelines suggest it can be considered that the planning process meets the minimum requirements of community engagement required to satisfy current legislation. However, current best practice in wind energy development is that direct engagement between the developer and the local community in some form should be undertaken. This section sets out a framework for such engagement. While such engagement is not required by law (at the moment), higher levels of community engagement will increase the likelihood of project success through the lifetime of the project.

Table 2.7 highlights the Main Best Practice Points promoted by the IWEA Guidelines 2012:

Table 2.7
Community Engagement – Main Best Practice Points

Community Engagement – Main Best Practice Points (IWEA Best Practice Guidelines, 2012)
• well planned community engagement is likely to increase the success for the development • engagement with the local community is recommended at each relevant stage of the project, e.g., early project stages, EIA and planning, construction, and operation • approaches to be taken to community engagement will vary, depending on the stage of development of the project

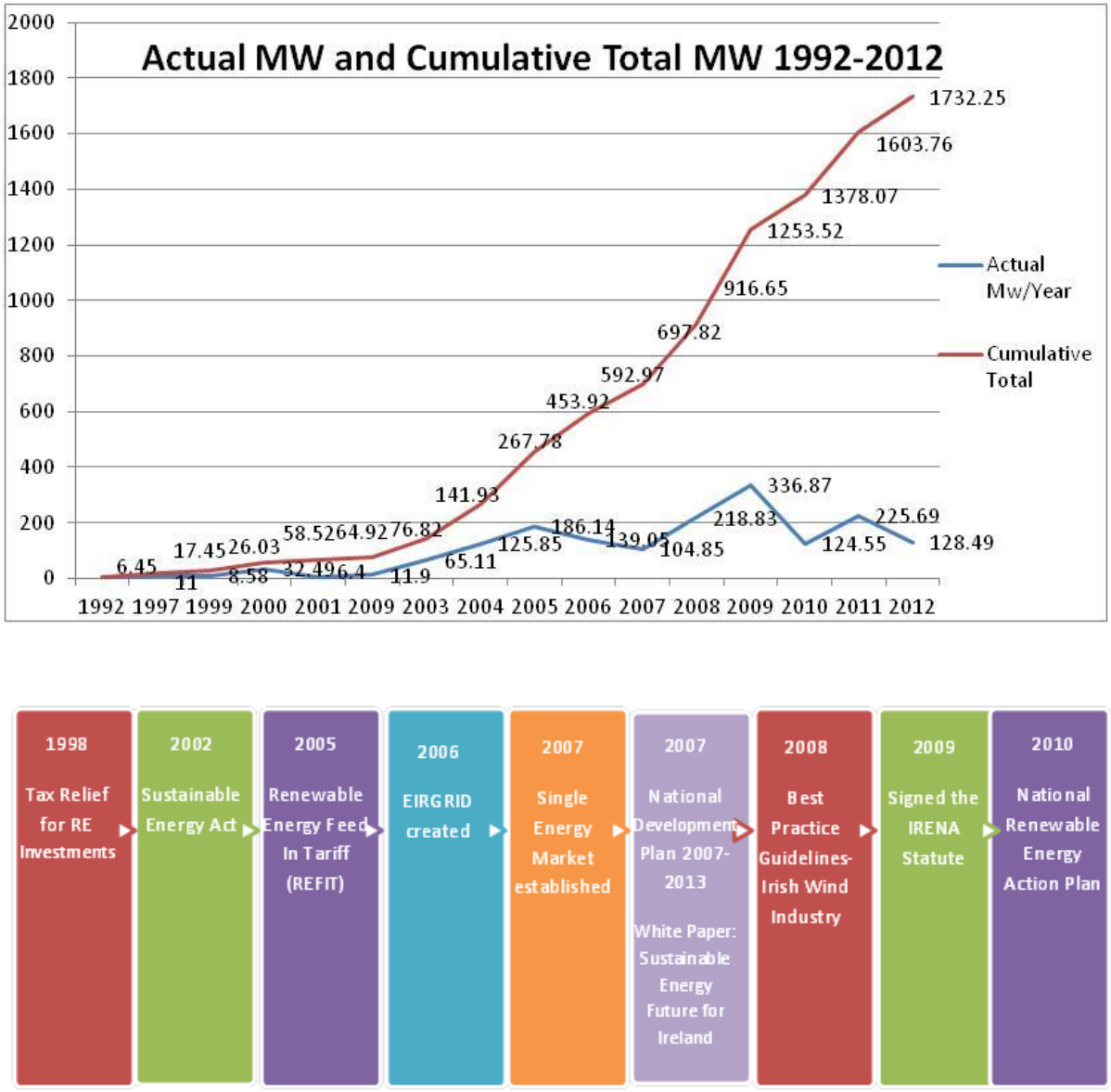
The IWEA guidance briefly mentions Direct Community Benefits, stating "There is a wide range of models for the deployment of direct community benefits in practice. These range from project specific plans which vary from site to site to formal structured models with managed funds, specific listed criteria and independent monitoring" (IWEA, 2012: 85); however, no further guidance or recommendations are provided in this regard.

2.5 Development of wind farms in Ireland

There has been a relatively steady pace of development of wind energy deployment in Ireland since 1992 as illustrated in Figure 2.3. The actual MW per annum across all counties is shown below. It can be seen that there have been years (2005, 2008, 2009 and 2011) when development has been at a higher rate compared to other recent years. Below this are the main policy developments over this period.

[33] http://www.monaghancommunityforum.ie/uploads/Resources

Figure 2.3
Annual and Cumulative wind farms connected in Ireland



Source: Adapted from International Energy Agency: Renewable Energy County Profile- Ireland

The current state of wind energy at a national level is summarised in the table 3.7. Appendix A provides information on the scale of wind farm developments in Ireland to date.

Table 2.7
Current State of Wind Energy Industry in Ireland

Key Statistics	
Peak Electricity Demand to Date	5,090 MW
Installed Wind Capacity (Dec 2012)	1,732 MW
Maximum Wind Output to Date	1,506 MW
Wind's Contribution to Electricity in 2012	15.3%**
Renewable Contribution to Electricity in 2012	19.3%**
Wind TWh 2012	4.1TWh*
Wind Farm Capacity (Jan 2013)	All Island 2195 MW Republic of Ireland 1752 MW

Notes:
* Preliminary Estimate
** Preliminary Estimate, Normalised – 3 year moving average

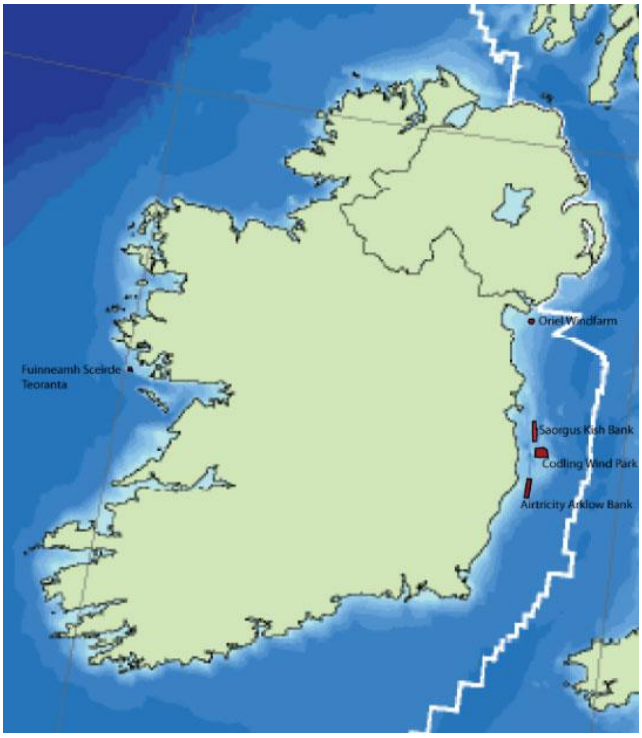
Source: SEAI 2013

2.5.1 Offshore wind

Ireland has an excellent offshore wind resource that compares favourably with the best in the world both in terms of consistency and strength. This makes Ireland an ideal location for the development of both offshore wind farms and research and development facilities. The SEA on the Offshore Renewable Energy Development Plan (OREDP) indicates that there is potential for development of fixed wind turbines generating up to 12,500 MW of energy. In addition to this they estimate that in deeper waters over 25,000 MW energy could be generated with floating turbine technology.

At present there are 5 companies actively involved in developing offshore wind energy projects in Ireland; these are SSE Renewables, Oriel Windfarm, Codling Wind Park, Dublin Array and Fuinneamh Sceirde Teoranta. The only offshore wind farm constructed to date is the first phase of the Arklow Bank project, the first phase of a 500MW project. Two of the offshore wind projects Codling Wind Park and Oriel Wind Farm have received consent and grid offers. The other companies in NOW Ireland[34] have projects at various stages in the permitting process. It is estimated that the total of capacity of these sites will feed over 2600MW of energy into the national grid. This equates to a total investment in excess of €8bn between now and 2020 from these projects alone.

Figure 2.4
Offshore Wind Farm Projects in Ireland



Source: NOWIreland

[34] The National Offshore Wind Energy Association of Ireland was established to promote the development of Ireland's substantial offshore wind resource.

2.6 Future development of wind energy in Ireland

There are continued pressures and aspirations to develop onshore wind energy in Ireland. In addition to the 2020 targets the SEAI Wind Energy Road Map to 2050 states that:

- Given favourable developments in policy and infrastructure, Ireland can achieve deployment of between 11GW - 16GW of onshore wind and 30GW of offshore wind by 2050.

Given that Ireland's current total installed capacity is 2.2GW generated from 192 wind farms in 26 counties[35] this indicates the need to develop a considerable number of onshore wind farm sites of medium scale or fewer of large scale.

- Wind energy has the potential to generate enough electricity to exceed domestic demand by 2030 and a comparison of electricity demand and wind generation potential shows the capacity for Ireland's wind market to become export driven in the 2020–2030 timeframe.

The potential to exceed domestic demand and the ability to export raises questions about the social acceptability of providing power for other nations whilst bearing the 'cost' of generating that power. Export potential goes beyond the arguments for decarbonising, self-reliance, sustainability and energy security as drivers for social acceptance and opens up the potential for Ireland's wind energy resource to be developed to its greatest economic capacity, estimated to reach almost €15 billion by 2050. As mentioned before the Irish and UK Governments have signed a MoU on energy cooperation that could lead to the harvesting of Ireland's wind resource for the export market.

2.7 Social acceptance of wind energy in Ireland

At a national level, research suggests that Irish people are in favour of harnessing wind power (Ipsos/MRBI 2013), which may reflect tacit socio-political acceptance; but as has been found in other contexts such as the UK, public support is fragile and conditional and some local and national public opposition has been in evidence in recent years in Ireland. This may be due to early wind farm developments in Ireland being predominantly small scale and obtaining planning permission with relative ease. However, as the sector grows and in response to national targets larger scale projects are being developed and some of these are being subjected to organised local objections to planning applications. It is timely, therefore, to investigate the role of social acceptance in the future development of on shore wind in Ireland.

In 2011, SEAI, commissioned a study to review the context for enhancing community acceptance of wind energy in Ireland (SQW, Ellis 2012). The report sought to:

- engage stakeholders to work towards a consensus position on the concept of community acceptance of wind energy in an Irish context and increase their appreciation of its role in delivering renewable energy targets in Ireland;
- stimulate discussion of the key factors influencing community acceptance of wind energy in Ireland;
- highlight the issues that should be considered by stakeholders in Ireland in order to further increase community acceptance in Ireland; and

[35] IWEA accessed 10.10.13

- identify the initiatives and next steps for progressing this issue involving a broad range of stakeholders.

This earlier SEAI work developed an outline good practice methodology for increasing community acceptance through understanding the building blocks of social acceptance. These are discussed further in Chapter 3.

3.0 THE CONCEPTUAL FRAMEWORK

3.1 Introduction

The international research (Wind Energy: International Practices to Support Community Engagement and Acceptance) provided a context within which to consider the national research. It set out the key contexts and processes in the development of onshore wind in relation to social acceptance in Denmark, Germany and Scotland. In a similar way to the international countries studied, Ireland is in the process of transforming its energy system such that a greater contribution is generated from renewable sources including onshore wind energy. The study has focussed on the processes within this energy transition by which onshore wind and its associated grid connection is achieved in terms of social acceptance and community engagement. This chapter provides an insight into some of the conceptual issues that could help frame a better understanding of how Ireland's energy system has developed in this way, and the scope of intervening to alter its trajectory, if that is required.

3.2 Social Acceptance

As noted in the international report, energy systems are essentially socio-technical systems so any particular pathway will provide different social groups with different opportunities and threats. The degree to which any particular pathway manages to secure broad social buy-in has given rise to the notion of "acceptance". Although this is often focussed on the communities that live immediately around specific projects, it is useful to consider acceptance as a more complex and far–ranging concept. The following table presents the key aspects of social acceptance.

Table 3.1
Aspects of social acceptance

Aspect of social acceptance	Meaning
Socio-political acceptance	"Public opinion" and therefore reflected in the tone of debate in the media and politics about the value and viability of wind as a source of energy. Has a direct impact on the degree of support offered by national institutions, such as subsidies, planning policy etc.
Market acceptance	The degree to which financial institutions, in the broadest sense, accept wind energy and as such is reflected in the way banks and project developers view wind as a viable area for investment, as well as how energy suppliers, utilities and grid owners and electricity consumers are willing to accept wind energy as part of the energy supply mix of the country.
Community Acceptance	The degree to which people living in the immediate surroundings and who often bearing most of the direct external impacts of wind energy accept specific wind energy projects.

Source: adapted from Wustenhagen et al (2007)

However, acceptance is not necessarily distributed equally across each of these levels. Broad socio-political and market acceptance of wind energy appears to have secured a strong foothold in Europe and other wind-rich nations from the 1990s onwards. While acceptance in these areas cannot be taken for granted, it is the level of community acceptance that currently offers the greatest challenge for Ireland and elsewhere and due to the inter-dependent nature of each of these aspects of social acceptance. A reduction in community acceptance could mean increased and more widespread opposition to wind

energy projects within communities which in turn could lead to reduced levels of acceptance within the socio-political and market arenas. We therefore need to acknowledge that these aspects of social acceptance are dynamic and interactive not static. This in turn reinforces the complex nature of society-technology interactions and how an energy transition based on increased generating capacity from wind energy, relies on a very broad and inter-linked transition that can be constrained by factors that may lie some way beyond the direct deployment of energy projects.

3.2.1 Key factors influencing Community Acceptance

Media reports and a review of community action websites indicate that market and socio-political acceptance are less significant constraints on the deployment of wind energy in Ireland than community acceptance. Also research indicates that reducing the use of finite resources takes precedence over climate change as a public value that leads to support of renewable energy solutions[36]. For example, opinion polls generally show high levels of public support for wind energy generally (e.g. 80% of adults, *Ipsos/MRBI poll, 2013*). There are indicators however, that community objections are increasing, and for example the mobilisation of national and regional scale anti-wind farm groups such as CREWE and the Midlands Alliance[37]. So it is worth specifically considering the main issues that appear to influence the degree to which local communities are prepared to accept wind energy projects that are proposed by external developers. Although these factors will be discussed at length later in the report, the policy and academic literature appears to offer consensus that community acceptance is driven by impacts on place, trust and issues of justice, as shown below:

Table 3.2
Factors influencing community acceptance

Factor	Meaning	Possible means of address
Impacts on Place	This includes health and environmental impacts, i.e. concerns around the specific changes to the places in which people live, brought about by the wind energy project. The most significant concerns appears to be around the degree of visual intrusion, noise, bio-diversity and broadly, local well-being. These impacts are also about subjective aspects of change and development – impacts upon people-place bonds and place-related identities (Devine-Wright, 2009).	Spatial regulation/planning. Improved design. More sensitive impact assessment. Agreed guidance for impacts such as noise, shadow flicker and visual impacts.
Issues of Justice – Procedural Justice	Concerns that decisions related to wind energy projects are not taken in an open or fair way, leading to resentment that a project has been foisted on a local community, rather than accepted by choice. This can	Improved procedural design, increased use of participatory methods of engagement and a potential role for intermediaries (e.g. community liaison officers) that are situated

[36] A UK Energy Research Council report in 2013 confirmed the number of climate change "deniers" has quadrupled in Britain since 2005.
[37] (http://www.crewe-ireland.org/)

Factor	Meaning	Possible means of address
	arise from several sources: a lack of trust in developers and regulators (Walker et al, 2011); a lack of transparency of the consenting regime that may be influenced by past experience; and poor quality of formal or informal consultations, for example in terms of transparency, sufficient information provided, time for communities to respond, willingness by developers to listen to local concerns and evidence of opinions being taken into account. (Devine-Wright, 2011).	between developers and affected communities (Devine-Wright, 2012).
Issues of Justice – Distributional Justice	The perception that while local communities may have to bear the main impacts of a wind energy proposal (as outlined above), it is external bodies, particularly developers, that accrue most of the benefits.	Procurement policies to maximise local benefits from construction and operation, within EU rules. Community benefits and changes to the ownership profile of the wind industry to promote local ownership.

These factors will combine in complex ways around individual project proposals. We can understand this as reflecting the conceptual framework discussed above (and in the international report), in that the reactions to a local project (i.e. niche) can be strongly influenced by the wider regulatory context (i.e. regime) and the broader societal values around energy and related issues such as climate change (i.e. landscape). Community reactions are also likely to be influenced by the very specific context including local power relations and place-attachment (Devine-Wright, 2009) and as noted can be partly determined by previous community experience with major development proposals or interactions with local regulatory agencies, so that it also displays a degree of path-dependency.

3.3 Transition Theory and Ireland's Energy Transformation

The perspective of an energy transition (as discussed in the International report) also provides two other important insights into thinking about the future options for transforming the Irish energy system. The first of these is that because the nature of any transition is dependent on the interplay of the different actors, resources and institutions operating within any specific jurisdiction or territory, the nature of a successful transition management approach in Ireland (or anywhere else) will be highly *context dependent (*Bridge et al., 2013). This can be conceived in terms of the broad social context (knowledge, expectations, distribution of powers/costs/benefits, behaviours etc), the economic context (natural resources, availability of capital, subsidies, value, costs/benefits), the regime context (actors, practices, expected norms, powers/policies of government) and the specific sites or places where technology projects are located (Devine-Wright, 2011). It is therefore important to carefully consider the nature of these contexts in Ireland to identify the specific opportunities for transforming the energy system, while understanding the constraints of transferring potential lessons from elsewhere.

The second insight relates to the fact that any transition will depend on a complex set of dynamic *processes* at different spatial scales ranging from structural shifts in global markets to the development of enhanced generating capacity through the commissioning of individual wind energy projects. Through such processes, a wide range of actors will interact with each other, also at different scales, including enhanced international agreements or forge new regulative strategies. At a more local project level this may lead to the development of productive relationships for the development of further infrastructure, or resulting in developing mistrust that could frustrate future projects.

For the purpose of this report we will seek to develop insights into the challenges facing the transition of Ireland's energy system through a focus on the specific *contexts* of wind development in the country (such as through the case studies examined in Chapter 4) and to view dynamically by highlighting the different *processes* that drive or hinder how the energy system develops along a particular trajectory. This comes together to describe specific *pathways* of energy transition.

3.4 Future Energy Pathways

A longstanding way of understanding the direction in which an energy system can evolve is the idea of *pathways*, typified by Lovins (1977) as either being "hard" or "soft". A "hard" energy path is how we have traditionally organised energy systems, largely based around centralised fossil fuel power stations that have high levels of inbuilt inefficiency. In contrast, Lovins suggested that a "soft" pathway can be more socially-orientated and is typified by more decentralised, flexible systems, often based on renewable energy systems that may have local ownership structures with good relationship between energy generators and energy users, giving rise to improvements in energy efficiency. Since Lovin's original conception of energy paths, there has been substantial theoretical development of how this can be used to understand the development trajectory of energy systems.

Many Governments have recognised that inducing a transition from 'hard' energy systems to 'softer' versions offers substantial benefits for mitigating against climate change, increasing energy security and reduces potential risks linked to diminishing fossil fuel reserves. Although such transitions are perceptible in most European energy systems, these are clearly adopting very different trajectories and speed of transition. This can be explained by appreciating how the different *contexts* and *processes* in each country may construct particular aspects of *path dependency*, for example those system that have more deeply entrenched centralised systems of generation and distribution will face additional difficulties in shifting to softer paths and as a consequence may incrementally adopt alternative strategies to achieve the same long term goals. This suggests that the range of influences on transition management are highly dependent on the existing practices and structures (for example infrastructure, industrial profile or lifestyles) that may have developed to support former technologies and as such represent a degree of 'lock-in' (Unruh, 2000; 2002) to future practice, making transformation even more challenging. This therefore suggests that the context of the Irish energy system needs to be carefully considered in terms of the structures that have locked the existing system into particularly pathways of development, and to consider the types of "new pathway creation" (Simmie 2012) needed to stimulate more desirable outcomes.

Therefore in conceptualising such complex shifts in the energy system, we should understand this as a socio-technical system and that fundamental change should be understood as a transition, which can be influenced at a range of different scales, at different timescales and by a co-evolution of society and technology. In focussing on how this has, and will continue to, develop in Ireland this study focuses on the opportunities and contrasts provided by the specific *contexts* of wind energy development and how key actors interact

through various *processes* or regulatory change and infrastructure development. Both contexts and processes can be combined to define the *pathway* in which Ireland's energy system will continue to develop and that alternative pathways can be envisaged that could elucidate the types of initiatives and risks that could influence the ultimate trajectory of change.

Given the large investments that have been planned in energy generation and distribution in Ireland (e.g. more than 3 billion Euros by EirGrid in network investments by 2025; more than 5 billion Euros invested by private companies in renewable energy projects to meet the 2020 objective of 40% electricity from renewable sources, Crowley et al, (2012) and the potential for 'lock-in' to certain pathways of technology implementation and service delivery (Unruh, 2000), it is both timely and necessary to undertake this analysis now, to inform policy making and practice regarding energy transitions.

Conclusion

In the case of Ireland's energy system, one can envisage the breadth of the changes required to ensure wind can form the core basis of the energy system and even a source of energy export. This will require major infrastructural change, in the shape of decentralising the grid, introduction of smart grid and increased interconnection to surrounding jurisdictions. It is likely that this will also have to be accompanied by increased electrification of major energy dependent sectors such as heating and transport, as well as improved energy storage. While these may be highly technologically dependent, such changes would have to be accompanied by new regulatory regimes, pricing mechanisms and consumer behaviour that supports these broad changes

The insights in this chapter into the conceptual issues of social acceptance have been applied as a framework to explore and understand the issues relevant to the national analysis and reflect on the findings from the international comparative analysis.

4.0 EXAMPLES OF NICHE WIND ENERGY DEVELOPMENT

4.1 Introduction

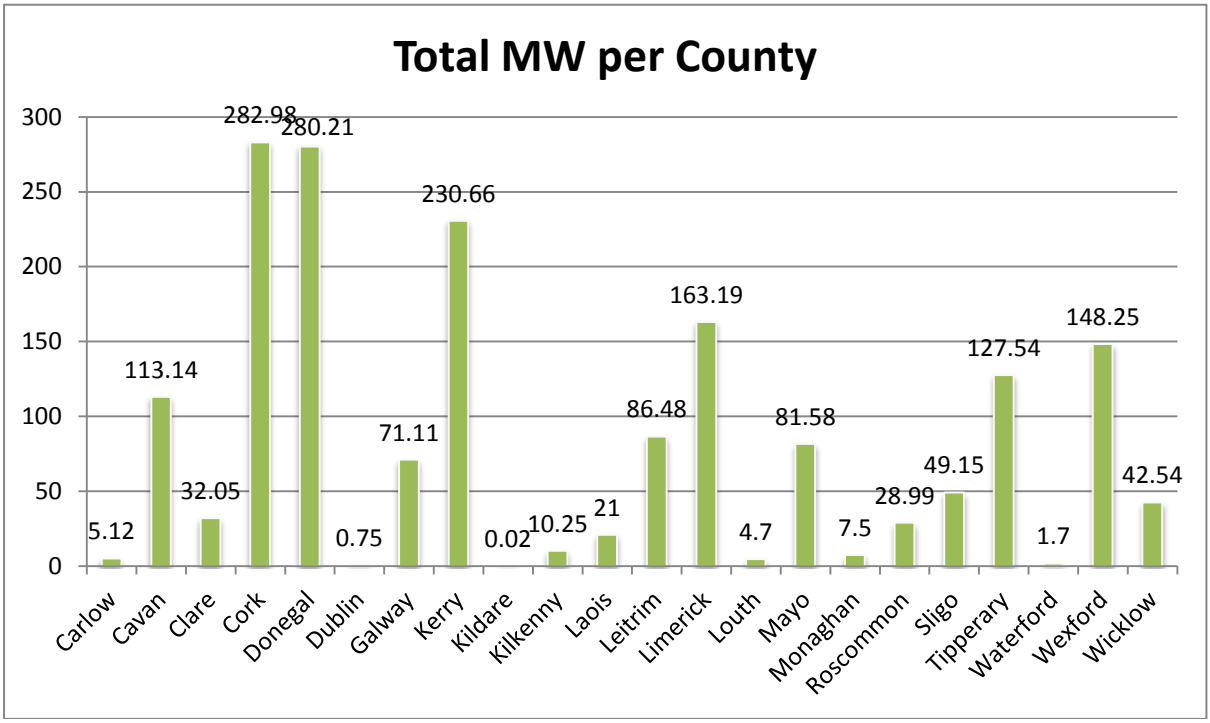
This section explores the nature of onshore wind energy development in Ireland. This is viewed through the conceptual lens of the study such that each project is seen as a development niche within the wider regime context. As discussed in Chapter 3, technological niches form the micro-levels contexts where radical novelties can emerge through innovative practice. In the example of community acceptance in wind energy this could, for example, be new approaches at engaging with local communities or sharing the benefits of wind energy through innovative initiatives such as discounted electricity or share ownership.

