

Lyrenacarriga Wind Farm

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Innogy Renewables Ireland Limited (innogy) is the company proposing to develop Lyrenacarriga Wind Farm, in the vicinity of Lyrenacarriga townland and surrounding areas in Co. Waterford and Co. Cork. It is a joint project with Highfield Energy, with innogy taking the lead in the development.

PROJECT FACTS

Location:	5km SE of Tallow, Co. Waterford and approx. 15kms NW of Youghal, Co. Cork
Site area:	Approx. 1,900 hectares
Elevation:	Ranges between 140 – 210 metres above ordnance datum
No of turbines:	Viable area could accommodate 25 turbines; depending on EIA surveys, this could be reduced
Turbine height:	Up to 150 metres
Set back from property:	Distance of 700 metres can be achieved
Investment:	Expected to be in the region of €100 - €130 million
Timeline:	innogy intends to submit a planning application to An Bord Pleanála in 2019. Fieldwork is continuing to be undertaken in respect of the EIA and community engagement is ongoing.

How will Lyrenacarriga Wind Farm benefit the community?

Community Benefit Fund

Should Lyrenacarriga Wind Farm be consented, it has the potential to provide significant additional investment into community projects that will benefit local residents and businesses.

Following the publication of the Renewable Energy Support Scheme (RESS) proposals in summer 2018, it is anticipated that a community fund could be in the region of €6,000 per MW of installed capacity per annum. This could mean that a wind farm producing 60-74MW output capacity could result in a fund of €360,000 - €444,000 per year for the local community subject to the final installed capacity of the wind farm. This represents a dependable source of income for the community's local to Lyrenacarriga.

innogy supports the development of a funding process that puts decision making on what funds are spent where in the hands of local people. The flexibility of the investment that could come from Lyrenacarriga Wind Farm would mean that a panel of local community representatives could decide how to invest the income in a variety of projects that will benefit residents, local businesses and the community as a whole including creating job opportunities and skills development, tourism initiatives and area regeneration projects.

Potential community shared ownership

A further potential income stream could come via innogy offering the local community the opportunity to participate in a community shared ownership scheme whereby they could invest in the wind farm in return for a share of future revenue.

Supply chain opportunities & jobs

During the construction phase of the wind farm, there will be supply chain opportunities for local businesses leading to an increase in local investment and job opportunities. Prior to construction starting, innogy will award the principle contract for Civil Balance of Plant supply and installation of the turbines, and the Electrical Balance of Plant contract. Once these main contracts have been placed, there will be potential opportunities for supply chain companies in the region to tender for subcontracts. The types of businesses that could benefit from this expenditure is wide ranging, and is likely to include: traffic management; materials supply; plant hire; fencing, fuel, security, waste management, signing and lighting, telecommunications, drainage, catering and hotel and B&B businesses.

Payment of business rates to local council

A significant wider benefit of the proposed Lyrenacarriga Wind Farm is the annual business rates contribution estimated to be between €600,000 and €800,000 for the full life of the wind farm. These business rates will be paid locally and contributions will significantly benefit the wider local economy.

Why onshore wind?

The continued deployment of onshore wind, which represents the cheapest form of new, large-scale electricity generation, will be key to meeting and facilitating decarbonisation at the cheapest cost to consumers. A January 2019 report, *Wind for a Euro: Cost-benefit analysis of wind energy in Ireland 2000-2020*, from energy and utilities consultants Baringa, reveals that the net cost of wind energy for Irish consumers amounts to less than €1 per person per year since 2000.

Ireland is going through a major energy transition. It is the Government's intention that by 2050 our homes, cars, workplaces, shops, schools and leisure centres will be powered by electricity from renewables. This transition will need every person in every community in Ireland to play their part. Communities that host a renewable energy project – onshore wind, offshore wind, biomass, battery storage, hydro or solar - are playing a very important role in this transition.

With the second highest wind resource in Europe, Ireland's onshore wind is leading the country towards the legally binding targets of 16% total renewable energy by 2020, with wind set to account for half of this target. The move away from fossil fuels could also benefit Ireland's energy security, encouraging national generation for national energy consumption. This in turn reduces spend on imported fuels. In 2017, wind energy saved Ireland 2.7 million tonnes of CO₂ emissions and prevented more than €220 million of imported foreign fossil fuels (SEAI 2018, "Energy in Ireland").

