

# Barnesmore Windfarm Repowering

## Welcome

ScottishPower Renewables (SPR) has owned and operated Barnesmore Windfarm since 1997. The site consists of 25 x 600 kilowatt (kW) wind turbines producing up to 15 megawatts (MW) of clean renewable power.

The windfarm has been operating for over 20 years, and SPR is now investigating the possibility to 'repower' the site with larger, more efficient modern wind turbines. SPR has commissioned extensive environmental survey and monitoring work to assess the feasibility of repowering the site, which would involve the removal of existing wind turbines and replacing them with fewer, larger turbines.

Barnesmore, as one of the first windfarms in Ireland has made a pioneering contribution to Ireland's Renewable Energy targets and low carbon objectives. By repowering the site SPR will be able to substantially increase the overall generating capacity of the site while reducing the number of turbines. It also affords the opportunity to deploy energy storage technology and share the benefits of the development with the local community through a community benefit package.

In addition to the environmental survey work required for the project, as a responsible developer, SPR believes in open and early consultation with local communities. We are hosting this event to provide information on the progress so far and to seek your feedback on the current proposals.

Staff members from our Development and Community Liaison teams are on hand today to answer any queries you may have or to discuss any aspects of building and operating windfarms that may interest you.

## ScottishPower Renewables

SPR is part of the Iberdrola Group, one of the world's largest integrated utility companies and a world leader in wind energy. Scottishpower now only produce 100% green electricity - our focus is on wind energy, smart grids and driving the change to a cleaner, electric future and we're investing over £4m every working day to make this happen. We are committed to speeding up the transition to cleaner electric transport, improving air quality and over time, driving down bills. To deliver a better future, quicker for everyone. SPR is responsible for progressing onshore renewable projects in the UK and Ireland, and offshore windfarms throughout the world, with responsibility for managing project development, construction and operation.

We are at the forefront of the renewables industry, through pioneering ideas, forward thinking, and outstanding innovation which in turn drives economic success. Through the operation of Barnesmore Windfarm, SPR has been a neighbour in the community for over 20 years.



# Barnesmore Windfarm Repowering

## Site Comparison

The existing turbines at Barnesmore Windfarm are more than 20 years old, and whilst they currently perform well and have planning permission in perpetuity, newer, more powerful, efficient, modern generation and energy storage technology are available.

This means we have the opportunity to reuse the site, maximising the benefits without the need to develop a new greenfield site.

A single, modern onshore wind turbine can have the capacity of eight of the existing operational turbines. Technology advancements over the years include using longer blades to capture more wind at greater heights, where wind speeds are faster.

Improvements in aerodynamics, electrical and mechanical systems have also increased efficiency.

All of these factors combine to lower the costs of renewable energy making onshore wind the cheapest form of new energy generation available in Ireland.

This mean lots more clean, green energy!

