

ENVIRONMENTAL IMPACT ASSESSMENT REPORT (EIAR) FOR THE PROPOSED BALLINAGREE WIND FARM

VOLUME 2 - MAIN EIAR

CHAPTER 16 – TELECOMMUNICATIONS & AVIATION

Prepared for: Ballinagree Wind DAC



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Core House, Pouladuff Road, Cork, Ireland

T: +353 21 496 4133 E: info@ftco.ie

CORK | DUBLIN | CARLOW

www.fehilytimoney.ie

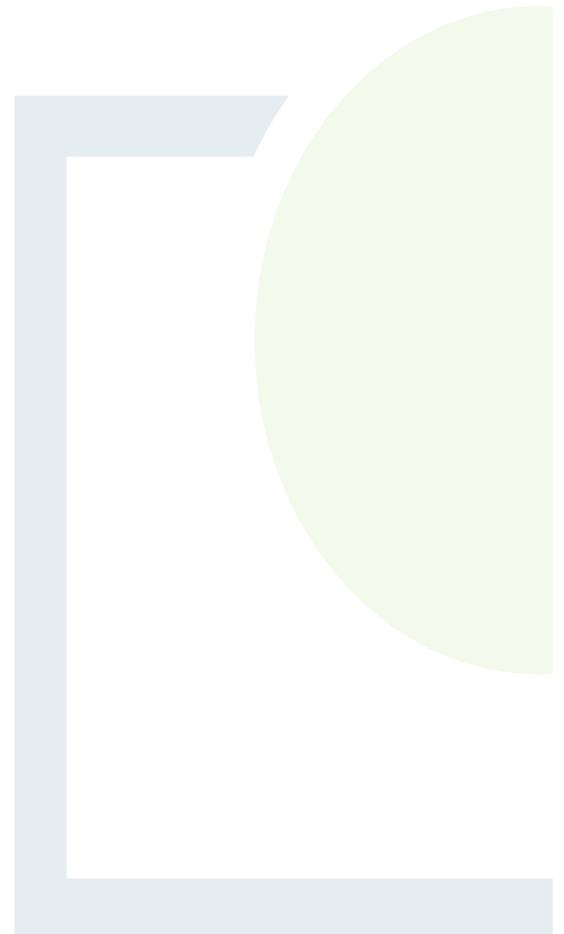


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16. TELECOMMUNICATIONS AND AVIATION

16.1 Introduction

This chapter has been prepared to examine the potential effects of the proposed Ballinagree Wind Farm project on local telecommunications and aviation. The potential effects of the proposed project are initially considered without mitigation and the residual effects post mitigation are described.

16.1.1 Project Description

A detailed description of the project assessed in this EIA is provided in Chapter 3 and is comprised of four main elements:

- The wind farm (herein referred to as the ‘**the Wind Farm Site**’);
- The grid connection (hereinafter referred to as the ‘**grid connection**’);
- Turbine delivery route (hereinafter referred to as the ‘**TDR**’); and
- Biodiversity enhancement and management plan lands (also referred to in this EIA as ‘the BEMP lands’).

The proposed wind farm includes the wind turbines, internal access tracks, hard standings, permanent meteorological masts, onsite substation, internal electrical and communications cabling, temporary construction compound, drainage infrastructure and all associated works related to the construction of the wind farm. The grid connection includes the buried grid connection cable route from the on-site substation to the existing Clashavoon substation in the townland of Aughinida, Co. Cork. The turbine delivery route includes all aspects of the route from the point of entry at Foynes, County Limerick to the proposed site entrance along with the proposed temporary accommodation works to facilitate the delivery of wind turbine components. Replant lands, as listed in Chapter 3, have been assessed for potential cumulative impacts with the proposed project. A full description of the proposed project is included in Chapter 3 of this EIA.

