

Environmental Impact Assessment Report

Cummeennabuddoge Wind Farm

Chapter 5: Population and Human Health

Cummeennabuddoge Wind (DAC)

September 2024



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Glossary of Terms

Term	Definition
The Applicant	Cummeennabuddoge Wind Designated Activity Company (DAC)
The Agent	Atmos Consulting Limited
Environmental Advisors and Planning Consultants	Atmos Consulting Limited
Environmental Impact Assessment	A means of carrying out, in a systematic way, an assessment of the likely significant environmental effects from a development
Environmental Impact Assessment Regulations	Schedule 6 of the Planning and Development Regulations 2001 (as amended)
Environmental Impact Assessment Report	A document reporting the findings of the EIA and produced in accordance with the EIA Regulations
The Proposed Development	Cummeennabuddoge Wind Farm
The Proposed Development Site	The land enclosed by the red line shown on Figure 1-1a
The Planning Act	Directive 2011/92/EU (as amended by Directive 2014/52/EU, the EIA Directive).

List of Abbreviations

Abbreviation	Description
ABP	An Bord Pleanála
CEBR	Centre for Economics and Business Research
CEMP	Construction Environmental Management Plan
CSO	Central Statistics Office
DoHPLG	Department of Housing, Planning and Local Government
GSI	Geological Survey of Ireland
HSE	Health Service Executive
EMF	electric and magnetic fields
ELF	extremely low frequency
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
IWEA	Irish Wind Energy Association
ICNIRP	International Commission on Non-Ionizing Radiation Protection
LSA	Local Study Area
LBNL	Lawrence Berkley National Laboratory
PPE	Personal Protective Equipment
SuDS	Sustainable Drainage Systems
SCADA	Supervisory Control and Data Acquisition
UNESCO	United Nations Educational, Scientific and Cultural Organisation

5 Population and Human Health

5.1 Introduction

This chapter of the EIA Report assesses the likelihood of significant socio-economic effects of the Proposed Development on the surrounding area, with regards to local residents, tourism, and recreation.

The relevant policy context and methods used to assess the potential effects are described together with the baseline conditions that exist in the area in the absence of the Proposed Development. Potential effects of the Proposed Development are discussed, together with possible cumulative effects in combination with other developments.

The majority of effects on population and human health receptors are likely to be experienced during the construction phase. These are likely to include beneficial effects on the local economy, including employment opportunities and increased spend on local services.

Once operational, effects are likely to be primarily related to the visual impact, shadow flicker and possible noise effects from the Proposed Development.

In respect of human health, the chapter takes into consideration the results of other assessments in the EIAR which have relevance to health, namely: soils; water; air quality; noise; shadow flicker; and landscape. The findings of these assessments are cross referenced in this chapter but the effects will not be repeated to avoid duplication of coverage or 'double counting' in the EIAR.

5.2 Statement of Authority

This chapter has been prepared by Richard Newsham Formerly Senior Consultant at Atmos. Richard's qualifications are BSc (Hons) Geography and Natural Hazard Management and Prince2 Practitioner, original Project Manager.

Richard has over 6 years in the renewable energy industry, including 3 years as an EIA Project Manager and 1 year as a renewable energy developer. Richard has significant experience of preparing Socio-economic/Population & Human Health assessments having prepared Socio-economic, Population & Human Health chapters for multiple permitted and proposed developments which have been subject to EIA.

Malcolm Sangster BSc (Hons) Chemistry MSc Environmental Chemistry, overall Project Director has overseen the undertaking of the assessments presented here and reviewed and quality assured the Chapter.

5.3 Methodology and Approach

5.3.1 Legislation, Planning Policy and Guidance

The following section sets out the policy and guidance which is considered to be of relevance to an assessment of effects on population and human health for a proposed development of this type.

National Policy

National policy has been derived from the current and draft WEDGs including in respect of matters which interrelate with population and human health effects; namely noise, visual amenity and shadow flicker.

Local Policy

Relevant local planning policies are derived from the following:

- Kerry County Development Plan 2022-2028; and
- Cork County Development Plan 2022-2028.

Detail on planning policy can be found in the Planning Statement.

Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA, 2022)

The EPA Guidelines state that an EIAR does not generally require assessment of land-use planning, demographic issues or detailed socio-economic analysis unless the proposed development gives rise to likely significant effects in respect of new developments and infrastructure which affect economic or settlement patterns.

Whilst the Proposed Development will not result in any associated development, such as a housing or commercial development, it will lead to the generation of employment during both the construction and operational phases as well as inward investment which may affect the local supply chain. On this basis, the EIAR contains a socioeconomic assessment.

In relation to likely effects on human health, the Guidelines state that the EIAR should refer to the assessments of those factors under which human health effects might occur (e.g. under the relevant environmental factors of water and soil).

Likely effects which may arise from specific environmental topics are addressed in their respective chapters. Environmental topics associated with population and human health are addressed in:

- Chapter 6: Landscape and Visual Impact;
- Chapter 7: Traffic Impact and Access Route Assessment;
- Chapter 12: Air and Climate;
- Chapter 13: Noise;
- Chapter 15: Shadow Flicker;
- Chapter 16 Material Assets; and
- Chapter 17: Risks and Major Accidents.

EIAR Guidelines for the Consideration of Tourism and Tourism Related Projects (Failte Ireland)

The Guidelines set out that the EIAR should indicate the location of sensitive neighbouring tourism resources that are likely to be directly affected, and other premises which may be the subject of secondary impacts such as alteration of traffic flows or increased urban development.

The EIAR should indicate the numbers of premises and visitors likely to be affected directly and indirectly.

Supplementary Guidance

Other guidance considered in this Chapter include:

- An Enterprising Wind: An economic analysis of the job creation potential of the wind sector in Ireland (IWEA, 2014);
- Best Practice Guidelines for the Irish Wind Energy Industry (Irish Wind Energy Association (IWEA, 2012);
- Best Practice Principles in Community Engagement and Community Commitment (Irish Wind Energy Association (IWEA, 2013);
- Code of Practice for Wind Energy Development in Ireland (DCCA, 2017);
- EMF & You: Information about Electric & Magnetic Fields and the electricity network in Ireland (ESB, 2017);
- Investigation into the Assessment of Health Impacts within National Environmental Regulation Processes (EPA, 2012);
- Wind Turbine Experiences – 2012 Survey Results (British Horse Society, 2013); and
- Wind Turbines and Horses - Guidance for Planners and Developers (British Horse Society, 2015).

5.3.2 Consultation

The assessment process has been informed by consultation with An Bord Pleanála (ABP) and consultation with stakeholders following circulation of a scope of works report (see Chapter 2: EIA Approach and methodology of this EIAR and associated Appendices for further details). A summary of the key consultation responses are described in Table 5-1.