In this chapter it begins by briefly describing the distribution of wind development by County and then, providing a profile of those involved in the development of wind energy projects. It then goes on to describe five different examples of how different contexts and processes promote and potentially frustrate the emergence of new forms of development. The aim of exploring these examples is to help illustrate the different elements of social acceptance in this context, increased community engagement and more effective public participation.

4.2 Wind energy deployment at county level

While the national regulatory regime does play a crucial role in encouraging the socio-political and market acceptance of wind energy, it is at the more local level that issues of community acceptance are predominantly determined and where they gain more leverage over the overall rate of deployment. It is also important to recognise that each locality will have a different set of factors and drivers that emphasise the characteristics of place. While this can be understood at the level of the individual projects, it is useful to understand how different development and planning strategies have been implemented within individual counties. The differential development of wind energy projects across each county is shown in the chart below. This indicates a predominance of development in terms of MW output in Cork, Donegal, Kerry, Limerick, Tipperary and Wexford. The main factor for explaining these differences is the availability of the wind resources combined with landscape protection policies, but other factors do feature if we begin to look at the context at play within each county.

Figure 4.1
MW wind energy developments per County[38]



Source: IWEA

4.3 Typical models of development

Energy systems can be typified by being either “hard” (i.e. centralised, large scale) or “soft” (decentralised, community orientated) as outlined earlier.

Figure 4.2 implies that while larger scale (over 50MW) “hard” developments more effectively maximise the wind resource and have a greater impact on generating capacity; they may experience lower levels of social acceptance and therefore the smaller (20MW-50MW and less than 20MW) schemes make up the majority of the installed capacity. Wind farms have been developed at a range of scales (see Appendix 1) across the country; however, this has been predominantly below 20MW until recent years. The typical process of wind farm development is outlined in Appendix B which illustrates the complex and high risk nature of such projects.

4.3.1 Community Wind Farms

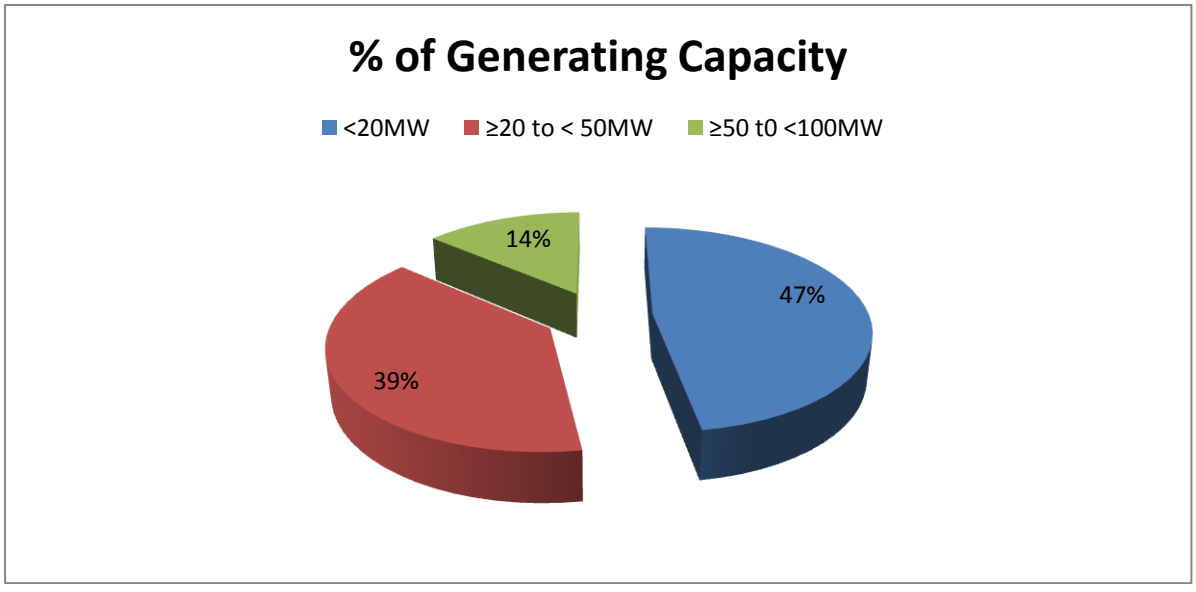
The potential for community owned wind farms was explored by an earlier SEAI study (2004)[39]. This study was delivered by the Renewable Energy Partnership (Brí Nua Community Wind Energy Group, Mayo Community Wind Energy Group and the Western Development Commission) who sought to investigate the potential for communities to benefit from the establishment of wind farms in their region. This study concluded that 100%

[38] includes contracted but not connected wind farms
[39] www.seai.ie ‘To Catch the Wind’

community owned wind energy projects would present significant resource challenges, and that the levels of risk and uncertainty were considered too high. Four main barriers were identified; insufficient policy framework; insufficient support structures; a lack of access to finance and grid and planning delays and issues. However, the study encouraged community groups to consider participating in commercial projects once such projects have secured: planning consent; a grid connection agreement; and a contract for the sale of electricity.

However, the project also produced a step-by-step guide to assist community groups throughout Ireland to create their own investment vehicles for wind farm projects. The guide explains the challenges facing developers and provides example investment models (including EU examples) applicable to community groups. A later study (Comhar 2011) recognised the importance of community based energy generation in "job creation, local income generation, enhancing support for renewable projects and ensuring community involvement in Ireland's transition to a low carbon society[40]". A Community Energy Map was developed as part of this research to outline the status of community energy projects in Ireland[41]. Appendix 1of this report shows the breakdown of wind farms in Ireland below and above 20MW. This illustrates a predominance of small to medium wind farms (45 below 20MW) compared to 22 between 20 and 50MW.

Figure 4.2
Percentage of Generating Capacity of Irish Wind Energy Projects by Scale



4.4 Selection of Niche Examples

A 'longlist' of potential niche examples of wind farm developments was drawn up and appraised for potential lessons in energy transformation. The examples were selected to

[40] Comhar, Sustainable Development Council (2011) *Community Renewable Energy in Ireland, p1.*
[41] The community energy map is available at; http://maps.google.com/maps/ms?msid=205686614549395399468.000491dbb6301636dee1a&msa=0

reflect a range of different communities within Ireland. Five case studies were identified to illustrate how various technological niches, regulatory regimes and socio-technical landscapes can influence the delivery of wind energy and thus contribute qualitative insights onto the potential development of future energy pathways for Ireland. Each case study has a different model of ownership (ranging from 100% community ownership through partial community to private developer and semi-state ownership, respectively); different levels of public consultation and community engagement; varying 'ages' and regional settings, and mixed levels of opposition in the pre-planning, planning and commissioning stages. The 'age' of project is relevant in assessing the cumulative impact effect on social acceptance of wind farms. Not all of the reviewed wind projects are operational. Some are in early to mid stages of planning approvals, and provide 'live' insights into highly topical issues of both social and community acceptance of renewables in Ireland in 2013.

The table below summarises the rationale selection.

Table 4.1
Case Study Selection

Wind Farm	Regional Location	Reason for selection
Case Study No 1 Templederry	Tipperary	100% community-owned and commissioned wind farm (2012), the first of its kind successfully developed in Ireland.
Case Study No 2 Oweninny	North-west County Mayo	100% ownership by a joint venture of two semi-state energy bodies (Electricity Supply Board (ESB) and Bord na Mona), currently engaged in an extensive community engagement process for a commercial scale wind farm on cutaway bog in northwest Mayo.
Case Study No 3 Private developer	Kerry Galway	100% ownership by a privately Irish-owned, commercial developer, with a portfolio of successfully commissioned wind projects, but with little community engagement outside of the statutory process.
Case Study No 4 Meitheal na Gaoithe	Range of projects in Kilkenny/ South Tipp/ Wexford area	A process of wind energy development that results in 100% ownership by a 'community of interest' (landowners) within a community of locality setting, with a moderate degree of local community engagement.
Case Study No 5 Connemara wind energy	Range of projects in Connemara Gaeltacht	An area that initially accepted locally owned small projects, but are now experiencing changing attitudes linked to the cumulative impact of externally developed large projects, within a populated zone, close to Galway city.

4.4.1 Case Study Methodology

Once selected, each case was examined as follows:

- Data on the selected case studies were compiled through desk research initially, sourced from company or community literature and websites, county planning systems, national and local media, and representative organisations' websites.
- Consultations of a range of stakeholders were conducted to provide an understanding of the key drivers and constraints for wind deployment in Ireland. Consultees ranged from community developers, activists and oppositional alliances; county planners;

landowners; private and semi-state developers; intermediary organisations, academics, environmental groups and NGOs.

- Additional interviews were conducted with national and regional energy agencies, as well as semi-state energy companies, to provide both policy and strategic infrastructural overview.

4.4.2 Presentation of results

The examples have been presented in a case study narrative, although they represent a mixture of:

- Two examples of wind energy projects, one community led, one large scale developer led (Cases 1 & 2)
- An example of a developer's approach to project development (Case 3)
- An example of community of interest organisation that supports the process of developing wind energy in general and where specific projects arise (Case 4)
- A regional example of development with both community and commercial developments (Case 5)

For each case study the following information is presented:

- The social context;
- The development context;
- Description of development;
- Process of development
- Project finance;
- Community engagement;
- Key points that contribute to a broader understanding of the contexts and process shaping the Irish energy system.

In reviewing each case study the indicative rating of community acceptance is discussed based on the levels presented in Table 4.2.

Table 4.2
Rating of community acceptance levels

Level of acceptance	Acceptance response	Indicators	Case study rating
High	Active support	Few objections, extensive community engagement that is in favour of the scheme.	Case study 1 based on low number of objections and community engagement in the scheme. Case Study 4, response to MnG developments generally positive due to maintaining the middle ground.

Level of acceptance	Acceptance response	Indicators	Case study rating
Medium	Mixed response	Some pockets of support and of objections or scepticism, but no consensus or critical mass either way.	Case Study 2 – too early to say. Strong objections at present indicating low acceptance but mixed response overall.
Low (high engagement)	Active objection	High engagement but mainly opposition.	Case Study 5 low acceptance of new larger projects based on levels of opposition.
Low (no or low engagement)	Disengaged or passive tolerance	Little or no community engagement of any kind and/or many objections.	Case Study 3 due to low levels of engagement.

Source: adapted from Batel et al (2013)

4.5 Case Study 1 – Templederry

4.5.1 Social context

Templederry is a small village located in the foothills of the Silvermines Mountains in north County Tipperary, with an upland agricultural and silvicultural economic base. Nearest towns are Nenagh (17km), Thurles (23km) and Limerick (50km), which provide both an employment and educational base for many of Templederry's citizens. The area has suffered demographic decline, linked to unemployment and consequent emigration of its young people, but has significant social capital with an active GAA club, farmers' organisations and strong community identity.

Templederry acts as a 'dormer' village for the three principal urban areas mentioned above, and retains no secondary industry. The community decided in the late 1990s to explore the possibility of harnessing natural resources within the context of a Local Area Development Plan, which eventually led to the decision to develop a community owned wind farm. The project hoped to bring a new form of income to the community by harnessing natural, local resources.

4.5.2 Development context

As noted above the project sits within the area of the North Tipperary County Council planning authority, whose key objective is:

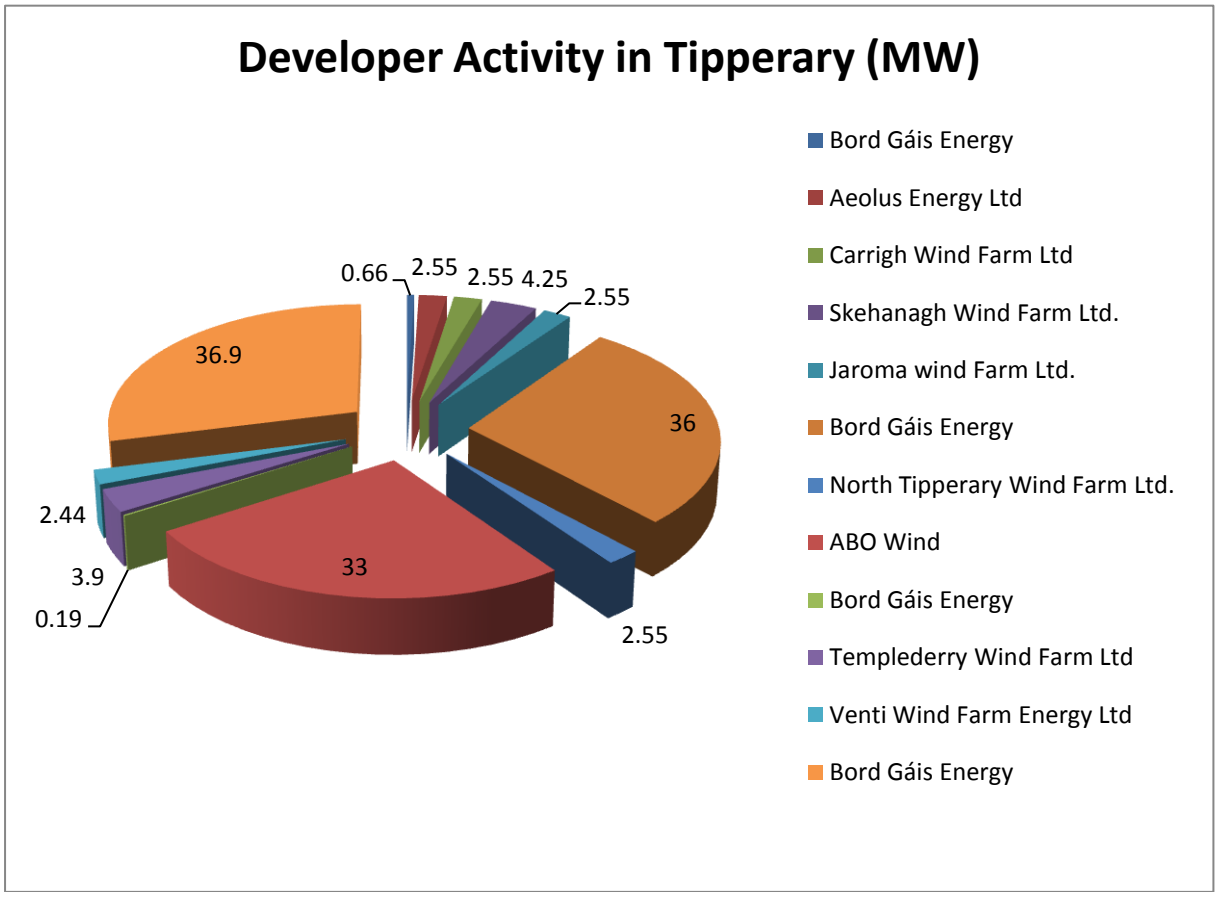
"*To promote the proper planning and development of the County and facilitate the creation of sustainable employment in harmony with the environment and preservation of our heritage and consistent with the policies and objectives contained in the County Development Plan.*[42]"

[42] North Tipperary County Council, County Development Plan (2010-2016)

The Wind Capacity Strategy and Outline Landscape Strategy for North Tipperary (2006) identifies areas of the county with adequate wind resources for development and those with similar resources but deemed unsuitable for wind farm development based on landscape character. This provides a zoning in effect for wind development.

The figure below shows the extent of developer activity in the County. Developers have constructed and commissioned 127.54 MW of wind energy capacity in Tipperary since 2004. The chart below shows the nine developers and the scale of each development to date.

Figure 4.3
Developers of Wind farms in Tipperary



Source: IWEA

4.5.3 Description of the development

The community-owned wind farm is located on an area of upland commonage outside the village of Templederry, in North County Tipperary (Figure 4.4). It was consented in 2010 and built in 2012, following a lengthy planning, consent and grid access process over the previous decade.

It was commissioned by the locally-owned Templederry Energy Resources Ltd (TER), and built using two Enercon turbines (E70 2.3MW); the grid connection is for 3.9MW. Enercon retains the operations and management (O&M) contract[43].

[43] http://www.thewindpower.net/windfarm_en_17359_templederry.php

Figure 4.4
ENERCON E-70 at Templederry Wind Farm

Source: www.enercon.de

4.5.4 Process of development

The Templederry project started in 1999, when a group of local people, mainly farmers, identified a specific niche that could be exploited for the benefit of the local people. It was also seen to provide alternative options to conventional farming which had endured falling commodity prices. They engaged a local expert to research a Development Plan, funded by North Tipperary LEADER (RDP), which identified a range of opportunities, including wind, biomass, and anaerobic digestion.

Consultative parish meetings were held, which presented the strengths and opportunities of each option, but wind energy was chosen and a development co-operative was formed to advance the project. The co-operative approached the County Enterprise Board for funding to carry out a feasibility study. The Tipperary Energy Agency (TEA) and the Tipperary Institute[44] both helped significantly with technical advice as the Feasibility Study was carried out. The co-operative decided to develop a wind farm as a result. Wind speeds in the area are 8.7m/s. The project leaders reckoned that the maximum seed funds that could be raised locally, based on equity raising exercises, meant that 4MW would be the optimal sized farm that could be developed. In 2002 the development co-op put a notice in the local newsletter asking for anyone interested to come forward. The response was relatively slow and through additional canvassing thirty people came forward committing an initial €1000 to gain grid access.

To develop the wind project, the community decided to move from a co-operative structure and formed a limited company, Templederry Energy Resources Ltd (TER) as the development vehicle, with the Co-op as a shareholder. TER now has 31 shareholders, with seven directors. Each member holds one (1) share in the limited company, while the development Co-op holds two (2) shares (7% equity), which is subsidised by the individual shareholders. The final project was commissioned by Templederry Wind Farm Limited.

[44] Located in Thurles, now a campus of Limerick Institute of Technology

In 2003, the Company applied for planning permission for 3.9MW using 3 x 1.3MW Vestas turbines; the best available technology at the time. The planners in North Tipperary County Council were very supportive and advised on best options. Planning was granted without objections and without third party appeal. This could be deemed a high level of acceptance (see Table 4.2).

A grid connection was sought, raising funds from each shareholder for submission costs. One month after the application, the ESB, as grid managers at the time, put a moratorium on any further distributed generation coming onto the grid. It took 3.5 years to get the connection as a result. TER were approved for a connection to a 20kV line, adjacent to another privately owned wind farm, within 3km of the site (cost €840,000). However, the planning permission, which had been previously granted, had only 12 months to run and there were further delays in commissioning the turbines etc. Thus they sought an extension and decided to change to two Enercon turbines (which had no gearbox, thus potentially less operational problems, and better back-up) of 2.3MW each, for 4.6MW.

By this stage, their planning permission had lapsed; thus, TER had to re-apply to the local authority. This time c. 10 objections were received, and the case went to An Bord Pleanála in 2007. Further delays meant that over 2 years elapsed before the second planning permission was granted. The community also had to undertake an Environmental Impact Assessment under the second planning application, as an SAC (special area of conservation) designation had been applied to the site in the interim (EIA cost: €30,000).

At this stage, TER had planning permission for 4.0MW, but a grid connection for 3.9MW.

4.5.5 Project Finance

Fortunately, all the cumulative delays meant that when TER sought their power purchase agreement (PPA), a more favourable price could be negotiated and TER got a price of 8c/kWh (more than REFIT price) with Bord Gais. This meant that the project was more bankable and the price is index linked. The PPA is valid for 15 years (length of REFIT).

In financing the project, in addition to community input, the project has received support from Tipperary LEADER and continual financial, technical and practical support from Tipperary Energy Agency. The project has been financed with a range of sources including shareholder equity, Leader (RDP) grant aid, Enercon loan, Business Expansion Scheme (BES, €1.2M) and Project Finance from De-Lage Landen (a subsidiary of Rabo-Bank).

Meanwhile, the Templederry Co-op has been dormant, but holds two shares for re-investment of future revenues back into the local community. This means that:

- Members of the development company share both the work and the profits.
- Members have invested up to €10,000 each (some loans taken out with personal guarantees).
- In terms of the wind site, the landowner will get a lease payment of 3.5% of electricity sales, potentially raised to 4.5% beyond 15 years of project life.
- Total project will cost c. €6.3 million to develop.
- €150,000 spent on resource, planning, grid connection and power purchase agreement, to generate a significant asset.
- There will be no return for the first 7 years and it will be 12 years before the repayments are completed. However, if the project is successful, it will generate €1.0 - €1.4 million per annum for the local community.

4.5.6 Community Engagement

Given that the development company is rooted in the community with a defined community financial return, the overall level of acceptance of the project has been high, based on the low number of objections to the second planning application in 2007 (no objections were received in 2003). The project shows many positive aspects of community engagement, which was so central to the project from the start, as it emerged for the community itself. However, the ownership is limited to 30 people (Templederry has a population of around 500[45]), with 2 community shares, therefore the project is not fully community owned. This illustrates some of the difficulties with community equity, in terms of affordability and just distribution within the community.

There is an ongoing programme of wider community engagement including local schools (see Figure 4.5). The Tipperary Energy Agency, acting as an intermediary, supports these events as education will encourage future social acceptance of renewable energies through a sound knowledge base.

Figure 4.5
National School Visit to Templederry Wind Farm,Global Wind Day 2013

Source: www.tea.ie

4.5.7 Key points

Enablers

- A well-motivated community with strong leadership, which had decided collectively to seek renewable energy options to sustain their rural economy in the face of local threats such as demographic decline, thus providing a supportive context for the project development.

[45] Tipperary County Development Plan 2010-2016

- The development group is very much rooted in the community through sports, 'parish' and community development initiatives. This engenders inherent respect which allowed the original group 'social licence' to engage with the community, to seek input to the idea, and throughout the design, consent and commissioning process. It is unknown whether the profit that will be gained by shareholders is seen by the community as a fair reward for the effort to drive the project forward.
- The Community Co-operative retains a sustained revenue stream for the project lifetime based on two (free-carried) shares providing visible local value to the community.
- The continued technical and advisory support of an intermediary organisation, the Tipperary Energy Agency helped maintain momentum at critical points during the project development by providing technical support and advice and ongoing support by promoting the project through their schools programme.
- The supportive advice provided at the pre-planning/ planning stages by North Tipperary County Council help identify the best siting options.
- At all stages of the project, local people were offered a chance to invest in the project. However, there were no new investors after the original thirty.
- Grid infrastructure was not an issue from the community acceptance aspect.

Challenges

- The timing of various consent elements (grid access and power purchase agreements) meant that the first planning permission lapsed, which meant that the group had to re-apply for consent. This caused further delays and consequent costs in achieving grid access, power purchase agreement and environmental impact assessment.
- Although there was strong community engagement there was lack of inclusivity at the start of the process; it is critical to engage early and often, on a weekly basis at start up and critical junctures and at least monthly thereafter.
- The development was completed by project participants working to achieve their aim of developing a community owned wind farm. The available time, energy and tenacity of participants individually and collectively can be a challenge especially over long periods.
- The experience at Templederry was that the 'community' is heterogeneous and the developer must ensure that engagement is as representative as possible and attempt to broaden the base for equity participation to achieve greater community acceptance.

Templederry is not an isolated example of a community initiated wind farm assisted by intermediaries. Killala Community Wind Farm Ltd was similarly developed by a community group assisted by an intermediary, the Western Development Commission (WDC) although it is still awaiting grid connection (National Rural Network, 2012).

4.6 Case Study 2 – Oweninny

4.6.1 Social context

Northwest Mayo, with Donegal and western Scotland, has the highest wind speeds in Europe. A study commissioned by Mayo County Council in 2000 found that the county has a mean wind speed of 6.5 - 7metres per second (m/s) or greater for the whole county, with wind speeds in the range of 8-10 m/s in the upland and coastal areas (Mayo Wind Energy Strategy 2008). Thus there is enormous technical potential for wind energy projects, subject to planning, social and environmental constraints.

The Oweninny project is located in a remote and wild area of northwest Mayo, north of Bellacorick in the Bog of Erris. The general area has a long history of commercial peat exploitation by Bord na Móna, while the decommissioned thermal ESB power station at Bellacorick was peat fired. There was significant employment generated in greater northwest Mayo by these enterprises, both of which have been closed now for a decade or more. The Bellacorick wind farm was commissioned in 1992, the first large scale wind farm in Ireland. Additionally, the Corrib Gas controversy has been running since its discovery 50km offshore in 1997 – very significant local opposition has arisen against the development of gas processing facilities at the landfall site. This has influenced the Oweninny project in particular in terms of the debate about community benefits.

Thus, there is a long tradition of energy exploitation in the area. However, there is now a major deficit in employment opportunities due to the closure of facilities, with consequent emigration of young people and a declining and aging rural population in the barony of Erris.

4.6.2 Development context

Mayo County Council adopted a Renewable Energy Strategy for County Mayo on 9th May 2011. The Strategy sets out a path to allow County Mayo to contribute to meeting the national legally-binding renewable energy targets (although this may now change with the EU removing statutory member state targets[46]) and sets out opportunities for individuals, communities and businesses to harness renewable energy in a sustainable manner and to assist in combating climate change.

The more recent draft Mayo County Development Plan 2014-2020 reinforces the Council's commitment to implement the Renewable Energy Strategy for Co. Mayo 2011-2020 or any amendment to the same. The council recognises its role in supporting and promoting innovation in business; developing the Green Economy to assist in reducing costs; enhancing environmental protection; and providing infrastructure essential to support enterprise and employment. In addition, it is recognised that the County needs to be an attractive place to encourage people to live, work and invest in.

