



IEA WIND TASK 28

**SOCIAL ACCEPTANCE
OF WIND ENERGY PROJECTS
"Winning Hearts and Minds"**

STATE-OF-THE-ART REPORT

Country report of Ireland

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Abstract / Summary

Wind energy has received mixed acceptance at the various levels of Irish society in the recent past. The general public and local government, have been, by and large, accepting of the change to the landscape. However, with plans for an increase of wind generation capacity of more than 400% over the next decade it is important to maintain the goodwill that the public has exhibited heretofore. Particularly as economies of scale drive developers to opt for bigger turbines and build more expansive developments. Challenges arise when a disjoint appears between national energy targets and local planning policy or local authority development plans.

Of particular concern is the associated grid infrastructure which invariably accompanies power generation in remote or rural areas. Substantial strengthening is required as the grid evolves from a centralised electricity generation model. It appears that the connection between grid expansion and wind energy is yet to be made in the general public's consciousness. This connection will become increasingly apparent in the near future as system owners, operators and wind proponents communicate the need for and benefits of such an investment in infrastructure.

There is a dearth of research into social aspects of wind energy in Ireland. Much of the studies or research referenced in this summary has been commissioned or developed by vested interests or statutory bodies. During 2010 SEAI will be commissioning new research to update dated research.

Framing the issue

0. Introduction by the Operating Agent of IEA Wind Task 28

In 2009, many governments and organizations set new targets for CO₂ reductions, renewable energies in general, as well as specific targets for wind energy deployment. All these targets require many single projects to be carried out both onshore and offshore that necessitate hundreds of siting decisions and therefore hundreds of communities accepting a wind project nearby.

Research and projects are ongoing in many countries on how acceptance could be fostered, but we need to look beyond national borders to learn from each other and to complement each other's approaches. While Denmark has one of the longest traditions of co-operatively owned wind farms, Japan may bring its expertise in generating additional benefits for the communities hosting the turbines. While Ireland and Canada know about the effects of wind parks on tourism, Norway has conducted actual research on communication between society and science, e.g. concerning bird risks with wind farms.

In the framework of the IEA Wind Implementing Agreement, Task 28 collects and disseminates the current knowledge on how to increase acceptance of wind energy projects with the aim of facilitating implementation of wind energy and climate targets.

Ten countries have officially committed to Task 28 and have provided an input for cross-national comparison and discussion by writing a national report such as the one on hand. The Irish report has been incorporated into the international State-of-the-Art Report by IEA Wind Task 28, available also on www.socialacceptance.ch.

1. Definitions

a. Social Acceptance

Social acceptance issues in Ireland are predominately focused on community acceptance and local governance. In the current economic climate market acceptance with respect to banks or the cost of finance is becoming an increasing issue however. The evolving design of the electricity market, where projects may be constrained in the amount of energy they can sell is becoming an issue affecting bankability. In reality, many of the non-technical issues such as planning, cost of finance, anti-wind lobbies and community concerns can be classified under the social acceptance umbrella.

b. On-Shore / Off-Shore

Ireland experiences some of Europe's best wind resources both onshore and offshore. The best of the resource is in the west of the country and off the west coast but the majority of the demand for power is in the east. This demand allied to the depth of water in certain locations off the east coast means developers of offshore projects are concentrating on the east coast for offshore wind in Ireland.

Almost all of the installed wind capacity in Ireland is onshore (98%) with only 25 MW of offshore capacity installed (Arklow Banks). Numerous offshore wind farms are in various stages of planning and with differing degrees of permission. The latest round of grid connection offers, known as 'Gate 3' amounts to 3890 MW of renewable generation of which 784.8 MW is offshore wind.

The size of an average onshore turbine is in the range of 1.5 -2.0 MW with the trend towards larger and taller turbines continuing.

There is some debate within the wind industry at present with regard the development of offshore wind. It is seen by many onshore developers to be too costly when development onshore is proven and more cost effective. The national independent economic think tank (Economic and Social Research Institute) is also of the opinion that offshore wind should not be supported with twice the level of support that onshore wind needs at present because the 2020 targets can be achieved onshore. The current REFIT reference prices for wind are €68.68, €66.35 and €140.00 per MWh for small onshore wind (<5 MW), large onshore wind and offshore wind respectively.

The focus of current offshore wind development in Ireland is near shore - within 12 nautical miles of shore (22 km). Following introduction of the Foreshore and Dumping at Sea (Amendment) Act 2009, responsibility for certain foreshore functions transferred to the Minister for the Environment, Heritage and Local Government with effect from 15 January 2010. This includes all foreshore energy-related developments, including wind, wave and tidal energy. The foreshore is the seabed and shore below the line of high water of ordinary or medium tides and extends outwards to the limit of twelve nautical miles (about 22.24 km).

The Foreshore Act requires that a lease or licence is obtained for the carrying out of works or placing structures or material on State-owned foreshore. Licenses are granted by the Minister based on acceptance of an application and payment of fees and at the Minister's absolute discretion for acceptance or rejection. The Department of Communications, Energy and Natural Resources has charged the Ocean Energy Development Unit within national agency Sustainable Energy Authority of Ireland (SEAI), in close collaboration with the Marine Institute in Ireland, to undertake a Strategic Environmental Assessment of offshore wind and marine renewable energy in Ireland. It is currently in process.

The acceptance of onshore wind may be impacted if offshore wind becomes established in Ireland but offshore wind faces acceptance issues of its own as the farms are planned for areas within the visual influence of large population centres.

c. Large Scale / Small Scale

Microgeneration is classified by ESB Networks as grid connected electricity generation up to a maximum rating of 11kW when connected to the three phase grid (400V). The vast majority of domestic and agricultural customers are connected at single phase (230V) and for these customers to be classified as microgenerators the maximum rating permitted is 6kW. These ratings are in line with Irish conditions prescribed in European standard EN50438.

In Ireland customers with microgenerators can avail of a stream-lined, one page connection process (using form NC6). Customers who exceed the classification must engage in a more demanding application and connection process.

For the purposes of the support mechanism small scale wind is classified as a site which has a maximum export capacity less than 5 MW (MEC). Large scale wind (MEC >5 MW) is referenced to a slightly lower REFIT which reflects the economies of scale at play.

d. Transmission lines

Whereas Ireland is ideally situated to access excellent wind resources the distribution of those resources and the population centres is less than ideal. The wind is greatest in the west and the population is greatest in the east. A major grid renewal and expansion plan is underway –‘Grid25’.

The national grid, the interconnected network of high voltage power lines operates at 110kV, 220kV and 400kV. Ongoing development of the grid is essential to provide a platform for effectively tapping into our abundant renewable resources. Grid25 is designed to deliver progressively over the next 15 years ‘a fit for purpose’ transmission grid that will enable Ireland achieve many goals: National and regional economic development, security of supply, sustainability and competitiveness.

Existing lines will be upgraded as much as possible, and in some cases, new networks will be needed. Overall, Ireland’s electricity transmission capacity will be doubled over the next 15 years while the additional length of the network will increase by just 20%.

Whereas there are no national or large anti-wind groups mobilised in Ireland there are numerous well organised ‘pylon pressure groups’ which intend to fight the development of new high voltage infrastructure.

The first direct power link between Ireland and Britain is on target for completion by 2012. It is a 500 MW HVDC sub-sea cable which will assist with increased deployment of intermittent energy sources. Further interconnection is already being discussed as well as the possibility of a link to France. The wind industry is keen for Ireland to continue developing its wind resources beyond the levels needed for us to reach our targets or practically integrate on to our grid. Export of renewable electricity is seen as an opportunity for Ireland.

Industry Status and Stakeholders

2. National Wind Energy Concepts

Wind energy's contribution to Ireland's electricity supply continues to rise as record capacity is added (Figure 1). The target for RES-E in 2010 (15%) is expected to be achieved. By December 2009, a total of 85 wind farms were connected, bringing the total installed capacity for wind to 1,264 MW. Wind farm connection rates have been maintained above 200 MW for the second year with 237 MW connecting in 2009, a slight increase on 2008. 237 MW is a new record for additions of wind capacity in Ireland.