Elements of the proposed project with potential to effect telecommunications and aviation include:

- The proposed 20 no. wind turbines with a blade tip height range of between 179m and 185m, a hub height range of between 102.5 and 110.5m and a rotor diameter range of between 149m and 155m;
- The proposed installation of high voltage (up to 110kV) and communication cabling underground between the proposed on-site substation and the existing Clashavoon substation;
- The proposed 2no. meteorological masts to a maximum height of 100m above existing ground level; and
- The proposed temporary accommodation works associated with the turbine delivery route which runs between the Port of Foynes in County Limerick, to the Wind Farm Site.

The potential effects are detailed in Section 16.2.1.



16.1.2 Study Area

The study area associated with this assessment focuses on the Wind Farm Site, the grid connection and the TDR, as described above and further detailed in Chapter 3 of this EIA. The Wind Farm Site, grid connection and TDR are illustrated in Figure 3-1 of this EIA.

16.2 Methodology

This section of the assessment describes the methodology used in assessing the potential impact from the wind farm project on telecommunications and aviation. Initially, a desktop examination of telecommunications and aviation infrastructure was conducted in the area of the proposed wind farm site, grid route and turbine delivery route. This desktop study provided initial constraints for analysis and also identified potential stakeholders for consultation.

As part of the EIA scoping and consultation exercise relevant telecommunication operators and aviation authorities were consulted. Scoping was carried out in accordance with the draft EPA Guidelines¹ and the *'Best Practice Guidelines for the Irish Wind Energy Industry 2012'*² which provides a recommended list of telecommunications and aviation stakeholders for consultation, in addition to updated lists of stakeholders provided by the Commission for Communications Regulation and the Irish Aviation Authority through consultation.

The following assessment methodology was applied in this assessment:

- Wide ranging consultation with all known telecommunications operators that could potentially be affected by the proposed wind farm.
- Consultation with the Irish Aviation Authority
- Comprehensive data gathering exercise to establish all known telecommunications links in the area
- Preparation of constraint mapping using data collected from the telecommunications operators, to identify separation distance of elements of the project from existing telecommunications links and masts and if necessary, identify mitigation measures.
- Identification of aerodromes and airports in proximity to the project, and any associated infrastructure.
- Review of turbine delivery route in the context of overhead power and telecommunication lines.

16.2.1 Background and Potential Effects

16.2.1.1 *Electromagnetic Interference*

In the context of wind farm development, electromagnetic interference is the impact of a wind farm on existing telecommunication services resulting in an unacceptable negative impact. The rotating blades of a wind turbine can occasionally cause interference to electro-magnetically-propagated signals.

¹ EPA, (2017) 'Guidelines on the Information to be Contained in Environmental Impact Assessment Reports'

² IWEA. (2012). Best Practice Guidelines for the Irish Wind Energy Industry.



Not all signals are affected in the same way and some signals are more robust than others, however, such interference could, in theory, affect all forms of electromagnetic communications including:

- Satellite communications
- RADAR
- Cellular radio communications
- Aircraft instrument landing systems
- Air traffic control
- Terrestrial telecommunication links
- Television broadcasts

Impacts on aviation are considered in Section 16.4 of this Chapter.

For the purposes of the telecommunications impact assessment, point-to-point and point-to-multipoint signals are considered. Both are used extensively throughout Ireland.

Point to point (or line of sight) is a wireless telecommunications transmission link between two nodes located at specified fixed points.

The term telecommunications link relates to the wireless transmission of data via radio frequencies between two fixed points. Telecommunications towers are generally used to transmit and receive signals over large distances. Radio frequency bands above 1 GHz are referred to as microwave radio links and are commonly used by telecommunications operators. These 'links' are used mainly by mobile phone operators, broadcasters and utilities or emergency service providers, to provide transmission networks that are flexible and cost effective.

Point to multipoint refers to the situation where a central node transmits to, and receives from, a number of independent locations. This includes television and radio broadcasting and reception, mobile phones (to the mobile phone mast) and land mobile systems. It is possible that houses in the immediate vicinity of turbines could require some remedial measures in relation to television reception.