As a responsible company and developer, innogy is committed to ensuring that the communities that host our renewable energy schemes are able to share in the Ireland-wide economic and environmental benefits that these projects can deliver, as well as more specific local benefits. These include countrywide reduced reliance on fossil fuels and improved air quality and more local funding to spend on local buildings and projects along with more jobs and employment opportunities.

Why here?

The current Waterford County Development Plan 2011-2017 (as extended) was adopted with the benefit of a Strategic Environmental Assessment (Volume 4), a Habitats Directive Article 6 Appropriate Assessment (Volume 5), a Scenic Landscape Evaluation (Appendix A9) and a Wind Energy Strategy (Appendix A8). What that means is the Waterford County Development Plan drafting process, and all of these documents combined, considered it appropriate to classify the areas centred on Tallow and south of Lismore as Preferred Areas (for wind energy development) and areas Open For Consideration, respectively.

Every wind farm development that might be proposed in these areas will have to be the subject to a very detailed Environmental Impact Assessment, and will be subject to the full rigour of the planning process. The Lyrenacarriga Wind Farm proposal is being developed at this location after a detailed screening of Co. Waterford and East Cork.

About Innogy Renewables Ireland Ltd (innogy)

One of the largest energy utilities in Germany, innogy SE has a significant footprint in other European markets. With a renewable generation capacity of over 3.9GW, including over 1.9GW of onshore wind and over 1GW of offshore wind, producing over 10billion kWh per annum in total across ten European countries. We have recently also expanded into new markets in Europe, the US, Australia and Asia. For further information visit www.innogy.com

In 2016, Innogy Renewables Ireland was established with a view to growing a sustainable long-term energy company in Ireland. There are currently eight employees based in the Kilkenny City office, which is expected to grow with continued investment in to the Irish economy. Current activity in Ireland relates to the development and operation of onshore and offshore wind farms to assist with the decarbonisation of the Irish energy sector in the coming decades and, as with innogy's other new markets, we are aiming to grow battery storage projects as part of our renewables portfolio.

In March 2018, innogy partnered with Irish company Saorgus Energy to continue the development of the Dublin Array Offshore Wind Farm Project, a major offshore development project, located in the Irish Sea off the coast of Dublin, contributing to Ireland's renewable energy mix.

FREQUENTLY ASKED QUESTIONS

Please find below responses to the most common questions raised during one-to-one consultations within the local community.

1. Health

What impact will the wind farm have on health of all neighbours (including animals)?

There is no empirical evidence to suggest that the existence of a wind farm has an impact on human health (*Common Concerns about Wind Power - 2nded Centre for sustainable Energy, June 2017*). innogy is designing a wind farm that optimizes location of turbines so that they both capture the maximum energy possible while also following best practice guidelines. See also FAQ 7.

2. Shadow Flicker

What is shadow flicker? How does this impact on health?

Shadow flicker is the name given to a phenomenon caused when the sun is behind the turbine blades as it rises or sets, casting a moving shadow over a small opening in a building such as a window, creating a flickering effect within the building. Lyre Wind Farm has been designed to ensure that the effect of shadow flicker is eliminated and will not affect any inhabited properties.

3. Noise

What will the level of the noise be coming from these turbines?

Detailed guidelines on noise form part of Irish planning regulations to prevent undue noise pollution. Noise levels emanating from Lyrenacarriga Wind Farm will be assessed using new and stricter draft planning legislation, as outlined below.

A Targeted Review of the Department of the Environment, Heritage and Local Government Wind Energy Development Guidelines 2006 led to the publication in 2017 of a *'Preferred Draft Approach'* which proposes the introduction of a new noise monitoring regime with regard to wind farms. It is intended that local authorities will be responsible for enforcing the noise limits as conditioned in the planning permission for a wind farm, in conjunction with the Environmental Protection Agency, who will provide independent noise monitoring. It is also proposed that where there is evidence of non-compliance with the consented noise limit of a wind farm, turbines will be required to be turned off until compliance with the noise limits is proven.