Table 5-1: EIA Scoping Responses – Socio-economics (Population and Human Health), Recreation and Tourism

Consultee	Scoping Comment	Where it is addressed in the EIA
Health Service Executive (HSE)	Directive 2014/52/EU has an enhanced requirement to assess likely significant impacts on Population and Human Health.	This chapter considers the potential impacts on Population and Human Health as a result of the Proposed Development
	The Proposed Development should be assessed with a view to the potential to include opportunities for health gain within the Proposed Development Site	Opportunities for health gain exist in the form of improved access tracks to facilitate recreation access to the Site
	There is the potential of airborne dust from the construction phase that may have an impact on sensitive receptors. A Construction Environmental Management Plan (CEMP) should be included in the EIAR which details dust control and mitigation measures.	Chapter 12: Air and Climate provides an assessment of air quality in relation to the Proposed Development. A CEMP has also been produced as Technical Appendix 4-1.

5.3.3 Assessment Methodology

Desk Based Research

A desk-based review of publicly available information has been undertaken to identify the key characteristics of the local population, economy, existing land use and tourism and recreational facilities. Sources include:

- An Phríomh-Oifig/Central Statistics Office, 2016 (CSO, 2016);
- Kerry County Development Plan 2022-2028 (KCC, 2022);
- Cork County Development Plan 2022-2028 (CCC, 2022); and
- Regional Spatial and Economic Strategy (SRA, 2020).

The effect of the Proposed Development on tourism and recreation is closely related to public attitudes to wind farms, however, a negative opinion does not necessarily result in a material change in recreational patterns. The relevant conclusions from the most recent studies are discussed later in this chapter.

Spatial Scope

The spatial scope of the assessment is represented by the effects on specific community, recreation and tourism receptors at a local level which is defined as a 10km radius from Proposed Development Site. This is referred to as the 'Local Study Area'. 10km has been chosen as this area will encompass all likely local effects from the influx of construction personnel into the area during the construction phase of the Proposed Development. This has been chosen based on the experience of the specialist authors in conducting similar assessments elsewhere.

Economic effects are considered with regard to a 'Wider Study Area' that takes account of a likely 'catchment' for provision of domestically sourced goods and services relating to the construction and operation of the wind farm. This study area comprises the counties of Kerry and Cork.

Socio-economic Effects

The development, construction and operation of the Proposed Development will provide employment for technical consultants, contractors, and maintenance staff.

The Proposed Development could also have an effect on socioeconomic, tourism and recreation during the decommissioning phase. Due to the relatively young age of the industry, there is a lack of data around the potential economic impact of the decommissioning phase.

Very few onshore wind projects to date have been fully decommissioned in Ireland and, as a result, there is minimal data regarding the economic costs and impacts associated with this phase.

It is also difficult to predict what local economic conditions would be at the time of decommissioning (35 years in the future) therefore arriving at evidence-based and accurate assumptions is not realistic.

When full decommissioning take place the effects are likely to be short term and similar in nature but substantially lesser than construction effects.

For these reasons, the potential effects associated with the decommissioning phase are not assessed further in this Chapter. In the absence of specific Irish data, the assessment of the generation of capital expenditure has been undertaken based on the Renewable UK research, (RenewableUK, 2015) which provide a breakdown of early development, construction and operational socioeconomic effects. All values have been converted from Great British Pound (GBP) into Euros using a conversion rate of 1.14.

Both the minimum and maximum generating capacities of the Proposed Development (102MW and 122.4MW) have been considered for the assessment of socio-economic effects to represent the least and most beneficial effects.

Impacts on the Irish Language

Ballyvourney, Co. Cork is located 5km south of the Proposed Development Site and is part of the designated Múscraí Gaeltacht area, however, the Site is outside the designated Múscraí Gaeltacht area.

It is considered due to the nature of the Proposed Development that there is no potential to have cultural or linguistic effects on the Gaeltacht. As a result impacts upon the Múscraí Gaeltacht area has been scoped out of further assessment.

Human Health

An assessment of human health of the general population has not been undertaken as the Proposed Development will have no impact upon the health of the general population, at any scale.

5.4 Baseline Conditions

5.4.1 Population

Local Study Area

The surrounding area is rural in nature, it contains a mixture of agricultural grassland, commercial forestry plantations, private and public roads. Isolated dwellings and farmsteads are scattered throughout the Local Study Area (LSA).

There are no community settlements with a population greater than 2,000 within the Local Study Area. The nearest settlement with data available as part of the CSO 2016 census, is Baile Mhic Íre, Co. Cork located approximately 6km southeast of the Proposed Development with a total population of approximately 477.

Millstreet, Co. Cork, is the largest settlement within the LSA with a population of approximately 1,555.

The nearest centres of population to the Site are Killarney, Co. Kerry, approximately 39km northwest of the Proposed Development Site and Cork City, Co. Cork, approximately 47km southeast of the Proposed Development Site. These have a population of approximately 14,500 and 208,500 residents respectively.

Over the last five years, Kerry and Cork County Council have granted planning permissions in the LSA which include one off housing, alterations to existing dwelling houses, development of new housing, agricultural buildings, and commercial

developments including a wind farm (Knocknamork Wind and Solar Farm), meteorological mast and battery energy storage facilities (See Technical Appendix 2-3 Cumulative Sites).

County Kerry

The total population in the 2016 CSO for County Kerry was 147,707, 3.1% of Ireland's total population (CSO, 2016a). 73,055 were male and 74,652 were female. There has been a 1.5% increase in the population since 2011.

The population of County Kerry is notably older than the national average. The region has a greater-than-average share of the population of pensionable age (11.1% compared to 8.9%), a lower-than-average share of working age (69.3% compared to 69.9%) and a lower-than-average share of people under 15 years old (19.5% compared to 21.1%) (CSO, 2016a). This is reflected in the mean age of the region, which is 40 compared to the national average of 37 (CSO, 2016c).

County Cork

The total population in the 2016 CSO for County Cork was 417,211, 8% of Ireland's total population (CSO, 2016a). 206,953 were male and 210,258 were female. There has been a 4.4% increase in the population since 2011.

The population of County Cork is notably younger than the national average. The region has a lower-than-average share of the population of pensionable age (8.5% compared to 8.9%), a lower-than-average share of working age (68.5% compared to 69.9%) and a higher-than-average share of people under 15 years old (22.9% compared to 21.1%) (CSO, 2016b). This is reflected in the mean age of the region, which is 37, the same as the national average (CSO, 2016c).

Table 5-2: Population Structure

	County Kerry	County Cork	Ireland
Total Population	147,707	417,211	4,761,865
% under 15	19.5%	22.9%	21.1%
% of working age	69.3%	68.5%	69.9%
% of pensionable age	11.1%	8.5%	8.9%

Source: CSO (2016a); CSO (2016b); CSO (2016c).