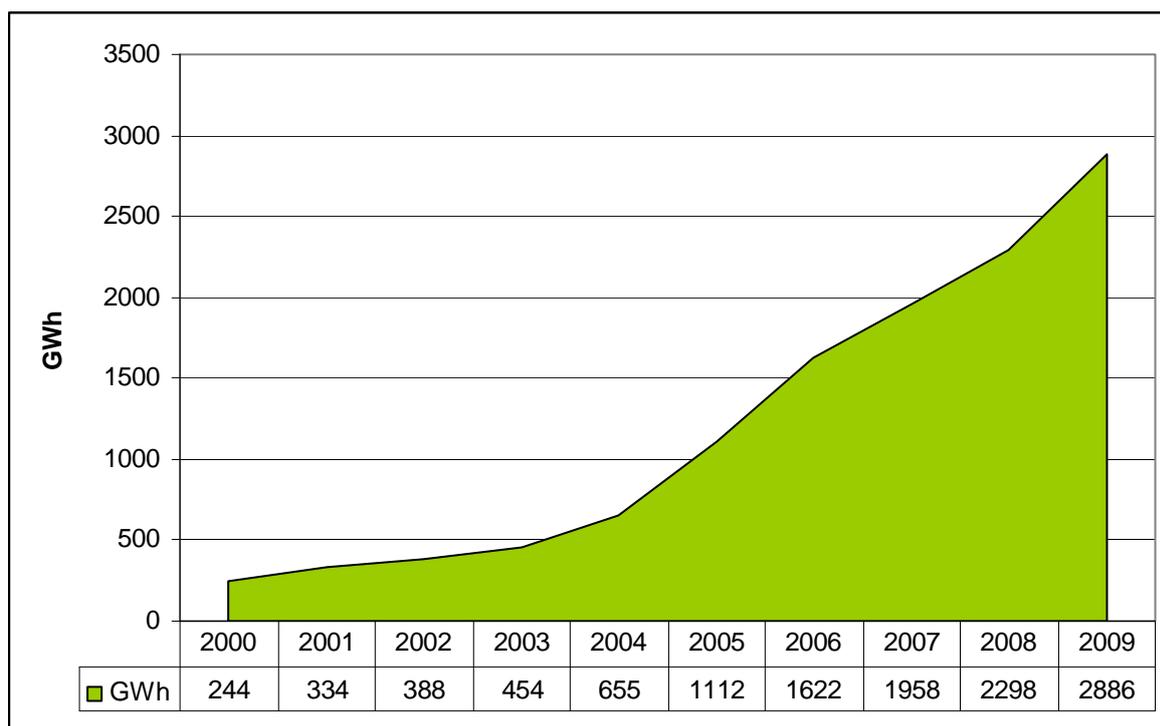


Figure 1: Wind-sourced electricity in Ireland, 2000–2008. Source: EirGrid.

a. Policies and strategies for wind energy

As large scale hydro-electric development in Ireland is not a viable option, wind has contributed, and will continue to contribute, the vast majority of the additional renewable generation required to meet current RES-E targets. Added to other renewable generation stock, an estimated 1,350 MW of wind capacity is required to meet the target for 2010. 744 MW of wind capacity was connected at the end of 2006. To meet the 2010 target from that point required the addition of 200 MW annually. 2007 saw the addition of only 48.25 MW and as such was a set back in efforts to meet the target. 2008 saw wind farm connection rates more in line with 2005 and 2006 but it appeared that meeting the target would hinge on the capacity additions in 2009 and the first half of 2010. It appears that the target will be met.

Contracted wind farms totaled 1,412.3 MW at the end of 2008 and total 1257.5 MW at the end of 2009. The drop reflects the connection of contracted sites and the lag between the last round of connection offers (Gate 2) and the next Gate. The successful applicants were taken from the applicant queue via a group processing approach (GPA).

A key national objective for renewable energy was revised during 2008. As outlined in the 2007 Energy White Paper Ireland had aimed to supply 33% of its electricity demand from renewable sources by 2020. This target has been increased to 40% and it has been emphasised by Government that it is to be seen as a minimum rather than a ceiling. Using current emission factors for Ireland's fuel mix a 33% penetration of renewable generation in 2020 would deliver a CO₂ saving alone of over 7 million tonnes per annum. It can be seen from the figures for current connection applicants (c11,000 MW), sites contracted for connection (1,257 MW) and wind farms already connected (1,262 MW) that the wind industry is capable of providing the generation required as long as conditions conducive persist and the system operators have capacity to connect. Approximately 280 MW of new renewable capacity is required each year from 2009 to 2020 if the target is to be met. The capacity additions for each year since 2000 are shown in Figure 2.

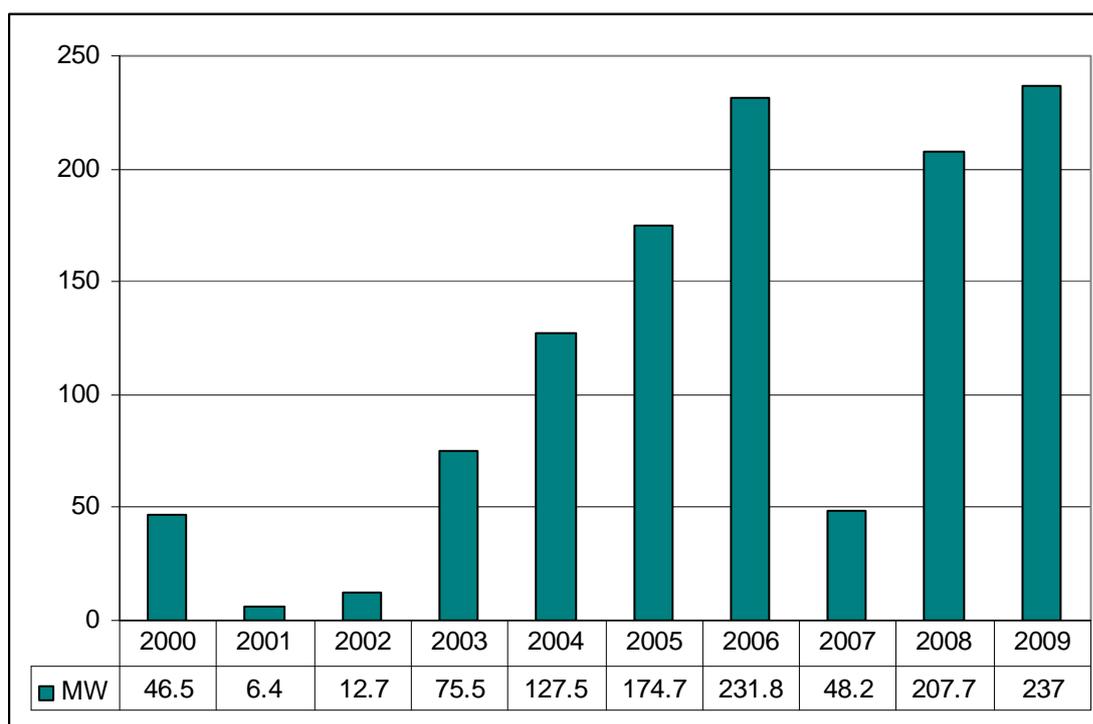


Figure 2: Annual increases in wind capacity 2000–2009. Source: EirGrid.

Ireland's electricity regulator, the Commission for Energy Regulation (CER), undertook a series of public consultations during 2008 and 2009 which have led to a direction to the system operators as to how they should approach the connection of wind applicants in the next round of group processing. Those wishing to connect to the grid join an applicant queue once their application is 'deemed complete'. The options considered for accepting applicants into Gate 3 included a date order approach (as per 'Gate 1'), a mixed date order/optimization approach (as per 'Gate 2') or a new approach proposed by the system operators known as the Grid Development Strategy (GDS) (6). The GDS will result in the issuance of offers to an amount of applicants in the connection queue at gate closure.