## Site Location



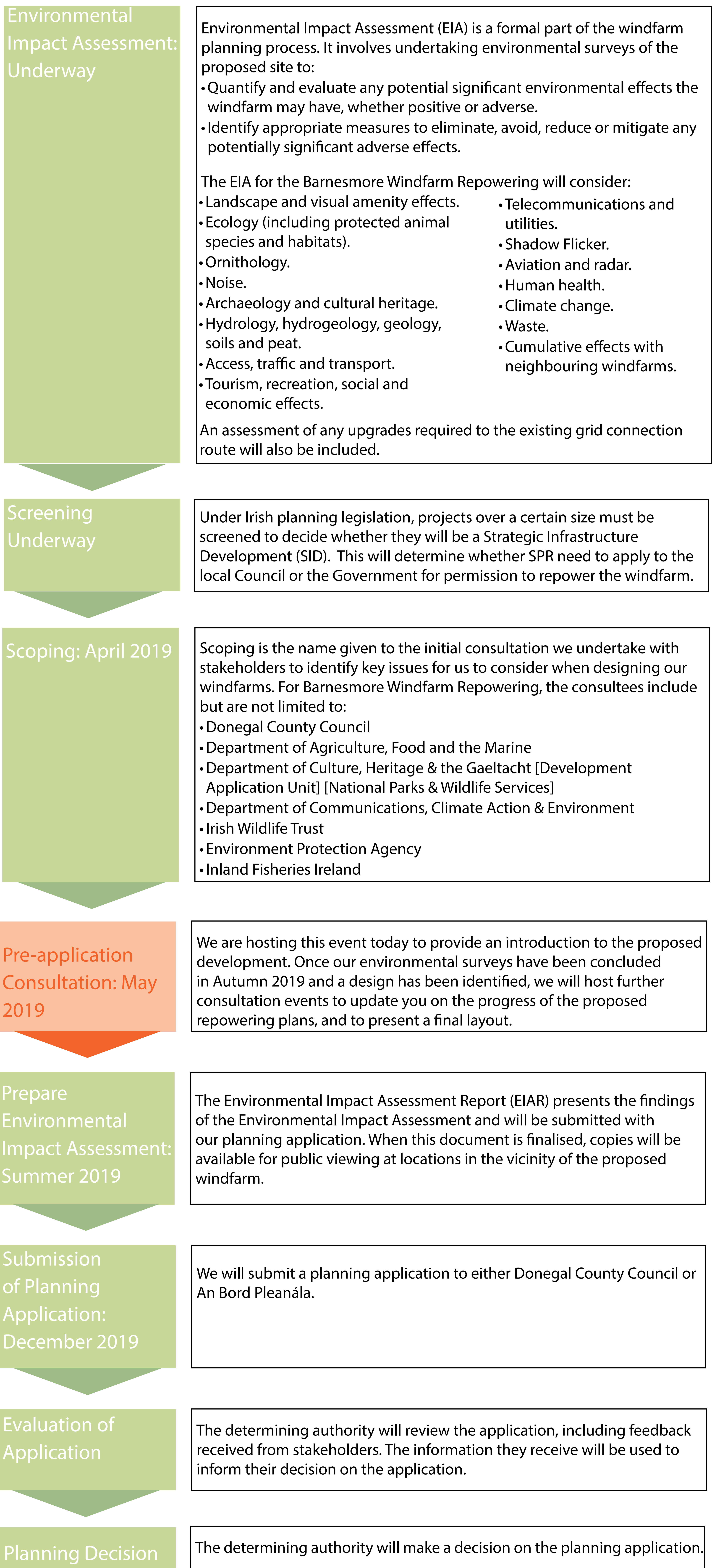
Tell us what you think.

All of the latest updates regarding the project can be found at:  
[www.scottishpowerrenewables.com](http://www.scottishpowerrenewables.com)

Or you can send your questions to the project development team by emailing:  
[barnesmorewindfarmrepower@scottishpower.com](mailto:barnesmorewindfarmrepower@scottishpower.com)

# Barnesmore Windfarm Repowering

## Development Timeline



# Barnesmore Windfarm Repowering

## Environmental Impact Assessment (EIA) and Development Strategy

Jennings O'Donovan & Partners Ltd., alongside a team of independent specialist consultants, has been tasked with undertaking extensive environmental surveys of the site and the surrounding area to inform the design of the repowered windfarm.

The existing windfarm is located within Barnesmore Bog which was designated as a Natural Heritage Area in 2006, after the windfarm was constructed. Controlling effects upon the bog habitats is one of the key aims of the repower design strategy. It is expected that by reusing the existing tracks and hardstandings that impacts can be minimised. Reducing the number of turbines may also enable many areas of existing infrastructure to be removed and restored back to peatland habitat.

We continue to gather wind data for the site, and based on the data collected from the existing turbines, and the onsite meteorological mast, we know this is a high performing, windy site. The proposed windfarm layout will evolve and be guided by the results of the surveys, the feedback received from the consultation process, and the advice of the environmental consultants.

