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ENVIRONMENTAL IMPACT ASSESSMENT REPORT (EIAR) FOR THE PROPOSED FAHY BEG WIND FARM, CO. CLARE

VOLUME 2 – MAIN EIAR

CHAPTER 16 – TELECOMMUNICATIONS AND AVIATION

Prepared for: RWE Renewables Ireland Ltd.

RWE

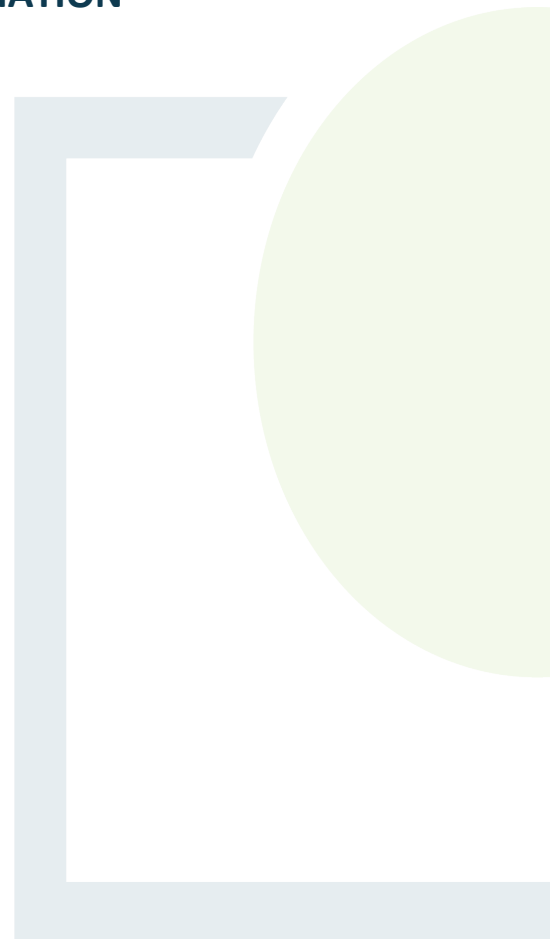
Date: November 2022

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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TABLE OF CONTENTS

16.	TELECOMMUNICATIONS AND AVIATION	1
16.1	Introduction.....	1
16.1.1	Project Description.....	1
16.1.2	Study Area	2
16.2	Methodology	2
16.2.1	Background and Potential Effects	3
16.3	Scoping and Consultation.....	5
16.3.1	Detailed Scoping Responses.....	7
16.4	Impact Assessment.....	9
16.4.1	Do- Nothing Scenario	9
16.4.2	Construction Phase Effects.....	9
16.4.3	Operational Phase Effects	10
16.4.4	Decommissioning Phase.....	11
16.5	Mitigation Measures	12
16.5.1	Telecommunications and Broadcasting	12
16.6	Cumulative Impacts.....	12
16.7	Residual Effects.....	13
16.7.1	Telecommunications and Broadcasting	13
16.7.2	Aviation	13

LIST OF APPENDICES

Appendix 16.1: Example Consultation

Appendix 16.2: Instrument and Flight Procedures and Obstacle Limitation Surfaces Safeguarding Scoping Assessment Report

Appendix 16.3: Fahy Beg Wind Farm Impact on ILS Flight Inspection Report

LIST OF TABLES

Page

Table 16-1: Telecommunications and Aviation Scoping Consultees.....6

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16. TELECOMMUNICATIONS AND AVIATION

16.1 Introduction

This chapter has been prepared to examine the potential effects of the proposed Fahy Beg 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 EIAR 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 EIAR as ‘the BEMP lands’).

The proposed wind farm includes the wind turbines, internal access tracks, hard standings, permanent meteorological mast, 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 underground grid connection cable route from the on-site substation to the existing substation at Ardnacrusha, within the townlands of Ballykeelaun and Castlebank, Co. Clare. 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. A full description of the proposed project is included in Chapter 3 of this EIAR.