5.4.2 Economic Activity and Employment

Local Study Area

Detailed information on employment for the Local Study Area is unavailable due to the size of the study area. It is assumed that the majority of those residing within this area would travel outside of it for employment with main employment sectors in the area understood to be agriculture and commercial forestry.

County Kerry

As shown in Table 5-2, County Kerry has a lower-than-average economic activity rate (at 69.3% compared to the Irish average of 69.9%) and a higher-than-average

unemployment rate, at 5.8% compared to Ireland's Q4 2016 average unemployment rate for people aged between 15-74 of 4.5% (CSO, 2016g; CSO, 2022).

As shown in Table 5-3, income in the region is comparatively low, with residents of County Kerry typically making a median annual household gross income of €37,339.35, compared to the Irish average of €45,256.00 (CSO, 2016h).

In terms of the nature of employment in County Kerry, Table 5-4 shows that the region has a significantly above average proportion of the workforce employed in Professional Services, accounting for approximately 22.6% of the population, compared to the 5.7% it accounts for across Ireland as a whole (CSO, 2016j; CSO, 2016k).

The region also has an above average share of employees working in Commerce and Trade, accounting for approximately 20.5% of the workforce, as opposed to the approximate 13.7% in Ireland as a whole (CSO, 2016j; CSO, 2016k).

The construction sector is an area of employment that would be positively impacted by the Proposed Development should local workers and suppliers be utilised in the construction phase. Employment in the sector in County Kerry is currently 5.6% as opposed to the National average of 6%. This is equivalent to approximately 3,439 jobs (CSO, 2016j; CSO, 2016k).

Employment in the private sector accounts for a significantly higher share of the workforce in County Kerry than Ireland as a whole. With employment in Agriculture, Forestry and Fishing, Building and Construction, Manufacturing Industries, Commerce and Trade, Transport and Communications, and Professional Services totalling 72.1%, compared to the 48.2% the sectors account for across Ireland (CSO, 2016j; CSO, 2016k).

County Cork

County Cork has a lower-than-average economic activity rate (at 68.5% compared to the Irish average of 69.9%) and a lower-than-average unemployment rate, at 4.4% compared to Ireland's Q4 2016 average unemployment rate for people aged between 15-74 of 4.5% (CSO, 2016i; CSO, 2022).

Income in the County is comparatively high, with residents of County Cork typically making a median annual household gross income of €49,488.9, compared to the Irish average of €45,256 (CSO, 2016h).

In terms of the nature of employment in County Cork, Table 5-4 shows that the region also has a significantly above average proportion of the workforce employed in Professional Services, accounting for approximately 23.2% of the population, compared to the 5.7% it accounts for across Ireland as a whole (CSO, 2016i; CSO, 2016k).

The region also has an above average share of employees working in Commerce and Trade accounting for approximately 22% of the workforce, as opposed to the approximate 13.7% in Ireland as a whole (CSO, 2016i; CSO, 2016k).

The construction sector is an area of employment that would be positively impacted by the Proposed Development should local workers and suppliers be utilised in the construction phase. Employment in the sector in County Cork is currently 5.6% as opposed to the National average of 6%. This is equivalent to approximately 10,035 jobs (CSO, 2016i; CSO, 2016k).

Employment in the private sector accounts for a larger share of the workforce in County Cork than Ireland as a whole. With employment in Agriculture, Forestry and

Fishing, Building and Construction, Manufacturing Industries, Commerce and Trade, Transport and Communications, Public Administration and Professional Services totalling 85.8%, compared to the 48.2% the sectors account for across Ireland (CSO, 2016i; CSO, 2016k).

Table 5-3: Unemployment Rate and Median Annual Gross Income

Contract Type	County Kerry	County Cork	Ireland
	2016	2016	2016
Unemployment Rate (%)	5.8%	4.4%	6.2%
Median Annual Gross Income(€)	€37,339.35	€49,488.9	€45,256

Source: (CSO, 2016h).

Table 5-4: Industrial Structure, ranked by highest concentration

	County Kerry	County Cork	Ireland
Agriculture, Forestry and Fishing	8%	6.6%	5.5%
Building and Construction	5.6%	5.6%	6.4%
Manufacturing Industries	10.9%	16.3%	12.4%
Commerce and Trade	20.5%	22%	13.7%
Transport and Communications	4.5%	7.4%	4.5%
Public Administration	4.8%	4.7%	5.3%
Professional Services	22.6%	23.2%	5.7%
Other Industries	23.1%	14%	46.7%
Total Number of Jobs	61,222	179,890	103,300,00

Source: (CSO, 2016j; CSO, 2016i; CSO, 2016k).

It is important to note the category "Other" is not well defined and could consist of vastly different industries between County areas and at the National scale.

5.4.3 Tourism and Recreation

Tourism Indicators

Tourism and recreation is a substantial contributor to the economy of rural Ireland.

Benefits include cash flows into a range of businesses, extending beyond accommodation, restaurants and visitor attractions. Taxis and public transport, village shops, craft workers and country estates are among the list of those receiving direct business. Local trades are also boosted through purchases by businesses and improvements to premises stimulated by tourism.

In Q4 of 2019 there were 2,425,000 overseas trips to Ireland of which (CSO, 2019):

- 379,000 were for business;
- 688,000 visits to friends/relatives;
- 1,040,000 holiday/leisure/recreation trips; and
- 318,000 'other' trips.

Ireland's scenery has been an important quality of international tourism for decades. In 2012, 91% of overseas holidaymakers to Ireland rated scenery as an important part of a

destination with natural/unspoilt environment also rated highly at 91% (Fáilte Ireland, 2019). The future sustainability of Ireland's tourism industry is therefore inextricably linked to the maintenance of the character and scenic qualities of the Irish landscape.

Local Study Area

Although the Proposed Development Site is not located within any designated areas for tourism and does not have any visitor attractions, as confirmed in the Cork and Kerry LDPs and Fáilte Ireland. Several sites and attractions are present within the local study area and are discussed below.

Ballyvourney, Co. Cork located 5km south of the Proposed Development Site is a popular village set in a designated Gaeltacht area. Tourism in the village is centred around popular cycling routes, horse-riding, fly-fishing facilities, traditional Irish music and dance sessions. St. Gobnait's Monastic Site located approximately 1km from the town of Ballyvourney is a key visitor attraction within the local area.

Millstreet, Co. Cork is located 7km north east of the Proposed Development Site. Visitor attractions in the town include the award-winning Millstreet Railway Station, Holy wells at Tubrid (2km west of the town) and St. John's Well, Mushera (7km south of the town).

Several tourism accommodation businesses have been identified within 10km of the Proposed Development Site (Table 5-5). The accommodation businesses identified are considered to be of local value and their sensitivity to wind farm development is therefore low.