Section 5.10 of the DoEHLG Planning Guidelines on Wind Energy Developments (2006) [the guidelines] states that:

“wind turbines, like all electrical equipment, produce electromagnetic radiation, and this can interfere with broadcast communications. The interference with broadcast communication can be overcome by the installation of deflectors or repeaters. Planning authorities should advise the developer to contact the individual broadcasters, both national and local, and inform them of the proposals. A list of the licensed operators is available on the ComReg website at www.comreg.ie. Mobile phone operators should also be advised of the proposed development.”

Section 7.15 of these guidelines state:

“Conditions regarding measures to be taken to minimise interference with the transmission of radio and television signals, air and sea transport communications and other transmission systems in the area may be necessary. Where electromagnetic interference is difficult to predict, conditions may require the developer to consult with the service provider concerned and undertake remedial works to rectify any interference caused.”



On that basis, consultation was carried out with all known telecommunications operators that could potentially be affected by the proposed wind farm.

The telecommunications network is constantly evolving and the potential impact of Ballinagree Wind Farm on local telecommunications signals is difficult to accurately predict for the following reasons:

- The network topology is likely to change significantly over time as a result of technological advances including migration towards 4G and the impending 5G networks
- Network operators are beginning to share services and consolidate the existing network which is likely to lead to an increase in the number of redundant and decommissioned services

16.2.1.2 Broadcast Communications

Wind turbines as with any other large structure, have the potential to interfere with broadcast signals by acting as a physical barrier or causing a degree of interference to microwave links. The most significant effect at a domestic level relates to a possible flicker effect caused by the moving rotor, affecting, for example, radio signals. The most significant potential effect occurs where the wind farm is directly in line with the transmitter radio path. Interferences to mobile radio services is usually negligible, especially with increased distance between turbines and receivers.

16.2.1.3 Domestic Receivers

Depending on local topography, a domestic receiver may receive broadcast signals from more than one location. The strength of the signals varies with distance from the transmitter, and the receiver's antenna is generally always directed towards the most local, and usually strongest, broadcasting station.

There are two types of potential electromagnetic interference to domestic receivers, depending on the location of the receiver in relation to a wind farm. 'Shadowed' houses are located directly behind a wind farm, relative to the location from where the signal is being received. In this case, the main signal passes through the wind farm and the rotating blades can create a degree of signal scattering. In the case of viewers located beside the wind farm (relative to the broadcast signal direction), the effects are likely to be due to periodic reflections from the blade, giving rise to a delayed signal.

In both cases, i.e. shadowed houses located behind the wind farm and those located to the side of it, the effects of electromagnetic interference may depend to some degree on the wind direction, since the plane of rotation of the rotor will affect both the line-of-sight blockage to viewers located behind the wind farm and the degree of reflection to receivers located to the side.

16.2.1.4 Other Signal Types

Wind turbines have the potential to affect other signal types used for communication and navigational systems, for example tower-to-tower microwave communication links, and airborne and ground radar systems. Interference with radar systems occurs when wind turbines are located close to an airport or directly in line with the instrument landing approach. The nearest such operational airport to the main wind farm site is Cork Airport, approximately 35km south east of the proposed wind farm.



Potential effects on broadcast communications are generally easily dealt with by detailed micro-siting of turbines in order to avoid alignment with signal paths or by the use of repeater relay link, (i.e. reflective and or refractive panels)

16.2.1.5 Relevant Guidance

A review of relevant planning and policy documents was undertaken to identify relevant objectives relating to telecommunication, broadcasting and aviation. The following documents have been reviewed:

- ‘Wind Energy Development Planning Guidelines’ (WEG2006), published by the Department of the Environment, Heritage and Local Government (2006).
- ‘Best Practice Guidelines for the Irish Wind Energy Industry’, published by the Irish Wind Energy Association (2012).
- Cork County Development Plan (2014)
- ‘Tall structures and their impact on broadcast and other wireless services’, published by Ofcom, a regulatory body independent from UK Government (2009).
- ‘RF Measurement Assessment of Potential Wind Farm Interference to Fixed Links and Scanning Telemetry Devices’, published by ERA Technology Ltd on behalf of Ofcom (2009).