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

- The proposed 8 no. wind turbines with a blade tip height range from 169 m to 176.5 m, a hub height range from 102.5 m to 110 m and a rotor diameter range from 131 m to 138 m;
- The proposed installation of high voltage (up to 110kV) and communication cabling underground between the proposed on-site substation and the existing Ardnacrusha substation;
- 1 no. permanent meteorological mast with a height of 100m above ground level;
- 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 EIAR. The Wind Farm Site, grid connection and TDR are illustrated in Figure 3-1 of this EIAR.

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 EIAR 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;

This assessment has considered all combinations of turbine arrangements within the range of dimensions described in Section 16.1.1 and as described in Chapter 3 of this EIAR.

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.



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.

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 transmissions 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 Fahy Beg 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 Shannon Airport, approximately 27km south west 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).
- Clare County Development Plan (2017)
- '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).

16.3 Scoping and Consultation

In accordance with the WEG 2006 as part of the EIAR scoping and consultation exercise, FT contacted the relevant national and regional broadcasters, fixed and mobile phone operators, Irish Aviation Authority, Airport Authorities 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. A Scoping Report was sent as part of this consultation. The service providers were provided with the locations and dimensions of the proposed turbines and asked to advise whether any impact could occur to their networks. An example of the correspondence issued by Fehily Timoney (FT) to consultees is provided in Appendix 16.1.

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 16.1 following:

Table 16-1: Telecommunications and Aviation Scoping Consultees

Telecommunications Operator	Response Date	Impact Identified by Consultee	Further Comments
Ajisko Ltd.	02/03/2021	No impact	No potential for interference
Commission for Communications Regulation	09/02/2021	N/A	Returned with list of operators within 10km and included email addresses for each
Eircom Ltd		No response	No response
Electricity Supply Board		No response	No response
Enet Telecommunications Networks Limited	05/03/2021	No impact	No potential for interference
Imagine Networks Services Ltd.	03/03/2021	N/A	Acknowledged Receipt by Email, no further response
IT Department, Tipperary County Council		No response	No response
Meteor Mobile Communications Limited (Eir)	19/03/2021	No impact	No potential for interference. Request for future windfarm development analysis and large infrastructure project requests to be sent to MobileNetworksTXN@eir.ie for Eir Mobile (formerly Meteor) network analysis.
Ripple Communications Ltd		No response	No response
RTE Transmission Network Ltd.	03/03/2021	Potential Impact	Potential interference to Digital terrestrial television - request we sign protocol.
Three Ireland (Hutchison) Limited	11/03/2021	No impact	No potential for interference
Treaty Radio Ltd.		No response	No response
Viatel Ireland Ltd.		No response	No response
Virgin Media Ireland Ltd. (PP)		No response	No response
Vodafone Ireland Ltd.	10/03/2021	No impact	Confirmed that clearance is acceptable
Irish Aviation Authority	23/03/2021	Potential impact	Screening required for potential impact at Shannon. Letter requesting FCSL study.
Shannon Airport Authority	08/03/2021	Potential impact	The siting of wind turbines at this location may have implications for the operations of the communication, navigation and surveillance systems used by Air Traffic Control for the separation and safety of aircraft. The geographical siting of these turbines may also have implications for the flight paths of aircraft.



Eleven of the Telecommunications Operators provided a material response. The responses received following consultations with the relevant bodies and the issues that they raised (if any), are summarised in section 16.3.1.

16.3.1 Detailed Scoping Responses

16.3.1.1.1 Telecommunications and Broadcasting

All correspondence received from telecoms operators (TOs) is included in Appendix 5.2 of Chapter 5 of this EIAR, and is summarised below.

Enet Telecommunications Networks Limited

In correspondence dated 05/03/2021 a representative of Enet Telecommunications Networks Limited stated “This won’t affect our current network.”