Table 5-5: Accommodation Receptors within 10km of the Proposed Development

Provider	Number of Options	Nearest Distance to the Site (km)
Airbnb	15	7km
Hotels	2	5km
Guesthouses	6	10km

There are no recreational routes within the Proposed development Site. However, the Proposed Development Site immediately adjoins Killarney National Park which includes the MacGillycuddy's Reeks, a popular hillwalking destination. The Park is a distinctive combination of mountains, lakes, woods and waterfalls covering 10,236ha.

County Kerry

The County of Kerry as well as County Cork, fall within the South-West Region. This region has consistently been identified as a significant tourist destination in Ireland (SRA, 2020).

The importance of contribution of tourism is detailed within the Kerry County Development Plan 2022-2028 where policy has been designed to support and promote the sector. County Kerry attracts over 1.5 million tourists annually, a number which it aims to expand and build on within the County Kerry Tourism Strategy & Action Plan 2016-2022.

The Kerry County Development Plan 2022-2028, details the following specific policies which seek to promote tourism in the County.

Policy KCDDP 10-1:

'Adhere to the principles of sustainable tourism and have regard to its current and future economic, social and environmental impacts on local infrastructure, sensitive areas and sites, water quality, biodiversity, soils, ecosystems, habitats and species, climate change.'

Policy KCDP 10-2:

'Facilitate sustainable tourism development throughout the County and particularly in areas where tourism is currently underdeveloped and where there is a need for local tourism development initiatives including Greenways, Blueways, Peatways, Cycleways, Walkways and Marine Leisure.'

Policy KCDP 10-3:

'Liaise with strategic partners such as Fáilte Ireland (South West Region), the National Parks and Wildlife Services, Inland Fisheries Ireland, Waterways Ireland, Coillte, GSI, NGOs, Kerry PPN and other relevant national bodies and the local tourism sector on the identification of land use strategies for areas, focusing on their tourism, environmental and heritage value.'

Policy KCDP 10-4:

'Facilitate and support sustainable development of tourism along, or in close proximity to public transport routes.'

Policy KCDP 10-5:

'Explore best management practises for sensitive tourism destinations particularly during the peak tourist season.'

Kerry County Development Plan 2022-2028 states that the tourism sector in County Kerry had a total value of approximately €550 million in 2019 and that approximately 18% of Kerry's workforce was employed in tourism and related sectors (Kerry County Council, 2022).

Recent performance figures from Fáilte Ireland (2021) for regional tourism for the South-West Region for 2019, demonstrate that the number of overseas tourists to the region totalled 2,335,000 with the associated revenue generated amounting to €970,000,000. Domestic visitors from Ireland and Northern Ireland amounted to 2,354,000 whilst €536,000,000 in total revenue was generated for the economy.

A variety of Ireland's top visitor attractions are located in County Kerry including; Muckross House, Dingle, The Ring of Kerry, Carrauntoohil, Ross Castle as well as Blasket Island and Skellig Michael.

The coastline of County Kerry is a key attraction along the "Wild Atlantic Way", a concept developed by Fáilte Ireland. The route is one of the longest defined coastal routes in the world at almost 2,500km. It is devised to promote the West Coast of Ireland as an international tourism product (Fáilte Ireland, 2015).

According to the Wild Atlantic Way Operational Programme 2015-2019 report by Fáilte Ireland (2015), tourism revenue in the Wild Atlantic Way programme area is worth €2 billion to the economy and supports over 40% of national tourism employment (pg 15-16).

A highlight of the County Kerry section of the Wild Atlantic Way is Killarney National Park. The Park was designated by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) as a Biosphere Reserve in 1981, part of a world network

of natural areas which have conservation, research, education and training as major objectives (Department of Housing, Local Government & Heritage, 2022).

County Cork

The tourism industry in County Cork is an important resource centred on the rich natural and built heritage of the area. The unique appeal of the landscape quality and built environment greatly enable the tourist industry of County Cork to thrive.

The importance of tourism is referred to in the Cork County Development Plan 2022-2028, in which specific policies seek to promote tourism in the County.

Policy TO 1-2: Promotion of Sustainable Tourism in County Cork is

‘(a) Promote a sustainable approach to the development of the tourism sector within Cork County...’

and Policy TO 7-1: Walking/Cycling and Greenways is

“Promote the development of walking and cycling routes throughout the County as an activity for both international visitors and local tourists...”

As previously stated, County Cork as well as County Kerry, fall within the South-West Region which has consistently been identified as the most popular region in Ireland, outside Dublin, for domestic and overseas visitors.

A variety of nationally renowned visitor attractions are present within County Cork, including;

- Blarney Castle and Gardens;
- Elizabeth Fort;
- Ballycotton Cliff Walk; and
- Cobh, Doneraile Park and Spike Island.

County Cork is home to one of the top free of charge visitor attractions in Ireland, Doneraile Park, with 490,000 visitors attending in 2019. Two attractions within the County are also represented in the top ten fee charging attractions in Ireland, Blarney Castle and Gardens and Fota Wildlife Park with a combined visitor figure of 922,047 in 2019.

As in the case of County Kerry, County Cork is also an integral aspect of the “Wild Atlantic Way”. A highlight of the County Cork section of the Wild Atlantic Way is the Old Head of Kinsale.

Designated as one of Cork’s three signature discovery points, the dramatic outcrop of land includes the recently restored Signal Tower which offers expansive views of Ireland’s south coast and the newly developed Lusitania Memorial Garden (Cork County Council, 2022).

5.4.4 Land use

The Proposed Development lies within existing commercial forestry, located on land at Clydaghroe and Cummeenabuddoge, Clonkeen, almost entirely within County Kerry, although a proportion of the grid connection cabling and works along the turbine delivery route is proposed within County Cork.

The land-use within the Proposed Development is predominantly commercial forestry with existing forestry tracks.

Further information can be found in Technical Appendix 4-2 Forestry Management Plan.

5.5 Assessment of Effects

5.5.1 Do-Nothing Scenario

If the Proposed Development were not to proceed, the existing use of the site as commercial forestry would continue and the opportunity to capture part of Ireland's valuable renewable energy resource would be lost, as would the opportunity to contribute to meeting Government and EU targets for the production and consumption of electricity from renewable resources and the reduction of greenhouse gas emissions.

The opportunity to generate local employment and investment and to diversify the local economy would also be lost.

5.5.2 Turbine Safety

Turbines pose no threat to the health and safety of the general public. The Department of the Environment, Heritage and Local Government, now called The Department of Housing, Planning and Local Government (DoHPLG) released the 'Wind Energy Development Guidelines for Planning Authorities 2006' and the 'Draft Revised Wind Energy Development Guidelines 2019'. Both guidance documents state that the likelihood of injury to people is very remote.