We will use the survey data gathered to inform an Indicative Developable Area, with an initial focus on avoiding any potentially significant effects where possible through the sensitive siting of infrastructure.

Where necessary, mitigation measures will then be identified to eliminate or further reduce any remaining potential significant effects.

The following surveys are underway to build up this baseline information, and to inform an understanding of any environmental and technical sensitivities.

### Indicative Turbine Area

**Ecology** – Focussing on avoiding any sensitive locations and habitats through sensitive design as far as practicable.

**Ornithology** – Focussing on ensuring that we understand which species of bird are on the site, and how they use the site. We can then use this data to avoid any sensitive locations, through careful design.

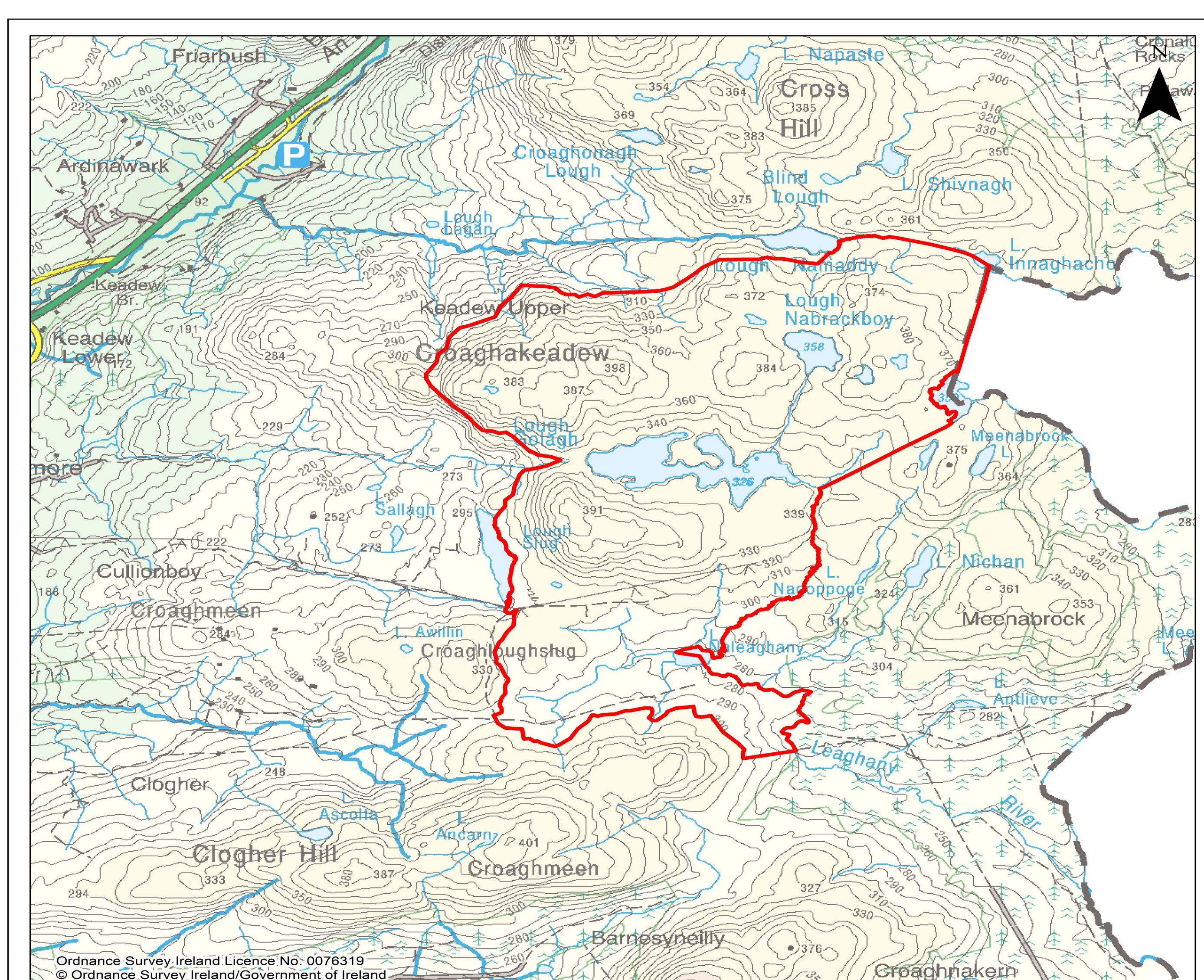
**Hydrology & Peat** – Given that the windfarm is surrounded by the designated bog, impacts upon peat will be assessed very carefully. The design of the development will also seek to minimise any impacts to water resources, including any surface and groundwater features.