In January 2010 the transmission system operator published the results for the Gate 3 firm access schedule. The dates were the result of running the 'Incremental Transfer Capability' (ITC) program within the GDS. ITC was the methodology adopted by the system operators to assess the capability of the grid to accommodate applicants on a firm basis. Further detail is provided in the 2008 IEA Wind Annual Report.

The aim of the GDS approach is to plan and develop the grid to meet its anticipated demand and generation needs up to 2025 in a cost effective, optimal and efficient way by assessing the system over a longer term than has been used in the past. According to the CER *'the GDS allows for the optimal connection of a very significant capacity of renewable generation in Ireland over the coming years, facilitating the achievement of the 40% Government renewable target through a long term and strategic programme of transmission development, to the benefit of renewable generators and end-customers'*.

3,890 MW of renewable generation including 3877.5 MW of wind capacity, chosen by 'deemed complete' date order, will be offered during the next phase of the process over a number of years up to 2011. It is intended that this amount added to the grid by 2025 will also provide the capacity needed to meet the 2020 targets and also takes account of some attrition of sites already holding connection offers. Where the local capacity of node on the grid is less than the firm capacity required by a group of generators, firm access to the network will be rationed on the basis of date order of applications received.

The entire list of wind connection applicants, including those included in Gate 3, amounts to over 11,000 MW at year's end. To put this into context Ireland's peak demand is not expected to rise above 5,000 MW during the 2009/10 winter season.

b. Incentive programs for wind energy

The Renewable Energy Feed-in Tariff (REFIT) is the support mechanism used in Ireland. REFIT sets reference prices for renewable technologies. Variations in the REFIT for the different technologies reflect the cost of deploying the technology and the economies of scale. The different reference prices aim to promote a mix of technology.

The first tranche of REFIT included onshore wind, hydro landfill gas and other biomass. This round of REFIT prices is known as REFIT I and at present (following indexation since 2005) the reference prices are as follows:

- Large wind (>5 MW) €66.35/MWh
- Small wind (<5 MW) €68.68
- Small hydro (<5 MW) €83.81
- Landfill gas €81.49
- Other biomass €83.81

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 electricity bills. Overall, the aim of REFIT is to provide security to and limit the exposure of suppliers so that might engage in a long term power purchase agreement with renewable generators.

A second round of REFIT technologies was subsequently announced (REFIT II). Initial terms and conditions were published but these are under review and some crucial detail is not definite at this point e.g. indexation or not. REFIT II technologies and reference prices are as follows:

- Offshore wind €140/MWh
- Wave €220
- AD CHP €120

The Business Expansion Scheme (BES) 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.

Whilst community acceptance is the area of most concern at larger scales it is market acceptance which is the key challenge for small wind. The technology is yet to be proven and take-up is slow as pay-back periods are lengthy. There is no government supported incentive mechanism in Ireland for small wind but there are a number of indirect incentives.

One such indirect incentive for the deployment of micro-generation is provided by the Energy Performance in Buildings Directive being implemented in Ireland under the Building Energy Ratings scheme. The contribution of a wind turbine can be included in the Building Energy Ratings scheme once its performance over a year has been verified. All new buildings are required to satisfy a portion of their energy needs from renewable sources, a requirement set out in Part L of the building regulations. At present the option is to generate 10 kWh/sq.m/annum from renewable heat sources or 4 kW/sq.m/annum from renewable electrical sources. Most designers and homeowners opt for the thermal approach by installing solar thermal panels or heat pumps but the building regulations are moving towards a position where the option will be removed and all new builds will be required to install renewable electricity technology. Many will opt for solar PV but where it is suitable it is micro-wind will be considered. Under certain circumstances there are restricted planning exemptions for micro-renewables.

Another indirect incentive is the Accelerated Capital Allowance Scheme which allows businesses to account for the capital expense of energy efficiency and renewable energy investments in Year 1 of their accounts instead of over a period of eight years.

c. Spatial planning

Local authorities are the agencies of first point of contact for developers. Each county publishes 5-year strategic development plans which now include wind maps. The wind maps provide guidance to developers with regard to zones within which wind energy projects will be encouraged, considered or prohibited. Central Government has published guidelines for local authorities on wind energy projects which include guidelines for distance from dwellings, items to be contained in environmental impact studies, noise levels and shadow flicker mitigation.

The guidelines also provide a steer for local authorities on how to go about including wind energy in their development plans:

In order to assist planning authorities to identify, on development plan maps, key areas where there are good wind energy resources capable of exploitation in a manner consistent with proper planning and sustainable development, a step-by-step approach is proposed. This ordered approach involves a sieve mapping analysis of the key environmental, landscape, technical and economic criteria which must be balanced in order to identify the most suitable location for wind energy development. In carrying out this exercise, it is advised to consult with neighbouring planning authorities to ensure a consistent approach across county boundaries. The methodology for this approach is outlined in the following paragraphs.

Step 1

Assess the areas of wind potential ranging from areas with extensive wind energy resources to lesser wind resources using Sustainable Energy (Authority of) Ireland's Wind Atlas for Ireland. The Wind Atlas for Ireland displays wind speeds at 50 metres, 75 metres and 100 metres above ground level. The three heights represent the hub heights of current and near-future wind turbine technology. Assistance in this regard can be obtained from Sustainable Energy (Authority of) Ireland's Renewable Energy Information Office.

Step 2

Prepare or utilise an evaluation of the landscape and its sensitivity for wind energy developments. Factors that can inform landscape sensitivity to wind energy development, include scenic quality, rarity, uniqueness and natural and cultural heritage considerations. (Some local authorities have prepared landscape characterization maps, which could support this process). A methodology for landscape sensitivity mapping is outlined at Appendix 1.

Step 3

Prepare an overlay of the landscape evaluation and sensitivity analysis, and sensitivity and wind energy mapping, together with information regarding built and natural heritage, archaeological and amenity designations in the Development Plan. This will identify those areas affected by statutory obligations and will facilitate optimising visual integration into the landscape while at the same time maximising the utilisation of wind energy resources. The process of overlaying wind energy mapping and landscape assessment with the development plan designations will produce a basis for identifying broadly, the areas where wind energy developments would be 'acceptable in principle', where they would be 'open for consideration', and where they would be 'not normally permissible'.

Step 4

Integrate the areas identified in step 3 with information regarding accessibility to electricity transmission and distribution grids. Details of the electricity transmission and distribution network are provided in Sustainable Energy (Authority of) Ireland's Wind Atlas for Ireland. In addition, transmission network details are updated on a yearly basis in the Transmission System Operator's Forecast Statement, available on the internet at www.eirgrid.com. If further network information is required, it is recommended that the planning authority consult with the Transmission System Operator (National Grid) or the Distribution System Operator (ESB Network) as appropriate.

This process will establish, at a general level, areas where wind energy resources are readily capable of development as well as identifying other areas where wind energy resources are capable of being developed but where there is a need for corresponding development of electricity grid infrastructure.

The International Energy Agency Implementing Agreement for Co-operation in the Research, Development, and Deployment of Wind Energy Systems



Regional Planning Guidelines

Many Regional Planning Guidelines propose coordination between planning authorities in relation to the development of renewable energy. The sieve analysis approach outlined above would assist regional authorities in developing a common framework within and between regions for the development of wind energy.

Once a project has been decided upon by the local authority the decision may be appealed to An Bord Pleanála by the promoter or the public. Some industry stakeholders feel that local authorities may not have the expertise to fully review in detail a wind application and may refuse an application so as to leave the final decision to An Bord Pleanála.

At present planning permissions lapse after 5 years if no substantial works have been carried out. This time-frame has caused some difficulty for projects who find they have planning permission but may not have a grid connection date within the 5 year period. Also, the definition of substantial works varies from local authority to local authority and the industry is seeking this definition to be standardised. The Department of Environment is currently reviewing the 5 year time limit and other planning legislation.