Fencing or other restrictions are not necessary for safety considerations. People or animals can safely walk up to the base of the turbines.

Both DoEHLG Guidelines state that there is a very remote possibility of injury to people from flying fragments of ice or from a damaged blade. However, blades are composite structures with no bolts or separate components and the danger is therefore minimised.

The build-up of ice on turbines is unlikely to present problems as the wind turbines will be fitted with anti-vibration sensors, which will detect any imbalance caused by icing of the blades. The sensors will cause the turbine to wait until the blades have been de-iced prior to beginning operation.

The Draft Revised Wind Energy Development Guidelines 2019 advises that signs should be installed at access points to the site advising the public to not "stand close below towers, and to take care when nearby and in-line with turbine blades, under icy conditions."

Turbine blades are manufactured of glass reinforced plastic which will prevent any likelihood of an increase in lightning strikes within the site of the Proposed Development or the local area.

Lightning protection conduits will be integral to the construction of the turbines. Lightning conduction cables, encased in protection conduits, will follow the electrical cable run, from the nacelle to the base of the turbine. The conduction cables will be earthed adjacent to the turbine base. The earthing system will be installed during the construction of the turbine foundations.

5.5.3 Electromagnetic Fields

The provision of underground electric cables of the capacity proposed is common practice throughout the country and installation to the required specification does not give rise to any specific health concerns.

The extremely low frequency (ELF) electric and magnetic fields (EMF) associated with the operation of the Proposed Development fully comply with the international guidelines for ELF-EMF set by the International Commission on Non-Ionizing Radiation Protection (ICNIRP a formal advisory agency to the World Health Organisation), as well as the EU guidelines for human exposure to EMF.

Accordingly, there will be no operational impact on people or properties (residential or other uses) as the ICNIRP guidelines will not be exceeded.

Electromagnetic fields from wind farm infrastructure, including the grid connection and substation, are therefore very localised and are considered to be an imperceptible, long-term impact.

5.5.4 Human Health

Construction Effects

There is the potential for negative effects on human health during the wind farm construction phase related to potential emissions to air of dust, potential emissions to land and water of hydrocarbons, release of potentially silt-laden runoff into watercourses and noise emissions.

Chapter 11 Hydrology, Water Quality and Flood Risk, Chapter 12 Air and Climate, Chapter 13 Noise show that the residual impacts are not significant and will not lead to significant health effects for humans. On this basis, the potential for negative health effects associated with the Proposed Development is imperceptible.

Operational Effects

An operational wind farm is not a source of pollution and is not an activity that falls within any thresholds requiring Environmental Protection Agency licensing under the Environmental Protection Agency Licensing Act 1992, as amended. The Department of the Environment, Heritage and Local Government's 'Wind Energy Development Guidelines for Planning Authorities 2006' state that there are no specific safety considerations in relation to the operation of wind turbines.

Wind turbines will be fitted with anti-vibration sensors, which will detect any imbalance caused by icing of the blades. The sensors will prevent the turbine from operating until the blades have been de-iced. This minimises the risk of injury from ice throw.

Turbine blades are made from non-conducting materials which will prevent lightning strikes and will be effectively earthed with lightning conduction cables, encased in protection conduits.

In extremely high wind speed conditions, (at Beaufort Storm Force 10 or greater) the turbines will shut down to prevent excessive wear and tear, and to avoid any potential damage to the turbine components.

Chapters 7 Traffic Impact and Access Route Assessment; 10 Soils, Geology and Hydrogeology; Chapter 11 Hydrology, Water Quality and Flood Risk; Chapter 12 Air &

Climate; and Chapter 13 Noise provide an assessment of the effects of the Proposed Development on these areas of consideration.

On this basis, the potential for negative health effects associated with the operation of the Proposed Development is imperceptible.

Shadow Flicker

Technological mitigation measures are available, and widely implemented, to exclude the likelihood for shadow flicker to occur. These measures will ensure that no dwelling experiences significant shadow flicker levels arising from the Proposed Development during the operational phase, in line with the 2006 DoEHLG Wind Energy Development Guidelines.

A shadow flicker assessment has been undertaken for the Proposed Development and is included in Chapter 15 Shadow Flicker. This Chapter concluded that, with the implementation of appropriate mitigation measures, there will be no significant shadow flicker effects as a result of the Proposed Development or in combination with other existing or permitted projects.

Therefore, it is concluded that the proposed development will not result in any likely significant human health effects as a result of shadow flicker effects, either individually or in combination with other existing or permitted developments.

5.5.5 Natural Disasters and Major Accidents

The Proposed Development's potential vulnerability to natural disasters and major accidents has been assessed in Chapter 17 Risks and Major Accidents.

This Chapter concluded that the risk of major accidents and/or natural disasters both to and as a result of the Proposed Development is Low for all scenarios assessed. As such no mitigation is necessary and the residual risk for all scenarios is Low and Not Significant. No Significant cumulative risks have been identified.

The risk of peat instability and failure (landslide) occurring on the Proposed Development Site is addressed in the Chapter 10 Soils, Geology and Hydrogeology which concludes that the Proposed Development Site has an acceptable margin of safety and is suitable for the Proposed Development.

The risk of flooding is addressed in Chapter 11 Hydrology, Water Quality and Flood Risk and was found not to lead to significant effects on flood risk.

The Proposed Development is not regulated or connected to or close to any site regulated under the Control of Major Accident Hazards Involving Dangerous Substances Regulations i.e., SEVESO sites and so there is no potential effects from this source.

On this basis, the potential vulnerability of the Proposed Development to natural disasters is imperceptible.

Health and Safety

Construction

To maintain safety and avoid health impacts on construction workers and the general public, best practice site safety and environmental management will be maintained.

The proposed development will be designed, constructed, operated and decommissioned in accordance with the following:

- Safety, Health and Welfare at Work Act 2005 (No. 10 of 2005);
- Safety, Health and Welfare at Work (General Application) Regulations 2007 (S.I. No. 299 of 2007), as amended;
- Safety, Health and Welfare at Work (Construction) Regulations 2013 (S.I. 291 of 2013), as amended; and
- Safety, Health and Welfare at Work (Work at Height) Regulations 2006 (S.I. No. 318 of 2006).

All construction staff will be adequately trained in health and safety and will be informed and aware of potential hazards.

All hazards will be identified, and risks assessed. Where elimination of the risk is not feasible, appropriate mitigation and/or control measures will be followed. The contractor will be obliged under the construction contract and current health and safety legislation to adequately provide for all hazards and risks associated with the construction phase of the Proposed Development.

Safe Pass registration cards are required for all construction, delivery and security staff. Construction operatives will hold a valid Construction Skills Certificate Scheme card where required. The Developer is required to ensure a competent contractor is appointed to carry out the construction works. The Contractor will be responsible for the implementation of procedures outlined in the Safety & Health Management Plan.