Imagine Networks Services Ltd.

In correspondence dated 03/03/2021 a representative of Imagine Networks Limited stated “Imagine Group acknowledge receipt of this scoping report.”

Meteor Mobile Communications Limited (Eir)

In correspondence dated 19/03/2021 a representative of Meteor Mobile Communications Limited (Eir) stated “We have no transmission services that will be affected by this proposed wind farm study area.

Please keep sending future windfarm development analysis and large infrastructure project requests to MobileNetworksTXN@eir.ie for Eir Mobile (formerly Meteor) network analysis.”

RTE Transmission Network Ltd.

In correspondence dated 03/03/2021 a representative of RTE Transmission Network Ltd stated “The proposed windfarm at Fahy Beg will not have any impact in our fixed linking as the nearest path is 3km away from T7.

There is however a risk of interference to DTT viewers receiving from our site at Woodcock Hill.

We would therefore ask that a protocol be signed between 2RN and the developer should the site go ahead.”

Three Ireland (Hutchison) Limited

In correspondence dated 11/03/2021 a representative of Three Ireland (Hutchison) Limited stated “I have reviewed your analysis and can confirm that 55m clearance is acceptable to 3Ireland.”

Ajisko Ltd.

In correspondence dated 02/03/2021 a representative of Ajisko Ltd stated “Nothing of concern for Ajisko Ltd. (IMS) here.”

16.3.1.1.2 Aviation

Following consultations with the Irish Aviation Authority it was recommended that a screening assessment be carried out to consider whether the proposed wind farm and the associated cranes that would be utilised during its construction should be further assessed for potential impact on instrument flight procedures, communication and navigation aids or flight checking at Shannon Airport.



See extract of text below:

“It is the observation of the Safety Regulation Division – Aerodromes, that even at this pre-planning stage, the applicant / their consultants should engage as soon as practicable with Shannon Airport and the IAA’s Air Navigation Service Provider (ANSP) to undertake a preliminary screening assessment to consider whether the proposed wind farm and the associated cranes that would be utilised during its construction should be fully assessed for potential impact on instrument flight procedures, communication and navigation aids or flight checking at Shannon Airport.”

It is the observation of the IAA Engineering Department that Fahy Beg Wind Farm is within SHA ILS 24 (LOC 24) coverage area and might have an impact on ILS 24 flight check profiles and they recommended FCSL to complete an assessment. We also received an observation from IAA requesting the commissioning of a screening assessment with IAA’s Air Navigation Service Provider for potential impact of the proposed wind farm on Shannon Airport.

Shannon Airport Authority have stated the following in relation to proposed development:

- Siting of wind turbines may have implications for the siting of communication, navigation and surveillance systems used by Air Traffic Control.
- Regard is to be given to Irish Aviation Authority (IAA) *Obstacles to Aircraft in Flight Order, 2005 (S.I. No. 215 of 2005)*.
- Shannon Airport Authority DAC responsibility to define the airspace and maintained free from obstacles in permitting intended aircraft operations to be conducted safely. Advising establishing a series of obstacle limitation surfaces (OLS) defining the limits to which objects (project into the airspace. Potential effects of the 8 no. wind turbine locations be assessed by SAA once application is made in indicating any potential effects on the Airport OLS.
- Applicant consider the inclusion of a – *Nav Aids Impact Assessment* in the EIAR and any conclusions arising. The NAVAIDS ATM dept. within IAA for flight checking of Nav aids completed by a company called FCSL and FCSL are the only approved company who can complete a Nav aids impact assessment. Thus question is whether the proposed development affects their flight calibration/ IFP procedure validation activity.
- The PAN OPS dept. within the IAA are concerned with airspace and instrument flight procedure (IFP) matters and they may have concerns that due to the multiple site elevations (8 no.) associated with the project, which when combined with turbine elevations blade tip heights may infringe the maximum elevation allowed. On this basis, their position will be that as a minimum an IFP opinion is required, from an approved IFPD provider (e.g. ASAP, Cyrrus, Osprey), which in turn may require a full IFP assessment.
- Finally, the applicant if successful must apply the following standard: Chapter Q (Visual Aids for Denoting Obstacles) of the Certification Specifications contained within the EASA Easy Access Rules for Aerodromes CS ADR-DSN.Q.851 Marking and Lighting of wind turbines (Regulation (EU) No. 139/2014) to the wind turbine development.
- Shannon Airport have said that they support concerns that IAA have.