16.2.1.6 Envelope for Assessment

For the assessment of potential effects on telecommunications and aviation, the largest turbine envelope assessed in the EIAR was utilised as the potential worst case scenario. A turbine of 185m tip height and a rotor diameter of 155m was chosen for this assessment as this represents the largest envelope and the potential for the greatest effects on telecommunications and aviation.

16.2.1.7 Elements of the Proposed Project with Potential for Effects on Telecommunications and Aviation

Table 16.1 sets out the elements of the proposed project with potential to effect telecommunications and aviation:

Table 16-1: Elements of the Project with Potential to Effect Telecommunication and Aviation

Element of the Proposed Project	Potential Effects
20 no. wind turbines	The turbines have potential to create electromagnetic interference which can affect broadcasting, communications and aviation related instruments. Turbines and the cranes used for their installation can also cause physical hazard to flight movements.
110kV underground grid connection to be installed in the public road and private lands.	The high voltage underground cable has potential to cause electromagnetic interference.
2 no. meteorological masts 100m in height.	The proposed masts cranes used for installation have potential to cause physical hazard to flight movements.



Element of the Proposed Project	Potential Effects
Temporary accommodation works associated with the turbine delivery route between the Port of Foynes in County Limerick, to the Wind Farm Site.	The proposed temporary accommodation works involve the temporary disconnection or permanent rerouting of overhead lines prior to the delivery of large turbine components.

16.3 Scoping and Consultation

In accordance with the WEG 2006 as part of the EIA scoping and consultation exercise, FT contacted the relevant national and regional broadcasters, fixed and mobile phone operators, Irish Aviation Authority, Cork Airport Authority and other relevant consultees. Consultation was undertaken to provide information on the proposed project to all relevant telecommunications service providers to discuss concerns and the potential for benefits of the proposed wind farm. The Commission for Communications Regulation were consulted who provided a comprehensive list of telecommunications operators in the area of the proposed site.

A Scoping Report was sent as part of this consultation. The service providers were provided with the locations of the proposed turbines and asked to advise whether any impact could occur to their networks. A copy of the letter issued by Fehily Timoney (FT) to ESB Telecoms is provided in Appendix 16.1. A similar letter was sent to the other consultees.

Consulted stakeholders include authorities with associated telecommunication infrastructure, wireless broadcasters, cellular network providers, broadband suppliers and wireless internet service providers (WISP).

The responses received from the telecommunications, broadcasters and aviation consultees are summarised in Table 16-2 following:

Table 16-2: Telecommunications and Aviation Scoping Consultees

Telecommunications Operator	Response Date	Impact Identified by Consultee	Further Comments
Nova Telecom	19/08/2020	Potential impact identified	Following a review, there is no impact expected on existing coverage.
Skylink Communications	02/07/2020	No impact identified	No comment
Imagine	09/09/2020	No impact identified	
Munster Broadband		No response	
Digiweb		No response	
Ripplecom	20/08/2020	Potential impact identified	Potential impacts on a main link to Cork City, provided GPS coordinates, heights and frequency of main links.



Telecommunications Operator	Response Date	Impact Identified by Consultee	Further Comments
Magnet Networks		No response	
BT Communications Ireland Ltd	03/07/2020	No impact identified	No comment
RTE (Cork)		No response	
Virgin Media Ireland	03/09/2020	No impact identified	
Eir (Eircom)		No response	
Vodafone (Netshare)	07/09/2020	No impact identified	
Three	03/09/2020	No impact identified	
ESB Telecoms	03/07/2020	No impact identified	
TETRA Ireland Ltd.	03/07/2020	No impact identified	
TowerCom Ltd.		No response	
Pure Telecom		No response	
Sky Broadband Ireland		No response	
Enet Telecommunications Network Limited	03/09/2020	No impact identified	
ITS Irish Networks Services		No response	
Ivertec Ltd	02/09/2020	No impact identified	
RTE/Saorview		No response	
RTE Transmission Network (2RN)		No response	
Broadcasting Authority of Ireland		No impact identified	
Rathcoole Aerodrome	12/07/2020	No impact identified	Phone call with operator of aerodrome - no impact identified due to orientation of the runway.
Irish Community Rapid Response	16/07/2020	No impact identified	Operating from Rathcoole Aerodrome.
Kerry Airport	20/07/2020	No impact identified	Does not intend to make a submission on the proposal.
Irish Aviation Authority	10/07/2020	Potential Impact Identified	Applicant to engage with Kerry Airport and Rathcoole Aerodrome. Agree aeronautical obstacle warning light scheme and provide as constructed coordinates of