In particular it states the following Strengths and Economic opportunities for County Mayo[47]

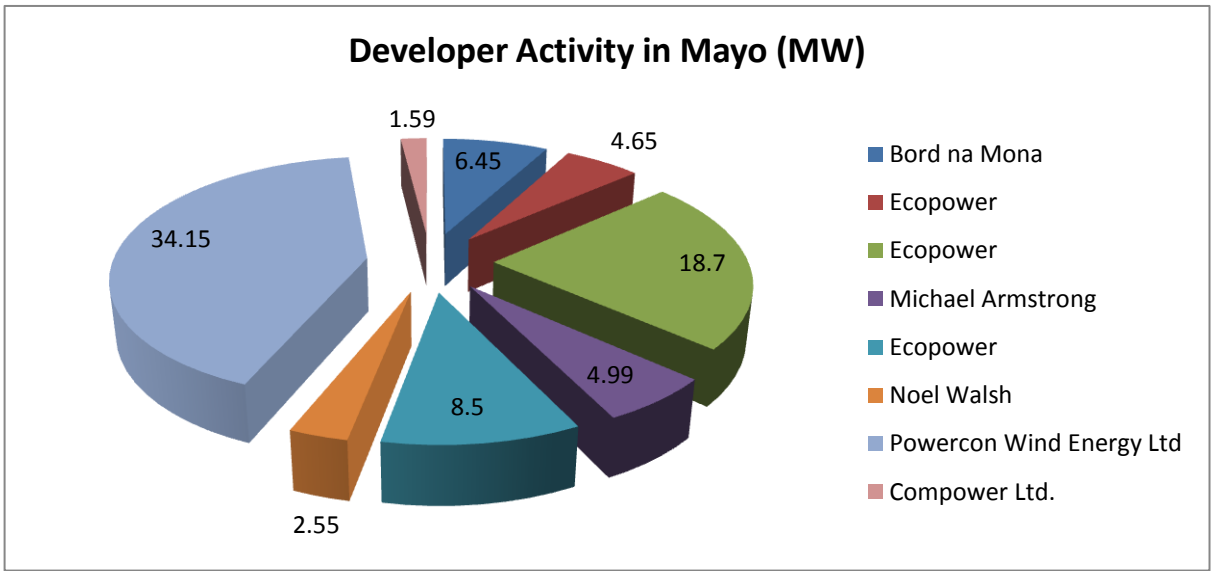
- Promote sustainable renewable energy developments in appropriate locations.
- Develop Green Enterprise.
- Pilot renewable energy developments.
- Spin-off green industries and green economy.
- R&D in third level institutions.

Developers have constructed and commissioned 81.58 MW of wind energy capacity in County Mayo since 1992. Figure 4.6 shows the six developers involved to date.

[46] EU announcement January 2014

[47] Mayo County Development Plan 2014-2020, Written Statement

Figure 4.6
Developers of Wind farms in County Mayo



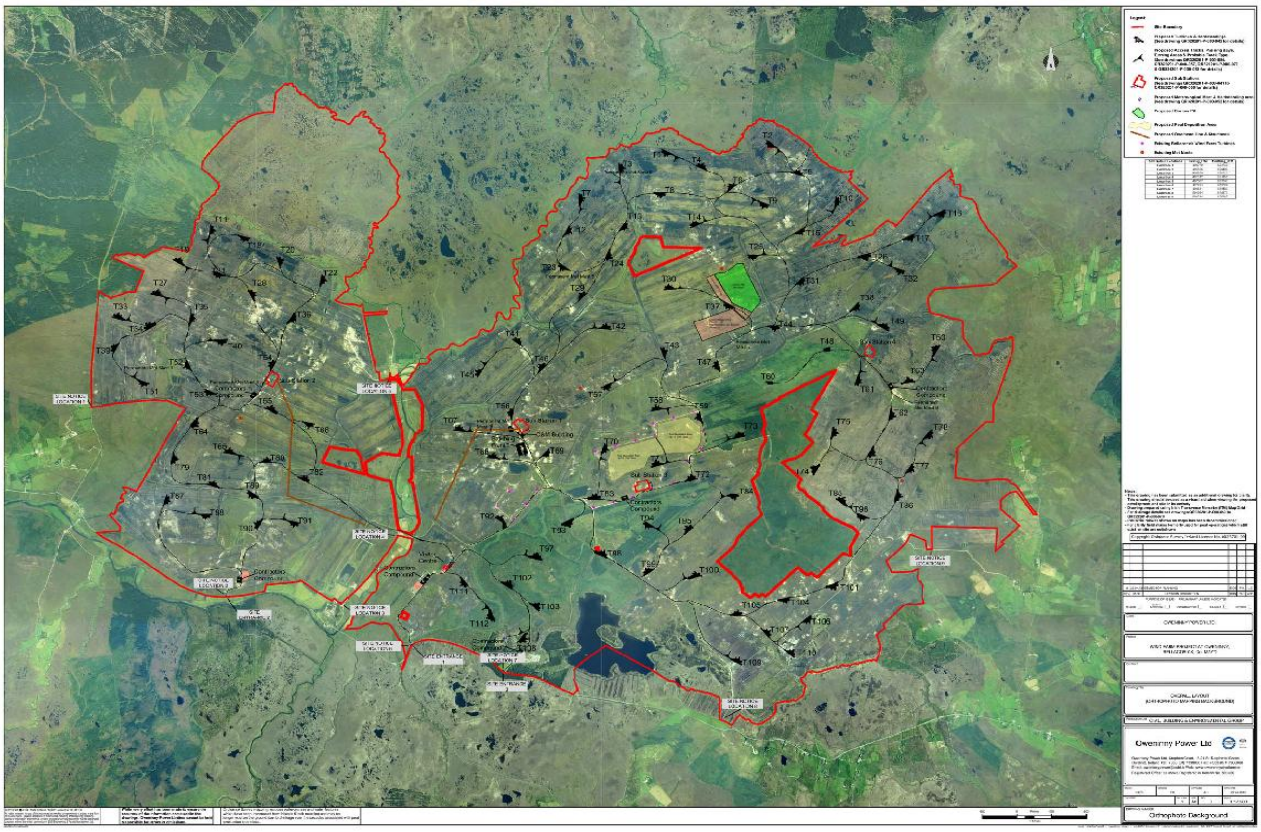
Source: IWEA

4.6.3 Description of the development

The proposed Oweninny Wind Farm is located in northwest Co Mayo. The proposed location is on a post-industrial peat cutting site, within a landscape depression and below the ridge line, thus with more limited visual impact than the size of the project might suggest. It represents an example of an industrial scale wind farm, being developed jointly by two of Ireland's largest semi-state companies, Bord na Móna (BnM) and the Electricity Supply Board (ESB). It potentially impacts on a wide number of isolated rural communities from Bellacorick, Crossmolina, Keenagh and Bangor Erris.

The Oweninny project application has been lodged as a '*Strategic Infrastructure'* project due its industrial size and scale, thus the application is lodged directly to An Bord Pleanála (ABP) versus Mayo County Council. This means that it cannot be subject to third party appeals.

Figure 4.7
Location of proposed Oweninny Wind Farm, Co Mayo



4.6.4 Process of development

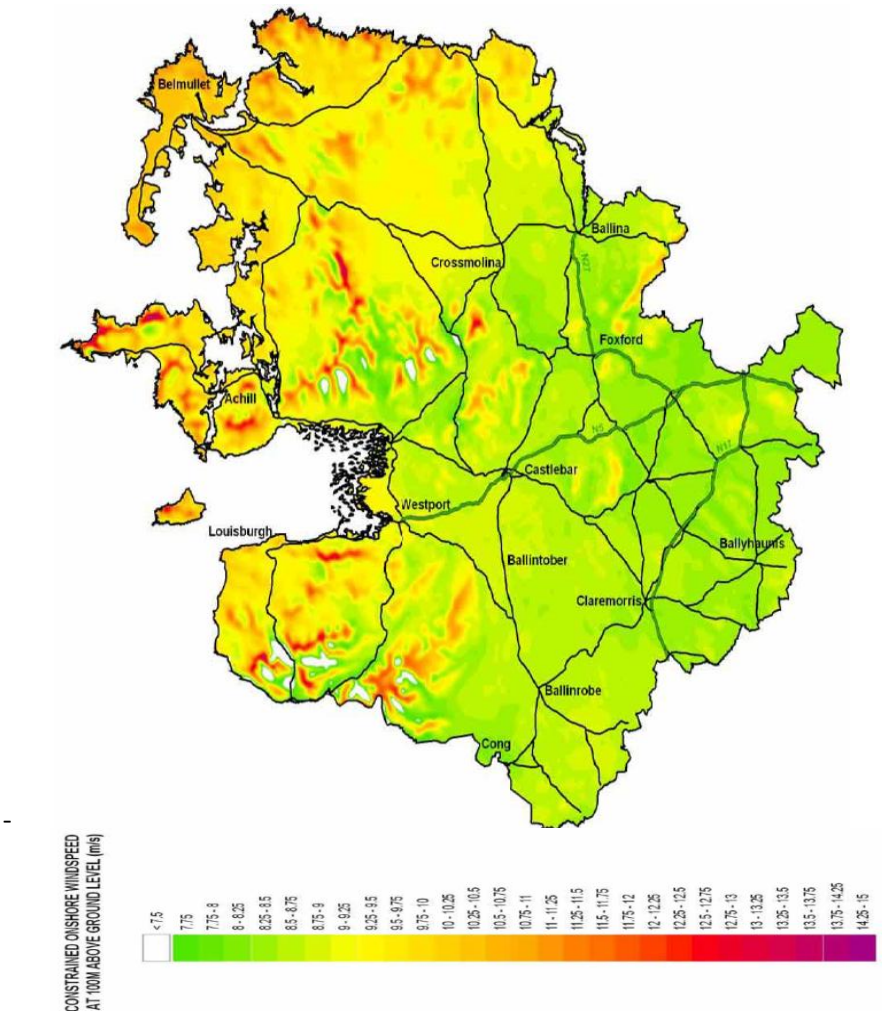
In June 2013, a planning application for a 300MW wind farm of 180 turbines was lodged by Oweninny Power Limited, the project vehicle of the ESB and BnM joint venture. All information pertaining to the planning application (as strategic infrastructure) is available online[48].

It is proposed that the Oweninny project will be developed in phases, and a number of grid connection applications, totalling over 370 MW, have been submitted to EirGrid, the operator of the transmission grid. All of these were included in the list of wind farm applications processed in Gate 3. However, it is expected that building out the entire permitted capacity will require the development of a new high voltage transmission line into northwest Mayo.

The first phase of the project will be developed as a joint venture between BnM PowerGen and the ESB. Grid connection offers for all phases of the project were received in early 2011 and it is planned to connect Phase I of the project to the existing 110 kV network, once it is up-rated as part of the grid development programme in the area (Grid 25 upgrades). Figure 4.8 shows the constrained onshore wind speed at above 100m ground level (m/s) and approximate location of Oweninny Wind project.

[48] http://oweninnywindfarm.ie/planning-documents.

Figure 4.8
Wind Resource for County Mayo



Source: Mayo Wind Strategy, 2008

4.6.5 Community Engagement and distributional justice

The consultative process for the development of Oweninny is ongoing. The Chairperson of the Corick Power Group[49], Mr Tom McHugh, has publicly stated[50]. that the group is not opposed to wind farming in principle, but is concerned to ensure that there is an adequate return to the community, through an independently administered and ring-fenced community fund. Additionally, the group is concerned to optimise employment opportunities at both construction and operational stages of the project. At the time of writing, to address such community concerns, the process is focussing on the potential for distributive gains to be achieved, through community benefit and core employment.

[49] In Crossmolina a Committee, Corick Power Group, has been established to engage in meaningful consultation with developers of Oweninny Wind Farm Bellacorick. The Group represents the Church areas of Bangor, Ballymunnelly, Eskeragh, Keenagh, Crossmolina and Moygownagh. The group's objectives involving establishing a community fund and discussing possibilities for local employment.
[50] Irish Times, 23 September 2013

As a semi-state body, the ESB commands a certain amount of goodwill from local communities because they have been providing reliable utility services of national importance since 1927; this is to their advantage in gaining both social and community acceptance, due to its track record in delivery of public good electrical supply and level of trust built up over decades. In terms of community acceptance this links to issues of trust and to a degree path dependency, the ESB is an agency with a local track record rather than a developer just landing in the community.

Similarly, BnM is held in high standing as providing a reliable source of indigenous peat and domestic energy supply for more than 70 years. ESB also have moved into renewable energies in recent decades and have extensive wind properties around Ireland (Hibernian Wind).

The Oweninny project has embraced an open approach to stakeholder engagement and has actively engaged with local communities through both an early stakeholder engagement strategy and through the statutory planning process. Their stated methods include:

- working to a Stakeholder Plan
- direct contact with local politicians and local community leaders
- information days, local radio, public meetings

Mayo County Council officials commented that there was slow communication at the start of the Oweninny project, but that the company has made significant subsequent efforts to engage with the potentially impacted communities, through information leaflets and community meetings in Crossmolina, attracting significant participation from surrounding villages and rural localities.

A desktop search of the level of community engagement was conducted. At a public meeting in Crossmolina in June 2013, there were 300 community attendees, of whom the majority supported the wind farm[51]. However, the issue of distributional justice, in particular benefits to the local community were hotly discussed, with emphasis on employment, technical and educational benefits for the wider community. Ideas suggested included:

- Potential electricity discount for impacted communities (similar to schemes being piloted by RES[52])
- Retrofit schemes for impacted communities in e.g. schools
- Visitor centre at Oweninny
- Educational scholarships
- Recreational amenities under the wind farm.

At a further meeting in Crossmolina in August 2013[53], it was reported that community wanted "*proper community benefit and gain from the project through local employment during*

[51] Connaught Telegraph, 13 June 2013

[52] The Local Electricity Discount Scheme (LEDS) offers a direct benefit to people living or working close to wind farms being developed by the private company, Renewable Energy Systems Ltd (RES), who operate in UK and Ireland. The benefit takes the form of an annual discount (£100 minimum), to the electricity bills of those properties closest to a proposed RES wind farm. The payments begin once your local RES wind farm is fully operational, which could typically take two to four years from planning consent being granted. Eligible properties can include private residences, local businesses and public buildings like schools, libraries and hospitals. Participation in the scheme is voluntary and does not involve a change of electricity supplier.

construction and operation, where possible, and a transparent community fund in which local people have set priorities for improvements in their own communities which can be supported by the fund." In this article, Mayo Fine Gael Deputy Michelle Mulherin commended the representatives of Bord na Móna and ESB for engaging with people at a public meeting, while noting that there should be a "fair deal" for local communities, clearly suggesting a concern with the distribution of costs and benefits associated with the project.

Although Oweninny management has been consulting actively with the Corick Power Group, gaining a considerable degree of community acceptance to date, they are at variance over the level of community dividend to be paid. Oweninny have suggested using the Irish Wind Energy Association (IWEA)[54] 'rule of thumb' of €1000/MW/pa as community dividend while the community groups are suggesting €2,500/MW/pa as per Mayo County Council draft guidelines. At the August public meeting in Crossmolina, the former was felt to be inadequate.

A subsequent meeting of elected Mayo County councillors in September 2013 voted for a contribution of €10,000/ MW/pa, index linked for 30 years. Mayo County Manager, Peter Hynes, has forwarded the €10,000/ MW recommendation for Oweninny to An Bord Pleanála[55], to be linked to its planning application. However, based on discussions with the developer during the study, the latter sum is likely to be beyond what the EBS/ BnM would be realistically willing to contribute on the basis of economic viability.

> *The major infrastructure project will take in the region of six years to complete and all of the councillors were eager that the local community were behind the project and would benefit from it. Councillors Rose Conway Walsh and Gerry Coyle both put forward a view that local people should gain from the project seeing as they will be the ones disturbed by the projects and both said that local employment from the project is something that should be part of the planning permission that will be granted.* ***Mayo Advertiser, September 13, 2013***

The issues raised during these meetings exemplify the connection between acceptance of wind farms and distributional justice in the form of providing financial benefits to the local community. Where benefits are more visible, either through employment and/or a ring-fenced fund, community acceptance is likely to be higher. Yet this example shows how the level of financial benefits – in terms of what is considered to be 'fair' or 'realistic' - is contested by different stakeholders.

While local government policy appears to be supportive of wind energy developments local government representatives of the host community have recommended a significant financial community benefit contribution from the project. The level of local employment will be a contributing factor to social acceptance and ultimately, successful commissioning of the project.

A cautionary point to note though is that the developers, as semi-state utility bodies, are subject to the EU Utilities Directive and as such must go through rigorous EU-wide procurement procedures to contract the construction development team. As such, Oweninny project managers, if they wish to create local value, will need to develop contracts

[53] Connaught Telegraph, headline on 06/08/2013: "*Anxiety-erupts-over-major-mayo-wind-farm-proposal-mulherin-insists-communities-must-be-rewarded-for-supporting-plan*"

[54] 'Good Neighbour' IWEA Best Practice Principles in Community Engagement and Community Commitment, March 2013

[55] Irish Times, 23 September 2013.

which meet both the EU open procurement process and encourage local supplier and employment. The international report found examples of this where developers have requested services, for example, for ad hoc operation and maintenance, need to be quickly accessible and would benefit from being based in the local area.

A further point of note is that the Oweninny project managers are keen to develop an energy interpretative centre at Bellacorick, to showcase the area's industrial and energy generation history, a facility that could serve as an educational energy centre for the benefit of the Erris host communities.

4.6.6 Key points

Enablers

- The ESB is a trusted name in Ireland with a long history of supplying electricity to households since its formation in 1927. The ESB brand holds the trust of the public which may afford it goodwill and more likely community acceptance of its wind farm projects. There is a perception that ESB is there "for the long haul" as opposed to a "fly-by-night" company. Similarly, BnM is a household brand, supplying peat for power generation and domestic heating for decades, with a high degree of public trust to date, due to its semi-state status.
- Both ESB and BnM state publicly that social acceptance is critical to their 'social licence to operate' and commit to policies of community engagement.
- ESB favours the use of an independent intermediary for community benefit holding and distribution to adjudicate these decisions, so that the project developer remains at an arm's length from local decision making, without undue influence or favour.
- The Strategic Infrastructure Act facilitates local government representatives to negotiate acceptable and economically justifiable levels of community benefit for the host community.
- There is an existing large scale wind farm to the southeast of the area, Bellacorick Wind Farm. The latter has not been used as a reason to object to the proposed Oweninny Wind Farm (e.g. under cumulative impact); rather the focus to date has centred on potential economic impacts, through job creation and/ or the potential community dividend. Other factors such as environmental or visual impacts appear not to have been raised. In the project's planning application, it is stated that all proposed wind turbines will be more than 1km from the nearest dwelling.
- The community is accustomed to the use of the bog as a fuel source. BnM's Bellacorrick Wind Farm has generated electricity for over 20 years and was developed without significant objections. At the present time, based on media reports and statements by the Corrick Power Group, community benefit is a more important issue for host communities than visual impact. This possibly highlights the complexity of tracing causal factors in acceptance – for example, is this local experience more important than the trust in ESB and BnM. This may also link to the wider issues of place identify and what is expected in the area. It also highlights the need for stakeholder mapping.
- The local authority, Mayo County Council, developed a Wind Energy Strategy in 2008, designating clear areas of the county suitable for wind farm development, in recognition of the renewable energy potential in suitable locations, subject to planning and environmental controls. It has recently issued guidelines on the potential community benefits that should be offered to affected communities in the vicinity of wind farms. The local authority therefore is to the fore in energy policy development and is receptive in general to wind farming as a viable economic activity. However, it is not clear whether a more proactive strategy actually improves acceptance and clarifies expectations, in the community as compared to the developer.

- A strong precedent has been set for community benefit, whereby the Corrib Gas project has paid €8.5 million over five years into a community fund administered by Mayo County Council, for distribution to local communities in impacted areas of Erris[56]. Participating community organisations, such as local development associations, parish councils, GAA clubs etc, must be registered with the Community & Enterprise division of Mayo County Council. Any Oweninny fund would be administered through an independent committee comprising community, developer and local authority representatives to protect the public good and secure impartial decision making.
- The delivery of tangible community benefits such as financial dividends and employment will be key enablers in the community acceptance of the Oweninny Wind Farm. This is a reflection of the socio-economic context of unemployment, emigration and declining opportunities in this very rural area.

Challenges

- Local civil, mechanical and electrical engineering contractors need assistance to meet certification standards to win open tender contracts for large scale wind farm projects such as Oweninny.
- There have been local objections over both the scale of the Oweninny project and the amount of returns offered to the local communities.
- The possibility that a project of this size is fully commissioned is directly linked to the national transmission grid upgrade (*Grid 25* project, see www.eirgridprojects.com/grid25/) and will require significant upgrade of the Mayo grid to accept this proportion of wind output. By accepting the wind farm development there may be implied community acceptance of the consequent grid improvements; however, it may be that the community has not been focused on the related grid infrastructure issues that may arise. Engaging with communities separately about the wind farm and about the grid upgrade makes it more likely that wider impacts of the project are not fully recognized and debated locally. This in turn may exacerbate social inacceptance.
- A local lobby group in Mayo is signing up potential lands for lease (to negotiate with wind developers), thus raising landowners' expectations of payments, while at the same time approaching local councilors to agitate for increased community payments. This further underscores the need for a consistent and transparent national policy over what payments might be considered 'fair' or 'realistic'.
- Planning experts who were consulted commented on the inconsistencies evident in Irish national policy pertaining to social dividend e.g. where Shell E&P Ireland was asked to relocate peat from the foundation zone of the Bellanaboy gas terminal to Sraghmore near Bangor, An Bord Pleanála stipulated that the local community be compensated by €1/ m^3 of peat removed. When Mayo Co. Co. sought €1/ line km from the ESB for electricity wire infrastructure, ABP would not accept that, despite its visual impact.
- The developers felt that the mechanism of delivery of financial return to the community needs to be very clearly articulated as it may in itself be a cause of community division – how and where would a large community dividend per annum be spent? This is similar to disputes that have arisen in Scotland concerning how such funds should be spent (Aiken, 2010).
- The developers prefer not to engage with a community equity model as it introduces undue project risk when dealing with financiers. Similarly, they prefer not to engage

[56] As reported in the Irish Times, 23 September 2013

directly in for example using community funds as seed capital for local SME development as they see it as outside of their remit.

4.7 Case Study 3 – Private developer Co. Kerry

4.7.1 Social context

The social context for many of this developer's wind projects is that of isolated rural villages with surrounding small farms and upland commonages. Many villages attract no secondary and limited tertiary services, with most people working in the primary (farming and forestry) sector. The areas have suffered significant economic decline in the past half decade, with unemployment and youth emigration a part of the socio-cultural fabric

4.7.2 Development context

Kerry County Council is currently reviewing their existing County Development Plan 2009-2015 and preparing the new Kerry County Development Plan 2015-2021. As with other Councils, public participation is an essential element in the planning process, and in particular the formation of planning polices which will shape the future development of the county. Kerry County Council therefore states that it is committed to engaging with the people of Kerry in the development of the new plan. One of the objectives of the new plan is to actively facilitate, and where possible, drive the development of renewable energy.

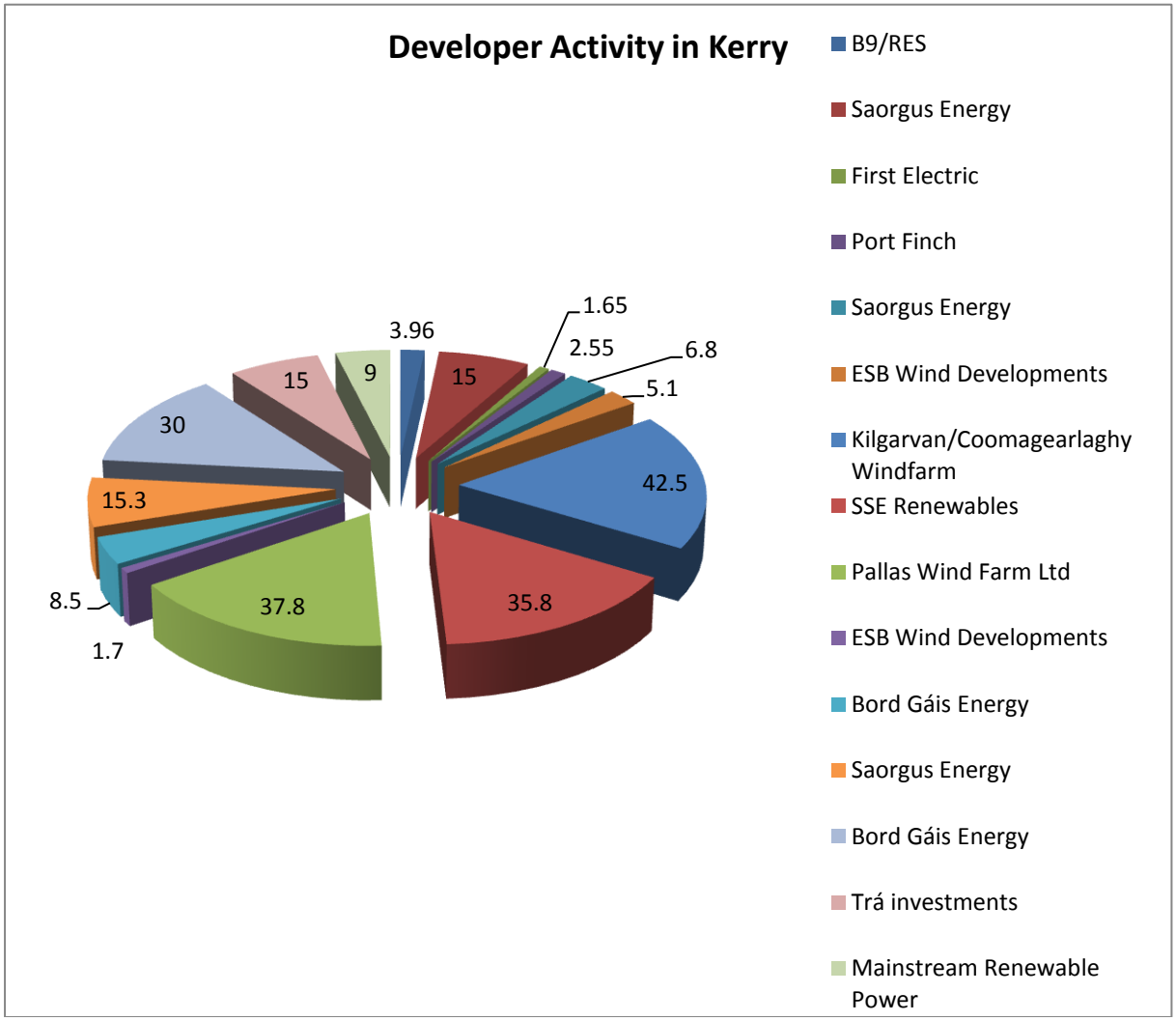
The County Development Plan has been informed by the[57] draft Renewable Energy Strategy 2012. The renewable energy plan was based on an appraisal of the county's renewable energy resources and infrastructural capacity. This appraisal established that the county has significant potential for the development of wind and bioenergy and to a lesser extent hydro power. The existing transmission grid together with current upgrade projects are such that the capacity of the grid will provide for the collection and distribution of significant amounts of electricity. The upgrading of the transmission network was designed primarily to harness wind energy.