In relation to COVID-19, up to date Health Service Executive guidance will be consulted regularly in line with Health and Safety Authority recommendations and all reasonable on-site precautions will be taken to reduce the spread of COVID-19 on construction sites, should the virus be prevalent at the time of construction.

Once mitigation measures and health and safety measures are followed, the potential for impact on human health on the construction site during construction and decommissioning is expected to be not significant and temporary to short-term.

Public safety will be addressed by restricting access to the public in the vicinity of the site works during the construction and decommissioning stage. The construction site will be temporarily closed in sections to the public for the 24 month construction period as well as the decommissioning period. This measure aims to avoid potential injury to members of the public as a result of construction activities.

Appropriate warning signage will be posted at the construction site entrance, directing all visitors to the site manager. Appropriate signage will be provided on public roads approaching site entrances and along haul routes.

In relation to the turbine delivery route, additional safety measures will be employed when large loads are being transported, for instance, Garda escort will be requested for turbine delivery and a comprehensive turbine delivery plan will be utilised to avoid potential impact to human safety for road users and pedestrians.

Once mitigation measures and health and safety measures are implemented and followed, the potential for impact on human health for members of the public during construction and decommissioning of the proposed project is expected to be not significant and temporary to short-term.

Operation

For operation and maintenance staff working at the Proposed Development, appropriate site safety measures will be utilised during the operational phase by all permitted employees. All personnel undertaking works in or around the turbines will be fully trained and will use appropriate Personal Protective Equipment (PPE) to prevent injury.

Equipment within high voltage substations presents a potential hazard to health and safety. The proposed substation will be enclosed by palisade fencing and equipped with intruder and fire alarms in line with ESB and EirGrid standards.

All electrical elements of the proposed development are designed to ensure compliance with electro-magnetic fields (EMF) standards for human safety.

All on-site electrical connections are carried by underground cable and will be marked out above ground where they extend beyond the track or hardstanding surface. Details of cables installed in the public road will be available from ESB Networks.

Lightning conductors will be installed on each turbine as all structures standing tall in the sky require this protection. Turbines specifically require this to prevent power surges to electrical components. Turbines will be fitted with ice detection systems which will stop the turbine from rotating if ice is forming on a turbine blade. This aims to prevent ice throw.

Rigorous statutory and engineering safety checks imposed on the turbines during design, construction, commissioning and operation will ensure the risk posed to humans is negligible. 24-hour remote monitoring and fault notifications are included as standard in the Turbine Operations and Maintenance Contracts. A Supervisory Control and Data Acquisition ("SCADA") system will monitor the Development's performance. If a fault occurs, then a message is automatically sent to the operations personnel preventing emergency situations.

In addition to scheduled maintenance, the maintenance contracts will allow for call out of local engineers to resolve any issues as soon as they are picked up on the remote monitoring system.

Access to the turbines inner structure will be locked at all times and only accessed by licenced employees for maintenance.

In line with the Health Service Executive's Emergency Planning recommendations, any incident which may occur at the site which requires emergency services, incident information will be provided in the 'METHANE' format:

- Major Emergency Declared
- Exact location
- Type of incident
- Hazards Access and egress
- Number of casualties (if any) and condition
- Emergency services present and required

The design of the Proposed Development has considered the susceptibility to natural disasters. The proposed site drainage will mitigate against any potential flooding risk due to run off with the use of Sustainable Drainage Systems (SuDS). Construction drainage will be left in-situ for the lifespan of the project through to decommissioning.

The Contractor's fire plans will be reviewed and updated on a regular basis. A nominated competent person shall carry out checks and routine maintenance work to ensure the reliability and safe operation of firefighting equipment and installed systems such as fire alarms and emergency lighting. A record of the work carried out on such equipment and systems will be kept on site at all times.

Shadow flicker detection systems will be installed on all turbines to manage occurrence of shadow flicker on nearby receptors.

To ensure the proposed wind farm is compliant with noise limits, turbines T9 through T13 and T15 will need to be operated in noise reduced modes of operation at certain wind speeds to protect residential amenity. Further information can be found in Chapter 13 – Noise.

The wind farm system shall include a kill switch that can be operated at any time with an overriding manual shutdown system in case of an emergency.

5.5.6 Population Effects

The Development does not contain a housing or services element and is not considered to have any direct, long term, positive or negative impact on the local or regional population levels. However, construction workers who are not based locally may temporarily relocate to the region, this is more likely for the initial construction and decommissioning phase than for the operational phase.

The overall impact is considered to be imperceptible in terms of population.

The overall impact of the construction phase on population and settlement patterns is predicted to be slight positive and short-term in nature across the study areas should construction workers relocate to the area for the duration of this phase.

The overall impact is predicted to be slight positive at the local level in terms of settlement patterns where increased business is attracted to the region during the operational phase.

5.5.7 Property value

There are currently no Irish studies undertaken to assess the impact of wind farms on property prices.

However, a study carried out by ClimateXChange (Heblich et al, 2016) in Scotland found no significant effect on the change in price of properties within 2km or 3km, and found the effect to be positive. This study also found that some wind farms can provide economic and amenity benefits to an area.

In the absence of any Irish studies on the effect of wind farms on property values, this section provides a summary of the largest and most recent studies from the United States and Scotland.

The largest study of the impact of wind farms on property values has been carried out in the United States. 'The Impact of Wind Power Projects on Residential Property Values in the United States: A multi-Site Hedonic Analysis', December 2009, was carried out by the Lawrence Berkley National Laboratory (LBNL) for the U.S Department of Energy. This study collected data on almost 7,500 sales of single-family homes situated within ten miles of 24 existing wind farms in nine different American states over a period of approximately ten years.

The conclusions of the study are drawn from eight different pricing models including repeat sales and volume sales models. Each of the homes included in the study was visited to demonstrate the degree to which the wind facility was visible at the time of the sale, and the conclusions of the report state that: *"The result is the most comprehensive and data rich analysis to date on the potential impacts of wind energy projects on nearby property values."*

The main conclusion of this study is as follows:

"Based on the data and analysis presented in this report, no evidence is found that home prices surrounding wind facilities are consistently, measurably, and significantly affected by either the view of wind facilities or the distance of the home to those facilities. Although the analysis cannot dismiss the possibility that individual or small numbers of homes have been or could be negatively impacted, if these impacts do exist, they are either too small and/or too infrequent to result in any widespread and consistent statistically observable impact."

This study has been recently updated by LBNL who published a further paper entitled "A Spatial Hedonic Analysis of the Effects of Wind Energy Facilities on Surrounding Property Values in the United States", in August 2013.

This study analysed more than 50,000 home sales near 67 wind farms in 27 counties across nine U.S. states, yet was unable to uncover any impacts to nearby home property values. The homes were all within 10 miles of the wind energy facilities – about 1,100 homes were within 1 mile, with 331 within half a mile.