The Strategic Infrastructure Act 2006 set out a fast-track planning application process for large infrastructure projects such as motorways, railways and incinerators. Wind energy projects are also included but the minimum size project which can be fast-tracked is 100 MW or 50 turbines. No project has availed of the SIA as yet because wind farms in Ireland have all been less than 100 MW and developers are unsure as to how the process might affect their project i.e. they are happier to go through the process they know with all the risk that entails.

d. Strategies: From policy to local acceptance

Wind energy has enjoyed support from the general public in Ireland. Apart from individual cases where the local community has lobbied against a project or associated grid, in general, the public have accepted the changes to the landscape. It can be seen however that some local authorities under-perform with respect to the delivery on their potential. There can be a disjoint between local planning official positions and national policy. State politicians may support targets for renewables but at the same time support their constituents who object to grid development.

The adopted strategy to promote local acceptance of national policy to date has focused on information provision be it through guidelines, case studies, seminars or field trips. This approach must be renewed having been neglected in recent years but it is just one tool in promoting social acceptance of wind in Ireland. Greater community involvement in projects is likely to become a key means by which local authorities and local communities buy-in to wind energy. It remains to be seen, given the investment models used to date and the nature of the projects to receive connection offers between now and 2020, where community groups can make an impact. State agencies like SEAI organise seminars and national events which facilitate planners and local officials in their efforts to understand the issues specific to wind energy development.

3. Stakeholders / target groups

a. Stakeholder's perspectives towards wind energy

Overall Ireland enjoys general support for wind energy from all levels of the community and governance. However there are cases where support is less positive. Each county has a planning office which deals with applications in their local authority area. Some counties appear to be lagging others in the implementation of national policy. SEAI will be analysing these figures during the summer following an audit of all local authorities' wind statistics. The wind industry's position is that there is a lack of joined up thinking between government agencies and authorities which needs to be addressed. There is a lack of research in many areas of acceptance in Ireland but where they exist they are referenced under the headings below.

b. Utilities / grid owners

Ireland has just two electrical infrastructure utilities, both of which are semi-state organisations:

- EirGrid, the transmission system operator, and
- ESB Networks the distribution system operator,
 - Also the distribution system asset owner and transmission system asset owner.

The system operators had ongoing issues with the connection of large scale wind energy projects until recent years. The view of the wind industry was that the connection policy favoured conventional generation and indeed still does. The ability of conventional generators to skip the connection queue is a reasonable policy however if the system is to be maintained at current secure levels as more wind connects. The variability of wind poses an added challenge to the system operators which must be addressed by complimentary means. During 2003 and 2004 there was a moratorium on wind connections due to concerns about system stability and grid code compliance. The effect of that moratorium was perhaps the reason behind the low levels of connection in 2007 as the lag in project deliver continues for some years beyond such an intervention.

At present the system operators appear to be supportive of the national policy on wind energy. Substantial research has been undertaken which satisfied the Regulator and the SO that upwards of 40% of the electricity consumed on the island could be sourced from renewable resources and that wind would make up the vast majority of it (All-island Grid Study). Further studies are ongoing and the utilities appear confident that the 2020 targets will be met even though the challenge looks increasingly enormous.

The AIGS concluded that up to 42% of renewable generation could be accommodated on the power system given the required infrastructure and an investigation into the underlying technical aspects of a power system with large amounts of variable generation sources. As we have had periods of 40% wind during 2009 it is clear that the power system can sustain such levels of penetration for short periods at least. It is thought however that the characteristics and behaviour of the power system with large amounts of variable generation sources for sustained periods will be fundamentally different to the power system of today. Detailed modelling and simulations are required to better understand how the power system will behave and to understand what operational measures are required to ensure the same levels of stability and security as today.

To address these issues, EirGrid and SONI are conducting a series of technical studies which have the objective of increasing our understanding of the power system with levels of renewable generation, particularly wind power, as we forecast them to be in the year 2020. This, according to the TSO, "will help set standards which are appropriate to the needs of the future power system and to develop operational practices which will ensure the continued security and stability of the power system".

The key issue for the utilities may in time move from a technical one to an acceptance one as Ireland tries to modify its grid structure to transport the wind resource in the west to the population centres in the south and east of the island. EirGrid, the TSO, has published their strategy for the development of the grid up to 2025. The study aims to identify how, on a national and regional level, the grid will need to be developed to accommodate projected demand growth and the move towards a high proportion of renewables. EirGrid estimates that the transmission system's capacity will have to double by 2025 and such an expansion is likely to cost in the region of €4bn. The potential of the existing grid to be upgraded will be maximised to minimise the construction of new lines and no new 220kV lines will be built. EirGrid will design the transmission network around 400kV rather than 220kV lines to minimise the footprint and length of new lines - a 400kV circuit typically has the same capacity as three 220kV circuits. 110kV lines will also be utilised.

Following on from Grid25 the TSO has begun more detailed studies to identify specific reinforcement needs and their environmental, economic and system impacts.

At the smaller scales one electricity supplier will buy output from a microgenerator and the system operator offers a tokenistic payment on top of the payment for the unit of energy exported to the grid. It is not the roll of the utilities to incentivize microgeneration however and they are not obliged to provide any payment for export. Should a support mechanism at smaller scales be forthcoming it is the Government which must provide it. Where the utilities can assist is with regard to connection policy and whilst it has improved for the smallest generators it remains onerous for any generator greater than 11 kW. Connection of units up to 50 kW at least should be very straight forward but it remains intimidating for individuals and small business.

c. Developers / investors

The Irish Wind Energy Association published a commissioned report on jobs and investment potential in June 2009. The Deloitte report studied the opportunity which accompanies the achievement of our 2020 targets. The IWEA assume 6,500 MW of wind will be required to meet our consumption targets for 2020. Based on these estimates the report concluded that the sector could support more than 10,760 direct and indirect jobs. According to the report the investment required is estimated to be of the order of €14.75b with approximately €5.1b retained in the local economy. Construction provides the majority of the jobs opportunities available from the wind energy sector in Ireland. Offshore wind development requires significant construction inputs in order to develop the large scale wind farm projects planned. It is estimated that there will be in excess of 7,250 jobs that can be supported by the construction element of wind energy projects. A number of challenges such as grid access; shortage of experienced personnel and lack of awareness about employment opportunities in the sector have been identified and act as a barrier to the sector evolving and reaching the targets set by Government. In order to tackle these issues, work must continue in relation to the roll out of grid upgrades and information on careers in the sector needs to be distributed at secondary and third-level so that students are aware of the paths open to them.

The report also states that increasing the share of our energy from renewable sources will deliver significant benefits for the electricity customer, the local economy and society. Recent volatility in fossil fuel prices has demonstrated that regions with a high dependence on energy imports are exposed to a high level of risk. This volatility makes it difficult for investors in the economy to make reliable long term forecasts of their energy costs. The most effective way to reduce this volatility is to increase the share of energy costs that are predictable and based locally. This, the report concludes, will lead to lower and more stable long term energy costs. As other regions move to stabilise their long term energy costs it is essential that Ireland continues to increase relative competitiveness in this area. It is estimated that between 25 and 30% of capital investment in renewable energy is retained in the local economy. This typically flows to companies in construction, legal, finance and other professional services.

Ensuring the security of energy supply is also a key part of the Irish Government's recent Framework for Sustainable Economic Revival and Northern Ireland's pre-consultation on its Strategic Energy Framework. Having regard to the current economic downturn, the framework acknowledges the need to put the energy/climate change agenda at the heart of Ireland's economic renewal. Every new wind farm development provides a substantial contribution to the local and national economy through job creation, authority rates, land rents and increased demand for local support services. Job creation is a key means by which acceptance can be increased in Ireland.

Wind autoproduction, large and small scale, will grow over the coming years as heavy energy users look for options to make their operations more competitive and sustainable. Autoproducers are generators with onsite generation installed with the aim of displacing imported electricity at retail rates. As autoproduction adds generation capacity downstream of the meter it can be easier to facilitate than adding the same capacity directly to a congested grid although grid access for the full capacity of the generator may be sought.