4. Infrasound

What will the level of the infrasound be coming from these turbines? What impact will this have on health of all neighbours?

Infrasound is a common term given to a specific range of low-frequency noise normally considered inaudible to the human ear. Low Frequency Noise is noise that is dominated by frequency components less than approximately 200Hz, whereas infrasound is typically described as sound at frequencies below 20Hz. As noted in the Environmental Protection Agency document *'Guidance Note for Noise Assessment of Wind Turbine Operations at EPA Licensed Sites (NG3)' (2011)*, there is no empirical evidence that infrasound emanating from a wind farm causes ill health.

The State Institute for Environment, Measurements and Nature Conservation in Baden-Wuerttemberg, Germany published a study in September 2012 presenting a concept for measuring low frequency noise including infrasound from operational turbines. Data was collected from receptors at 150m, 300m and 700m from the operating turbines.

The results at distances between 150m and 300m was well below the threshold of human perception in accordance with DIN 45680 (2013 Draft). At a distance of 700m, the measured infrasound level had minimal to no increase in infrasound level.

The study went on to compare levels of low frequency and infrasound recorded in other urban and domestic locations comparative to levels recorded at operational turbines. Levels recorded were significantly higher in (for example) road traffic (directly linked to volume of traffic), within the interior of a mid-range car travelling at 130km/h and during the spin cycle of a washing machine.

5. Layout

When will we see the final turbine layout?

We are still completing the Environmental Impact Assessment Report (EIAR) and wind modelling potential turbine locations. The final layout will be available in 2019. Maps and FAQ-related information will also be made available on the project website www.lyrewindfarm.com

Is the 700m set back distance measured from the main dwelling or the boundary of the property?

The 700m set back distance has been measured from the main dwelling to the base of nearest turbine. This is to comply with the preferred draft approach for the new Wind Energy Guidelines (WEG) due in 2019 of four times tip height. As these turbines are 150m tip height, 600m is the suggested minimum distance of houses to turbines.

6. Aviation & Atmospheric Interference

What will the effects of the red lights on top of the turbines during the night be?

On successful grant of planning, innogy will consult with the Irish Aviation Authority (IAA) to establish if any turbines will require aviation warning lights.

What are the impacts on climate and air quality?

Onshore wind farms by their very nature tackle the issue of climate change and improve air quality by reducing the use of fossil fuels. The calculations of total carbon dioxide (CO₂) emission savings and payback time for the proposed development will be outlined in the EIAR and is dependent on the final turbine choice.

Will the turbines affect drone activity & recreation?

Turbines have no effect on drone functionality. Permission to launch a drone relies on landowner consent. After construction, many of the tracks could be used for recreational walking and mountain biking.

7. Ecology

What are the impacts on flora and fauna?

The potential effects of the proposed development, particularly on bird, other animals and flora during the construction, operation and decommissioning phases are being assessed, and will be outlined in full in the EIAR that will be submitted with the planning application and will be available for public view during the consultation period.

What effect will this development have on local equine enterprise and agriculture enterprise?

We have engaged with agricultural and equine businesses in close proximity to wind farms around the country to ask them what their experience is in this regard. We would intend on facilitating meetings with equivalent equine & agricultural businesses to those who would be interested in understanding how both enterprises can function in parallel.

8. Environmental Impact Assessment Report (EIAR)

When will the EIAR be available?

The EIAR will accompany the planning application and will be available to the public to read from the start of the public consultation process, which begins after the planning application is submitted. The information gathered during our community consultation will be fed directly back into the EIAR to further inform the final design of the windfarm. These surveys are ongoing and include the topics listed below:

Population & Human Health	Hydrology & Hydrogeology	Biodiversity Birds
Shadow Flicker	Air and Climate	Landscape & Visual
Biodiversity Flora & Fauna	Noise and Vibration	Lands, Soils & Geology
Archaeological, Architecture & Cultural Heritage	Material Assets	

9. Drinking Water & Aquatic Ecology Impacts

What will be the impacts on water and sources of our water supply?