It is recognised (by SEAI) that wind energy is best placed to achieve national targets for the consumption of electricity from renewable energy and it is an objective of the planning authority to continue to support the development of wind energy. To this end this strategy identifies appropriate locations for the development of wind energy and sets out the criteria and development management standards which will be used in assessing proposals for wind development. However, an objective of the planning authority is to support the development of all renewables and to avoid over development of any one resource.

Developers have constructed and commissioned 230.66 MW of wind energy capacity in County Kerry since 2000. The chart below shows the eleven developers involved to date. The developer discussed here has developed in the region of 40MW of capacity.

[57] Proposed 8th Variation to the Kerry County Development Plan 2009 – 2015 Draft Renewable Energy Strategy 2012

Figure 4.9
Developers of Wind farms in Kerry



4.7.3 Description of the developments

This private developer is based in Ireland. They have developed several wind farms in Ireland, with others in the planning system, all with grid connections secured under Gates 2 and 3. They are actively exploring other wind opportunities.

The wind farms in question have been developed in areas typical of many locations in western Ireland, with low population, high wind speeds in areas of upland blanket bog, which are frequently perceived as 'bleak' rough grazing, of low agricultural productivity with some commercial forestry. These areas, originally attractive to wind farm developers, are now designated Special Areas of Conservation (SAC, Natura 2000 sites) and receive more objections to planning applications for wind farm developments than areas of low population density outside SACs.

4.7.4 Process of development

The developer has successfully applied for planning and grid access consent and subsequently constructed three wind farms in Kerry totalling 22MW since 2000. The process

has been to follow the statutory planning requirements including an environmental impact assessment. Sites are selected to avoid areas of high scenic amenity or vistas, in areas of low population density. This is in line with the view of the county planning authorities.

4.7.5 Community Engagement

The developer engages with the host communities through the statutory planning and EIS process only. All documents are publicly and digitally available and members of the public are welcome to question the project application and visit the developer's offices. In general there is no direct community involvement and there is no offer of community equity. The developer does not exercise a policy of 'community funding' as it feels that it delivers local economic spin-off through technical and tertiary services (legal, accounting, engineering, technicians), land leasing/ purchase from local farmers and also through the payment of significant commercial rates for the wind farms (turbine infrastructure and related roadways) to the Local Authority. The developer perceives that 'quietly' developing a technically and environmentally sound wind farm permits a more commercially successful route to commissioning the project with less delay than might otherwise be the case.

This developer has strong views about the stakeholder engagement process and considers it to provide a forum for opponents of the wind farm (and therefore a barrier to achieving nationally defined targets). The developer perceives that the statutory planning process allows the (heterogeneous) community and other stakeholders to voice their concerns and lodge well founded opposition to the wind farms. The planning process is seen as tough, but fair and equitable as it is currently administered, and allows all citizens to participate in the planning process.

However, the planning authorities spoken to as part of this study in many counties would consider that early stage community engagement is now essential as part of the pre-planning process, largely due to the increased size of turbines and scale of developments. In future, this developer may find that meaningful social engagement with linked community dividends may become a requisite element of the consents issued under the planning and environmental impact assessment process.

4.7.6 Project Finance

Each wind farm is individually project financed, but the developer considers the business to be high risk, with frequently low margins by the time the wind farm is fully commissioned. All payments are upfront and return on investment may not be for up to 12 years, depending on the size and scale of the project. This developer has not been looking to work with the community in terms of sharing project risk and equity unlike Templederry where the community was invited to consider this from the outset.

4.7.7 Key points

<u>Enablers</u>

- A 'low key' or 'quiet' approach, compliance with all statutory requirements including public consultation and environmental impact assessment.
- Siting of the wind farms in upland commonage far away from residential zones and highly valued amenity areas and choosing to develop small to medium scale schemes.
- Visibility of the developer's presence and those of other wind developers, in the sub-region, creating critical economic mass, with associated skilled jobs and services.
- Lease payments and local authority rates generate a level of local goodwill.

- Company principals are from the general region, potentially removing any sense of 'outsiders taking our resources' mentality.
- A declining traditional agricultural economy, where there is a far higher likelihood of social acceptance of diversification and alternative means of exploiting energy resources linked to potential for skilled job opportunities.

Challenges

- The company's projects to date have generally proceeded to project schedule, with no evidence of significant social 'push back' or objections. It is the developer's perception that as more wind turbines have appeared, the general community accepts them increasingly as part of the economic fabric of the area, linked to job creation and skills enhancement. However, the planning authority is of the view that future developments will require greater consultation with the community.
- Cumulative impact in the medium term may have a negative impact on delicate current acceptance of wind farms in the area.
- Precedent set in terms of community benefit by other developers, particularly those in the Midlands EnergyBridge project, may mean pressure to comply with community engagement strategies, which may change project finance requirements and rates of return in what the developer perceives as a risky business.
- The increasing proactivity by the landowning community to present land for lease to developers for significant annual payments of wind farms is of concern to many non-landowning members of communities[58]. Many landowners receive very significant payments (up to €15-20,000 per turbine per annum) while a neighbour in the shadow of the wind farm gets nothing. It is felt by activists that a more equitable distributive system is required, so that those households directly affected are compensated. This could take the form of compensatory payments or agreed reductions in energy bills within an agreed radius of the wind farm.
- Higher expectations and enforcement of rigorous environmental standards within Nature 2000 upland sites and protection of mountain biodiversity could impact in the coming years on commercial developments of the type.
- The case study is considered of low social acceptance (see Figure 4.2) due to the lack of engagement with the community and the absence of community benefit or equity options. It was found through the interviews that there is a nervousness about early community engagement potentially providing an opportunity for individual single issue local residents to mobilise opposition to the project and hence no such opportunities are offered. Yet, the absence of such opportunities could itself lead to a sense of procedural injustice, particularly when compared against the provision of such opportunities in other Irish contexts of wind energy development, or when set against new planning guidance for wind energy developers. This potential cycle of conflict involving cause-effect links between conceptualisations of the public, engagement mechanisms/timing and public responses to those, is described by Devine-Wright (2011) as a 'NIMBY cycle' that needs to be broken.

[58] E.g. see IFA document 'Harnessing Ireland's Wind Resources' September 2013

4.8 Case Study 4 – Meitheal na Gaoithe

4.8.1 Social context

Meitheal na Gaoithe[59] (MnG), the Irish Wind Farmers Co-operative Society Limited, was founded in 2000. It describes itself as "a grassroots organisation representing rural communities, individuals and SMEs dedicated to promoting and harnessing Ireland's greatest renewable resource, wind energy." MnG is interested in exploiting locally sourced natural resources, primarily as an off-farm long term income or pension. The members are largely from a farming and landowning background, thus have assets as collateral when developing their wind projects. The model for development is that of small groups of shareholders developing the projects, frequently on their own farms or commonly held uplands.

MnG is provides an advisory service to its members, while the Co-operative Society is used as the commercial arm of the organisation. MnG members are mainly based in Kilkenny and southeast Ireland, although its membership is sourced from across Ireland. The organisation holds workshops and annual conferences and makes regular and informed submissions to public policy consultations.

MnG was chosen as a case study as it represents farmers who as a "community of interest" as opposed to a 'community of locality' develop wind farms. A community of interest is an association of people who share a common interest, but who may not necessarily all be living in the same immediate geographical area. However, typically, MnG members develop small–medium scale projects within communities of locality, among groups of farmers on their own (wind resource suitable) lands.

The organisation has a policy to:

- maximise the local and community benefits of wind energy
- play a positive role in the advancement of the technology
- facilitate members interests through education, lobbying, networking and advising members and public

MnG is one of the most successful advocacy groups of its type in Ireland and has become a powerful lobbying force in policy development. MnG could have a central role in achieving energy transformation through empowerment of local landowners in developing wind projects in rural communities across Ireland.

4.8.2 Development Context

MnG's developments are across the country. The example given here is in County Wexford.

The Wexford Wind Energy Strategy forms part of the Wexford County Development Plan 2013-2019. The key objectives of the Wind Energy Strategy are to:

- Ensure the security of energy supply by supporting, in principle and at appropriate scales and locations, the development of wind energy resources in the County;

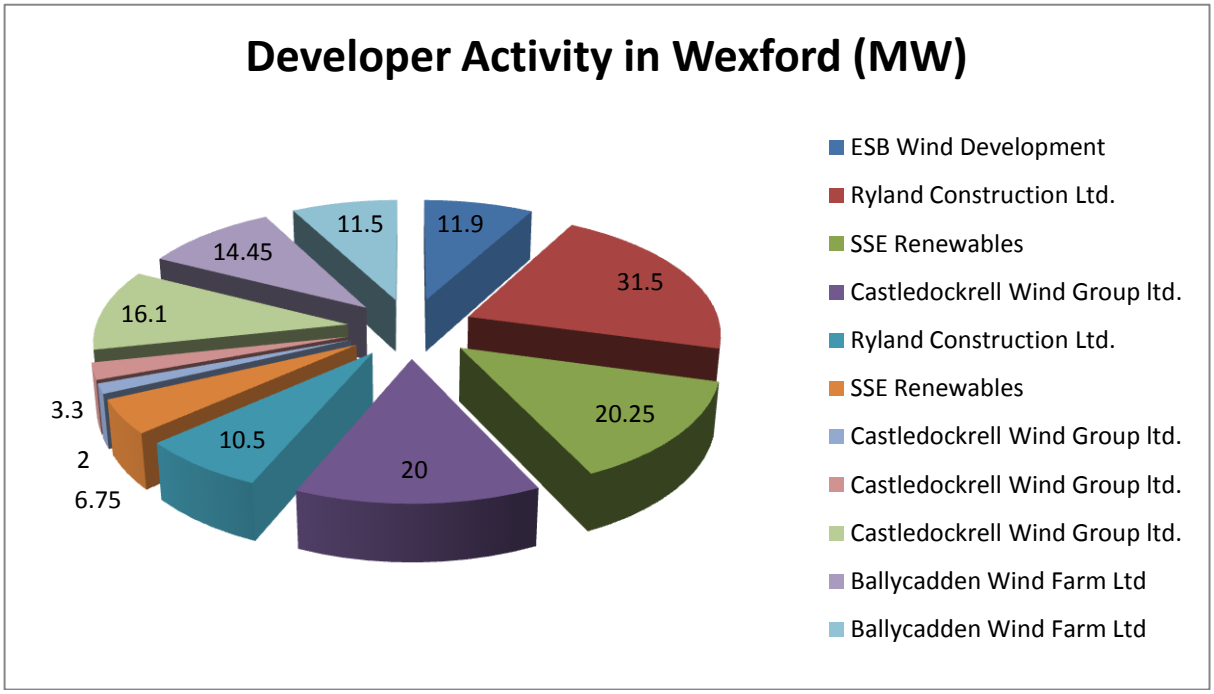
[59] *Meitheal* is the Irish word for a work group, conveying the idea of 'connection with neighbour' to work collaboratively to achieve a project. *Meitheal na Gaoithe* means 'work group of the wind' literally. www.mnag.ie

- Promote the development of wind energy and other renewable energy sources in the County to meet national renewable energy targets;
- Work towards a target of 300 MW of wind energy, to enable County Wexford to make the initial steps toward a low carbon economy by 2020 and generate the equivalent of over 80% of its electricity needs from wind energy;
- Identify strategic areas in the County for wind energy development;
- Investigate the potential for relatively small-scale wind energy developments within urban and industrial areas, and for small community based proposals outside the key areas;
- Ensure the production of wind energy is consistent with and takes account of nature conservation and environmental legislation and targets, including the conservation and protection of the designated and proposed Natura 2000 sites and Natural Heritage Areas in and adjacent to the County;
- Ensure full compliance with the requirements of the EU Habitats Directive (92/43/EEC); and
- Ensure full compliance with the requirements of the EU Strategic Environmental Assessment Directive (2001/42/EC), the Planning and Development (Strategic Environmental Assessment) Regulations 2004 (SI No. 436 of 2004) (as amended) and the Strategic Environmental Assessment Guidelines (Department of Environment, Heritage and Local Government, 2004).

Of particular interest are the Development Management Standards which include recommendations for community consultation as follows:

- Consultation shall continue throughout the design, planning, construction, commissioning and operation phases of the development. The developer should appoint an individual to be accessible to the local community during these stages to allow for dialogue and communication and to keep the public informed about the progress of the project.

Figure 4.10
Developers of Wind farms in County Wexford



4.8.3 Description of the developments

The members tend to develop small-to-medium scale projects, removed from residential areas, which are less visually intrusive than larger projects. There are several developments and one example is given here.

The 61 MW Castledockrell wind farm near Bunclody, Co Wexford, is a typical MnG wind farm. It was commissioned by two farming families. The windmills, installed at a cost of more than €5 million, were commissioned by German Enercon engineers in May 2012. Each 1,300-kilowatt tower is around 60 metres high, which will together generate enough power for c. 4000 homes.

Figure 4.11
Castledockerell Wind Farm, Bunclody

Source: www.mnag.ie

4.8.4 Process of development

The members of MnG represent individuals, mainly from a farming and/or landowning background, who are involved with building small to moderate sized wind farms on their own lands, as opposed to a large company or semi-state developers. These individuals gain advice and guidance through their membership of the organisation.

The organisation promotes and advises on a number of development models with variable levels of risk, including: Site Leasing*, low risk;* Joint Venture*, shared risk;* Community projects*, share options to the community while rewarding risk takers;* and Individual Projects *(high risk)*.

A given site is selected by a small group of participating shareholders, usually from a local farming background. The site is chosen based on wind speeds and other factors. The project developers hold one to one discussions with impacted neighbours and pre-planning meetings with the relevant local authorities. The communication channels are kept open and queries / concerns by communities are dealt with as they arise throughout the full consent process.

The MnG members involved in a particular project, usually from a site specific catchment, tend to work through the formal planning process, without direct public programmes of community engagement. However, significant local discussion goes on among farm families, through work or socially at the creamery, mart or such venues. This increases community

understanding in a muted way, as people begin to understand the potential benefits or alternatively see the potential negatives such as noise, visual, environmental etc. Each project is developed by a small group of local financing participants (rooted in their own communities as the projects are on their own farms), with advisory inputs from the national body on technical and financial aspects.

4.8.5 Community Engagement

MnG see themselves as playing a key role in social acceptance of wind farm technology in rural communities. The fact of being 'local' can be beneficial in terms of community acceptance, although it was reported that local protest can happen where other legacy issues arise in opposition to a wind project. However, direct communications, public meetings and persuasion are seen to be highly effective in bringing the 'middle ground' of the community with the project.

Direct community ownership is not generally part of this mix, but local acceptance is gained through the indirect benefits such as local skills increase, technical jobs and services (accountancy/ legal/ maintenance). The educational benefits may also be acknowledged in terms of local renewable energy projects contributing to mitigation of climate change.

4.8.6 Key points

<u>Enablers</u>

- The MnG members are an interesting example of actors who are at once wind developers and members of local communities. Being 'local' can mean that members of MnG can utilise Irish rural politics to best effect and projects would frequently have local councillor support when approaching the planning system.
- The community is more likely to accept small scale projects and locally owned (while public officials will support projects of suitable scale that meet planning and environmental requirements and help to meet County Development Plan renewable energy targets).
- Sensitive siting, keeping turbines well away from residential areas as much as possible, in accordance with county development plan zonings.
- Transparency and talking to neighbours and friends spreads the word and allows projects to advance without significant opposition.
- Environmental compliance.
- Economic benefits to the locality.

<u>Challenges</u>

- The fact of being known locally may assist acceptance, although in some cases this can reignite old grievances which are used to oppose the wind farm.
- The developer members are a community of interest but are based in communities of locality, thus by developing wind farms are actively promoting acceptance of wind energy. However, these community members may not reflect the wishes of other members of the same community of locality. Policy should consider the insights of both communities; MnG has broader technology experience and the community of locality greater knowledge of their immediate environment.
- A further challenge may relate to the model of local ownership described here, as no financial benefits are offered directly to the surrounding community, only to the landowners themselves. As a result, future projects may be opposed arising from a sense of distributional injustice. Local residents affected by the wind farms, but not financially benefitting, are potential third party objectors in the planning process.

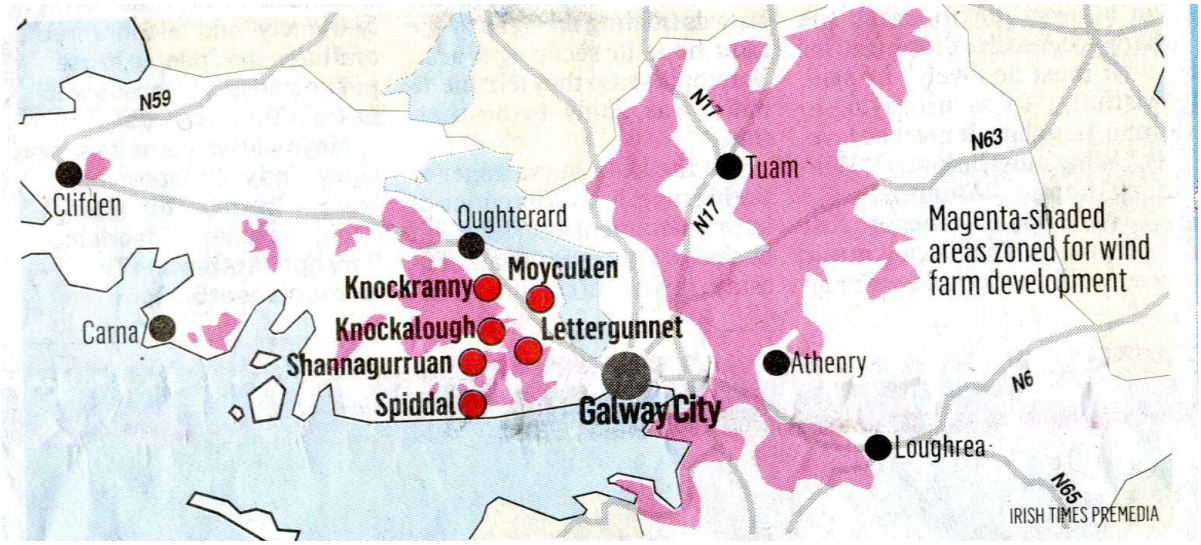
- The view of small scale community wind farm developers, as expressed by MnG, is that if Ireland is to achieve its 2020 targets ongoing education to counter-balance misinformation about wind farming is a critical step in gaining community acceptance.

4.9 Case Study 5 – Connemara

4.9.1 Social context

Connemara hosts the largest population of native Irish speakers on the island, with a very strong traditional heritage. It is a mountainous area with Atlantic blanket bog covering the Connemara granite, and has some of the most unspoilt and spectacular land- and seascapes in the country. Much of the region is designated as either Special Area of Conservation (SAC) and/or Connemara National Park, reflecting its environmental status and integrity, and much of which is excluded from wind development under Galway County Council's wind strategy. Figure 4.12 shows the areas designated for suitable wind farm development and existing and proposed wind farms in zone of consideration shown in red circles.

Figure 4.12
Map showing areas designated as suitable for wind development in County Galway



Source: Galway County Council

The region has suffered population decline and emigration since the nineteenth century, with severe economic challenges. Agriculture and fishing provided the traditional economic backbone of the local economy, but tourism is now a major economic driver. A significant section of the resident community commutes to Galway for employment, while many Irish families have second homes in the Gaeltacht, most of which are closed outside of the summer period. The statutory agency for the Gaeltacht regions, Udarás na Gaeltachta is charged with generating social and economic projects, and is headquartered within Connemara at An Spideál.

The area enjoys some of the highest wind speeds in Europe and has the potential to become a significant net generator of electricity. However, the scenic and environmental designations preclude many areas from wind developments in the west of the county. Ironically, Galway has designated the most populous areas in the 30km catchment of the city as being the most suitable for wind developments (see map above).

The Aran Islands (Inis Meáin) are part of the west Connemara Gaeltacht and retain a strong cultural heritage of language, music and traditional ways of life. Besides small scale agriculture and fishing, tourism provides the major economic activity. Each of the islands is composed of fissured limestone bedrock similar to the Burren, which provides challenges for storage of groundwater and provision of sustained potable water supplies, particularly during peak summer demand. Inis Meáin is the least populated of the three islands.

The Indreabhán wind farm is located in the south Connemara Gaeltacht, c. 35km west of Galway city. The extensive Clochar na gCon peatlands lie to the north of the wind farm area, while Moycullen lies further north along the main N59 Galway-Clifden route. The latter two rural areas are significantly impacted by non-Gaeilge speaking overflow from Galway city and have suffered increased 'ribbon' suburbanisation over the past three decades.

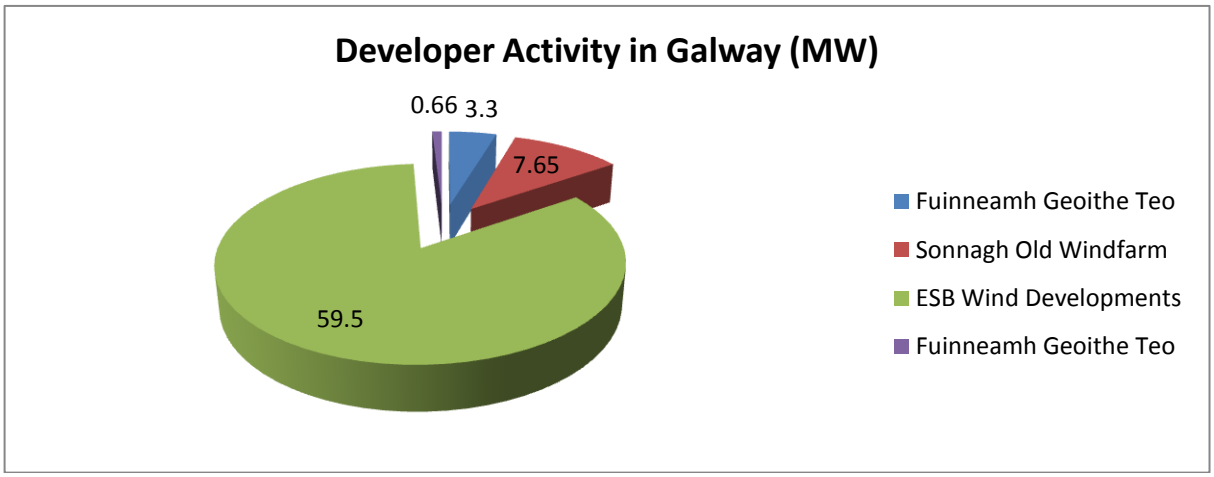
4.9.2 Development Context

Galway County Council (GCC) has prepared a draft Wind Energy Strategy (WES) for County Galway. The strategy provides strategic direction to encourage renewable energy and to guide the siting and design of wind energy developments in appropriate locations within the County. The WES provides a set of policies and objectives to guide the development of wind energy projects and support infrastructure in appropriate locations in a manner that capitalises on the substantial wind resources and avoids significant adverse effects on the environment, landscape or amenities in the County. Aims included in the WES of particular interest include those to:

- Reflect and plan for technological advances in wind farms over the next number of years;
- More closely align the County's wind generation policy to the existing wind energy resources;
- Work towards a target of 500 MW of wind energy in County Galway, to enable Galway to make the initial steps toward a low carbon economy by 2020. This target will enable Galway to generate the equivalent of over 70% of its electricity needs from wind energy.
- Promote the economic development of wind energy and other renewables in the County, underpinning the need for energy security, the promotion and establishment of a low carbon economy and the development of green business within the County.

It is also recognised that in order to facilitate the expansion in electricity generation installation, particularly wind farms, the grid itself will require development and expansion.

Figure 4.13
Developers of Wind farms in Galway County Council



4.9.3 Description of the developments

A group of four existing and potential wind farms in Connemara (Inis Meáin/ Indreabhán commissioned; Moycullen, in planning[60] and Lettergunnett, in construction) were selected to review the social acceptance of wind farming from the perspective of cumulative impact on isolated communities living in sensitive habitats, and also to investigate the different responses to different sub-settings for those wind farms.

Figure 4.14
Connemara zone

[60] Moycullen was granted planning permission in January 2014

In 2002, a small wind farm was commissioned on Inis Meáin (lit. middle island), one of the three Aran Islands, located just offshore Connemara and Clare at the mouth of Galway Bay. The 3-turbine farm was built under AER V by Fuinneamh Glas Teoranta, (lit. Green Energy Limited), a private limited company, with its registered address on the island[61]. The wind turbines were originally intentioned to directly power a seawater desalination plant to supplement the island's inadequate groundwater supply, particularly during peak tourist season. The farm produces 0.675 MW of clean electricity using three Vestas 225kW turbines, which is sold directly to the national grid; thus the desalination plant is powered directly from the grid.