To date autoproduction has been mainly employed through CHP generation. Following on from the success of the 850kW turbine installed on-campus in Dundalk Institute of Technology a number of industrial customers are exploring their options. A number of energy services companies offer a risk free model to industrial customers who have a suitable site. These companies take on all the risk in planning, designing, procuring, installing and operating the MW scale turbines. They then offer to the energy user on site a tariff for the power produced which is guaranteed to be a percentage below the retail rate for the period of the long term contract. With competitiveness becoming increasingly difficult for industry in Ireland this arrangement is likely to be attractive to high energy users with suitable sites.

In the micro and small wind sectors, unlike many European countries, there is no inflated feed-in tariff available to incentivize investment by individuals and so the sector is not expanding as hoped by suppliers of the technology.

d. Financial institutions

Ireland is in the throws of an economic downturn which is sharper than that being experienced in most of Europe. Access to finance is a cause for growing concern within the sector as banks lend less and charge more. Adding to the concerns about the cost of finance is the continued uncertainty with respect to variable transmission loss adjustment factors and delayed firm access to the grid. Generators are unlikely to find that the sourcing of finance is made easier by the fact that connections will be non-firm and the level of constraint they can expect is unknown – market acceptance by investors is becoming an issue. The 3,900 MW of Gate 3 connections will be loaded towards 2020 rather than front loaded which will mean the industry will not be ramping up to maximum capacity for a number of years and will likely see a sharp fall in opportunities beyond 2022.

e. National opinion makers, policy makers and general opinion

Following on from the technical grid study (AIGS) and with a view to guiding policy, the regulators undertook a study to assess the possible impacts of high penetrations of wind on the single electricity market (SEM) in 2020. The study examines the impact of the five generation portfolios from the AIGS on the unconstrained system marginal price and on the capacity payments to generators. Generators receive capacity payments proportional to their capacity and availability. The cost benefit analysis was limited to analysing the additional cost of the added renewable capacity and the displaced costs for carbon fuel and conventional plant. The study also analysed the effect high wind penetration might have on the profitability of existing and new conventional generators. It should be noted that, among other limitations, network costs were not included in the study.

At a high level the study resulted in the following findings:

- Wholesale market prices significantly lower for all but one portfolio of high wind penetration;
- As expected, economic benefits are sensitive to fuel and carbon prices;
- A mixed portfolio of plant including CCGT, OCGT and wind provides a greater carbon reduction;
- Incentives may be required for all forms of new generation into the future; And
- The SEM design appears to be robust but continued review will be required to facilitate the changes expected in the next decade.

It is worth noting that the modelling was carried out during a period of historically high oil prices and since then prices have dropped to a level comparable with the low price fuel scenario rather than those used in the central scenario.

The last survey carried out on general attitudes to wind energy was carried out in 2003. SEAI completed a series of surveys to identify what the Irish public's attitude towards wind farms was and how future energy policy as well as planning and design guidance might be directed.

The surveys revealed that Irish people are generally positively disposed to the introduction of wind farms but that some concerns do exist which decision makers and developers alike should take into account when considering future projects.

Three interrelated surveys were carried out as part of the study dealing with:

- the Irish population as a whole;
- communities living close to an existing wind farm;
- with communities from areas where a wind farm has recently received planning approval.

Three overlapping questionnaires were developed by an independent cross-sectoral steering committee for use in the face to face interviews across statistically representative samples. The survey provided realistic insights for planners, policy makers and developers to assist in the planning and development of future wind energy projects. Obviously this survey is now dated and the attitude of the general public to wind energy is not known by any measure but through anecdotal evidence.

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This report was Ireland's first independent study into the public's attitudes towards the development of wind energy and the integration of wind farms on the Irish landscape. It consists of analysis and results of surveys completed both on a national level and in two catchment areas – surveying 150 people in proximity to planned wind farms, and 200 people in areas where wind farms were already built.

The report presents interesting and potentially promising results, indicating that among the general public, over 80% believe wind energy to be a good thing, and two thirds of Irish adults are favourably disposed to having a wind farm built in their locality. What is particularly powerful is the information the report presents showing the high level of acceptance and satisfaction that people living in proximity to a wind farm feel towards the development. Those living near an existing wind farm generally feel that it has had no adverse effect on the local wildlife or scenic beauty, and a high percentage would even be in favour of a further wind farm development in the area. It also shows that the percentage of people with strong objections to wind farm development is very low, at only about 3%. The report states clearly that while this group of strong objectors may be a small minority, their opinions and concerns need to be listened to, assessed and addressed by the developers. The report suggests that communication with the local community about wind farm should be two-way. This interactive approach should allow the community to express their opinions to the developers. Opinions such as the preference identified in this survey for small, clustered groups of wind farms as opposed to larger scale installations, and few larger turbines in preference to many smaller turbines. The report also points out that although some local people would appreciate the opportunity to invest in a wind farm development, very few are actually given this opportunity.

Surveys completed in areas with existing windfarms looked into the level of community involvement in the project. The main channels of information and communication employed between the developers and the local community were local meetings, local papers and radio, personal contact, information days with the developer, and information from a local council or politician. Considering that only 41% of people surveyed were consulted, there is a surprisingly high level of satisfaction with the process, as 73% of those surveyed said they were happy with the process and only 12% dissatisfied with it. Those who were dissatisfied felt that there was a lack of direct community involvement in the project, such as no opportunity for community input about the wind farm design/layout and no opportunity to invest.

The report presents very positive findings about the scenic impact of wind farm developments. Results show that few of those living close to a wind farm development feel that it has damaged the scenic beauty of the locality. Another interesting positive attitude that is addressed is that of the employment potential related to wind farm development. People in areas with wind farms in the planning stage tend to have an undue expectation about the benefit the wind farm will have on the employment and economic climate of the locality. The report shows that in areas with an existing wind farm, people are not so optimistic about related employment opportunities. This suggests that local communities could be more beneficially involved in the development, construction and subsequent maintenance activity related to the wind farm development.

The report gives a clear message in its concluding note. The largely positive attitudes towards the development of wind farms both among the general Irish population and particularly among those who live in a community where a wind farm is already situated is reiterated. This gives a very positive background against which to plan for future development. However, the report reminds us that this should not lead to complacency. With more meaningful community involvement the levels of social acceptance may be even higher, and potential wind farm developments more successful in their implementation.

It is important to note that this research is now dated, following six years in which wind farm developments in Ireland increased substantially. It is highly likely, for example, that more than 56% of the population are now aware of windfarms - as evidenced by the more recent tourism discussed below.

Summary of the Main Findings

- People with a wind farm in their locality have a generally positive attitude about the impact it has had on scenic beauty and wildlife.
- Support for wind farms is higher in areas with an existing wind farm in operation. 60% of people living in proximity to a wind farm would be in favour of another wind farm in the area.
- Two-thirds of Irish adults are either very or fairly favourable to having a wind farm build in their locality, indicating little evidence of the NIMBY effect.
- Local hopes for employment and local economic benefit not always met. This could be improved, as some members of local communities express an interest in becoming investors in wind farm developments but few are given the opportunity.
- Wind farms are often seen as an interesting feature in the landscape, enhancing positive 'green' connotations for the locality. This indicates a largely unrealised tourist potential related to wind energy in Ireland.
- Wind farms are at the favourable end of results dealing with the NIMBY effect, when compared to mobile phone masts, and steel electricity pylons. The NIMBY effect is also found to be lower among people who've actually seen a wind farm.
- The effect of wind turbines on different types of landscape was assessed. Coastal landscape was rated the most beautiful, followed by mountain moorland and fertile farmland. Bogland and urban industrial ranked quite low in terms of perceived beauty. Regardless of the beauty rating of the landscape, the perceived scenic impact of wind turbines remains pretty steady across the board – approx 15% very positive, 30% fairly positive, 30% neutral, 20% fairly negative, 5% very negative.
- There is a strong level of support for government incentives to build wind farms.
- In an area with an operating wind farm, those surveyed were divided roughly 50/50 on whether it was controversial or not. Controversy levels were highest at the planning stages and dropped when the development had been completed.
- In an area where planning permission had been granted for a new wind farm development, only 55% of those surveyed were aware of the development. 63% of those who were aware of it were also aware of some community consultation. 9% had been given an opportunity to comment on the design and layout, and only 4% had been offered an opportunity to invest. People were generally optimistic about the effect the wind farm would have on employment in the area.
- In areas with operating windfarms, 18% of people found the building of the wind farm disruptive or very disruptive.
- Some people felt the wind farm had no role in reducing pollution, felt the scenic beauty was damaged, that property value was diminished, that tourism was harmed felt no jobs had been brought to the local area.
- Channels for communication between wind developers and the local community tend to be one-way, identified as dissemination rather than an exchange of information. Consultation could be more genuine.