Telecommunications Operator	Response Date	Impact Identified by Consultee	Further Comments
			turbines in WSG84 format. Identified potential impact on Cork ILS 16. Requested assessment.
Cork Airport Authority		No response	

Thirteen of the telecommunications operators provided a response. The responses received following consultations with the relevant bodies and the issues that they raised are summarised in Section 16.3.1.1. All scoping responses from TOs and aviation consultees are included in Appendix 5.1 of this EIA.

16.3.1.1 Detailed Scoping Responses

Broadcasters

Response was received from the Broadcasting Authority of Ireland who indicated that impact is unlikely. No responses were received from any other broadcaster.

Other Operators

Of the scoping responses received from telephone, broadband and other telecommunications operators, there is one operator who has indicated that infrastructure may be impacted by the proposed project.

- **Ripplecom:** Potential impacts on a main link to Cork City, provided GPS coordinates, heights and frequency of main links.

All others have indicated that either there is no potential impact on their infrastructure by the proposed wind farm development or have not responded to consultation requests.

Aviation

As shown in table 16-2, FT undertook scoping consultation with the Irish Aviation Authority and Cork Airport Authority. The Irish Aviation Authority (IAA) requested that FT engage with Rathcoole Aerodrome and Kerry Airport. Both Kerry Airport and Rathcoole Aerodrome have confirmed that no impacts have been identified. The Irish Community Rapid Response were also consulted as they operate from Rathcoole Aerodrome. No impacts were identified. There was no response from the Cork Airport Authority.

The IAA identified a potential impact of the proposed wind farm on Cork ILS 16 (Instrument Landing System). They requested an assessment be carried out by Flight Calibration Services Ltd (FCSL), the IAA's flight calibration provider. The assessment identified no impact on Cork ILS 16 as further detailed in section 16.4.3.2. The assessment is included in Appendix 16.2

16.4 Impact Assessment

16.4.1 Do Nothing Scenario



If the proposed project were not to proceed, there would be no change to the existing telecommunications, broadcasting and aviation operations in the area.

16.4.2 Construction Phase

16.4.2.1 *Telecommunications and Broadcasting – Construction Phase*

The potential for electromagnetic interference from wind turbines occurs only during the commissioning and operational phase of the project. There are no potential electromagnetic interference effects associated with the construction phase of the proposed project on telecommunications and broadcasting in the area.

As the proposed grid connection will be constructed underground in the public roadway, there are no potential construction related effects for electromagnetic interference and broadcasting interests in the area.

As identified and assessed in Chapter 13: Traffic and Transportation, the delivery of large turbine components has the potential to impact on existing telecommunications lines for a short period of time if services are temporarily disconnected or rerouted to facilitate the turbine delivery. Overhead utilities and obstructions will need to be removed at any locations where the blade is raised on the scissor lift. The removal of overhead utilities will be either a temporary disconnection or permanent re-routing. The works will be carried out by the utility providers in advance of turbine delivery to site.

The permanent re-routing of overhead utilities will result in a brief disruption to power and telecommunications services for existing residents and business and will also involve temporary road works to ‘underground’ these services. Such construction works will likely be carried out over 2 days with the disconnection of service likely for 1 day. The effects of these construction works are considered in Chapter 13 – Traffic and Transport. The potential impact of the rerouting of overhead telecommunication services along the TDR is considered to be brief (lasting less than one day), slight negative effect.