The report is therefore based on a very large sample and represents an extremely robust assessment of the impacts of wind farm development on property prices. It concludes that:

"Across all model Specifications, we find no statistical evidence that home prices near wind turbines were affected in either the post-construction or post announcement/pre-construction periods."

Both LBNL studies note that their results do not mean that there will never be a case of an individual home whose value goes down due to its proximity to a wind farm – however if these situations do exist, they are considered to be statistically insignificant.

Therefore, although there have been claims of significant property value impacts near operating wind turbines that regularly surface in the press or in local communities, strong evidence to support those claims has failed to materialise in all the major U.S. studies conducted thus far.

A further study was commissioned by RenewableUK and carried out by the Centre for Economics and Business Research (CEBR) in March 2014. Its main conclusions are:

- Overall, the analysis found that the county-wide property market drives local house prices, not the presence or absence of wind farms; and
- The econometric analysis established that construction of wind farms at the five sites examined across England and Wales has not had a detectable negative impact on house price growth within a five-kilometre radius of the sites.

A relatively new study issued in October 2016 'Impact of wind Turbines on House Prices in Scotland'11 (2016) was published by Climate Exchange. Climate Exchange is Scotland's independent centre of expertise on climate change which exists to support

the Scottish Governments policy development on climate and the transition to a low carbon economy.

The report presents the main findings of a research project estimating the impact on house prices from wind farm developments. It is based on analysis of over 500,000 property sales in Scotland between 1990 and 2014. The key findings from the study are:

- No evidence of a consistent negative effect on house prices: Across a very wide range of analyses, including results that replicate and improve on the approach used by Gibbons (2014), we do not find a consistent negative effect of wind turbines or wind farms when averaging across the entire sample of Scottish wind turbines and their surrounding houses. Most results either show no significant effect on the change in price of properties within 2km or 3km or find the effect to be positive; and
- Results vary across areas: The results vary across different regions of Scotland. Our data does not provide sufficient information to enable us to rigorously measure and test the underlying causes of these differences, which may be interconnected and complex.

Although there have been no empirical studies carried out in Ireland on the impacts of wind farms on property prices, the literature described above demonstrates that at an international level, wind farms have not impacted property values in the local areas. It is a reasonable assumption based on the available international literature, that the provision of a wind farm at the proposed location would not impact on the property values in the area.

The overall impact is considered imperceptible in terms of effect on property value.

5.5.8 Economic Activity and Employment

Development, Construction and Operational Expenditure (spend)

Table 5-6 provides a summary of average spend per MW installed for each of the development, construction and operational phases of UK wind farms, drawn from the research study.

Table 5-6: Weighted Average Spend per MW on Windfarms in the UK

Project phase	Weighted Spend per MW (GBP)	Weighted Spend per MW (Euros)	Estimate spend for the Proposed Development (minimum proposed capacity)	Estimate spend for the Proposed Development (maximum proposed capacity)
Pre-Construction¹	£150,216	€171,246	€17,467,116	€20,960,540
Construction	£1,318,875	€1,503,518	€153,358,785	€184,030,542
Operation	£59,867	€68,248	€6,961,335	€8,353,602

Source: Renewable UK, 2015

All values hereafter have been converted from Great British Pound (GBP) into Euros using a conversion rate of 1.14.

¹ Refers to all activity prior to the commencement of construction activities on site

Predicted Pre-Construction Phase Effects

The average weighted spend during the development phase of a wind farm is €171,246 per MW (RenewableUK, 2015).

On this basis, the Proposed Development, with a minimum generating capacity of 102MW, results in an estimated total spend of €17,467,092 during the development phase. With the maximum generating capacity of 122.4MW this results in an estimated total spend of €20,960,510.4

On average 13% of this is generally spent in the host local area, with 59% spent within host region and overall the majority (98%) of spend retained within the host nation. Table 5-7 summarises the estimated spend during the development phase for the Proposed Development across each area.

Table 5-7: Weighted Average Development Spend by the Proposed Development

Area	Weighted Spend (minimum proposed capacity)(€)	Weighted Spend (maximum proposed capacity)(€)	Percentage (%) of Spend
Local	€2,270,721.96	€2,724,870.25	13%
Regional	€10,305,584.28	€12,366,718.84	59%
National	€17,117,750.16	€20,541,329.59	98%
International	€349,3421.84	€419,210.8	2%
Total	€17,467,092	€20,960,540.4	100%

Source: Renewable UK, 2015

Predicted Construction Phase Effects

The average weighted spend in the UK during the construction phase of a wind farm is €1,503,518 per MW (RenewableUK, 2015).

On this basis, the Proposed Development, with a minimum generating capacity of 102MW, results in a total spend of €153,358,836 during the construction phase. With the maximum generating capacity of 122.4MW this results in an estimated total spend of €184,030,603.2.

As shown in Table 5-8, over 36% is estimated to be spent in the region and 47% nationally.

Table 5-8: Weighted Average Construction Spend by the Proposed Development

Area	Weighted Spend (minimum proposed capacity) (€)	Weighted Spend (maximum proposed capacity) (€)	Percentage (%) of Spend
Local	€18,403,060.32	€22,083,672.38	12%
Regional	€55,209,180.96	€66,251,017.15	36%
National	€72,078,652.92	€86,494,383.5	47%
International	€81,280,183.08	€97,536,219.7	53%
Total	€153,358,836	€184,030,603.2	100%

Source: Renewable UK, 2015

The Sustainable Energy Authority of Ireland's 2015 report 'A Macroeconomic Analysis of Onshore Wind Deployment to 2020' puts direct construction jobs from wind farm developments at 1.07 jobs per MW based on 1 year of construction (SEAI, 2020).

On this basis, the Proposed Development, with a minimum generating capacity of 102MW, a projection of approximately 218 jobs could be created as a result of the construction of the Development over the two year construction period. With a maximum generating capacity of 122.4MW, approximately 261 jobs could be created.

It is not expected that all of these jobs will be based at the wind farm Site, however, the employment of tradespeople, labourers, and specialised contractors for the construction phase will have a direct, short-term significant, positive impact on employment in the LSA.

It is important to note that although construction impacts are temporary in nature they will last for the duration of the construction phase (24 months), thereby ensuring meaningful benefit to the local, regional and national economy.

The overall impact on economic activity is predicted to be a moderate, positive, short-term impact during the construction phase of the Proposed Development.

There will be similar effects to the construction phase during decommissioning.

The Applicant will work with a variety of contractors who will be actively encouraged to develop local supply chains throughout the local area, and work with subcontractors to invest in training and skills development.

Predicted Operational Phase Effects

The average weighted cost in the UK during the operational phase of a wind farm is €68,248 per MW (RenewableUK, 2015).