Figure 4.15
Turbines on Inis Meáin

Source: Udarás na Gaeltachta

A locally owned company submitted an application for a 14-turbine wind farm at Knockranny near Moycullen to the north of Indreabhán, but this has now been reduced to an application for an 11-turbine windfarm with a maximum height of up to 140 metres. The proposed development also includes a permanent meteorological mast of up to 90 metres in size, with all underground cabling and associated infrastructure.

4.9.4 Process of development

The Inis Meáin and Indreabhán wind turbines have been consented and commissioned. These were developed almost a decade ago and have become part of the island and Indreabhán landscapes. There were no objections at the time of planning consent. This may also reflect the fact that communities a decade ago were not engaged in the process or as well organised in terms of opposition to energy projects.

The Lettergunnett wind farm despite significant local and statutory (An Taisce) opposition achieved planning consent and is currently under construction on a sensitive peatland site.

[61] The company filed official winding up procedures (*E7 Final Winding Up Meetings Of Mem And Credit*) in June 2013, although the company is still registered as 'Live' (source: www.duedil.com).

The Knockranny wind farm near Moycullen to the north of Indreabhán is still in the planning process. It was rejected by An Bord Pleanála (ABP) in August 2012, following Third Party Appeal, despite the fact that it had been approved by Galway County Council in 2011.

A local opposition group campaigned actively against the wind farm on the grounds of proximity to houses, while the application was rejected by ABP for reasons of proximity to an area of archaeological importance. In August 2013, a further submission was made to Galway Co. Council for an 11-turbine windfarm at Knockranny in Moycullen, with a maximum height of up to 140 metres. The proposed development also includes a permanent meteorological mast of up to 90 metres in size, with all underground cabling and associated infrastructure. There is further opposition to this proposal from Knockalough Community Group given the potential impact on freshwater pearl mussel assemblages within the catchment and impact on local archaeological sites. The group is concerned about the cumulative impact of recent Galway County Council approvals for wind farms within a 8km radius of residential housing in Moycullen, Barna, Furbo and Spiddal.[62] In February 2013, the local community development association convened a meeting of community members, wind developers and GCC planners to discuss wind farms in their community, suggesting that a more open approach has been taken by the local development association to wind farming to explore economic opportunities.

4.9.5 Community Engagement

For Inis Meáin and Indreabhán the community activism of the developer eased the way, particularly as the man was local, engaged with Udaras na Gaeltachta, and was recognised as having social objectives (as well as commercial). The actual level of community engagement was low by current standards (i.e. did not engage in a defined communication process with community groups), but nonetheless achieved success.

In the Moycullen case, the opposition to the wind farm started after planning was underway. This also demonstrates that communities are now better organised and demanding of the right of engagement, as well as being networked and linked to national and international opposition groups. The project is being developed by non-residents of the locality, a factor which may have significant bearing in the low acceptance of the project. In traditional Gaeltacht communities, the 'blow-in' who may be the most innovative, can attract more negativity than 'one of our own'.

Underlying issues include:

- A feeling of distributional injustice, i.e.that a small number of landowners are benefiting from commercial wind farms but that others get nothing but nuisance; thus, property rights see benefit, not the neighbour living next door with the nuisance, a feature well articulated by CREWE[63] members.
- There is a reluctance by communities to object to things at local basis (don't want to go against 'their own'); however, the 'blow-in' vs 'native' divide may become part of the mix, causing further community disruption.
- There may be direct conflicts of interest within a given community's pro- or anti-stance.

[62] As reported in the Irish Times, 13 September 2013.

[63] Two leading members of CREWE (Communities for Responsible Engagement with Wind Energy) were interviewed for this research. CREWE is based in the west of Ireland, and are part of an active network of up to 30 communities campaigning for community engagement in the decision making process and also for distributive justice for near neighbours of wind farms.

- When community groups get involved in objections, it can be very divisive, causing splits that persist way beyond the life of the project – many people thus avoid getting involved as they do not wish to be part of the 'splitting' of their communities.

Interestingly, the principal interviewees for the research commented that they supported wind projects in principle but that they must be sensitively sized and located, with a high degree of community input at the design stage.

GCC does not issue guidelines regarding the level of community benefit to impacted communities, as has recently been adopted by Mayo Co Council, its neighbour to the north[64].

4.9.6 Key points

Enablers

- For Inis Meáin and Indreabhán local ownership and identifiable local leadership. Some level of (minority/ entrepreneurial) local ownership with direct community benefit
- For Inis Meáin direct community benefit of guaranteed potable water supplies.
- Scale and sensitive siting of projects can be effective, particularly where a tangible benefit can be delivered (e.g. desalinisation plant). Niche projects such as this may be small but symbolically very important. They can also reduce costs of alternative solutions such as piping water from the mainland to the island.
- Communities getting organised and self educating about key issues allows informed decision making at local level. This is being achieved at local level but also through growing alliances of community groups (e.g. CREWE; Midlands Alliance) which provide advice and advocacy for impacted communities on a regional scale.
- GCC, in its county development plan and emerging energy strategy, favours wind developments providing they meet planning and environmental conditions. However, the siting of wind farms closer to more populous (Moycullen) areas, with a high degree of community organisation, means that the wind farms are not guaranteed success, despite local authority support.
- The media appears to report on the issues with a level of impartiality, but with a tone of empathy for the affected communities rather than the developers[65], despite Ireland's national targets for adoption of renewable energy supplies
- Interestingly, on Inis Meáin, SEAI are adding local value by running a trial electrification project for island cars using locally sourced wind power[66] to reduce dependence on fossil fuels[67].

Challenges

- For Moycullen/ Lettergunnett areas, the vocal and effective nature of local opposition, which is increasingly being linked to national campaigns against industrial scale wind farms. Campaigning alliances can provide vocal 'external' opposition to local wind farms.
- No formal forum for discussion of proposed projects prior to submitting technically complex and legalistic planning applications; Community actors feel that they are not

[64] Lorna Siggins article, op cit.
[65] E.g. see Lorna Siggins' article in Irish Times 13 September 2013.
[66] http://www.irishtimes.com/news/eight-families-go-electric-in-aran-islands-pilot-project-1.1277786
[67] See Lorna Siggins' article in Irish Times 13 September 2013.

consulted in sufficient time in advance of the planning application for wind developments; very often plans are presented as 'given' versus open for discussion;

- Currently the only avenue for input to a local wind farm project design by an impacted local resident is through the third party appeal process. Earlier involvement at the pre-planning stage may provide the sense of empowerment sought by many opposition groups on their community action websites. Communities feel that they have no real power – who is participating and who is making these decisions that have long term impacts on local people. There is an increasing need to put an emphasis on pre-application discussions
- Third party appeals at arbitration stage are costly for communities in time and resources, while causing delays from the developer perspective –early engagement and meaningful dialogue within a defined forum could circumvent the need for costly arbitration.
- Communities do not have the resources/ technical capacity to lodge objections at the planning stage (although this is counteracted somewhat by linking to national protest groups with such 'toolkit' resources); the planning process is perceived as dense and adversarial for citizens.
- Distributional justice: wind developments can be very divisive in some instances particularly where some members of the communities stand to gain financially (landowners) while others (near neighbours) get the long term nuisance and visual / noise impacts;
- Isolated cases of misinformation about e.g. inflated health impacts/declining property prices due to wind farming can be stimulated by fear.

4.10 Case Study Key Findings

These case studies indicate that Ireland has independently initiated many of the good practices identified in the International Analysis such as local designation of wind resources areas (Mayo, Cork and Kerry County Development Plans) and promotion of community wind farms (Mayo and Tipperary County development Plans). Furthermore Ireland has effective intermediary organisations (Energy Agencies, WDC, Tipperary Institute, Letterkenny Institute and SEAI) that assist wind energy developments. A summary of the key features of each case study is presented in Appendix 2. The key findings of the case studies in terms of social acceptance are summarised in Table 4.3 and the analysis presented in the remainder of this chapter.

Table 4.3
Key 'social acceptance' findings of each case study

Wind Farm	Local ownership	Wider community benefit sharing	Local and non-local partnership support	Extent of community engagement and consultation	Planning Issues/process	Pathway process. Replicability, scalable
Case Study No 1 Templederry	Yes Local people were offered a chance to invest at all stages of the project to help overcome funding bottle necks. However, no new investors came forward.	Yes through Templederry Co-operative	Project finance: 30 community shares: 27 private 2 community trust 1 TEA Tipperary LEADER, County Enterprise Board & Tipperary Energy Agency	High From the outset through to commissioning. Selected wind energy from feasibility study. Need for project driven from the community.	Timing of planning application and grid connection meant that planning application had to be submitted twice as the first one had expired. Minimal objections.	Templederry could not 'easily' happen again – requires huge levels of local leadership capacity & commitment, plus EA voluntary support. Scalable to an extent but likely to be small to medium scale.
Case Study No 2 Oweninny	None However, ESB and MnB have long history of energy provision in Ireland.	Developer currently discussing €1000/MW (IWEA guideline). Local community suggesting €2500/MW (Mayo) and possibly €10,000/MW. Employment	Semi-state owned ESB and BnM. No local equity	Stakeholder engagement plan being followed, includes: Contact with local politicians and community leaders; information days, local radio and public meetings.	Submitted for Planning Permission as Strategic Infrastructure project to An Bord Pleanála An earlier planning application was modified to meet environmental requirements	Semi-state agency not finding difficulty reaching social acceptance – scale of projects large but achieving significant progress due to consultation process and siting of wind farm in remote area with history of peat extraction/ power generation. Process is replicable if suitable sites are available. Scale enables meeting of energy targets.

		opportunities				
Case Study No 3 Private developer	No	Local enterprise, local spin-off through technical and tertiary services. No direct community benefit.	Developer owned	Minimal – operate within statutory planning process.	Does not engage actively with local communities – operate transparently according to planning, EIA requirements, etc. All information available on website. See public engagement as an opening for objectors.	May not be replicable in more sensitive places and spaces. Also changed planning requirements may expect public consultation for future projects Medium to large scale
Case Study No 4 Meitheal na Gaoithe	Community of interest rather than single geographical locality.	Aims to maximise local and community benefits. Focus on helping landowners develop an off-farm long term income or pension.	Range of projects in Kilkenny/ South Tipp/ Wexford southeast region. Ownership pattern varies.	Provides services in education, lobbying and networking at a strategic level as well as support on project level. Key role in technology acceptance in rural communities.	Role is more in helping mediate community relations and to advise on planning process and financial advice.	MnaG represents self-help farmers as wind farmers, based in Kilkenny – long battles on policy/ grid/ planning issues but very successful in developing small to medium sized farms for landowners. Potential to apply model across Ireland for this scale of development.

Case Study No 5 Connemara	No significant ownership or community equity.	Inis Meáin provides community benefit in kind, powering a desalination plant which in turn supports citizen and tourism infrastructure. Small businesses set up to deliver the projects.	Inis Meáin and Indreabhán developed by locally owned companies.	Strong leadership in the case of Inis Meáin (local community activities and social entrepreneur. However, engagement may have been low compared to today's standards (10 years ago)	No planning issues for small island based wind farms Larger (Moycullen and Lettergunnett) commercial wind farms are attracting objections due to cultural and cumulative impacts.	Successful projects tend to be small scale decentralised energy sources. May be replicable in similar circumstances. Scale is likely to remain small but could be a more effective way of meeting decentralised demand. The Moycullen / Lettergunnett examples demonstrate the need for early engagement.

4.11 Analysis of Key Findings

As discussed in Chapter 3 the social acceptance of any energy transition pathway depends on how well it fits with multiple, interrelating aspects of policy, public values, community engagement, potential impacts, ownership options and the balance of costs to benefits. The case study findings have been analysed with this in mind.

The effective approaches identified in the case studies that might achieve greater social acceptance of wind and grid infrastructure are discussed in the remainder of this chapter.

4.11.1 Procedural Justice

In several of the case studies, the interviewees considered the perceived ownership of the process to be medium to high (see Table 4.2). For example, Templederry (partially community owned), Meitheal na Gaoithe (local landowners as developers, linked to a national co-operative) and Inis Meáin/ Indreabhán (locally respected private developer, linked to community initiatives in the Gaeltacht) as well as of the final development. This increased the likelihood that the process was experienced as transparent and fair, although some interviewees reflected that even if they resented the development, they would not object given the local enterprise involved.

In one example, a private developer who is from the sub-region in which the company operates, (Case Study 3) has secured permission for projects without emphasising community engagement while complying with statutory planning consultations. This approach possibly minimises the risks of citizen mobilisation (from the developer perspective) for or against the project, but is unlikely to be transferable to different contexts. The developer deliberately sited the projects in upland areas where controversy was likely to be lower. The developer also created employment opportunities and other economic spin-offs in the form of commercial rates in the county of operation. Interestingly, there is a dimension of 'that was the past' in this case, where the expectation, and indeed insistence, in 2013 by planning authorities is that of early and effective engagement prior to lodging of planning applications. In terms of social acceptance this is gauged as low, due to lack of community engagement.

The 'Strategic Infrastructure' planning process, whereby large projects lodge applications directly to An Bord Pleanála, does not allow for third party appeals but does enable local authorities to speak on behalf of the communities that they represent. This 'centralisation' of the planning process is similar to that experienced in Denmark for the Osterlid Test Centre, where the procedural experience was seen as much more closed. In the past communities did not have the capacity or resources to mount a third party planning objection, however, community alliances are organising on a regional scale and developing 'tool boxes' for other communities to use in lodging such appeals.

<u>Communications & Engagement</u>

The case studies illustrated a range of community consultation techniques including:

- Active community engagement through the local area planning process, well in advance of project design
- One-to-one informal household/neighbourhood consultations conducted by the community developers
- Delivery of a stakeholder plan by the large-scale semi-state developer, providing public meetings, contact with local politicians and ongoing dialogue

- Minimal consultations but transparency offered via the statutory planning process
- Broader educational approach providing a context within which projects can be considered.
- Perhaps poor communication process in the Moycullen case, where previously small scale projects had been benignly accepted with minimal community engagement, active and vocal communities are now seeking direct participation in project design.

The level of community engagement varied significantly across the case studies reviewed. However, where consultation happens early and meaningfully, the number of third party objections seems to be reduced when compared with similar projects where there is minimal community consultation. Templederry developed their local area planning strategy through open forum meetings at community level before embarking on the wind project; thus a high degree of consensus was built from the start. In the MnG examples, local landowners conduct discussions with neighbours and farming colleagues through local social networks, and achieve a medium to high degree of acceptance, with no third party appeals to planning applications in some instances.

The variation in consultation techniques is likely to reflect the individual nature of each case study. In the offshore wind farm sector in Scotland 'community liaison officers' are often used especially where engagement with the fishing sector is required.

The position of semi-state ownership works to the advantage of developers, where a high degree of trust from the community may exist, due to the long history of safe utility provision and indeed employment in some of the western counties which also enjoy the highest wind resources. However, this same trust demands accountability and developers have to work hard to maintain this fragile trust in the case of Oweninny.

The long term wind energy transition pathway may include a significant element of semi state owned and managed large scale wind farm projects where there is an existing trust and confidence in the ability of, for example ESB and BnM, to develop and operate large projects safely, in an environmentally friendly manner, and bring benefit to host communities.

Impacts on Place

The immediate impacts of concern to communities in the case studies were visual and noise impacts, linked directly to the siting of projects. This was especially evident in the Moycullen/ Lettergunnet cases, whereas a small 3-4 turbine wind farm in Indreabhán has been operating in close proximity to houses without apparent issue. The latter may reflect that it was an innovative 'early riser' and was viewed positively as the project was seen as being progressive by a local developer. However, it was interesting that in almost all cases the 'out of sight, out of mind' principle applied, as very few people commented on the environmental impacts of e.g. Oweninny, as the project is located more than 1km away from any private residence. There have been prominent objections to wind farms nationally on environmental grounds, often by statutory objectors such as An Taisce or National Parks & Wildlife Service, vs local communities.

Potential cultural heritage impact has been significant in the Moycullen and Lettergunnet case histories, where the former was refused planning permission due to third party appeals on the basis of potential impact on local archaeological sites.

Environmental impact on upland Natura 2000- designated sites was not raised by community actors in the consultations; however, planning experts and environmental researchers commented that there needs to be much more stringent Appropriate Assessment and EIS on future planning applications – this may in fact sterilise large

tranches of the highest wind resources along the west coast of Ireland which have been so designated. In the Connemara case study, for example, Galway County Council has already designated most of west Connemara as unsuitable for wind farms in its county development plan, due to the presence of Connamara National Park and SACs, thus placing more pressure on the populous areas in the 30km radius of Galway city, including Moycullen.

In terms of community acceptance of Ireland's energy policy one interview noted an acceptance of the need for balance in that wind energy offsets fossil fuel imports and Ireland's over-dependence on external supplies with the impacts on place. This illustrates an acceptance of the broader balance of issues that wind energy deployment helps to address.

The size and scale of turbines has a very strong influence on the social acceptance of wind farms. This is linked to the issue of 'set back' distance from residential homes, which has been discussed at length on social media throughout 2013. Communities and smaller developers feel that the distance should be retained at minimum of 500m, whereas some larger developers would like to see this distance decreased. The National Guidelines for wind farm development (DECLG, 2006) are due to be revised (2014), as the set back distance guideline was agreed when turbines were smaller in height and capacity. However, the spatial planning guidelines may well have been compromised through the development of one-off rural housing and could now effectively sterilise zones that might have been suitable for wind farm development[68]. There is a strong requirement now for revised guidelines for impacts on place including noise, landscape and visual and shadow flicker, reflecting the height and cumulative impacts of larger wind farms in rural communities. The wind energy transition pathway should also include measures to preserve and enhance biodiversity, ecosystems and the cultural environment.

Cumulative Impacts

In the older and smaller wind farms reviewed in the case studies (Indreabhán/ Inis Meáin/Meitheal/ Private Developer cases), there was less adverse community 'push back' than in the newer projects reviewed. This is partially related to the smaller scale of older wind farms, but possibly also due to lack of awareness of issues among host communities. However, elsewhere in Connemara in 2013, there is extensive community push-back against medium to large scale wind farms in Moycullen/ Lettergunnet on the basis of cumulative impact, with highly aware community groups leading the opposition. Much of their objection lies in the lack of consultation at the design stage, but also the cumulative visual and cultural impact of multiple farms within a relatively small geographical sub-region of east Connemara.

In the Oweninny case, the cumulative impact of an industrial scale project is less of an issue, despite other wind farms in the sub-region. This is mainly because the projects are sited well away from residences in an area of cutaway bogs suitable for re-development.

In the private developer case, the cumulative impact was negligible in the early wind farms, but local activists want no more wind farms within their local uplands due to the intense visual impact of multiple farms. The planning authorities are also concerned about cumulative impact in this case, and have zoned significant areas as unsuitable for wind based on environmental and amenity considerations.

[68] See further information on this Bord Failte 2008 Visitor Attitudes On The Environment – Wind Farms

4.11.2 Distributive Justice

Equity

The potential for community equity is a significant factor in social acceptance of wind projects. The Templederry case directly provides two free-carried shares in the project to the community co-operative for local projects, although the governance of this has not been decided. The case study research revealed some doubt that the community ownership model working for large scale wind farm projects because the capacity to raise finance within a community is limited (National Rural Network, 2012), however, there are examples through the international research of communities owning a proportion of the development, such as the 20% equity option in Denmark and the ownership of one turbine out of fifteen in Fintry, Scotland.

Community Benefits

The Oweninny case provides an example, where there have been few objections raised to this industrial scale project, on the promise of employment prospects, an interpretative energy centre and also a dedicated community fund. The current dialogue is focussed on the amount to be paid per megawatt per annum (€/MW/pa) to a community fund, which ranges from that on offer by the developer (€1000/MW/pa) as per the IWEA guideline, to Mayo County Council's guideline (€2,500/MW/pa) to that recently voted by the elected members of the County Council (€10,000/MW/pa). The latter figure has been submitted to An Bord Pleánala by Mayo County Council under the Strategic Infrastructure planning consultation with local authorities. This proposed wind farm is yet to be consented. A balance will be struck when the distribution of costs and benefits is perceived by all parties to be fair.

From the developers' perspective, large (€10,000/MW) amounts of community benefits raise concerns over the project economics and rates of return. A debate needs to be held, and national guidelines developed, as to how community dividends can be agreed and managed, to ensure equity and transparency in their distribution and tangible benefits delivered.

In the Inis Meáin case, the community gained directly from the desalination plant, in providing potable water for the island.

Economic Impact

Landowners who lease lands to wind developers stand to gain in the order of €20,000 per annum per turbine as lease payments, much of which is spent locally. In MnG projects, there are indirect economic benefits delivered through local landowners' wind project, in contract employment and significant local spend.

In the current recessionary climate, employment is at the fore of community acceptance discussions. Where a project can demonstrably deliver jobs, the project has a higher chance of acceptance. For example, in the private developer case, the cumulative effect of multiple wind farms in that sub-region has delivered a number of jobs, with maintenance, accounting and legal contracts directly linked to the projects. In the Oweninny project, procuring a local supply chain may be more challenging as the majority of contracts will need to be advertised through the Official Journal of the European Union due to their size. However, it is possible that work packages and tenders can be drawn up to encourage local suppliers to bid for lower tiers of work.

In the private developer case, the company does not pay direct subsidies to host communities; rather they argue that they pay significant commercial rates to local authorities, for public distribution. Other developers such as Airtricity prefer to link social payments to energy retrofits in e.g. local schools or nursing homes/ hospitals rather than direct payments to host communities.

Compensation

The issue of distributive justice was raised by a number of consultees across all sectors, referring to the fact that while landowners, and even community funds, may be compensated by leasing or direct payments, the 'near neighbour' receives little compensation for the immediate visual and perhaps noise intrusion of wind projects. One interviewee has 20 turbines within 700m of his home, but receives no compensation. There is a case for distributive measures to immediately impacted neighbours (within 1-2km of the wind farm), which has been recognised in Denmark and Portugal. Such measures may include a discounted energy supply (5%) to those living close to wind farms, or compensation for demonstrable falls in property prices linked to the project.

The wind energy transition pathway should include nationally defined guidelines for community equity, benefit and compensation to affected householders.

4.11.3 Grid Infrastructure

In terms of project development it was noted by interviewees that grid access is increasingly difficult with significant queues under EirGrid Gate 3 and reports of larger commercial and semi-state companies tying up available grid access. One suggestion by the Templederry group is that grid access should be reserved via 'wayleaves' for those with secured planning permission to prevent bottlenecks.

In terms of improvements to grid infrastructure, the issue of large scale Grid 25 infrastructural upgrades was not raised as an issue by community interviewees, perhaps because it does not impact directly on their localities or because it was seen as integral to developing wind energy projects. However, the Grid 25 programme is experiencing challenges within the community and Eirgrid's continuing communication and community engagement efforts are not always received well or even allowed to function, for example a recent Open Day information session in Mayo had to be cancelled due to opponents aggressive behaviour. This illustrates the difficulties of developing a middle ground that MnG referred to, where reasonable information exchange and debate can be conducted.

On the national scale, an alliance of opposing communities to the current phase of Eirgrid's expansion of the transmission network is has grown in size and is becoming more vocal in the east/ northeast[69] and also along the Cork-Waterford corridor. The campaign against the grid expansion may increase in the near future as local government elections approach. People living close to the grid route have expressed concerns about potential property devaluation, health issues and damage to farming, tourism, quarrying and other activities (pers com Eirgrid: submissions to public consultation on preferred routes). Eirgrid has had extensive consultations on the preferred route inviting submissions from all interested parties.

[69] A meeting held in the east Midlands town of Trim on 5th November 2013 attracted nearly 1,000 people in protest at plans for 400kV overhead pylons across the northeast of the country, linked to the proposed North-South Interconnector development. *As reported in the Irish Times, 6/11/13*

Eirgrid announced recently[70] a set of initiatives to address public concerns about some of the major Grid25 projects. These include:

- A comprehensive analysis of undergrounding for Grid Link and Grid West projects;
- EirGrid will work with Government appointed independent expert panel to review underground and overhead options;
- Community Gain Funds for localities and residences located close to new pylons and stations;
- EirGrid to adopt any new recommendations from Government expert review of Electric and Magnetic Fields and public health;
- Tourism, agriculture and equine concerns will be comprehensively addressed; and
- To enhance future public engagement, EirGrid will review the consultation process

This was reinforced by Taoiseach Enda Kenny saying that he would like to see the proposed North-South electricity connector included in the review of EirGrid's plans to erect a network of pylons[71]. Minister Rabbitte announced the independent review of the two controversial schemes; the €500m Gridlink project from Cork to Kildare and the €240m Gridwest linking Mayo and , noting that the process could result in delays of up to 18 months in the process of securing planning for the infrastructure. In addition to this Eirgrid confirmed on 28th January 2014 that landowners living near 400kV pylons would get a once-off payment of €30,000 for residences at 50m to €5,000 at 200m. Under new rules, communities will also get funds amounting to €40,000 per kilometre.

The current national policy on renewable energy export requires large scale wind energy projects with export capability, grid development and possibly associated pylons. The wind energy transition pathway will need an educational element to inform local government representatives, county council planners and the public of the benefits of the grid upgrade and the tradeoffs involved.

4.11.4 Potential issues arising from the case study research

Some useful suggestions arose directly from consultees during the case study research, which merit consideration (see below) in the light of the discussion in Section 2.2 on robust strategies for transitions in the Irish context. Whereas Loorbach (2007) suggests that strategies should operate at three levels, it is clear from the consultee feedback that the second level (*tactical*: agenda setting, networking, coalition building, negotiation) is perceived to be largely absent in Ireland, but could be remedied by the introduction of consultative networking structures.