However, if the Permanent re-routing of overhead utilities is not possible, temporary disconnections of overhead lines will be required on several occasions to facilitate the delivery of turbine blades and will be carried out during the delivery of the components. Advance disconnection works will be required before the first turbine deliveries. The schedule of turbine component deliveries will be determined by the turbine supplier, however, it is reasonable to assume that several convoys will be required to deliver all of the turbine components to site over the course of the turbine installation works which is expected to take place over the course of 7 months. It is reasonable to assume a worst-case scenario where temporary disconnections will be required during off peak times, on up to seven different occasions over the course of seven months to facilitate convoys, with a duration of several hours between disconnection and re-connection of services on each occasion. This worst case scenario is based on the turbine components being delivered at night. This has potential to cause a brief (lasting less than one day), reoccurring (up to seven times) slight negative impact to telecommunication services along the TDR where temporary disconnections are required.

Temporary disconnections of overhead utilities will result in a greater impact on local residents and businesses in terms of disruption to services than permanent diversions. This is due to the single interruption associated with rerouting of services compared to the repeated interruption of brief (lasting no more than 1 day) disconnections on seven separate occasions.

The proposed grid connection will be constructed underground primarily along public roads. The works have potential to impact on underground telecommunication and broadband services. No telecommunication and



broadband services in the public road along the grid route were identified during consultation with telecommunications and broadband providers, therefore it is unlikely that there will be a negative effect on telecommunications and broadband infrastructure along the grid route. However, in advance of the construction phase, further consultation will be sought with service providers as installation of such services in the public road may occur prior to the construction of the proposed project. Cable detection tools, a ground penetrating radar and slit trenches will be used, as appropriate, to verify the exact locations of existing services (if any). The final locations of the proposed cable routes in the public roads and in the verge along the public road will be within the area described and assessed in this EIAR and will minimise conflicts with other services. A minimum separation distance of 300mm will be maintained with existing services. New cable ducts will be laid below existing services, if encountered.

16.4.2.2 Aviation – Construction Phase

There is potential for aviation impacts during the late construction phase of a wind farm project and prior to the commissioning of the proposed project as the wind turbines are constructed and placed in situ. The proposed turbines and cranes required for their installation are considered to be an obstacle to low flying craft. The scoping response received from the IAA did not cite concerns with the proposed project with respect to obstacles limitation surface (OLS)³ but requested that the applicant engage with Kerry Airport and the Rathcoole Aerodrome. Both operators confirmed no concerns in relation to the proposed project.

Noting the presence of existing adjacent turbines to the proposed wind farm, the distances to existing airports and the confirmation of no concerns regarding obstacle limitation surface, it is considered therefore that there will be no likely effects on aviation from the proposed project during the construction phase.

As the proposed grid connection will be constructed underground within the public roadway, there are no construction related impacts on aviation interests in the area. The temporary accommodation works associated with the turbine delivery route will not affect aviation interests in the area.

16.4.3 Operational Phase Effects

16.4.3.1 Telecommunications and Broadcasting – Operational Phase

Consultation regarding the potential for electromagnetic interference from the proposed project was carried out with the relevant national and regional broadcasters, fixed line and mobile telephone operators and other operators. No existing telecommunications infrastructure was found by the project team during a desk based survey within 2km of the proposed wind farm. According to the Comreg siteviewer⁴, the nearest telecommunication mast is located in the townland of Lacknahacknee where 4 no. operators share the infrastructure, approximately 3.2km southeast of the nearest turbine (T05). Three, Eir, Vodafone and Image operate from this mast. All of these operators were contacted during the consultation process. No potential impacts were identified.

There is potential for negative impact to domestic broadcasting receivers due to signal scattering or signal delay as a result of the introduction of wind turbines to the landscape. Providers have not identified potential impacts

³ “Obstacle limitation surfaces” means a series of imaginary surfaces in space, which define the limits to which objects may project vertically into the airspace surrounding an aerodrome so as to permit aircraft to be operated safely.