**Noise** – These are to ensure that the turbines and associated infrastructure can be built out, and operated within acceptable noise limits.

**Cultural Heritage** – Focussing on avoiding any recorded onsite archaeology and ensuring, through careful design, that we avoid any unacceptable indirect effects on any offsite cultural heritage features.

**Access, Traffic & Transport** – The potential transport routes will utilise trunk and major roads, as far as possible, and traffic management measures focused on minimising effects on local communities will be developed.

This list is not exhaustive. Other studies will be undertaken such as gathering data on television and telecommunications links, and consultation with aviation stakeholders in order to ensure the continued safe and uninterrupted operation of these assets.



# Barnesmore Windfarm Repowering

## What is Landscape and Visual Assessment (LVIA)

Landscape Impacts and Visual Impacts are closely related, but are assessed separately.

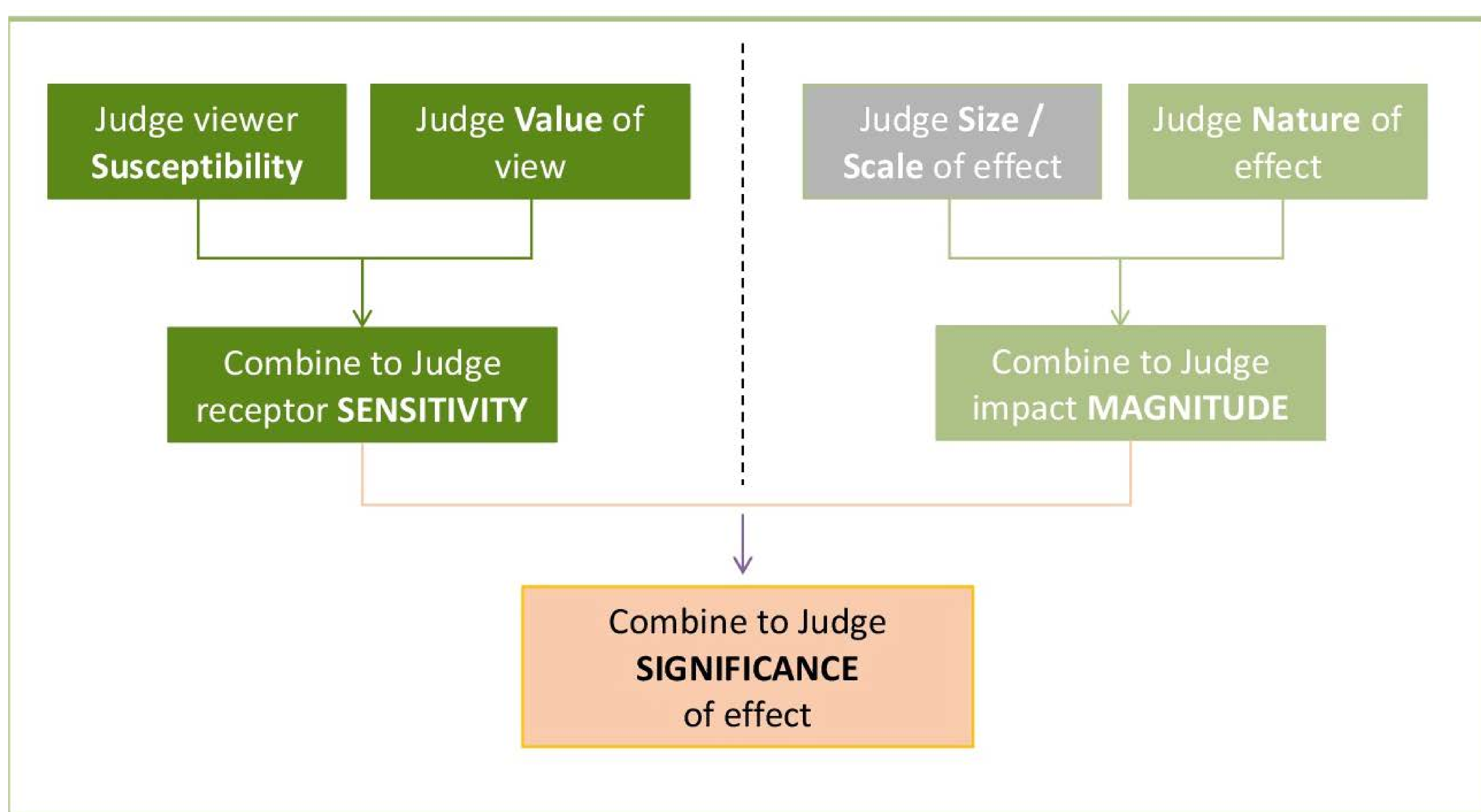
Landscape Impacts consider physical effects on landscape features and/or land cover as well as effects on the landscape character of an area. Windfarms have a stronger potential to influence landscape character than physical landscape fabric. This is especially true in the case of a repowering development largely confined to the existing windfarm development ‘footprint’.