f. Educators

No study of educators' opinions on renewable energy. SEAI does engage with schools in an ad-hoc way on request and does provide general information on wind energy and other forms of renewable energy. The environment in general is a subject which is covered in primary education and across a number of subjects in secondary schools. An Taisce, the state NGO with a heritage brief, administer the Green Schools scheme in Ireland. Green-Schools, known internationally as Eco-Schools, is an international environmental education programme, environmental management system and award scheme that promotes and acknowledges long-term, whole school action for the environment. Unlike a once-off project, it is a long-term programme that introduces participants (students, teachers, parents and the wider community) to the concept of an environmental management system. However, Green-Schools is far more than just an environmental management system. It fosters a strong sense of citizenship and leadership among participants that spreads far outside the school into the wider community. It also promotes a strong sense of teamwork among teachers, students and the wider community to reach a common high level goal. It flattens and democratises school management structures. It brings children into the decision-making process and makes them responsible for their decision and actions.

The aim of Green-Schools is to increase students' and participant awareness of environmental issues through classroom studies and to transfer this knowledge into positive environmental action in the school and also in the wider community. Schools that have successfully completed all the elements of the programme are awarded the 'Green-Flag'. This award has now become a well-recognised Eco-Label. The award has to be renewed every two years.

Green-Schools (Eco-Schools) is an initiative of, and co-ordinated on an international level by, FEE (Foundation for Environmental Education). Currently, the Programme is being implemented by 46 delegations in 43 countries around the world, involving 27,000 schools, 6,000,000 students, 400,000 teachers and 4,000 local authorities.

As one of the four themes included, energy is a cornerstone of the scheme and An Taisce have expressed a desire to have a complimentary programme looking exclusively at energy issues and awareness. Instilling energy awareness and wind energy awareness from a young age will become a useful tool in allowing the public to develop a position based on evidence and fact over time.

g. National, regional and local administration

There is no study of administrations, be they local or national, which identifies a systematic problem of lack of acceptance. Acceptance issues arise on a case by case basis where one local authority, perhaps concerned with preserving an asset they see as non-complimentary e.g. tourism has a particularly bad record of approving wind energy projects. The decision can be appealed to the appeals board in the capital but this adds time, expense and risk to projects. The national guidelines for planners with respect to wind energy are only guidelines and as such can be subject to some interpretation which leads to uncertainty. It has been suggested by some developers that one individual in one individual planning office may not like wind turbines and so the office default could be to not allow it.

National government has set very ambitious targets for renewable energy penetration. If we achieve these targets by 2020 Ireland will have increased its renewable capacity as a percentage of total capacity by factors which are unlikely to be surpassed on similar power systems elsewhere in the same time period (2006: RES-E represented 7% of consumption. Target for 2020: 40%). Great focus on the development of a sustainable green economy has occurred since the credit crunch precipitated a huge down-turn in the national economy which was based on the construction of buildings which now lie empty. National politicians are full square behind sustainable development but it is impossible for local politicians to champion a project which may be good for the economy when his constituents are against it.

h. Local population

The attitude of local affected population varies from project and is where, as might be expected, the global positive disposition to wind energy can break down. Ireland does not host any national anti-wind group at present. The opposition arises via local, motivated groups of residents who campaign against a project with the support of the local political representatives. Whether the local authority grants planning permission or not is almost irrelevant in many respects because either result will be appealed to the appeals board which has become the de facto planning authority for all infrastructure projects.

Once planning permission is granted, unlike in most other jurisdictions, objections can continue in the form of protest and obstruction. Landowners not involved in the project may block access to grid or road access. One case in Cork, where the objection was more so to the grid development than the wind farm, was eventually resolved by burying the cable for most of the link. In this case the developer could make it work but such extra costs may make a project no longer viable.

i. Visitors / tourists

Fáilte Ireland, the Irish tourism board carried out a visitor survey in 2007 which followed the same basic structure as the SEAI report in 2003. Fáilte Ireland interviewed domestic and overseas tourists to investigate the impact that wind farm development has or might have on tourism in Ireland. They found, similarly to SEAI's survey results, that people are largely positive in their attitudes towards wind farms. However, there is a small minority of people surveyed who feel strongly negatively disposed towards wind farms, approximately 1 in 7. Similar to the SEAI surveys, most of those interviewed preferred small wind farms with large turbines.

In future planning it will be important to take into account the views of those negatively disposed as well as positive.

Summary of the Main Findings

- There is a very high level of awareness of windfarms among visitors to Ireland. 9/10 interviewed had seen a wind farm. This indicates a much higher level of awareness than reported for the general population in the 2003 SEAI report. The percentage of ROI residents surveyed who had seen a wind farm increased from 49% in SEAI's 2003 report to 87% in 2007. This corresponds to greatly increased wind farm development in the intervening years.
- Generally, the attitudes of those interviewed was very positive towards wind farms. 2/3 of people interviewed said that increased wind farm development would either have no impact on or would have a positive impact on the likelihood of a return visit to the area. Reasons given for these positive attitudes were
 - Support for renewable energy
 - Potential decreased carbon emissions
- Approximately 1 in 7 people interviewed had a strongly negative attitude towards wind farms. Those who are negatively disposed say that wind farms look ugly, are noisy and can frighten or damage wildlife. A small number also claim to have preference for other forms of renewable energy. People aged 55+ are more inclined to think that wind farms have a negative scenic impact.
- The landscape onto which the wind farm is to be sited was found to have a significant impact on attitudes. Although 15% feel wind farms have a fairly or very negative impact on sightseeing in general, this figure increases to 33% for wind farms sited on coastal landscapes. Only 18% were opposed to wind farm construction on bogland, and 13% on industrial land. These results, while conflicting with the findings of the SEAI report, indicate that potential wind farm sites must be assessed on their own merits.
- In concurrence with the SEAI research, most people surveyed expressed a preference for smaller wind farms of large turbines as opposed to bigger wind farms with many small turbines.

Variables Influencing Social Acceptance

4. Well-being

There have been no studies, reports or publications carried which can be referenced here on the topics of Quality of Life, Regional Identity, Valuation of Ecosystems. The only publication perhaps worth including is the guidance offered by IWEA on the topic of environmental impact assessment which includes light, noise and shadow flicker.

a. Lights, Noise, Shadow

The Irish Wind Energy Association provides the following guidance as best practice with respect to noise and shadow impact assessments:

Noise

The DoEHLG Guidelines on noise limits should be followed. Any additional requirements outlined by local authorities in their County Development Plans or formally adopted wind energy policies will need to be met. The following documents also provide guidance on the assessment of noise:

- *“The Assessment and Rating of Noise from Wind Farms” ETSU-R-97 (1996), prepared by the Working Group on Noise from Wind Turbines on behalf of ETSU for the UK DTI*
- *ISO 1996 “Description, Measurement and Assessment of Environmental Noise”*
- *EPA “Environmental Noise Survey Guidance Document” (2003)*

Shadow Flicker

‘Wind Turbines, like other tall structures, can cast long shadows when the sun is low in the sky. The effect known as ‘shadow flicker’ occurs where the blades of a wind turbine cast a shadow over a window in a nearby house and the rotation of the blades causes the shadow to flick on and off. This effect lasts only for a short period and happens only in certain specific combines circumstances such as when:

- *the sun is shining and is at a low angle (after dawn and before sunset); and*
- *the turbine is directly between the sun and the affected property; and*
- *there is enough wind energy to ensure that the turbine blades are moving.*

Calculations for shadow flicker modelling generally assume 100 % sunshine conditions. It is reasonable in Ireland’s climate to modify these figures. Some attention can also be given to the wind rose. If winds rarely come from the sectors which would give rise to the greatest shadow flicker effects on a dwelling, this can be taken into account. Where shadow flicker is anticipated to lead to potential problems, measures can be implemented to mitigate these effects. Wind turbine control software is available, which can turn the relevant turbine off at these times. The developer may wish to consider the economic impact of use of this mechanism. Other mitigation measures could include the provision of screening measures, where this is acceptable to the relevant householder.