⁴ Comreg Siteviewer. <https://siteviewer.comreg.ie/#explore>



to their services however, there is potential for slight negative long-term effects to broadcasting services in the area of the wind farm site. This may depend on wind speed and direction as detailed in section 16.2.1.3. Mitigation is set out in section 16.5 to avoid this potential negative impact.

Telecommunications provider Ripplecom identified a radio link in proximity to the proposed wind farm infrastructure. The link, as identified in correspondence by Ripplecom on the 20/08/2020, included in appendix 5.1. As part of the constraints led approach to the design of the wind farm, as detailed in Chapter 2, the link was mapped and a corridor was applied to avoid encroachment of the proposed turbines. A clear unobstructed path between the two link points was achieved. The corridor consists of a 230m setback from the nearest turbine. This allows for over 150m clearance between blade tip and the link (worst case scenario, 155m rotor diameter), providing significant clearance from the radio link. It is therefore unlikely that the proposed development will affect this link.

The combination of the findings of the consultation and desk based study confirms there will be no significant electromagnetic interference effect caused by the proposed project.

The grid connection is not expected to impact on telecommunications during the operational phase. Impacts on overhead lines as a result of turbine delivery is only associated with the construction process. There is potential that overhead lines may require brief disruption in the unlikely event that a turbine component requires replacement - in this case the turbine delivery route is required to be used during the operational phase. The effects on overhead telecommunications services would be similar to those described in Section 16.4.2.1. This would result in a brief slight negative impact to telecommunications services along the TDR.

16.4.3.2 Aviation – Operational Phase

The potential for aviation impacts during the operational phase of the project relate both to obstacle limitation surface (physical obstacles for low flying planes) and potent impacts to aviation infrastructure through electrical interference. Noting that there are no airports in proximity to the proposed wind farm and the lack of potential effects raised during the scoping responses from the IAA, Kerry Airport and Rathcoole Aerodrome, it is considered therefore that there will be no likely effects on aviation operations from the proposed project during the operational phase.

During consultation, IAA identified a potential impact to Cork Instrument Landing System (ILS) 16. IAA requested that an assessment be carried out by Flight Calibration Services Ltd (FCSL), the IAA's flight calibration provider. The assessment concludes that:

“flight inspection aircraft flying centreline and part orbit flight profiles associated with the Cork Airport Runway 16 ILS will remain sufficiently clear of the proposed Ballinagree Wind Farm site. The proposed Ballinagree Wind Farm and meteorological mast will therefore have no adverse effect on flight inspection procedures and profiles associated with the Runway 16 ILS.”

FCSL's assessment on ILS flight inspection is included in Appendix 16.2 of this EIA. For this assessment, FCSL used the largest proposed turbine envelope to assess a worst case scenario (185m tip height). It is therefore considered that the proposed Ballinagree Wind Farm will have no likely effects on aviation during the operational phase.

16.4.4 Decommissioning Phase



16.4.4.1 Telecommunications and Broadcasting – Decommissioning Phase

The potential for electromagnetic interference from wind turbines occurs only during the commissioning and operational phase of the project. There are no electromagnetic interference impacts associated with the decommissioning phases of the proposed project, and therefore no mitigation is required.

The proposed grid connection will be left in situ underground within the public roadway. There are no decommissioning related impacts on telecommunications and broadcasting interests in the area.

There is potential for brief disconnection of overhead lines during the decommissioning phase if large turbine components are required to be removed from the wind farm site. This has potential to cause a brief slight negative impact to telecommunication services where overhead lines require disconnection.

16.4.4.2 Aviation – Decommissioning Phase

During the decommissioning phase, the turbines will be dismantled and removed from the site, thereby removing all potential obstacles to aviation interests. There will be no likely effects on aviation during the decommissioning phase.