Table 4.1
Issues arising from case study research

Issues raised from case study research	Possible means of addressing informed by international research
There needs to be a national discussion on energy policy Consider the development of community	Establishment of Community Energy Forum to debate national and regional energy strategy.

[70] http://www.eirgridprojects.com/pressmedia/ 28/1/14

[71] http://www.irishtimes.com/news/ireland/irish-news/

Issues raised from case study research	Possible means of addressing informed by international research
forum(s) that will allow early and reasoned engagement of community actors in the decision-making and pre-planning stages of wind projects; The establishment of a national advisory unit for communities considering wind farming	This could be along the lines of CARES, Scotland or the Wind Turbine Task Force, Denmark.
Consider an increase in the set-back distance (> 500m) from habitation/ dwelling houses for modern large scale turbines > 90m height (community activist) The statutory guidelines for distance from habitation should be retained at minimum of 500m (small developer)	Sensitive Siting of Wind Farms reflecting the increased size of turbines and set back distance from residential homes. Ireland is currently consulting on new guidance for noise and shadow flicker. International exemplars include, Denmark (night time noise at 20DbA), Germany (shadow flicker restrictions).
Rigorous and transparent upholding of environmental and archaeological considerations via the planning process for wind farm developments;	Wind Farms in Environmentally Sensitive Areas Identified by environmentalists, policy makers and planning authorities as a key issue on protecting Natura 2000 sites, particularly in the uplands and peatlands. Spatial planning e.g. LARES and Energiewende will help reinforce this but importantly widen the consideration of issues at project level if public engagement in the process of spatial planning is successful.
Improved information on electricity bills (e.g. PSO levy) re benefits of wind and renewables. The PSO (public service obligation) levy cited on citizens' electricity bills is poorly communicated and could be used to demonstrate the fact that wind energy is actively reducing our reliance on imported fossil fuels and also CO2 emissions.	Public Information Campaign Need for public information on climate change consumer behaviour; energy options, benefits of renewable energies, cost / benefits of REs, emissions & import reductions etc. SEAI carry out a major public role in this regard, but much of the information is reaching the 'converted' versus the uninitiated. For example, research and education in Germany.
Increased guidance on reasonable community benefits from wind farming – scale and quantity; rigorous methodology for disbursement of potential dividends to prevent conflict;	Guidance on Social / Community Benefits Agreed guidelines are needed to prevent intractable and possibly unrealistic demands that may prohibit deployment of projects. For example, the Community Benefit Register and the Highland Council guidelines in Scotland.
Priority dispatch That a % of Grid should be set aside for community owned projects > would harness goodwill e.g. 20-30 MW in each county.	Grid access is a major issue for smaller developers (community/ SMEs) in Ireland. The current Gate 3 scheme is oversubscribed and is almost prohibitively difficult and expensive for community based projects to access. There was a suggestion to set aside a proportion (e.g. 5%) of each county's capacity to permit small scale projects access. For example, priority dispatch for wind in

Issues raised from case study research	Possible means of addressing informed by international research
	Germany.
A European model of equity ownership – say 10% local owner on large projects.	Community equity should be considered as a way of increasing community engagement and acceptance. For example, 20% equity in Denmark, 500MW community ownership target in Scotland.
Consider the possibility of giving people within a small (1-2km) radius of a wind farm a discounted electricity supply (e.g. 5%) could be explored as a policy mechanism for increasing social acceptance.	Distributive Justice: near neighbours of large scale wind farms are not compensated currently in any meaningful way. Consideration could be given to discounted electricity supplies and /or compensation for loss of property values due to development. For example, compensation schemes in Denmark and Germany.
Public policy should support wind development both to meet our national 2020 targets and as a stimulus to rural employment and economic activity through rateable income to counties.	There is a disconnection between the support of overall targets and implementation of wind energy projects. A more holistic 'Energiewende' approach would help develop a more comprehensive, consistent view of the need for an energy transition and wind energy's role in that.

4.12 Conclusions from niche development research

The case studies have been explored to help understand the complexities of wind energy deployment in the Irish context and the mix of approaches that might be optimal in terms of depth of engagement and scale of development/carbon emissions reductions. The main conclusions are as follows:

There is no single solution: the research highlights a typology of ownership models, the success or failure of which depends on how the sharing of the costs and benefits is worked out to be acceptable to the developer and to the community (of interests or locality or both). For example, Templederry has evolved to form a co-operative to a commercial operation (with some co-op ownership). Case study 3 indicates some fairness calculation occurring with the developer suggesting that benefits do accrue locally and that the costs are minimised by the siting strategy.

The policy challenge is to find ways to support this process of working out fair benefit both locally and nationally. There are a number of potentially useful ideas, such as guidelines on sharing, the Danish model of equity ownership, the need to recognise impacts on 'nearest neighbour' and the potential role of independent body that merit further exploration.

Growing sophistication: There is more information and NGO support available compared to the early years of wind deployment and there is growing sophistication in communities about the costs and benefits associated with wind. The policy challenge may be to think about how to respond to this and to find ways to replicate success rather than allow negative perceptions and information to dominate community perceptions. Again the research reveals a number ideas such as information campaigns, community energy forum (including consideration of non-wind options, as one of first steps in Templederry case) and the a need

for more support in terms of an advisory service or community liaison officer (to work with private developers).

Replicating success, role of intermediaries: A core feature of MnG is that it is a vehicle for replicating success as it seeks to transfer lessons across localities (including workshops, educational activity). In certain ways it acts as an intermediary (planning advice and communication), as does the Tipperary Energy Agency (technical advice). The case study interviews also highlighted a demand for a national forum/conversation on wind energy to raise awareness of the potential value (as well as risks) of further wind developments which this type of body may be able to fulfil.

Policy needs to be updated: Drawing on the Irish context in Chapter 2 and the interviews with key players it is evident that there is a need to enhance and update guidelines, including issues like set back distance, creation of dedicated grid access for community projects, national landscape strategy, Visual Impact Assessment. Some of this is beginning to be addressed (Environment and Public Health (Wind Turbines Bill 2011).

Enhanced role for LARES: The case studies indicate the importance of LARES to set an appropriate context for wind energy deployment. This could be enhanced as both a statutory instrument and as template for Regional Development Plans.

Energy Transition Plan: There is a disconnection between the support of overall targets and implementation of wind energy projects. A more holistic 'Energiewende' approach would help develop a more comprehensive, consistent view of the need for an energy transition and wind energy's role in that. This could be in the form of an Energy Transition Plan which brings together elements such as, the NREAP, Energy Green Paper, LARES, public discourse, guidelines for procedural justice, place related impacts and distributive justice.

Communication: The case studies illustrated the difficulties of achieving and maintaining open two-way communication channels. Providing information to communities is a one-way process of communication that is not equivalent to more substantial forms of engagement, which would consist of a two-way dialogue between developer and community (Rowe and Frewer, 2005).

5.0 REFLECTIONS ON THE FUTURE OF WIND ENERGY IN IRELAND

5.1 Introduction

This chapter explores what the future may hold for Ireland in terms of the influence of social acceptance on the deployment of onshore wind energy. In order to provide focus it does so to the exclusion of other factors, such as market forces, but this is not to say that these factors do not exist. It is envisaged that the future hypothetical wind energy pathways discussed here will be considered by policy makers in the context of considering how to address community and social acceptance of wind energy.

As noted in Chapter 2, social acceptance of wind energy projects has historically been relatively high in Ireland. However, such acceptance is fragile and changeable and some local and national public opposition has been in evidence in recent years. In Chapter 3 we discussed the concepts of energy pathways as a way of envisioning alternative futures and whether there is a need to intervene on the basis of community acceptance. We noted how it was possible to combine both the concepts of acceptance and energy pathways by considering how various types of wind energy projects might be more likely to induce higher levels of community acceptance compared to others. The pathway, defined by the combination of both contexts and processes, indicates how Ireland's energy system will continue to develop. In this chapter we envisage alternative pathways with the aim of highlighting the types of initiatives and risks that could influence the ultimate trajectory of change and speed of transition.

It is extremely important to note that these are *indicative pathways* to highlight the interaction of various social aspects and highlight potential opportunities for intervening to ensure that social acceptance does not become a constraining factor in the Irish energy system.

5.2 Wind farm development in the medium term

Based on the Irish context for wind energy development (Chapter 2) and the case studies (Chapter 4) three pathways for wind farm development in the medium term are apparent:

- The grid upgrading programme (Grid 25) will be progressed against opposition and will be delivered in some areas in an ad hoc manner. New wind farms will be connected in these areas and could deliver over half of the technical wind power resource in Ireland.
- In areas where moderate size wind farms are already operating but expansion is sterilised by SACs some re-powering with the latest technology larger scale wind turbines will take place and could deliver less than half of the technical wind power resource in Ireland.
- If there is market and social acceptance of wind energy export large industrial scale wind farms will be built with associated pylons and interconnectors with the capacity to deliver a very large percentage of the technical wind power resource in Ireland.

In this chapter we examine more long term pathways. We develop a series of pathways to illustrate the links between potential levels of social acceptance and the overall trajectory of wind energy deployment in Ireland. As already discussed in chapter 3, the Irish energy system should be understood as a socio-technical system. Fundamental change should be understood as a transition, which can be influenced at a range of different scales, at different timescales and by a co-evolution of society and technology. In focussing on how social acceptance of wind energy has developed, and will continue to develop in Ireland we propose a number of hypothetical pathways that are based upon some of the trends and

strategies discussed in an Irish context and draw on experience from elsewhere and the insights from the broader academic literature on social acceptance and technology.

Each pathway reflects the opportunities and contrasts provided by the specific *contexts* of wind energy development and how key actors interact through various *processes* or regulatory change and infrastructure development. Both contexts and processes can be combined to define diverse *pathways* in which Ireland's energy system will continue to develop. Alternative pathways are useful tools to elucidate the types of initiatives and risks that could influence the ultimate trajectory of change.

5.3 Pathways of social acceptance of wind energy

The pathways of social acceptance of wind energy in Ireland are developed around three key themes:

The first is that there are a number of key variables that we know are likely to drive the degree to which local communities and the broader public are willing to host wind energy projects and support wind energy as a core element of the energy system. This includes *context* issues that are largely beyond the control of Governments, such as availability and performance of the wind resource, or issues of global energy security and energy costs. It also includes a range of factors that can be influenced, in the long term, by stakeholders active at the national and international levels, which includes regulatory strategies used for planning and consenting wind energy deployment, ownership profile of the wind energy industry, cumulative environmental impact of wind energy projects and the degree of community engagement. All these issues can be combined in a myriad of ways so that social acceptance of wind energy projects is maintained, declines or could improve over time.

The second key theme is the recognition that the degree of social acceptance of wind energy projects can have significant influence on the pace and scale of overall development of the wind energy sector. This can vary from delaying individual projects by a number of weeks, to a far broader scepticism of the value of the wind industry to the degree that financial institutions become reluctant to fund wind energy projects and governments lower expectations of the role of wind energy, leading to less financial and policy support for the sector. Conversely, high levels of acceptance could drive political support for wind energy and lead to communities being proactive in securing wind energy development in their local areas.

The third theme relates to the risks and benefits attached to social acceptance and public opinion. From experience in other countries, it has become clear that attitudes to wind energy can change relatively rapidly as a result of successful anti-wind campaigns, a change in political leadership, or because of a single, well-published project that has been handled badly. These are all inherent risks for mapping out Ireland's energy future.

It is impossible to predict a precise causal relationship between the level of social acceptance and the level of development of wind energy, but these pathways have been developed to provide a schematic indication of how these various factors could combine to give different trajectories of wind energy development in Ireland.

Prior to describing each of the pathways, it is important to clarify the assumptions used in their development.

5.4 Assumptions for the social acceptance pathways

The broad dimensions of wind energy developed in the pathways are set out in SEAI's Wind Energy Roadmap for wind energy up to 2050. This includes resource availability, technology developments, transmission and system integration and supply chain development pathways. The medium scenario of the SEAI roadmap is the basis for many aspects of the social acceptance pathways developed below – SEAI suggest that wind energy has the potential to create 20,000 jobs in direct employment and generate electricity with a value of about €15 billion. It is likely that the economic value of wind will rise and fall in proportion to the overall trajectory of wind development.

Following this Roadmap, the broad timescale for the pathways is up to 2050; in recognition that many aspects will take several decades for their trends to develop and to have an impact on the overall energy system. The SEAI Wind Energy Roadmap (medium scenario) suggests that onshore wind energy development will reach a maximum capacity around 2030, although the high scenario does suggest a modest growth to 2040. The Roadmap also indicates that some of the increased onshore capacity will come from re-powering of existing projects from about 2017 onwards. The SEAI Roadmap aligns with the EU's Energy Roadmap (2012).

The social acceptance pathways discussed below focus on onshore wind capacity. However it should be noted that it is likely that offshore schemes could also be subject to local opposition (e.g. Ellis et al 2007; Devine-Wright and Howes, 2010). Therefore, the major growth in offshore capacity, projected in the SEAI Roadmap as taking off post 2030, is also likely to be effected by variations in the level of social acceptance, although this is not explored here.

There are a number of other aspects of the overall *context*, which are largely beyond the control of Ireland as a nation state and largely incorporated into the SEAI Roadmap, which includes:

- There will be a continued high-level (EU and geo-political) commitment to shifting to low carbon energy systems, driven by the commitment to reduce greenhouse gas emissions to 80-95% below 1990 levels by 2050;
- There is no significant change in Ireland's wind resource (for example as a result of changing climatic systems);
- Wind energy continues to be cost–effective and attractive to private sector investment with continued government financial support;
- Ireland's energy system is not fundamentally influenced by new global sources of energy;
- No other renewable form of energy generation is able to complete with wind in terms of scale and cost, although there will be a continual drive to increase the range of renewable energy sources;
- There is improved technological efficiency, with continued incremental improvement in the performance of wind energy technology, increased integration of electricity with other energy systems, supported by developments related fields of energy storage and transmission.

It is also assumed that:

- Ireland's energy system is not transformed by the exploitation of new sources of conventional and unconventional fossil fuels;
- Supportive infrastructure, principally grid connections, continues to be developed, albeit influenced by similar social acceptance issues to wind.

- The development of the scenarios will be accompanied by a variety of supporting developments such as on electric vehicles and smart grids, as set out in SEAI Roadmaps.
- Electricity demand will increase in line with demographic trends.

5.5 Social acceptance pathways

We have taken these assumptions and variables to develop seven hypothetical pathways for future development of the Irish wind sector. The main elements of the pathways are summarized in Table 5.1 and an indicative impact on overall onshore wind capacity is shown in Figures 5.1 and 5.2.

5.5.1 Pathway 1: 'Current trajectory'

In this pathway, the Irish situation continues along current trends without any major interventions by government bodies such as the SEAI or industry umbrella groups such as the IWEA to influence social acceptance. The pathway includes ad hoc and incremental improvement in practices and procedures of regulator and developers, which does improve acceptance, but in a very variable manner. There is considerable divergence in how community engagement is practised amongst developers. Some engage early and openly; others avoid activities that are not obligatory under statutory land-use planning procedures. This contributes to a continued recognition of the value of wind energy by the majority of the Irish population, but there is a slowly increasing local opposition to local projects as more of the Irish landscape is populated by wind turbines, community benefits and equity remain relatively limited and engagement practices vary.

In this pathway, the majority of wind energy projects do go ahead, but consenting processes become more complicated, take much longer and impose an increasing cost to developers and consenting authorities. While confidence in the wind energy industry remains strong, a proportion of sites with a strong and viable wind resource are avoided by developers due to fear of local opposition and the inherent risks this brings. There is a gradual slowing of the pace of development and while projected levels of generation are eventually achieved, these take longer to attain and at greater cost.

Levels of community ownership and engagement in wind energy projects remain very minor and almost all wind energy projects are proposed and developed by companies with no link to the local area. While some host communities experience enhanced investment in local infrastructure from community benefit funds, local economies remain broadly unchanged and the majority of financial benefits accrue external to the local area.

5.5.2 Pathway 2: 'Minimal public acceptance'

In this pathway, there is no government or industry support for acceptance issues and as a result there is a rapid decline in societal support for wind energy. Increasingly vociferous local opposition evolves into a concerted national campaign driven by active and stable networks of objectors and by media reporting. There is a risk that wind energy would be considered to be imposed, top-down, upon Irish people. If dominated by private developers and little community involvement, it would be perceived that benefits only flow to a minority. The struggle over wind projects involves routine challenges in third party appeals, judicial review and a degree of civil disobedience directed to wind energy construction sites.

There is a growing mistrust of wind energy companies and regulators, which is driven by several factors: centralised control over consenting procedures, a number of poorly designed very large-scale schemes and a lack of benefits flowing to local communities beyond immediate landowners. National anti-wind campaigns are backed by the media and by major political parties resulting in the emergence of alternative energy strategies based on sources other than wind. This is also directed towards, and influenced by developments in the grid, which is associated by the public with the drive towards a wind based energy system. Anti-wind discourse becomes central to the way energy is discussed. Wind becomes increasingly controversial so developers move into alternative sectors and financial institutions become reluctant to fund wind schemes.

In this scenario, existing wind energy projects continue to generate electricity, but they are not redeveloped once they come to the end of their operational life. The rate of new schemes declines rapidly to the point that by 2050 there are only a few small specialist schemes operational. In response to this, energy strategists rethink the future trajectory of the Irish wind industry and alternative sources are sought, with consequences for greenhouse gas emissions, energy security and the cost-effectiveness of the energy system.

5.5.3 Pathway 3: 'Nationally led Local variation'

In this pathway, there is strong national guidance on the spatial distribution of wind energy development, as a result of leadership shown at the highest levels of government, a rational sieving of nationally significant wind resources and the elicitation of landscape values from citizens using participatory-deliberative methods. New planning guidance actively encourages substantial investment in certain areas of the country, supported by a coordinated grid investment plan and an enhanced community benefit package in those areas zoned for major wind development. Such areas incorporate wind development into narratives of regional distinctiveness, draw pride from their role in achieving the low carbon transition and seek tourism/educational opportunities associated with energy developments (e.g. the construction of viewing platforms within turbine towers, and visitor centres adjacent to wind farms for school children).

Other parts of the country, including areas deemed to be of high landscape value and associated tourist potential, are offered further protection against future wind developments. The goal is to maintain 'wild' landscapes that are devoid of 'industrialisation' arising from large-scale technological developments such as wind farms and transmission power lines. Although this strategy is not entirely successful in generating social buy-in, it does limit potential opposition to discrete pockets across the country and in instances where this becomes difficult to manage; it is possible to grant specific development orders, based on the model of Strategic Development Zones to further facilitate wind energy development when limiting the opportunities for delay.

Nationally, most people continue to support the principle of wind energy deployment as being a core element of Ireland's future energy system. There is a highly variable geography of wind energy development across the country as a whole. This will also lock in ideas about maximum feasible development of onshore sites and once the identified areas become fully developed the notion that Ireland is "full" begins to develop, limiting the overall extent of development.

This scenario is geared to maximising the generating capacity in wind designated areas, which largely depends on major multi-national investments, so the opportunities for local community owned schemes become limited.

5.5.4 Pathway 4: 'Ad hoc Local variation'

In this scenario, no national spatial strategies are developed to promote the social acceptance of wind energy. Instead, there is considerable diversity driven by the contrasting approaches taken by different County Councils. As a result, levels of social acceptance vary greatly across the country, depending on the practices around specific schemes and the regulatory strategies pursued by individual County Councils. Some councils encourage high levels of community engagement on planning policy and consent decisions, which results in well-designed schemes being developed, which make a range of valuable contributions to the local economy. As a result, communities regard the projects that are developed as being on their terms and they pro-actively encourage further developments and even initiate a degree of community owned schemes. Conversely, other parts of the country become distinctly anti-wind due to a range of factors, which include poor experiences with previous schemes, a lack of community benefits and an unsupportive local county council. Wind schemes are not encouraged in these areas and developers avoid them.

Nationally, most people continue to support the principle of wind energy as being a core element of Ireland future energy system, but there are increasingly implementation problems in parts of the country, leading to a highly variable geography of wind energy development. Some regions fully exploit the benefits of available wind resources with thriving economies based on increasing concentration of schemes with a strong flow of local benefits. Others seek to remove the impact of wind energy from their landscapes and existing schemes are not redeveloped once they come to the end of their operational life. As a result the wind energy sector continues to develop but its ultimate contribution is limited, as some areas of high wind resource fail to be exploited. Highly variable geographies of wind development create further difficulties for the grid network operator, which struggles to efficiently plan network upgrades amongst a patchwork of developments across the country.

Levels of community ownership are also variable across the country – in those areas that are pro-wind, communities become enthusiastic to develop their own schemes on niche sites, which are encouraged by a supported regulatory environment. No community schemes are developed in the anti-wind areas.

5.5.5 Pathway 5: 'Consolidation and re-powering'

In this pathway, there are modest national and local attempts to promote social acceptance. There are some local difficulties in consenting for new schemes and there is relatively, modest growth until older schemes come to the end of their operational life, At this point, developers propose redeveloping these sites at a much greater capacity and discover that the local communities, having now become accustomed to such schemes and have good levels of trust in the owners of local schemes, accept the repowering strategy in return for a greater local benefits package. Developers and regulators then promote repowering as the key strategy for expanding wind energy capacity and other areas of the country become protected from further development.

In this scenario, confidence in the wind energy industry remains strong, but new sites with a strong and viable wind resource are avoided. Wind energy capacity does expand, but the overall contribution to the Irish energy system is limited.

Levels of community ownership and engagement in wind energy projects is strong in areas of long-standing schemes with some communities taking forward ambitious repowering

projects themselves through community asset transfer of existing schemes. The larger schemes, on a scale never seen before in Ireland tend to be owned and operated by major energy interests, paying some contributions into a community benefit scheme.

5.5.6 Pathway 6: 'Community-driven'

In this pathway, Government attempts to promote community–owned wind energy schemes become very successful, with the majority of areas with a viable wind resource bringing forward modest-scale wind energy schemes. This has been encouraged by a supportive government strategy for community energy, which provides access to specialist advice, funding streams and underwrites initial risk. A network of renewable energy cooperatives, building upon existing experiences in the dairy industry and emerging Transition Towns, is created that links up landowners and facilitates the sharing of good practice.

Community schemes have preferential treatment through the planning system and are further encouraged through smart-grid developments. There is however, a backlash to larger schemes owned and operated by major external energy interests and these are subject to high levels of opposition as they are increasingly seen as expropriating valuable local resources. The number of purely corporate schemes declines as the consenting process becomes increasingly entangled in legal challenges and major delays resulting from the objections. Whilst some international energy companies withdraw from Ireland claiming that the risks are too high, others pro-actively engage in joint ventures with community groups, sharing ownership and a culture of share ownership begins to develop across the country, informed by experiences in Denmark and Germany.

In this scenario, wind energy capacity increases rapidly for a few years, until the community model comes to dominate wind development. There continues to be a growth in the number of schemes coming forward but these schemes tend to be much smaller than those previously developed by industrial interests. The contribution to the overall capacity slows down but the lack of local opposition means that every scheme passes quickly though the consenting process and begins to transform the local economies of the adopting areas, as infrastructure and local businesses receive substantial economic enhancements as a result of the community energy schemes. There is also increasing innovation in the way the schemes relate to local communities and these becomes combined with other forms of community enterprise, such as energy intensive industries, further driving interest and support for these schemes.

5.5.7 Pathway 7: 'Extensive social buy-in'

In this pathway, social acceptance is very high, driven by central and local government strategies, good practice protocols in the wind energy industry and a thriving community energy sector. Public support becomes the key driver of energy policy in Ireland, which becomes an international leader in wind energy deployment surpassing other European countries such as Denmark and Germany. The public strongly support further development of all forms of wind energy scheme. Political parties – and specific councils - compete to have the most ambitious renewable energy targets. As a result, further technological innovation takes place and Ireland's ultimate wind energy capacity exceeds even the "high scenario" set out in the SEAI Wind Energy Wind roadmap. Long term social acceptance is maintained through well designed schemes and a high flow of community benefits, making those areas with wind schemes more affluent than those without, further increasing demand. Multiple economic multipliers are achieved and wind energy drives significant 'green' growth in the economy generally.

In this pathway, wind energy projects are generally welcomed by local communities and they pass through the consenting process rapidly - indeed there are examples of some local communities complaining that the schemes are not passing through the planning process fast enough. Overall capacity grows rapidly and beyond all previous expectations.

Levels of community ownership and engagement in wind energy are high and community schemes exploit distinctive niche areas that larger major developers do not see as being viable. Where schemes are developed by major industrial interests these have been through a public participation approach, and adjusted scheme design often takes into account community concerns.

Each of these pathways are summarised in Table 5.1.