5. Distributional justice

a. Distributional justice

In Ireland, as with other countries this can be a key issue as locals see a developer from outside the community moving in to exploit a local resource often with no tangible benefits to the community who have to live with the change to the locality. Early consultation is cited as a key tool in preventing a reaction to plans which may be seen as so far advanced that the decision is already made to proceed.

b. Ownership models

There is a dearth of community owned wind projects in Ireland. It is very difficult for small community groups to develop a project and the model most often used is to call in a developer and hand the land over for wind development. In an attempt to encourage more community involvement in the sector a study was carried out by the Renewable Energy Partnership (REP) which consists of Brí Nua Community Wind Energy Group, Mayo Community Wind Energy Group and the Western Development Commission. A practical guide for community investment in wind farms and accompanying CD Rom were produced.

The objectives of this study were to:

- Determine whether Irish communities should become involved in wind energy development and, if so, how best they might do so.
- Provide communities, local government and interested groups with an understanding of the changes which need to be put in place so that communities could own successful wind farms.
- Assess whether it is feasible to set up community organisations to enable as many people as possible to invest in wind farm development.
- Assist community groups throughout Ireland to create their own investment vehicles for wind farm project development.

The report states that residents of areas in which wind farms are being developed should be offered the opportunity to provide as much of the finance as possible. Others with ties to the particular area should also be given the chance to invest in those wind farms. The current pattern, they say, of wind farm developments which bring no benefits to the local communities, creating very few jobs once built and consequently bringing little benefit to the local community, has contributed to opposition towards wind farm development. Therefore, opportunity for local investment is hailed as a major factor in increasing social acceptance. The REP advises that a Renewable Energy Advisory Group should be established to allow a large number of small investors to be involved in wind farm development in a productive way. Confidence in this form of investment may take some time to build up in Ireland, but they refer to different methods of encouraging community investment in wind energy that are in place in other European countries.

The guide's key recommendation for communities wishing to be involved in wind energy projects is that – *“Due to current constraints to community ownership of wind farm projects, the most practical investment option communities should currently consider, is that of participating in commercial projects; once such projects have secured planning consent, a grid connection agreement and a contract for the sale of electricity”*. It identifies key policy issues that need to be dealt with before communities in Ireland will be able to develop projects of their own.

The need for increasing public acceptance of wind farm developments is dealt with, including a very clear and logical endorsement for the development of community owned wind farms in the observation that *‘wind farms are currently perceived as imposing risks and costs on local communities with no counterbalancing local gain other than the collective gain of moving towards a renewable energy economy’*. People in the locality will be more in favour of wind farm developments if they will benefit from the development. Wind farm development could provide investment opportunities for people living in rural areas, one of few possible investment opportunities outside of buying land. Aside from the scarcity of other investment opportunities, the guide indicates that wind is likely to offer a good return. The guide suggests that wind energy could be a possible way of saving for a pension.

Case studies of Denmark and Britain are presented as positive ways in which communities have been involved in wind farm investment, although important differences with the Irish situation are pointed out, as the example given from Denmark took place at the early phases of the development of wind technology, which helped incubate the small locally-financed projects. In the British case the wind farm in question is visited by hundreds of school children and adults on educational visits each year.

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In addition to its focus on community acceptance, this guide also deals with the other aspects of social acceptance – economic and socio-political. In particular, they stress that in order for wind energy to develop substantially in Ireland, with or without community involvement, serious and consistent state support is required. In each of the key ‘wind countries’ in Europe, the report says, government policy has pro-actively driven wind energy development politically, rather than relying on purely market-driven development.

The guide also refers to the restrictive effect that Grid constraints can have on wind farm developments. The report recommends that all renewable projects below a certain size and with a high level of community involvement, should be provided with a connection to the national grid at no cost to the project.

c. Welfare

No reports or studies to reference on welfare apart from the best practice on specific areas such as noise and shadow flicker described by IWEA elsewhere in this summary.

6. Procedural Design

a. Procedural design

IWEA publish guidelines on what they call best practice to follow when developing a project. These guidelines give a thorough description of the steps involved in wind farm development, and step-by-step instructions for actors in the wind energy industry to follow during every stage of development. Although the report covers a very wide range of factors that must be considered, from wind monitoring to planning permission, it is very clear in stating the need for community involvement at every stage of the development. The introduction opens by saying “*the IWEA wishes to encourage best practice within the wind energy industry in Ireland. The purpose of these Guidelines is to encourage responsible and sensitive wind farm development*”. As the IWEA has interest in the long-term and sustainable development of the Irish wind industry, and not just in short-term gains as developers working on specific projects might, it is in their interest that there is a high level of public acceptance among the Irish population and that methods of reducing conflict are implemented as much as possible. These guidelines appreciate the importance of taking into consideration the concerns of local communities, planners and other interested groups.

The guidelines themselves, all the measures mentioned, could be interpreted as measures to maximise potential social acceptance. At every stage in the guidelines, the importance of consultation with other bodies and involved parties is stressed. In procuring planning permission it is advised that the developer engages in ‘*early and in-depth consultation with statutory and other regulatory bodies*’ to allow greatest opportunity to provide for any concerns which they may have. There is also an emphasis on ‘*good practice in community consultation*’ at the Environmental Impact Assessment (EIA) and planning stages. ‘*Good practice in community liaison*’ is lauded as very important for the construction phase. Chapter 10 deals in particular with the issue of Community Consultation. Instructions are given for effective means of consultation and communication with local communities. The following advice is given to reduce potential conflict with the local community:

- Local consultation should begin before a planning application is submitted, at time of the Environmental Impact Assessment.
- A named contact person representing the developers should be provided and available for communication.
- Independent information from organisations such as SEAI’s Renewable Energy Information Office should be provided.
- Information packs should be given to groups and neighbours if appropriate.
- Some neighbours should be visited in person.
- In some cases a project-specific website should be set up and/or an E-newsletter should be circulated.
- Public exhibitions should be organised in the immediate locality if at all possible and well advertised – relevant maps and plans and the EIA should be displayed, and sufficient staff should be present to respond to questions and concerns the locals may have.
- Community consultation must continue during the construction phase, and in some degree during the wind farm’s operational phase.

b. Communication strategies, public consultation

The Monaghan Model –A guide to best practice in community consultation was published in 2005 and is a good in-depth approach often used by public bodies and private developers. It proposes a template for approaching consultations, and aims to ensure that the community sector can meaningfully engage with service providers in enhancing local decision-making.

Monaghan Community Forum thinks that there are three main ingredients:

- The Consultor genuinely wants to hear
- Consultees feel fully engaged
- The process should make a difference

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The purpose of the Guide is to lay down a framework for consulting with the community which will ensure that:

- The number of people taking part in the consultation is as large as possible
- The consultation process reaches the people who will be most affected by decisions being made.

The Monaghan Model is made up of six Stages:

- Stage 1: Defining the consultation
- Stage 2: Designing the consultation elements
- Stage 3: Promoting the consultation
- Stage 4: Implementing the consultation and recording the inputs
- Stage 5: Feeding back to the participants
- Stage 6: Evaluating our work, and learning for next time

The Irish Wind Energy Association gives the following advice to its members as a 'best practice approach':

Consultation with the community is an important part of the development of a wind farm. Consultation processes can begin once a commitment has been made to develop the project. This could typically be after the feasibility study has been carried out, because until that time, no commitment to developing a wind farm is likely to have been made. A discussion of suitable approaches to consultation in the following stages of project development is given below:

- *Early project development stages*
- *EIA*
- *Construction*
- *Operation*

Community Consultation for Environmental Impact Assessment

As the project develops and the EIA is initiated, it may be desirable to consult with local community groups, particularly environmental groups. Local authorities maintain a listing of registered community and voluntary organisations. Good points of contact should be established on both sides. Information packs could be provided to each group if appropriate. As before, neighbours can be visited in person. Neighbours should also be provided within formation packs. Each neighbour should receive the same information. A larger developer might wish to consider establishing a project-specific website, which would provide up-to-date material for interested parties. Contact details should be provided. An e-newsletter could also be considered.