16.5 Mitigation Measures

16.5.1 Telecommunications and Broadcasting

Mitigation measures consisted of mitigation by design to avoid impacts on telecommunication links. As there is no potential for electromagnetic interference from the proposed project on telecommunications, there are no mitigation measures proposed for the construction, operation, or decommissioning phase of the proposed project.

There is potential for broadcasting to be affected at receivers close to the wind farm site during the operational phase, i.e. nearby dwellings. Mitigation by design has achieved a setback of over 800m between the proposed turbines and the nearest dwelling which will reduce potential effects on receivers. A protocol will be signed with 2RN which will ensure remedial measures will be implemented should they be required as a result of potential negative effects on 2RN's network. Mitigation includes supplying dwellings with optimised roof-top antennas or satellite reception if required.

The proposed grid connection will be left in situ underground within the public roadway. In advance of the main grid connection works an assessment will be carried out to confirm the precise alignment of the cable route within the corridor which has been assessed. This will include slit trenching to ensure avoidance of existing services in the road.

Overhead telecommunication lines along the TDR will be placed underground prior to turbine delivery or briefly disconnected during turbine delivery during the construction phase. Any interference to service will be brief (lasting less than 1 day) and potential effects to service will be communicated in advance to those affected. Notice will be provided to all stakeholders affected prior to works commencing.

16.5.1.1 Aviation



In line with standard practice for wind farm developments, the coordinates and elevations for turbines will be supplied to the IAA at the end of the construction phase. An aeronautical obstacle lighting scheme will be agreed with IAA in line with IAA's consultation response and applied to the proposed turbines.

16.6 Cumulative Impacts

The developer has consulted with telecommunications operators and aviation bodies in order to identify any potential effects the proposed project may have on telecommunications and aviation. Other existing, consented and planned projects have also been examined for potential cumulative impacts to telecommunications and aviation. No potential cumulative impacts have been identified.

16.7 Residual Effects

16.7.1 Telecommunications and Broadcasting

Following the implementation of mitigation measures, no significant residual effects are expected on telecommunications and broadcasting as a result of the proposed Ballinagree Wind Farm.

16.7.2 Aviation

Following the implementation of mitigation measures, no residual effects are expected on aviation as a result of the proposed Ballinagree Wind Farm.

16.8 Conclusion

The proposed Ballinagree Wind Farm has been assessed with respect to potential effects on telecommunications and aviation. The assessment was completed through a desktop study to identify nearby infrastructure and through consultation with telecommunications operators and aviation bodies in order to identify any potential effects.

In relation to telecommunication and broadcasting, mitigation by design was used to avoid potential impacts. This was achieved through the identification of constraints and avoidance of placing proposed infrastructure in the path of telecommunications links. Potential impacts to broadcasting receivers in close proximity to the wind farm site, i.e. nearby dwellings, have been identified. The design of the wind farm includes a setback of over 800m between proposed turbines and nearby dwellings. This will reduce potential negative effects on receivers. Remedial measures will be implemented should they be required as a result of potential negative effects on 2RN's network. Following implementation of mitigation measures, no significant residual effects are expected on telecommunications and broadcasting as a result of the proposed Ballinagree Wind Farm.

In relation to aviation, consultation with nearby airports and airfields did not identify any potential negative effects on their operations. The Irish Aviation Authority identified potential impact on the Cork Airport Runway 16 Instrument Landing System and requested an impact assessment be carried out. Flight Calibration Services Ltd carried out the assessment and identified no adverse effect on flight inspection procedures and profiles associated with the Runway 16 ILS. Following the implementation of mitigation measures, no residual effects are expected on aviation as a result of the proposed Ballinagree Wind Farm.



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CORK OFFICE

Core House
Pouladuff Road,
Cork, T12 D773,
Ireland
+353 21 496 4133

Dublin Office

J5 Plaza,
North Park Business Park,
North Road, Dublin 11, D11 PXT0,
Ireland
+353 1 658 3500

Carlow Office

Unit 6, Bagenalstown Industrial
Park, Royal Oak Road,
Muine Bheag,
Co. Carlow, R21 XW81,
Ireland
+353 59 972 3800