As part of the EIA process, a hydrological and hydrogeological consultant has carried out a comprehensive investigation and evaluation of the surface and ground water systems specific to the site and surrounding catchments. Irish Water have additionally been engaged to ascertain any necessary additional information in relation to the water treatment facilities in both Youghal and Tallow.

Within this, information pertaining to the plant itself, the feed-in sources and associated facilities have been inspected and traced. From this, mitigation strategies have been formulated to protect water quality. In general, irrespective of the direction of groundwater flow, the hydrological assessment for the EIAR assumes that all properties located around the Lyre site have a groundwater well and the appropriate measures against any potential effects on these or any water supply will be employed.

What are the impacts if peat bog areas get “sealed” to provide foundation for the turbines?

From a water management point of view, this site is considered by the project team, hydrologists and engineers, as relatively benign particularly due to the fact that there is no peat present.

Are there provisions to prevent water getting heavily silted?

As part of the EIAR process, baseline silt levels will be established relative to the appropriate catchments. During the construction phase, a robust construction environmental management plan (CEMP) will be implemented, including detailed design implementation and monitoring programme. The CEMP will be reviewed, and approved, by the relevant authorities including Inland Fisheries Ireland (IFI).

What are the impacts to aquatic life?

The EIAR studies will document any sensitive ecosystems within, adjacent and down gradient of the proposed project. Potential impacts and associated mitigations would be established and specific conditions outlined in the planning permission, if granted.

10. Traffic Management Plan, Local Infrastructure & Services Provider

What will be the impacts on local infrastructure and use of local roads?

The nature of the proposed development is that it would result in increased traffic movements during its construction phase, but negligible increases in traffic during its operational phases. A traffic management plan (TMP) will be drafted in consultation with, and approval of, local authorities. This would include establishing designated delivery routes, complete with monitoring and inspection programmes and upgrade of roads as required. Advance notice of traffic disruption and diversions will be advertised and communicated locally in advance. Primary commuting routes should not be impacted as part of the TMP.

What are the impacts on mobile phone / mobile broadband / TV reception?

Scoping and consultation with national and regional broadcasters will be carried out as part of the EIAR process. During the preconstruction phase, a baseline study would be conducted to assess communication infrastructure, including reception and coverage locally. This would provide comparable data to establish if the turbines had a significant impact when operational.

The ‘Wind Energy Development Guidelines for Planning Authorities’ (Department of the Environment, Heritage and Local Government, 2006) states that interference with broadcast communications can be overcome for example by the installation of deflectors or repeaters mounted on mitigation masts if required.

11. Tourism

What will the impacts on tourism be?

There is no evidence that wind farms negatively affect tourism. With regard to recreation and tourism assets in the area, no direct or indirect negative effects are expected during the construction or operation of the proposed development.

BIGGAR Economics undertook an independent study in Scotland in 2016, entitled ‘Wind Farms and Tourism Trends in Scotland’. Overall, the study stated that there is no negative relationship between the development of onshore wind farms and tourism employment within the Scottish economy, at local authority level, or areas immediately surrounding wind farm development.

A Fáilte Ireland survey found that of 1,000 domestic and foreign tourists who holidayed in Ireland during 2012, over half of tourists said that they had seen a wind turbine while travelling around the country. Of this number of tourists, 21% claimed wind turbines

had a negative impact on the landscape. However, 32% said that it enhanced the surrounding landscape, while 47% said that it made no difference to the landscape. Almost 75% of respondents claim that potentially greater numbers of wind farms would either have no impact on their likelihood to visit or have a strong or fairly strong positive impact on future visits to the island of Ireland. (*Fáilte Ireland Newsletter 2012/No.1 'Visitor Attitudes on the Environment: Wind Farms – Update on 2007 Research'*).

12. Carbon footprint of turbine manufacture & construction

What amount of energy and CO₂ is involved in making the turbines?