On this basis, the Proposed Development, with a minimum generating capacity of 102MW, results in an estimated total spend of €6,961,296. With a maximum generating capacity of 122.4MW, this results in an estimated total spend of €8,353,555.2. As shown on Table 5-9, 58% is estimated to be spent in the region and 87% nationally.

Table 5-9: Weighted Average Operational Spend by the Proposed Development

Area	Weighted Spend (minimum proposed capacity) (€)	Weighted Spend (maximum proposed capacity) (€)	Percentage (%) of Spend
Local	€2,923,744.32	€3,508,493.18	42%
Regional	€4,037,551.68	€4,845,062.01	58%
National	€6,056,327.52	€7,267,593.02	87%
International	€904,968.38	€1,085,962.17	13%
Total	€6,961,296	€8,353,555.2	100%

Source: Renewable UK, 2015

Kerry County Council will benefit from payments under both the Development Contribution Scheme and from the annual rate payments. The Applicant is also committed to a 'Community Benefit' package. This package will be advertised annually and managed by the local community or an independent body on behalf of the local community.

The purpose of the community fund is to enable the local community to share in the benefits of the Proposed Development. Cummeennabuddoge Wind (DAC) community benefits funds will typically support local projects, with funds allocated to projects from all aspects of the community.

The overall impact on economic activity is predicted to be moderate, positive and long-term during the operational phase of the Proposed Development.

5.5.9 Tourism Economy

In 2007, Fáilte Ireland, in association with the Northern Ireland Tourist Board (NITB), surveyed both domestic and overseas holidaymakers to Ireland to determine their attitudes to wind farms.

The purpose of the survey was to assess whether or not the development of wind farms would impact on the visitors' enjoyment of Irish scenery. In 2012, this research was updated by to determine if there was any change in visitor attitudes during this period.

Despite that there has been an increase in the number of visitors who have seen at least one wind farm on their holiday, there was also a slight increase (from 45% in 2007 to 48% in 2012) in the number of visitors who felt that this had no impact on their sight-seeing experience.

The majority of visitors also favour large turbines (47%) over small turbines (28%), with the option of 5 turbines proving the most popular, followed by two clusters of 10 and finally wind farms of 25 turbines.

71% of visitors claim that potentially greater numbers of wind farms in Ireland over the next few years would have either no impact or a positive impact on their likelihood to visit Ireland.

Of those who feel that the potentially greater number of wind farms would impact positively on future visits, the key driver is support for renewable energy, followed by potential decreased carbon emissions.

There has been a slight increase from 21% to 24% in those who say it would impact negatively on their likelihood to visit again due mainly to the negative aesthetics of wind farms followed by preferences for alternative renewable energy sources.

The study also found that 12% of those surveyed, responded that wind farms would have 'a strong positive impact' on their decision to visit Ireland, with 27% responding it would have a 'slight positive impact', whilst 38% said it would have 'no impact'.

7% of respondents stated it would have a 'strong negative impact' and 15% stated it would have a 'slight negative impact'. The survey also found that wind farms were noted as more favourable than other forms of development such as housing, mobile phone masts or electricity pylons.

As such there is not expected to be any direct relationship between the tourism sector growth and the Proposed Development.

The construction period is anticipated to last for 24 months and is likely to benefit the local economy through expenditure on purchases of accommodation, food, drink, fuel, etc. These beneficial effects would be experienced mainly by businesses already operating within the tourism sector, or those that are partly dependent on tourism for their income, for example the retail sector.

Local businesses such as accommodation providers may experience greater levels of occupancy that is achieved due to construction contractors using their accommodation on a year-round basis, including periods of the year that are traditionally considered 'low season'. The benefits of increased business, although temporary, can allow businesses to invest, leading to a long term enhancement.

The positive effects arising during the construction period are assessed to more than offset any likely temporary negative effects to the tourism economy that may occur in the event that tourist visitors were deterred from visiting the local area (for example, if accommodation was in use by construction workers) during this phase.

Operational phase effects are assessed to be negligible and not significant.

Decommissioning phase effects are assessed to be similar to or less than the construction phase, with minor beneficial effects from increased construction workers frequenting the local economy.

Whilst overall effects on the tourism economy for all phases of the Proposed Development are considered to be negligible and not significant (beneficial or adverse), the benefit to individual businesses is likely to be substantial and may be significant. However, until such time as contracts are agreed, it is not possible to quantify the precise level of benefit to individual businesses.

5.5.10 Tourism and Recreation Assets

As the sensitivity of all tourism/recreational receptors within the LSA is low, and the magnitude of adverse effects would also be low due to the demonstrable low potential of impact attitude to tourists. The level of effect on receptors in the LSA would be negligible (adverse) and not likely to be significant. This effect would be further reduced, or may become beneficial overall, if businesses in this area generate additional revenue areas a result of the Proposed Development.

The CEMP (Technical Appendix 4-1), sets out measures to ensure that local residents are informed of the construction work including the location and duration of temporary road closures and the identification of alternative traffic routes during the construction phase. Given the temporary nature of the construction works, the measures to be implemented and the low sensitivity of the receptors, the effect would be negligible and not e significant.

5.6 Mitigation Measures

No mitigation measures have been considered for the Proposed Development as there are no significant negative effects anticipated.

5.7 Cumulative effects

This assessment has taken into account the cumulative impact of the Proposed Development including all elements i.e. wind farm and associated ancillary infrastructure, grid connection and upgrade works to the proposed turbine delivery route with identified cumulative developments. See Appendix 2-3: Cumulative Sites

While there are a number of developments permitted or currently proposed within the Local Study Area, it is considered that none of these projects are of a sufficient scale or

nature to have the likelihood to result in cumulative population and human health effects during the operational phase of the proposed development.

There is no potential for cumulative effects in relation to the construction of other permitted or proposed developments, the permitted Knocknamork Wind Farm (due to start construction in 2024) will not share the same peak construction period as the Proposed Development as the applications are at different stages in the planning process and each development has varying lengths of construction.

The Proposed Development will contribute to the offset of burning of fossil fuels which has the potential to positively impact human health.

The cumulative impact of the Proposed Development can be predicted to be a negligible impact on tourism and amenity during the construction and operational phases because of similar likely negligible effects from the other developments which cumulatively would not amount to increased overall effect. The cumulative decommissioning effects cannot be determined at this stage. Whilst cumulative effects may be experienced in terms of changes to landscape and traffic, these are not considered to affect population, human health, tourism and recreation.

There is predicted to be a short-term, moderate positive impact in terms of employment from the Proposed Development.

5.8 Summary and Statement of Significance

This chapter has assessed the significance of potential effects of the Development on population and human health. The Development has been assessed as having the potential to result in effects of a slight positive, long-term impact overall. No cumulative effects as a result of the Proposed Development have been identified.

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