Visual impacts consider changes to views experienced by visual receptors, which are people and groups of people in a range of viewing scenarios and that can influence their sensitivity to visual change (i.e. hill walkers vs motorway commuters).

### Existing Site Context



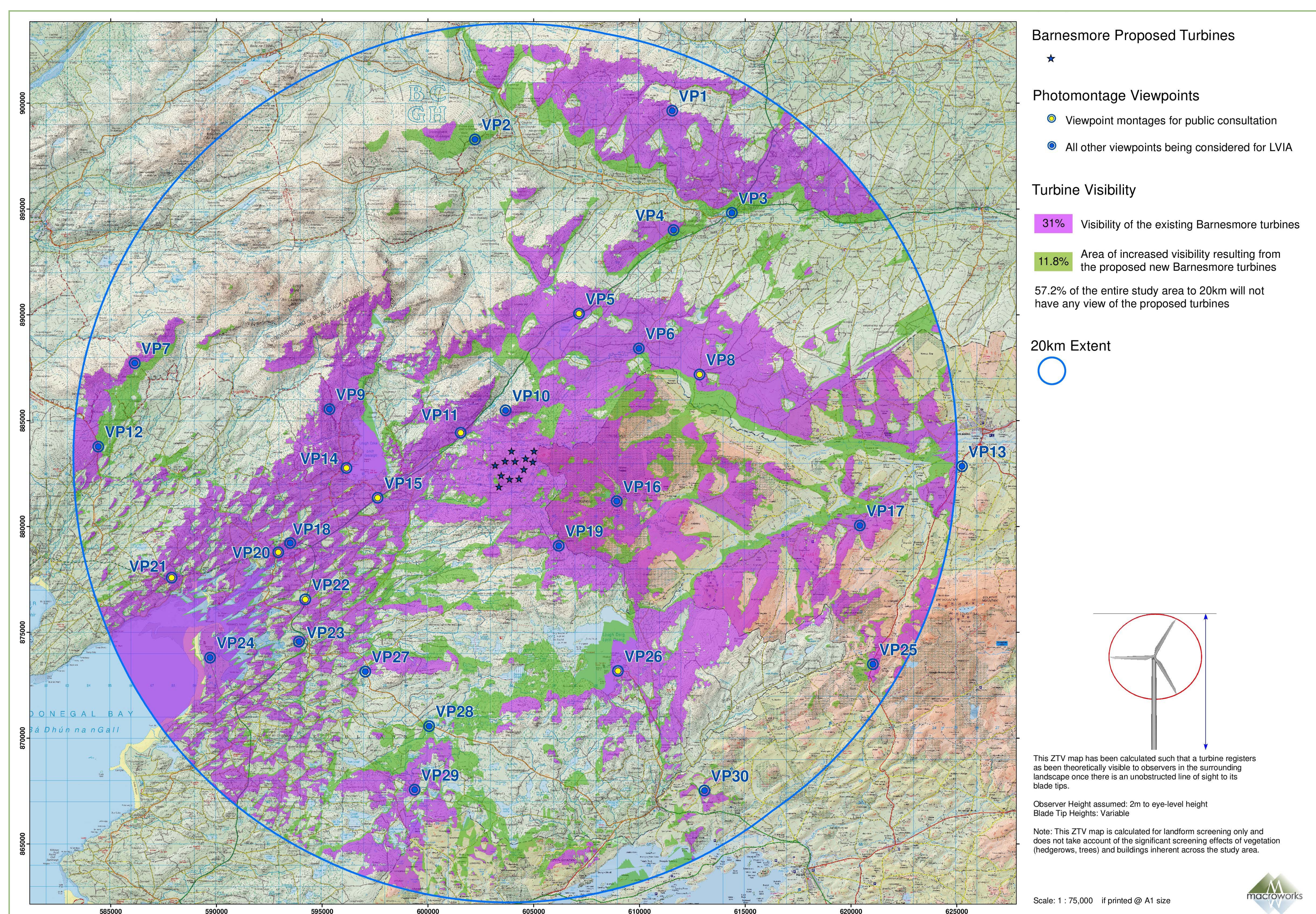
The overriding guidance document for LVIA in Ireland and the UK is the ‘Guidelines for Landscape and Visual Impact Assessment (2013)’. A simplified version of the LVIA process outlined in the guidance is shown below.



# Barnesmore Windfarm Repowering

Where will the repowered windfarm be visible from compared to the existing development?

Computer generated Zone of Theoretical Visibility (ZTV) maps are used to determine where the proposed turbines may be visible from in a 'bare-ground' scenario i.e. without accounting for screening by the likes of vegetation. ZTV maps also aid the selection of representative viewpoints, which are used as the basis of the visual impact assessment. In the case of the Barnesmore Repowering Project, it is useful to compare existing and proposed visibility to determine areas which do not currently have a view of Barnesmore Windfarm, but have the potential to view the taller turbines of the repowered project.



## What will the repowered windfarm look like?

To aid the windfarm design process, wireframe images are prepared initially. These are quick to prepare and illustrate the manner in which the turbines will appear from particular viewpoints in a 'bare-ground scenario'.

Once the design becomes more refined, photo-realistic 'photomontages' are prepared from each of the representative viewpoint locations. These are used as the basis of the visual impact assessment and a selection of these initial photomontages are on display today. The preparation of photomontages is governed by strict guidance that focusses on achieving a high degree of spatial accuracy (size / location) presented in a format that reflects real-world viewing conditions (size of image / specified viewing distance).

# Barnesmore Windfarm Repowering

## Community Benefit and Involvement

SPR, through the operation of the existing Barnesmore Windfarm, has been present in the local community for over 20 years and the repowering project gives us the opportunity to integrate and contribute further to the local community.



In recent years SPR has voluntarily provided community benefit packages on all new development projects to enable the local communities hosting a windfarm to share in the benefits. If consented, it is proposed that the Barnesmore Windfarm Repowering will offer an associated community benefit package.