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 Effects

16.4.2.1 *Telecommunications and Broadcasting*

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 temporary disruption to power and telecommunications services for existing residents and business and will also involve temporary road works to 'underground' these services. Such works will be carried out over a number of days (estimated 1 day per service). 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 a 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 and worst case to assume that four 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 4 months.

It is reasonable to assume a worst-case scenario where temporary disconnections will be required during off peak times, on four different occasions over the course of four months (approximately once every month) 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 four 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 four 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

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.

An IFP Safeguarding Scoping Assessment was carried out by Osprey, who are approved vendors of the IAA. The Obstacle Limitation Surfaces and Instrument Flight Procedures Safeguarding Scoping Report indicates no impacts foreseen. The report can be found in Appendix 16.2.

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

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. Comreg siteviewer³, a telecommunications mast is located adjacent to the northern boundary where three operators share the infrastructure. Three, Meteor and Vodafone operate from this mast. It is c. 1km away north of T7. No other telecommunications infrastructure was found during a desk based survey within 2km of the proposed wind farm. 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 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.

³ Comreg Siteviewer. <https://siteviewer.comreg.ie/#explore>



RTE Transmission Network Ltd have identified a risk of interference to Digital terrestrial television (DTT) viewers receiving from their site at Woodcock Hill. They requested that a protocol be signed between 2RN and the developer should the site go ahead.

The remaining 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

FCSL carried out an ILS Impact Assessment , below are the main findings on potential impact to the Shannon Runway 24 ILS. A copy of this report can be found in Appendix 16.3.

“flight inspection aircraft flying centreline and part orbit flight profiles associated with the Shannon Airport Runway 24 ILS will remain sufficiently clear of the proposed Fahy Beg Wind Farm site.

The proposed Fahy Beg Wind Farm will therefore have no adverse effect on flight inspection procedures and profiles associated with the Runway 24 ILS.”

An IFP Safeguarding Scoping Assessment was carried out by Osprey, who are approved vendors of the IAA. The Obstacle Limitation Surfaces and Instrument Flight Procedures Safeguarding Scoping Report indicates no impacts foreseen. There also seems to be some headroom to allow for the turbines further up the hill into the OHL setback area without affecting the results. This report can be found in Appendix 16.2.

As the proposed grid connection will be operating underground within the public roadway, there are no operational related impacts on aviation interests as a result of the operation of the GCR.

16.4.4 Decommissioning Phase

16.4.4.1 Telecommunications and Broadcasting

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

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 consist 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 comprises 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

All known existing and proposed projects within the study area that could potentially generate a cumulative impact with the project during construction, operation and decommissioning were identified and examined as part of this assessment. The full list of projects are contained in Appendix 1.2 of Volume 3 of this EIAR. There will be no cumulative impacts relating to the proposed project and surrounding projects in relation to telecommunications or aviation.



During the development of any large project that holds the potential to effect telecoms or aviation, the Developer is responsible for engaging with all relevant Telecoms Operators and Aviation Authorities to ensure that the proposals will not interfere with television or radio signals by acting as a physical barrier. In the event of any potential impact, the Developer for each individual project is responsible for ensuring that the necessary mitigation measures are in place. Therefore, as each project is designed and built to avoid impacts arising, a cumulative impact is unlikely to arise.

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 Fahy Beg 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 Fahy Beg 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