The EIAR for the proposed development will include a detailed analysis of the Carbon Dioxide (CO₂) losses and savings associated with the proposed development. The model used for calculating CO₂ losses is based on the 'Calculating carbon savings from wind farms on Scottish peat lands' methodology, established in 2008 (and updated in 2011) by scientists at the University of Aberdeen and the Macaulay Institute, with support from the Rural and Environment Research and Analysis Directorate of the Scottish Government, Science Policy and Co-ordination Division. While there is no peat present at the proposed development site, the Macaulay Institute model can be used to calculate all potential CO₂ expected to be generated by proposed wind farm, associated with the manufacture, transportation and erection of turbines, including felling of forestry and the removal of vegetation.

The CO₂ offset, or savings, associated to the proposed wind farm, will also be calculated, based on the rated capacity of the wind farm. The rated capacity means the total MW generated, taking into account the intermittent nature of wind, the availability of wind turbines & array losses, the carbon load in grams per kWh (kilowatt hour) of electricity generated and distributed via the national grid. The carbon load figure is provided annually by the Sustainable Energy Authority of Ireland. This calculation shows how many tonnes of CO₂ will be displaced / saved per annum as a result of operation of the proposed wind farm.

Overall, for the majority of wind farms, the amount of CO₂ that is lost to the atmosphere as a result of their construction and operation is offset by the CO₂ savings made by the wind farm within approximately its first year of operation.

13. Cumulative Effect on the Neighbourhood & Property

What cumulative impact will this project have on the value of the neighbourhood?

Evidence from operational wind farms would suggest that a well-designed and implemented project, in conjunction with the community benefit fund and local business rates contribution, could have an indirect positive effect on the local area. Making use of new and existing tracks as sport and leisure facilities (e.g. in the form of nature trails, walking routes, cycle tracks, outdoor gyms and equine trails) can be a welcome addition to the local community. <https://www.scottishpower.co.uk/whitelee/> and <https://www.bordnamona.ie/corporate-responsibility/amenities/mount-lucas/>

Under new industry guidelines, community benefit funding underpins project proposals and approval. innogy envisage the implementation of a community benefit fund that would be set up and designed to enable the community themselves to manage and implement funding for clubs or groups, local projects, develop facility's and amenities that they would like to see.

What impact will the project have on the property prices?

There are no known empirical studies carried out on the impacts of wind farms on property prices in Ireland. There are however a number of studies carried out in the UK and the U.S. A research study conducted by The Scottish Climate exchange in 2016 to estimate the impact on house prices from wind farm development, suggested that there is no evidence of a consistent negative effect on house prices in the vicinity of wind farm developments (Professor Gwilym Pryce, Dr. Stephen Heblich, Dr. Dan Olnier, & Professor Chris Timmins – Sheffield University, University of Edinburgh, University of Bristol, Duke University 2016). The study included the analysis of over 500,000 property sales in Scotland between 1990 and 2014 and further develops studies conducted in England relating to the impact from wind farms on house prices (Gibbons 2014). An influencing factor mentioned in the study that had a bearing on property price was the fact that some wind farms examined provided economic or leisure benefits (e.g. community funds or increasing access to rural landscapes by providing tracks for cycling, walking or horse riding etc.)

14. Community Consultation

Can you clarify which individuals and/or groups have been consulted within the community?

- A public information day was held 31st May 2018 in KGK Community Centre in Knockanore from 4pm – 9pm.
- A door – to – door engagement programme ran from August to October 2018, where every house within 2km of the proposed project was approached. In the event of no one being home, contact details were left to facilitate a call back.

- Members of the community continue to be invited to get in touch with queries or concerns about the project by calling **056771-5782** or emailing lyre@innogy.com. The project team will be available to discuss the final layout and results of the EIAR studies. Also we will have useful hyperlinks to references and studies mentioned in this document on the website.
- A letter was delivered to all houses within 2km of the proposed project in November. It listed the queries and concerns locally up to that point. This was a final check to ensure all queries were into account before the compiling this document.

Subject to demand, we intend to have further meetings with members of the community with a particular interest in aspects of the project. Otherwise, feedback received has indicated a preference towards one – to – one meetings.

We would like to hear from you about this proposed project. Please contact us on **056-771-5782** or at lyre@innogy.com to organise a private one to one consultation with a member of the innogy project team to discuss any points mentioned in this letter or renewable energy in general and how it can benefit your community.