SPR's operational windfarms have to date contributed more than £29 million of support towards community initiatives with the preferred approach to empower local communities to determine how the fund is used to the greatest benefit locally. This has resulted in a fantastic diversity of initiatives being delivered; from improving local amenities including town halls, cinemas and local youth clubs, to supporting work experience places, educational workshops and much more. SPR welcome contact from local community groups interested in registering to be part of community benefit discussions.

As Ireland's cheapest source of new energy, onshore wind contributes to reducing energy imports and electricity bills. A comprehensive analysis of the Irish electricity market by independent energy experts Baringa estimated that wind energy reduced power prices by a total of €2.4 billion since the year 2000<sup>1</sup>.

### Economic Opportunities

Onshore wind is already an established industry in Ireland with 4000 Irish jobs currently dependent on the

wind industry across development, construction and operations.

Companies that have established a firm base in onshore wind have gone on to win work in other regions, SPR has employed several firms based in Ireland such as Roadbridge (Construction) Ltd who have taken on large contracts as a civil contractor using staff based in Ireland.

The repowering of onshore and offshore wind turbines will contribute over 15GW to 2050. The potential economic value of electricity generated by wind could reach almost €15 billion by 2050<sup>2</sup>.

In addition, wind farms contribute approximately €30 million in rates to local councils every year, which enables them to fund roads, programmes and services across rural Ireland<sup>3</sup>.

Repowering this site will help to secure and sustain this established industry building upon the local skills base. During the many years of operation of Barnesmore Windfarm, SPR has employed the services of numerous local companies who support the operation and maintenance of the site and the repowering will provide further opportunities for local companies to tender for work on the project, with 'meet the developer days' to introduce local suppliers to the project team.

<sup>1</sup> Baringa Historical Costs and Benefits, 2018

<sup>2</sup> SEAI - Wind Energy to 2050

<sup>3</sup> IWEA Policy Paper March 2019

# Barnesmore Windfarm Repowering

## Key FAQs

### What are the benefits of repowering an existing windfarm site?

- The site will be more efficient, increasing the overall generating capacity and output.
- In most cases the number of turbines is reduced.
- By reusing the existing infrastructure, there is the potential to minimise the environmental effects and restore areas of existing infrastructure that are no longer required.

### How many turbines?

The number of turbines at Barnesmore is likely to reduce to around 13 as part of the repowered windfarm.

### What size will they be?

The efficiency of modern onshore wind turbines comes primarily from their use of larger rotor diameters and generators. It is anticipated that generators up to 5MW could be deployed at Barnesmore.

### What is the proposed generating capacity?

Depending on the size and number of turbines, the generating capacity will be in the region of 50 – 60 MW, up to four times the capacity of the existing windfarm. Each turbine could potentially produce over eight times the annual energy output of the existing turbines!

### What is the next step in developing the project?

Environmental surveys are ongoing. These will be used to develop the site design and assess any environmental effects of the project. SPR will then apply for planning permission to construct the repowered windfarm. The application will go to either Donegal County Council or An Bord Pleanála once it is confirmed whether the project represents Strategic Infrastructure Development or not.

Prior to submitting the planning application, we will hold a second round of public consultation events where the final layout will be presented.

### How will the wind turbines be transported?

It is proposed that the turbine components will be shipped to a local port and then transported from there by road. Initial studies suggest that turbines can be transported to site without significant public road upgrades. A Traffic Management Plan will be prepared to manage the routing, timing and frequency of traffic associated with construction and component delivery to the site. This will be developed in consultation with statutory consultees and the local community to minimise impacts from deliveries. We will also seek to utilise construction material, such as aggregate, from local sources where possible.

### What opportunities do the co-location of energy storage technology provide?

- By storing and redistributing energy quickly, in response to when that energy is needed, storage helps stabilise the grid network.
- It makes grid networks more resilient, efficient, and cleaner than ever before by supporting the greater integration of renewable energy generation.
- It can be used during emergencies like power outages during storms, or equipment failures.
- It makes sense to co-locate this technology with a windfarm as this offers the opportunity to share the grid connection.