Table 5.1
Social Acceptance Pathways

		Pathway 1 ***'Current Trajectory'***	**Pathway 2** ***'Minimal public acceptance'***	**Pathway 3** ***'Nationally Led Local Variation'***	**Pathway 4** ***'Ad hoc Local Variation'***	**Pathway 5** ***'Consolidation and Repowering'***	**Pathway 6** ***'Community-driven'***	**Pathway 7** ***'Social buy-in'***
Key factors in social acceptance	Regulation	Central government prepares good practice guidance for planning for wind energy schemes. This is accompanied by local authority renewable energy strategies. These are reasonably successful, but are not always successful in preventing some cases of poor industrial practice. There is no national scheme for enhancing	Community impacts are ignored in regulatory strategies, which remain solely focused on the expansion of wind energy capacity at any cost. A public backlash occurs following some challenging schemes. As a result, increasingly wind is zoned out of large parts of the country where wind farms are judged to be 'out of	Highly spatially differentiated practice – guided by a national zoning strategy driven by committed leadership at the highest levels of government. This is based on wind resource and landscape values that are elicited by participatory-deliberative methods. A 'national narrative' of wind energy development is devised and consensually agreed by a social	Highly differentiated practice – some local authorities neglect local community interest while others develop innovative acceptance strategies with the support of the wind energy industry. Local planning policy is proactively encouraging wind energy development in some counties, yet excluded from others. Developers avoid sites with	Planning guidance encourages redevelopment and repowering of existing sites rather than new developments.	While there is no social acceptance strategies per se, the government does bring forward a highly effective community energy strategy that allows most communities to bring forward their own schemes. Community owned schemes have preferential treatment in the planning system Networks of community cooperatives play a significant role	Central government initiates a robust social acceptance strategy, backed by strong local authority practices and NGO support. The wind energy sector recognises the long-term value of acceptance and enthusiastically backs the strategy, which becomes highly successful.

	Pathway 1 *'Current Trajectory'*	Pathway 2 *'Minimal public acceptance'*	Pathway 3 *'Nationally Led Local Variation'*	Pathway 4 *'Ad hoc Local Variation'*	Pathway 5 *'Consolidation and Repowering'*	Pathway 6 *'Community-driven'*	Pathway 7 *'Social buy-in'*
	community benefits. and levels of community benefit	place'.	partnership of relevant bodies including environmental NGOs and tourism industry representatives.	high resource that straddle administrative boundaries.		in project development, acting as an advocate for wind energy projects and sharing knowledge through informal networks of communication.	
Health and Environmental Impacts	The Planning process filters out schemes with high environmental impacts, but local communities still complain that some local schemes have a disproportional impact on the local area.	Poor planning decisions have meant that some communities suffer unacceptable environmental impacts, resulting from poor project design.	National standards are applied in areas zoned for wind development and where necessary, local communities are compensated for unacceptable impacts. 'Wild' places are protected from wind development. Zones of deployment seek tourism	Some areas exhibit best practice, with good project design that avoids unacceptable environmental impacts, however, poor planning leaves some impacts unmediated.	The impacts of new sites are subject to detailed scrutiny, with only a limited number allowed to proceed. The health impacts of repowering projects are examined and good project design avoids the most unacceptable impacts.	Previous impacts of large industrial schemes are seen to be unacceptable and planning guidelines are changed to limit these. Community schemes are discussed thoroughly in local areas and designed to make only negligible impacts.	Developers become highly sensitised to local environmental impacts and only bring forward schemes that have modest local impact and compensate local communities if these are seen as being significant.

		Pathway 1 *'Current Trajectory'*	Pathway 2 *'Minimal public acceptance'*	Pathway 3 *'Nationally Led Local Variation'*	Pathway 4 *'Ad hoc Local Variation'*	Pathway 5 *'Consolidation and Repowering'*	Pathway 6 *'Community-driven'*	Pathway 7 *'Social buy-in'*
				and educational opportunities as spin-offs from projects.				
	Distribution of costs and benefits	There are some industry-driven community benefit funds and some companies drive innovation in this area, but impact on community acceptance remains relatively muted as industry practices remain highly diverse.	Community benefit schemes are very uncommon and local communities are by-passed by any of the economic advantages form wind energy projects.	Pro-active zoning is accompanied by an enhanced community benefits package exceeding current practice. This proves popular in some areas, but resented in others resulting in the need for some high wind resource areas to impose major schemes on the local population	In some areas, with a strong steer from a local authority strategy there are robust community benefit schemes, whilst in some other areas virtually all benefits by-pass the local host community.	New major industrial schemes are accompanied by very poor community benefits. Good relationships with existing schemes enable a good negotiation of community benefit packages with repowering projects.	Major industrial schemes are accompanied by very poor community benefits, contributing to decreased social acceptance and a turn to community schemes, with major benefits then flowing to local communities.	Developers recognise the benefits of sharing the profits of wind energy schemes with local communities and many buy shares in local schemes, there are generous community benefit schemes and a wide range of community owned schemes transform some local economies.
	Procedural Governance	Some examples of good practice,	There are high levels of mistrust	Although in some areas, local	There is differential trust – some	Local communities become used to	There is differential trust – communities	Good, transparent planning policy

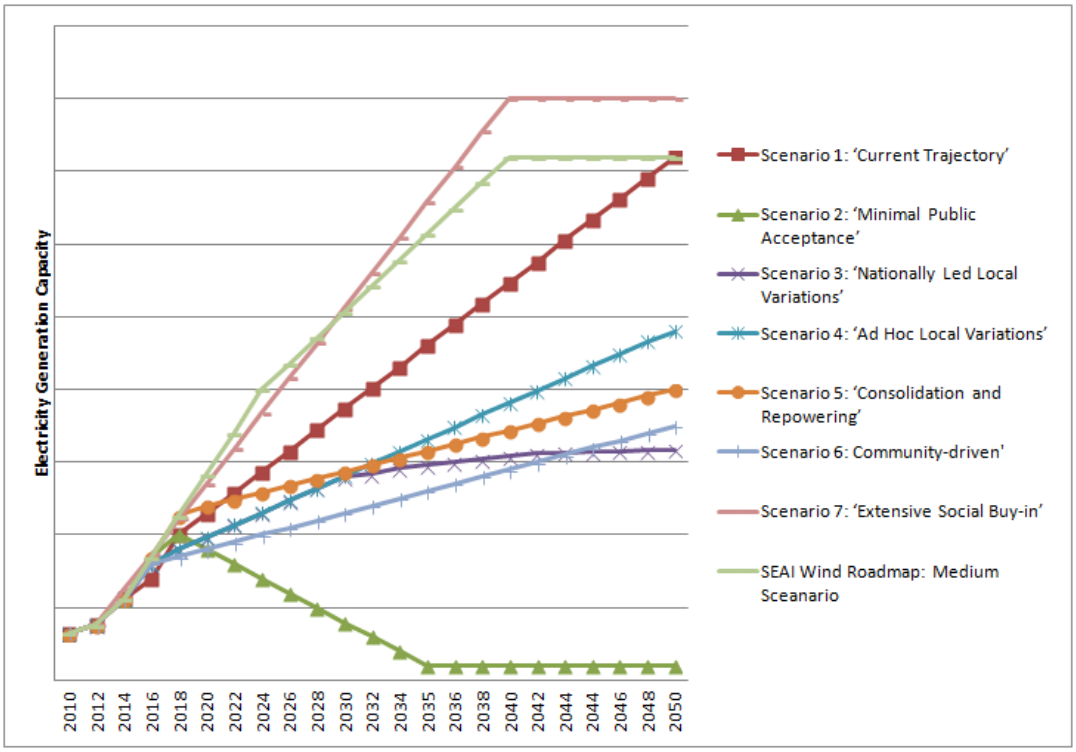
	Pathway 1 ***'Current Trajectory'***	**Pathway 2** ***'Minimal public acceptance'***	**Pathway 3** ***'Nationally Led Local Variation'***	**Pathway 4** ***'Ad hoc Local Variation'***	**Pathway 5** ***'Consolidation and Repowering'***	**Pathway 6** ***'Community-driven'***	**Pathway 7** ***'Social buy-in'***
	but majority of the population remain sceptical to the motives of local and central government and continue to question the majority of wind energy decisions, delaying their outcome.	between communities, development and government. The latter implements defensive strategies and communities infer sinister intent in every decision.	communities remain open to further wind development and welcome the enhanced package of community benefits, a number of areas regard this simply as a bribe and begin to resist further developments, leading to these being imposed via development orders.	communities are sceptical and suspicious of major industrial schemes, but others develop a good relationship to the local authority and local developers.	existing schemes and have a high degree of trust with existing operators, but distrustful around previously underdeveloped schemes,	are sceptical and suspicious of major industrial schemes, but highly supportive of community owned schemes, which are based on high levels of local deliberation. Some joint ventures take place, but the majority of schemes are locally owned.	and decisions engages effectively with local communities, leading to high level of trust.
Implications for generating capacity	SEAI Wind Energy Roadmap figures are achieved, but not within the envisaged timescale	It becomes increasingly difficult to bring forward new schemes, arising from the growth of an influential nation-wide anti-wind campaign that is backed by	Capacity continues to grow to grow until designated areas become fully developed – zoning approach has reinforces the notion that areas outside of designated	Capacity continues to grow to 2050, however as some parts of the country become closed to further wind energy development; this does not reach the levels	Capacity continues to grow to 2050, however as this relies on repowering schemes and no new sites come forward, capacity does not reach the levels of	There is continued and rapid growth of wind capacity up to 2050 – however due to the fact that almost all schemes are brought forward by communities and therefore	Capacity is further enhanced by political ambition to deliver more wind energy and the "high scenario" in the SEAI Roadmap is exceeded.

	Pathway 1 *'Current Trajectory'*	Pathway 2 *'Minimal public acceptance'*	Pathway 3 *'Nationally Led Local Variation'*	Pathway 4 *'Ad hoc Local Variation'*	Pathway 5 *'Consolidation and Repowering'*	Pathway 6 *'Community-driven'*	Pathway 7 *'Social buy-in'*
		some sectors of the media. Capacity declines as existing schemes reach the end of their operational life.	areas are unsuitable and it becomes difficult to shift the notion the Ireland is now "full" and overall capacity becomes compromised.	of estimates in the SEAI Wind energy Roadmap.	estimates in the SEAI Wind energy Roadmap	are relatively small scale, estimates in the SEAI wind Roadmap are not achieved.	

5.6 Summary

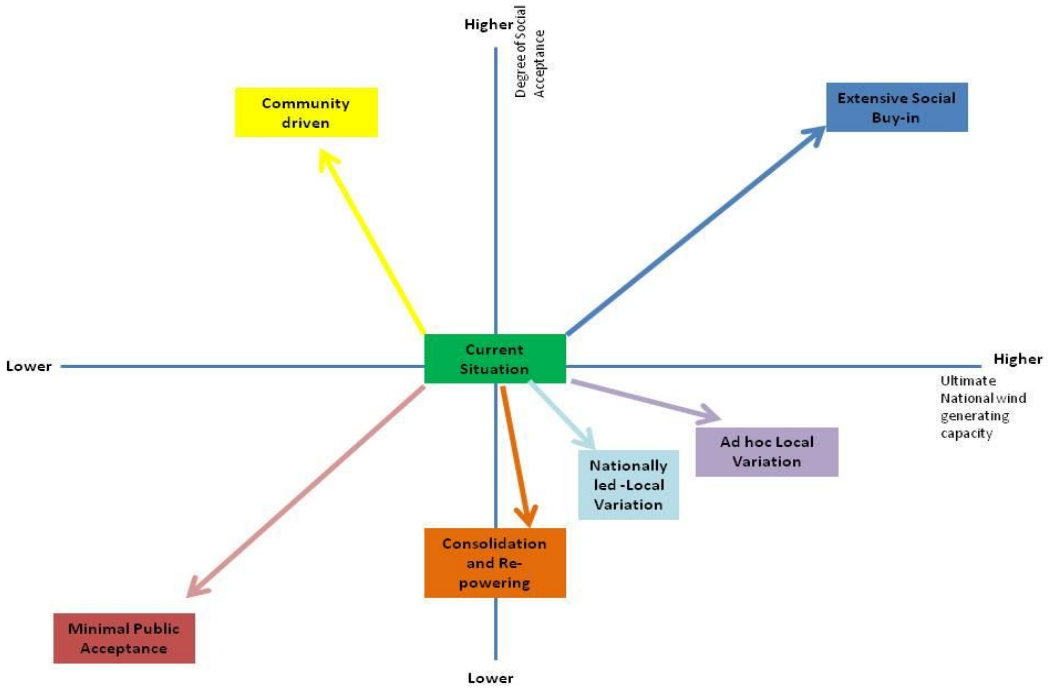
Figure 5.1 indicates how the different Pathways could affect the installed wind capacity in the medium term (to 2050). Pathway 7, Extensive Social Buy in, appears to deliver the highest wind energy capacity. A pathway between Scenario 5 Consolidation and Re-powering and Scenario 4 Ad Hoc Local Variations is the best representation of the current situation in Ireland, or business as usual case. Scenario 2 'Minimal Public Acceptance' is a possibility if objections gain further traction and community engagement and the increase of social acceptance are not seen as a priority to be addressed. This could potentially see installed capacity flat-lining from 2035 and targets not being met.

Figure 5.1
Indicative Pathways for Ireland's onshore wind energy capacity under different social acceptance scenarios



An alternative way of viewing this is presented in the schematic below that shows the direction and extent of travel for each pathway.

Figure 5.2
Indicative Pathways for Ireland's onshore wind energy capacity against degree of acceptance and wind energy capacity



The international report discussed the option of an Energy Transition Plan as a means of providing an overarching integrated, culturally attuned vision for Ireland's energy transition. The pathways illustrations above provide a context to consider the possible options open to Ireland.

6.0 CONCLUSIONS AND NEXT STEPS

6.1 Introduction

This study has set out the key contexts and processes in the development of onshore wind and associated grid infrastructure in relation to social acceptance in Ireland. It has done so by summarising the existing policies and practices in Ireland; exploring the contexts and processes for wind energy deployment and social acceptance; providing a conceptual framework in terms of transition theory, future energy pathways and social acceptance; and providing an analysis of niche developments which illustrate the existing and emerging challenges and opportunities for Ireland.

The findings of the national research have then been considered within the context of the findings of the international comparative study (Wind Energy: International Practices to Support Community Engagement and Acceptance).

6.2 Energy Transformation

The transformation of Ireland's energy system, from one based primarily on imported fossil fuels to one which has a much greater share of generating capacity from renewables, particularly onshore wind, will involve a complex set of technological, social, economic, regulatory and physical adjustments, over a range of spatial scales and will emerge over a number of decades. Crucially, energy needs to be seen as part of a socio-technical system, not one just based on infrastructure and economic incentives. While Ireland will have to respond to wider constraints related to issues such as the global energy market and international agreements on issues such as greenhouse gas emissions, it does have the potential to steer this transformation along a range of energy pathways towards a set of predefined goals.

6.2.1 Developing wind power capacity

Ireland has already been very successful in rapidly expanding its generating capacity from wind over a relatively short period of time, (comparable per head of population to Germany, but with less than Denmark and Scotland Table 2.4) which has involved complex changes to policy, infrastructure and regulatory regimes involving a diverse range of stakeholders. These changes have also begun to change the way communities and individuals relate to energy generation, with some parts of Ireland hosting energy generation for the first time. The impacts of wind energy have been differentially spread across Ireland, with those areas of greatest wind resource hosting the majority of such developments.

Ireland is seeking to achieve between 11GW and 16GW of onshore wind by 2050[72], which means in the order of an additional 9-14GW of onshore wind over the next 37 years in addition to 30GW of offshore wind by 2050. There is also the intention to explore the capacity for Ireland's wind market to become export driven in the 2020-3050 timeframe. The main drivers for further renewable energy are energy security, a low carbon future to address climate change and an excellent wind resource which is relatively economical to deploy (see Figure 2.2).

[72] SEAI Wind Energy Road Map to 2050

6.2.2 Community acceptance

Focusing upon community acceptance of 'technological niches' (projects) in particular the specific local context of a project seems to be very important. Community acceptance issues tend to include those of 'People-Place relations' such as, local impact (e.g. visual, noise, health); those of distributional justice, such as direct and indirect socio-economic benefits or disbenefits (e.g. loss of employment, potential loss of income, decrease in property values, impacts on tourism); and those of procedural justice such as early engagement and transparency of process, trust in the developer and the meaningful participation of the community. Many of these issues can be addressed through early and continuous communication and engagement around projects but also at the strategic and tactical level to maintain and enhance the overall positive view of the benefits of deploying wind energy. Overall, although there were some good examples of community engagement (e.g. Inis Meáin and Indreabhán) the depth and quality was found to vary considerably. However, it is also of interest to reflect on the private developer (Case Study 3) approach where consultation was minimal but consent was still granted. It is notable that this has worked in the past but it is unlikely that such an approach would be sufficient, desirable or acceptable to achieve the full energy transition. It was seen as of 'low social acceptance' as categorised by Table 4.2.

6.2.3 Developing Community Wind Energy Projects

Community wind energy projects have and will contribute to Ireland's wind energy targets. However, it must be noted how challenging community energy projects can be to bring to fruition. Relying on local voluntary effort as in the case of Templederry (even if there is future reward in terms of shares for those who hold them) is not necessarily replicable, especially, as it often relies on individual leadership (as in Inis Meáin and Indreabhán). The development of a project includes a number of stages (see Appendix 2) most of which would involve teams of experts often supported by outside contractors to deliver (such as, finance, risk management, contract negotiation, grid connection) in the corporate sector. Community driven projects find this type of expertise and support much more difficult to access. The presence of guidance such as To Catch the Wind, IWEA's and SEAI's portals, energy agencies, institutes of technology, all offer valuable support but cannot supply the skills, time and tenacity (often over a decade or more, see Templederry) that are required to secure such projects. Even with the technical input of these intermediaries the lack of the required level of financial resources within rural communities means that there will be only a limited number of community owned wind farm projects in Ireland. In contrast the international research illustrated the value of intermediaries, such as Community and Renewable Energy Scheme (CARES), supported by Scottish Government and delivered through Local Energy Scotland and the Danish Wind Turbine Task Force.

6.3 Key national insights and gap analysis

Ireland has independently initiated many of the best practices identified in the International Analysis such as national and local renewable energy action plans, feed in tariffs, community investment initiatives, local designation of wind resource areas by local authorities, national guidelines for wind farm development and promotion of community owned wind farms in local government policy. Furthermore Ireland has effective intermediary organisations such as the energy agencies, institutes of technology, and rural development agencies that assist the development of community owned wind farms.

Drawing on the international and national case studies, relevant research and the study team's experience the key national insights are presented under the following categories:

- Procedural Justice
    - Integrated Planning System
    - Public Discourse
    - Consultation
    - Intermediaries (provision of expert advice)
- Distributional Justice
    - Financial Mechanisms
    - Community Equity
    - Community Benefit
- Place Related Impacts
    - Spatial zoning
    - Other aspects such as noise, set back, landscape and shadow flicker

Table 6.1 presents the key practices for greater social acceptance and how they might apply to Ireland.

Table 6.1
Key Practices for Greater Social Acceptance and How They Might Apply to Ireland

Practice Category	Existing in Ireland	What is required	Options from national and international research and their applicability to Ireland
Procedural Justice			
Policy and Planning			
Policy for Community Benefits	County Mayo policy guidelines Developers' guidelines	Other counties to follow suit or national guidelines to be developed.	The international examples, Community Benefit Register (Scotland) and Community Benefits Best Practice Guidelines (Scottish Government) could be adapted to Ireland.
Energy Transition Plan (ETP)	Partially	Social acceptance needs to be integral to the energy transition. The NREAP goes so far but this could be enhanced by an Energy Transition Plan.	Consider developing an ETP that provides an overarching framework building on National Renewable Energy Action Plan. Ireland (2010) NREAP Progress Report (2012), Energy Green Paper. There may be elements of the international examples that would inform this including: Energiewende (Germany) Renew Scottish Planning Policy 2010, Renewables Route Map 2011 and Electricity Transmission Policy Statement 2013. (Scotland)
Public discourse			
Education and research programme	Partially	Greater transparency and information needed. For example, there could be improved information on energy bills in relation to the PSO's role in reducing carbon through wind energy and other renewables.	The case research highlighted a need for public debate and discourse. MnG contributed some of their success on maintaining a 'middle ground' or balanced viewpoints which helped progress projects and decision making. International examples include: Public education and research programme (Germany)
Balanced positive discourse	Partially	Consultees indicated a need for national discussion on energy policy. There was a commitment to meeting national targets but uncertainty as to community engagement's role in that.	Establish Community Energy Forum to debate national and regional energy strategy (Ireland). Similar to community or heritage forums. Positive messaging via intermediaries (Scotland)

Practice Category	Existing in Ireland	What is required	Options from national and international research and their applicability to Ireland
Consultation			
Community consultation and engagement	Yes	The case studies indicated that this was variable across different developments. Local leadership (e.g. Templederry and Connermara). Stakeholder consultation plan (Oweninny)	Pre-application engagement both in quality and quantity varied significantly. Improvement in this area could increase social acceptance. Requirement for pre-application consultation (2009 Act) Scotland. Introduced to enforce consultation at an early stage. Challenge of ensuring projects of local and national interest are treated equally in terms of consultation (case in Denmark illustrated how lapse in good practice can effect whole sector)
Intermediaries (provision of expert advice)			
Intermediary (Technical, planning, engagement)	Partially	Consultees indicated a need for public information packs on core issues, dispassionate knowledge on wind farming including impacts.	Meitheal na Gaoithe (Ireland). Successful 'community of interest' but may not be suitable vehicle to roll out nationwide. Tipperary Energy Agency (Ireland). Limited to local area but could provide model for other areas. Wind Turbine Task Force (Denmark). Successful model especially in developing trusted independent information source.
Intermediary (community support and finance)	Partially	To Catch the Wind was a guide developed by the Renewable Energy Partnership to explore whether and what wind energy resource would be suitable for communities to develop.	Community And Renewable Energy Scheme (CARES) (Scotland) provides intermediary support in terms of feasibility, financing, community equity, community benefit and project development through Local Energy Scotland partnerships. This brings a consistent national approach to the local level.
Place-related impacts			
Noise	Wind Energy Development Guidelines (2006). Proposed Revisions Dec 2013	Pro-active consultation (open until 1.2.14)	Consultation for noise is currently 40dBA outdoor limit day and night for noise sensitive properties. The process of agreeing this is important in terms of procedural justice. The level is important in terms of distributive justice and who bears the impacts of projects.
Shadow flicker	Wind Energy Development Guidelines (2006).	Pro-active consultation (open until 1.2.14)	Current IWEA guidelines state that exposure should be less than 30 hours per annum. In Germany exposure is limited to 30 seconds/day. Proposed new guidelines in Ireland propose that there will be no

Practice Category	Existing in Ireland	What is required	Options from national and international research and their applicability to Ireland
	Proposed Revisions Dec 2013		shadow flicker at any existing dwelling or other existing affected property within 10 rotor diameters of any wind turbine. If shadow flicker does occur then turbine shut down may be required by developer to eliminate this.
Landscape impacts	No	There are gaps in current planning policy, e.g. The 'Landscape and Landscape Assessment- Consultation Draft of Guidelines for Planning Authorities' dated June 2000 were never formally adopted by former Department of Environment and Local Government.	Scottish Natural Heritage Guidance – Assessing the cumulative impact of onshore wind energy developments (2012). (Scotland)
Proximity	Partially	Larger scale turbines are testing proximity issues. More sensitive siting required.	Wind Energy Development Guidelines (2006). Proposed Revisions Dec 2013 (Ireland) will address this to some extent but may require further investigation.
Spatial zoning	Yes	Further encouragement and development. Potential to be used more as a vehicle to develop social acceptance not just technical and environmental capacity.	Local Authority Renewable Energy Strategies (LARES), (Ireland) Renewable Energy Capacity Methodology, DECC (UK)
Distributional Justice			
Creating local value			
Financial Mechanisms	Partially	Mechanisms to ensure more benefits are distributed locally.	Local authorities usually levy rates on wind Turbines (Ireland). Community Business Tax (Germany). 70% of developer profits are taxed in the locality of the wind farm. It might not be feasible to have both schemes but could be worth comparing the value of each.
Feed In Tariffs	Yes (REFIT)	Consider incentive for repowering of existing sites.	FiT incentive for repowering onshore wind (Germany). Repowering may currently only be seen as an industry issue in Ireland, however, recent research (SNH 2013) illustrates the importance of considering repowering along with decommissioning and restoration of existing sites. Repowering sites where social acceptance already exists could

Practice Category	Existing in Ireland	What is required	Options from national and international research and their applicability to Ireland
			increase installed capacity.
Community Benefits	Yes	Greater transparency and consistency on reasonable community benefits.	Mayo County Council policy (Ireland) CARES guidelines on level £5K to £10K (Scotland) Highland Council (£5K) (Scotland) The process of agreeing what is reasonable is a useful vehicle for increasing community engagement and acceptance.
Equity			
Option to purchase	Limited	An option to purchase shares as standard practice would provide vehicle for long term involvement and benefit from wind farms.	If there was appropriate support communities could be interested in equity participation, for example the CARES model. 20% option (Denmark) could be considered – is it too high, low, how would the process be structured. Currently 51% ownership with citizen's wind farms (Germany) in the Northern Freisland area.
Community ownership	Limited	A target % ownership would help drive an increase in community equity.	Target for community energy ownership – 500MW by 2020 (Scottish Government)
Joint Ventures	No	Where there is not the capacity for community owned wind farms Joint Ventures may be a way of increasing community equity and meeting higher targets.	Models of ownership that Ireland consider include: Fintry (Scotland) Neilston community wind farm (4 turbines, where the community own 49.9%) (Scotland)

6.4 Discussion of Key Insights

6.4.1 Technological Niches

The technological niches (case studies) reviewed each contained elements that can be replicated in terms of community acceptance, particularly the smaller locally owned projects (e.g. Templederry) and types of initiative (e.g. MnG). Both of these examples illustrated good relationships and sound and sustained level of trust between the communities, developers and planning authorities. However, the limiting factor for many of the smaller projects is the capacity for local leadership and volunteer support over long periods of project development, grid negotiations and project finance. The capacity issue is assisted in several cases by the presence of intermediaries such as MnG and in project specific terms the Tipperary Energy Agency.