Community Consultation in Early Project Development Stages

Local consultation should begin at an early stage before a planning application is submitted. Ideally, a named contact person should be appointed to deal with queries, and contact details distributed among residents. Contact details for SEAI's Renewable Energy Information Office (REIO) can also be given. REIO provide independent information on renewable energy.

Public Exhibitions

Public exhibitions have been found to be a suitable and productive consultation format. The following points can be considered in the holding of a public exhibition:

- *the exhibition should be held in the immediate locality if at all possible*
- *community halls or local schools can often be a suitable venue*
- *the exhibition should be prominently advertised in the local community, e.g., shops, community centres, public houses; it may be possible to have advertisements in church bulletins and church announcements*
- *local community groups should be specifically invited*
- *it is often best to hold the exhibition on a weekday rather than a weekend to ensure better attendance*

- suitable exhibition hours run from mid or late afternoon until early or mid-evening, and should take account of dairy farming practices in relevant areas
- choice of day, time, and location should suit local conditions to ensure maximum attendance from the immediate locality
- maps, plans and illustrations should be plentifully used and prominently displayed
- it is important that the exhibition is adequately staffed; it is best that staff mainly be from the developer's organisation, as only the developer has authority to say what will or will not be done; landowners should ideally be present too, as should staff from the environmental consultancy (if any) preparing the EIS
- a draft copy of the EIA should be available if at all possible, because experience has shown that answers to queries are unlikely to be available otherwise
- a leaflet outlining the project should be prepared and distributed; it should include a location map of the proposed development, information on the developers and on the wind farm proposed, and contact details for queries
- REIO may be prepared to attend or even to provide a (separate) stand, to provide independent advice to the local community, and may also provide information packs on wind energy.

The EIA and planning stages can often be the most sensitive for local communities. Where significant concerns arise locally, it can be of assistance to offer to bring a group of residents to visit an operational wind farm. This can be a good means of dispelling inaccurate views of windfarm operation.

Community Consultation during the Construction Phase

Neighbours and local community groups should be contacted in advance of and during construction. Contact details for the developer should be provided in the local community. An information board can be displayed in a publicly accessible location, e.g. near the site entrance, giving contact details for the developer's site representative or other contact. Where a developer has established a project website, it should be kept up-to-date during the construction period. Similarly, any e-newsletters should continue. In the event of comments or complaints about the construction works, the developer or site representative should be accessible to the local community. Any complaints should be dealt with quickly and responsibly. Consideration could be given to the formation of a community liaison group if appropriate. Emergency procedures will need to be established for 24-hour support to the project works in case of unforeseen problems. The existence of these procedures should be notified to the emergency services and the local authority, and can be referred to on the site information board.

Public Communications During Wind Farm Operation

Contact details will need to be made available to neighbouring residents and community groups. As before, if considered necessary, a more formal community liaison group could be established which would hold regular meetings. It is a good idea to install a notice board at the entrance to the wind farm outlining information on the project. This could give information on:

- the developers or owners of the project
- the turbine numbers, make and model, dimensions, and name-plate rating
- the quantity of electricity generated in a year, and the equivalent number of houses this would supply
- quantity of avoided emissions
- contact details for queries
- information on any site visits or open days

A formal procedure should be established for recording and dealing with complaints from the public. The operator should investigate any complaints from individuals and, where appropriate, work with the relevant authorities to address any issues raised.

7. Implementation Strategies

The two main references for successful implementation of a project are the planning guidelines from the Department of the Environment and the Best Practice Guide from IWEA (Section 6).

Planning Guidelines for Local Authorities on Wind Energy Development, 2006

These guidelines prepared by the Department of Environment, Heritage and Local Government (DoEHLG) consist of very thorough step-by-step instructions for local authorities and can be a reference for anyone engaged in the sector. The introductory section deals with environmental issues and the policy context, and refers to the fact that wind development in Ireland is necessary and a priority. The guidelines deal only with on-shore wind development. The Department of Communications, Marine and Natural Resources have produced a separate booklet for offshore wind entitled 'Offshore Generating Stations – Notes for Intending Developers'.

The issue of tourism and recreation is raised, and the guidelines explain that sensitivity is needed to ensure that wind farm development doesn't impact negatively on tourism, which is often the economic backbone of the rural communities where the development is planned. It refers to the SEAI 2003 report, saying that while developers should be mindful of the impact on tourism, *'the results of survey work indicate that tourism and wind energy can co-exist happily'*. The possibility of establishing an interpretive centre at a wind farm is mentioned. Legal requirements to respect wildlife and its habitat, and natural biodiversity are also covered.

The guidelines state that planning authorities should *'encourage'* developers to engage in public consultation with the local community. As in the Irish Wind Energy Association guidelines, this type of consultation is not mandatory, but should happen at an early stage in the planning process. The communication should be *'meaningful'* and should give the community a chance to comment upon and to have an input into the planning and design on the scheme. In a similar way, while it may not be necessary to put formal procedures in place to deal with queries and complaints from the general public, the guidelines state that there is probably an advantage in doing so. Suggestions made include the provision of an individual to be accessible to the local community, a Lo-Call number for information, and offering local people the opportunity to invest in the project, especially where an interest in investment has been expressed.

The guidelines deal with issues that may become contentious in terms of social acceptance. Information is given on the issue of noise. The treatment of this topic is very technical, but is obviously directly related to impact on the locality. The guidelines state that noise is unlikely to be a significant problem where the distance from the nearest turbine to any noise sensitive property is more than 500 m. The report includes a detailed chapter dealing with aesthetic considerations in siting and design. This guides developers in designing wind developments to minimise objections based on aesthetic reasons. These guidelines seem to follow the findings of the SEAI in 2003, encouraging the development of small wind farms with fewer bigger turbines, etc.

It is interesting that the report states that there is no safety-driven need for fences surrounding wind turbines. People and animals can safely walk up to the bases of the structures. It is possible that development of this kind may have a positive impact on social acceptance, as an unfenced wind farm would have less of an impact on locals' sense of ownership of scenery and place. It may also have a better effect on tourism if people have the possibility of walking through the wind farm without hitting a barrier.

With particular relevance to the issue of social acceptance, Appendix 2 of the guidelines advises on best practice protocol for public consultation at the pre-application stage. The guidelines recommend that developers make first contact with members of the local community, and that they provide locals with a good flow of information at this stage in order to avoid possible conflict in the future. An outline of a formal letter to members of the local community is given, introducing the development promoters, details of the proposal, indicating the necessity of wind development in the context of national and international policy, and inviting the locals to further public exhibitions. They also suggest enclosing a project information leaflet including contact name and details for promoters of the development.

Summary and Conclusions

8. Conclusions

Much of the understanding of public attitudes we have in Ireland is based on dated data. New research is needed in order to understand people's current positions and understand where work is needed to alleviate concerns or target consultation. There is a vast amount of online information available to concerned citizens which details the pros and cons of the technology. It is very difficult for neutral people to come to terms with this white noise and very easy for them to fall back on a position of opposition. One key piece of information lacking is the actual experience of people living close to wind farms i.e. less than 1km (0.6 miles). The industry consistently denies the existence of well-being issues in this region but there is no evidence to counter claims of the syndromes and health issues which frighten communities in which projects are proposed.

Investment models in Ireland lack any significant opportunity for the locality to benefit directly. Global benefits and national benefits are quoted and the promise of jobs for the period of construction but this is inadequate in the long term for acceptable sustainable development as are tokenistic contributions to local community groups or sports clubs. Investment models need to be considered which allow communities to buy-in to a project in their area or at least feel a sense of ownership.

9. References

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