6.4.2 Creating Local Value and Equity

The case studies illustrated a range of methods of sharing the benefits of wind energy developments amongst stakeholders. These included; community benefit (Templederry and Oweninny, if consented) and economic spin off through development of local businesses to lead and support projects (Templederry, private developer, Connemara). The extent of local equity was limited (Templederry) and in other cases (Killala, Inishowen) seen as too complex or undesirable by that wind farm developer and beyond the financial capacity of the community themselves. Community benefit, in particular, was more widely discussed at the strategic level (County Mayo, IWEA and CREWE) and is likely to be viewed as an increasingly important activity (if not factor) in the process of gaining consent and a higher level of community acceptance. However, although we recognise that a very strong part of current Irish discourse is the level of Community Benefit (for example, from the case studies there are demands that this is increased) the international evidence (especially Scotland and Denmark) indicates that community equity is more likely to enhance social acceptance in the long term.

At present there is a wide range of models of community benefits packages. These range from project specific plans which vary from site to site to formal structured models with managed funds, specific listed criteria and independent monitoring" (IWEA, 2012: 85); however, no further guidance or recommendations are provided in this regard. Social acceptance could be increased by introducing policies and guidance that improve and standardise the current benefit offers while putting in place new regulations to encourage equity and joint venture in wind energy projects.

6.4.3 Energy Transition Plan for Ireland (Fuinneamh Feasta)

In comparing international contexts and processes with those in Ireland and the need to achieve an energy transformation that includes a significant contribution from onshore wind it has been evident, particularly from the German experience, the benefit of having an overarching vision (Energiewende) with a high level of social buy-in (as shown in the hypothetical Pathway 7). Benefits of the Energiewende include for example:

- A two stage planning process that involves consultation with authorities, stakeholders and general public;
- An obligation for each authority to declare a wind energy zone;
- An integrated grid plan;

- Linkages with economies of scale and energy efficiency; and
- Providing certainty to all stakeholders.

It is therefore suggested that an Energy Transition Plan (ETP) (Fuinneamh Feasta) could be instrumental in providing clarity on the way forward to complement (or be integrated with) the NREAP process in Ireland. This would provide an overarching socio-technical vision of the energy transition required. The NREAP process is an action plan while international analysis suggests that we need a holistic, socio-technical Irish Energiewende to address our supply and demand side energy options. Public consultation on the Energy Green Paper is an opportunity to open a frank national debate on our energy options. The international research suggests that a politically supervised shift in direction in energy systems planning that is in keeping with national public values is a necessary first step to achieve greater social acceptance. This is demonstrated in the case of Scotland and Germany.

Strong national leadership through a cross departmental ETP (Fuinneamh Feasta) with long term targets for a shift in direction from fossil fuels to renewable energy will help to define the most appropriate pathway for the future development of the Irish energy sector including onshore wind. The ETP (Fuinneamh Feasta) will strengthen the position of onshore wind and the export of electricity from renewable energy as set out in National Energy Policy and thereby inform regulation and local authority renewable action plans.

The ETP (Fuinneamh Feasta) would include a number of pathways and options to be engaged with at the local authority level to enable local stakeholders to collaboratively devise the most appropriate type and scale of development to for that region. This may include energy efficiency targets as well as renewable generation targets to achieve the appropriate carbon balance for the population of that area. It may be that a broad based acceptance strategy is required to ensure the larger projects are recognised as having economic and social benefit for the majority of the population.

6.4.4 Future pathways within the Energy Transition Plan

In looking to the future a number of the hypothetical pathways (see previous chapter) have been developed to show the potential ways in which social acceptance issues influence the rate, amount and ultimate distribution of wind energy in Ireland. This suggests how a range of factors including the distribution of the benefits arising from wind energy projects and the nature of the decision-making process could ultimately affect the long term prospects of the renewables sector. Ireland is considering how Ireland's wind resources might be developed for export to the UK. This ambitious decision could harvest a very significant portion of Ireland's technically available wind energy resource.

The Energy Transition Plan (Fuinneamh Feasta) would be an overarching holistic, socio-technological vision for energy transition from centralised power production towards a decentralised system based on renewable resources and supply/demand options. It would have social, economic and technological implications and inform national and local energy policy. Public consultation on the current Energy Green Paper is an opportunity to open the debate on the longer term Energy Transition Plan. Public discourse and the role of the media is an area for concern and underlines the importance of best practice but also of pro-actively engaging public and communities in discussions and debate about future energy pathways.

The ETP (Fuinneamh Feasta) might suggest a pathway between the different scenarios in Figure 5.1. The pathway would be signposted by policies that will address a number of themes identified in our national and international analyses including, ownership, participation, impacts and creating shared value.

The ETP (Fuinneamh Feasta) could explore, in the Irish context, the different advantages of community benefit versus community equity. While there is a precedent for community benefit in other sectors it does not tackle the underlying problem. Impacted communities should be enablers of, not barriers to wind farm developments. International analysis indicates that this transformation is best achieved through equity ownership.

Under participation local government policy could operationalise public participation in environmental decision making by implementing the Aarhus Convention (to which Ireland has signed up) taking citizen participation further towards partnership in the planning process through involvement in pre-planning meetings.

In relation to place-related impacts, future policy should not concentrate only on the development of infrastructure (the grid) but acknowledge the role of distributed energy and the potential uncoupling of people's relationship with centralized power generation as the source of all future energy needs. Energy transition strategy is a change of mindset that addresses energy demand as well as supply and is in keeping with public values on reducing the use of finite resources and reducing overall levels of energy use. It may well be that scenario 6 "community-driven wind", which delivers a moderate portion of the technically available wind resource, will be associated with a step change in attitudes towards waste and efficiency that leads to a significant reduction in electricity demand.

Future policy must be directed at enabling the Irish public to facilitate energy transition (rather than oppose energy infrastructure development) by a process of creating shared value. Large scale developers should be directed through policy to recognise the competitive advantage of delivering local value with their wind energy projects. Rural communities should be directed through policy to recognise that wind energy is an alternative rural development option to declining income from traditional farming.

Intermediaries (NGOs, National Advisory Bodies, Industry Associations) have a significant role to play in developing and maintaining social acceptance for an ETP (Fuinneamh Feasta) with ambitious national targets and developing shared value options (equity participation, community benefit funds etc). As discussed in the International Report, it is suggested that intermediaries could beneficially focus around the following three roles:

- Technical advice
- Planning and regulation advice
- Community liaison (e.g. community liaison officers)

6.5 Possible Next Steps

It is recognised that Ireland has much to be proud of in how it has managed the on-going transformation of its energy system. However, a more focused strategy will be required to achieve greater community engagement and social acceptance for wind energy. There is significant potential to learn from how other countries have responded to similar challenges, particularly in relation to:

- The process of engaging local communities in planning decisions and the consenting process;
- Further development of trust between communities, developers and consenting authorities, and the role of intermediaries in developing this;
- Exploring the ways in which the benefits of wind energy developments can be shared amongst a wider set of local and national stakeholders; and
- The promotion of a wider range of ownership models for wind energy projects.

Table 6.2
Possible next steps for Ireland's Energy Transformation

Area of consideration	
Public Discourse to increase public participation in wind energy planning	National consultations produced repeated calls for a proper societal debate about where the country was headed and why (this has been echoed in media[73]). The development of an ETP provides a vehicle to consult and debate this as a matter of urgency. Establish a National Directorate for Energy Transition in Ireland (akin to Ireland's ND for Emergency Planning & Management). Inter-Departmental coordinated team, addressing all aspects of energy transition; avoiding current fragmentation. Provide sustained resourcing to the efforts to achieve national transition plan – consider ring-fencing of PSO/ carbon taxes.
Energy Transition Plan	Revise the national REAP/ RE Strategy to a 'transition' focus, with increased 'bottom-up' inputs through public consultation. Develop an action-based Energy Transition Plan (as described earlier). Set ambitious but achievable targets. Define phased approach with 'early wins' to maintain momentum, with more ambitious long term goals.
Participation	Improved participation in development of national and regional/ county plans (based on Aarhus Convention, which Ireland enacted in legislation in 2012) that cover carbon reduction and encompass demand reduction *and* decarbonisation of supply. 'Early and often' engagement by developers with impacted communities relating to specific projects. Inputs to planning policy and execution.
Equity and ownership	State development (via semi-states) of national resource. Options for local participation in wind development. Ownership via equity sharing as a better way of distributing value locally than community benefits, even allowing for equity issues. Funding mechanisms to allow participation so that communities are not excluded from engaging in planning process due to lack of resource.
Informed engagement via pro-active intermediaries	Technical and planning advisory/ intermediary bodies, Energy Agencies/ Meitheal na Gaoithe). Community liaison providing ongoing engagement and capacity building for local communities (through a national advisory body).
Creating Local Value	Establish Register of Community Benefit Ensure distributive justice in relation to impacts and benefits (e.g. compensation schemes). Link local value to energy efficiencies/ reductions/climate adaptation at community level. Community benefit can be used to co-match other funds for e.g. retrofitting / insulation/climate proofing or adoption of other (less risky than wind) renewable energy supply / reduction solutions in host communities. Adopt supply and demand side measures to ensure energy targets are met at county level. Consider contractual models from other sectors such as waste.

[73] RTE Prime Time debates on EirGrid's proposals and media questioning of the value of more wind power (see Colm McCann in the Irish Independent)see my last comment on this in the national report- second time raising this- incorrect citation for this programme.

7.0 CLOSURE

This report has been prepared by SLR Consulting Limited (informed by academic guidance from Queen's University Belfast and University of Exeter), with all reasonable skill, care and diligence, and taking account of the manpower and resources devoted to it by agreement with the client. Information reported herein is based on the interpretation of data collected and has been accepted in good faith as being accurate and valid.

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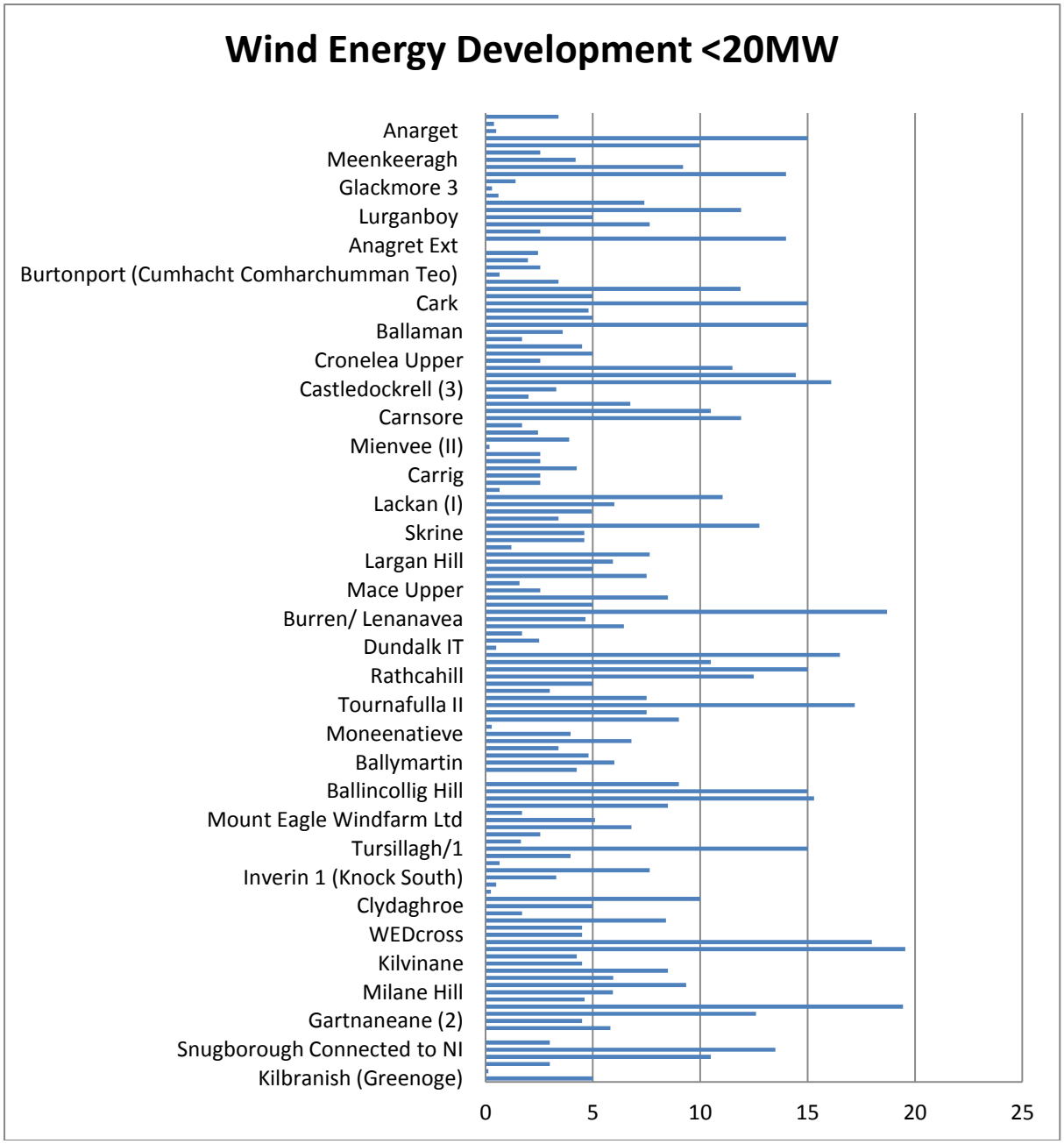
Appendix A

Scale of wind farm development

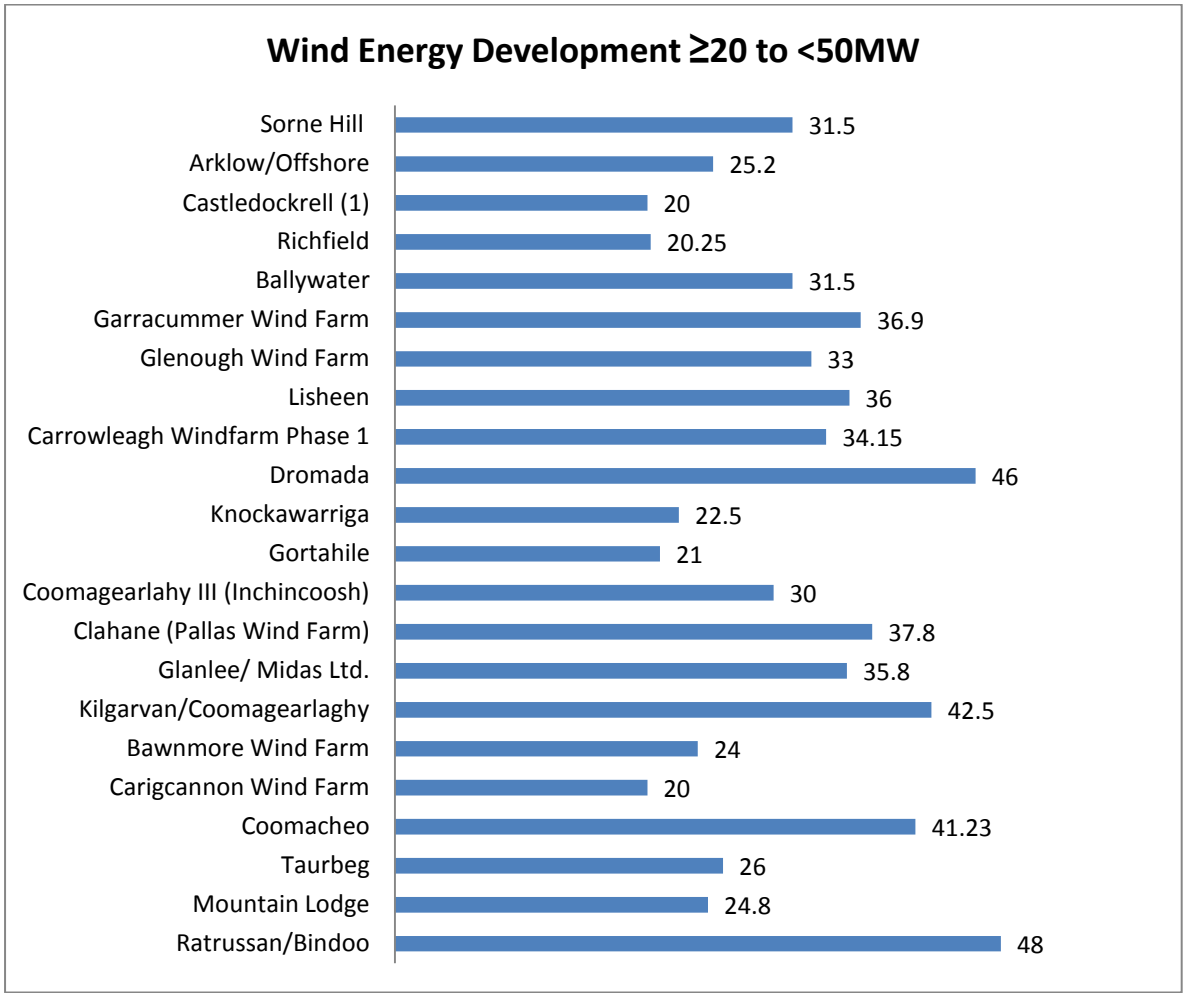
To date there has been a larger number of developments below 20MW compared to 20 MW – 50MW in Ireland. The first figure shows the onshore wind farms below 20MW developed since 1992.

Wind Energy Developments below 20 MW

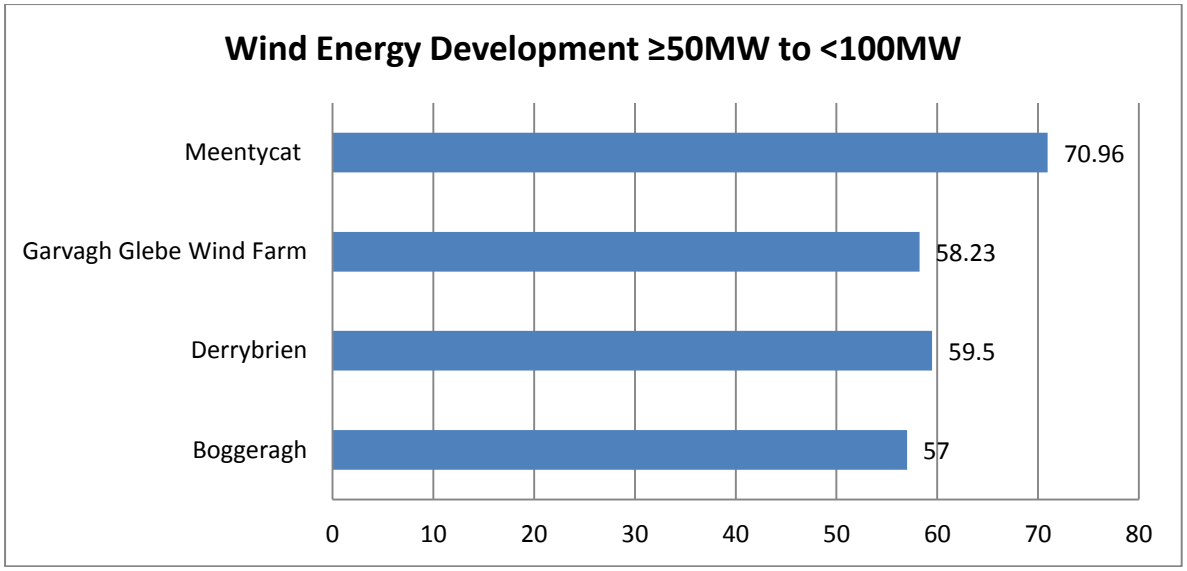


The next figure shows the the developers and size of onshore wind farms above 20MW. This indicates the predominance of larger scale developments by a few large corporate and semi-state organisations (SSE, ESB Wind Development and Bord Gáis Energy).

Wind Energy Developments above 20MW



Both the charts above illustrate a wide range of activity at the small to medium scale by a number of different players (community (e.g. Templederry), landowners (e.g. Castledockrell), co-operatives (e.g. Fuinneamh Gaoithe Teo) and single purpose (e.g. DKIT)) and followed by fewer but much larger scale developments by major national commercial developers (e.g. Saorgus); national semi-state bodies (e.g. ESB Wind/ Bord Gais Energy)and international players (SSE Renewables) in the wind energy sector. The chart below illustrates the predominant developers by MW.


Wind Energy Development ≥50MW to <100MW
Meentycat
Garvagh Glebe Wind Farm
Derrybrien
Boggeragh
70.96
58.23
59.5
57
0
10
20
30
40
50
60
70
80

Appendix B
Wind Farm Development Process

Wind Farm Development Process

Exploitation of the wind power resource can range in scale from single small turbines to multiple large scale turbines. The basic principles of developing a site are similar although domestic scale turbines may mean a more simple process. Department of the Environment, Heritage and Local Government has developed Planning Guidelines (2013) SEAI also provide a guide to the steps for developing a wind energy site[74] this illustrates the long, detailed and expensive process for the development of a wind energy site as follows:

Site suitability

- Wind speed; generally the most exposed sites will generate the most electricity.
- Technical considerations include the size of the site; access to the site by road; access to a local grid entry point; and the capacity of the grid at that point to transport electricity from the proposed site.
- Environmental considerations include the visibility of the site from important viewpoints; proximity to dwellings; ecology; archaeological, architectural and cultural heritage; recreational uses; and restricted areas (e.g. airports).

Project feasibility

- Planning approval should be sought for a wind mast (wind masts are exempt under certain conditions)
- Ground conditions will need to be assessed to ensure that they are suitable for wind turbine foundations.
- Access roads will need to be examined to identify their suitability to service a project of this scale.
- The cost for the grid connection can be a determining factor for the feasibility so possible routes to the connection point should be outlined and evaluated.
- The scope of an EIS should be discussed with the planning authority.
- Engaging with local residents and possibly discuss investment opportunities.

Detailed assessment

- Wind speed monitoring will determine the wind profile from which the appropriate turbine can be selected.
- The EIS will examine the visual and landscape assessment to assist with the layout and scale of the site and identify the zone of visual influence. The EIS will also assess ecology, archaeology, architecture, hydrology, electro-magnetic interference, safety, construction, decommissioning and traffic management.
- Where possible, details of the electrical connection should be included.
- The EIS should also include the positive impacts that the project will deliver - the effects on the local economy and the contribution to the global environment.
- It is a public document so evidence of public consultation will be most useful.

Planning application

- The application and supporting EIS is submitted.
- Further information may be required to make a decisions

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http://www.seai.ie/Renewables/Wind_Energy/Wind_Farms/Wind_Farm_Development/Guidelines_for_wind_farm_development/

- Mitigation and monitoring of impacts is likely to be required.
- Planning conditions will accompany a positive decision.

Construction

- Wind farms must be treated similarly to other construction projects, and a site manager must be identified to the planning authorities.
- All contractors must adhere to professional standards and to conditions set out in the planning process.
- Even though the construction may take place on as little as 2-4% of the site, measures should be taken to avoid unnecessary impacts outside of the working boundaries.
- Access should be restricted to construction personnel during this time but due regard must be paid to public paths and rights of way.
- Formal procedures should be put in place to deal with queries and comments from the general public.
- The site manager should appoint an individual to be accessible to the local community to allow for dialogue and communication and to keep the public informed about the progress of the project.

Operation

- When the wind farm becomes operational it remains the responsibility of the owner and operator of the wind farm to maintain the turbines and the site in general.
- No business enterprise will succeed without continual careful maintenance and a wind farm is no exception.
- Any conditional monitoring agreed at the planning stage must be adhered to. The information from this can be used to improve the operation of the specific wind farm or assist the wind industry and planning process going forward.
- The dialogue and consultation process initiated at the construction phase should continue for the working life of the wind farm.

Decommissioning

- At the end of its working life the wind farm site will be required to be returned as closely as practical to its original state.
- Plans for decommissioning should be outlined at the planning stage and ensure that it will take place in a responsible manner.

Scottish Natural Heritage (2013) provides further guidelines on the restoration and decommissioning of wind farm sites.

In addition to this list there is project finance, legal arrangements, warranties, insurance and grid issues to consider. The remainder of this chapter presents the progress to date in the development of constructed, connected and operational wind energy sites.

Appendix C
Key Features of Wind Energy Case Studies

Wind Farm	Regional Location	Land type	Scale (M.E.C. MW)	Commissioned	Developer	Ownership	Finance
Case Study No 1 Templederry	North Tipperary	Upland locally owned commonage	Small 3.90MW 2 x Enercon turbines -	2012	Templederry Energy Resources and Templederry Wind Farm Ltd	100% community owned	Shareholder equity, Leader (RDP) grant aid, Enercon loan, Business Expansion Scheme and project finance from De-Lage Landen (a subsidiary of Rabo-Bank)
Case Study No 2 Oweninny	North-west County Mayo	Raised Atlantic bog	Large scale 390MW	Applied for planning to An Bord Pleanala	Electricity Supply Board and Bord na Mona.	Electricity Supply Board and Bord na Mona.	Semi-state finance. Project submitted to Strategic Infrastructure planning process
Case Study No 3 Private developer	Kerry Galway	Upland blanket bog held in commonage	Medium Ranges from 0.85 MW (capacity) to 59.5 MW (capacity). Generally small to medium scale	2000 2005 2008	Local private developer	Local private developer	Project finance for each wind farm; no community equity
Case Study No 4 Meitheal na Gaoithe	Southeast Ireland	Upland commonage on own farmlands	Small to medium Generally up to 5 turbines	Various	Varies	Landowner ownership Local equity participation in some instances	Local (landowner) equity; project finance
Case Study No 5 Connemara wind energy	Range of projects in Connemara Gaeltacht		Small 0.675 2.8 MW	Inis Meáin – 3 turbines Indreabhán Wind Farm – 4 turbines Moycullen – 14 turbines – permission secured Jan	Fuinneamh Glas Teoranta Fuinneamh Glas Teoranta Private developer Private developer		Private/ Public Private Private Private

		2014. Lettergunnett - 10 turbines	

Appendix D

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