White Hill Wind Farm Electricity Substation & Electricity Line

Environmental Impact Assessment Report

Chapter 4: Population & Human Health

White Hill Wind Limited

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Contents

4.1 Introduction

This chapter presents an assessment of the likely and significant effects of the project on population and human health. Human beings comprise a significant and important environmental factor which must be comprehensively assessed. This includes effects on the existence, activities and wellbeing of people, including the local population. While there is no specific definition of the meaning of the term 'Human Health', the European Commission *Guidance on the preparation of the Environmental Impact Assessment Report* (2017) states that:-

> *"Human health is a very broad factor that would be highly project dependent. The notion of human health should be considered in the context of the other factors in Article 3(1) of the EIA Directive and thus environmentally related health issues (such as health effects caused by the release of toxic substances to the environment, health risks arising from major hazards associated with the project, effects caused by changes in disease vectors caused by the project, changes in living conditions, effects on vulnerable groups, exposure to traffic noise or air pollutants) are obvious aspects to study. In addition, these would concern the commissioning, operation, and decommissioning of a project in relation to workers on the project and surrounding population".*

Many of the likely significant effects on population and human health are therefore addressed in the specific, relevant chapters of this EIAR including, for example, Air Quality & Climate (**Chapter 8**), Landscape (**Chapter 9**), Noise & Vibration (**Chapter 11**), and Interactions between these environmental factors and population and human health (**Chapter 13**).

In accordance with Environmental Protection Agency (EPA) *Advice Notes on Current Practice in the preparation of Environmental Impact Statements (2003)*, issues which are specifically examined in this chapter include *inter alia*:-

- Economic Activity – will the development stimulate additional development and/or reduce economic activity and, if either, what type, how much and where?
- Social Consideration – will the development change patterns and types of activity and land use?;
- Land-uses – will there be severance, loss of rights of way or amenities, conflicts, or other changes likely to ultimately to alter the character and use of the surroundings?;
- Tourism – will the development affect the tourism profile of the area?; and,
- Health and Safety – will there be risks of death, risks to public health, disease, discomfort or nuisance?

Likely significant effects may occur as a result of direct interaction between the project and population and human health receptors, such as farming operations affected as a result of construction activities, or indirectly, such as employment created as a result of the local spending of wages earned by the construction workforce during the construction phase of the project.

4.1.1 Statement of Authority

This chapter was prepared by various members of the Galetech Energy Services (GES) Planning & Environment Team. GES has substantial socio-economic/population and human health assessment experience having prepared Population & Human Health (Human Beings) chapters for multiple permitted and proposed projects which have

been subject to EIA, including those listed at **Section 1.8.1** (**Chapter 1**).

4.1.2 Description of the Project

The project site is located in rural County Kilkenny and County Carlow, approximately 11 kilometres (km) northeast of Kilkenny City, c. 15km southwest of Carlow Town, c. 3km west of Muine Bheag and c. 1km north of Paulstown. In summary, the project comprises the following main components as described in full at **Chapter 3**:-

- A 110kV 'loop-in/loop-out' electricity substation;
- Approximately 320 metres (m) of 110kV underground electricity line between the electricity substation and the Kellis-Kilkenny overhead transmission line and the provision of 2 no. interface masts;
- An electrical control unit at the permitted White Hill Wind Farm site;
- Approximately 8.8km of underground electricity line between the electricity substation and the electrical control unit; and,
- All associated and ancillary site development, access, excavation, construction, landscaping and reinstatement works, including provision of site drainage infrastructure.

The project site traverses the administrative boundary between counties Kilkenny and Carlow; with the electricity substation and c. 3.3km of the underground electricity line located in County Kilkenny and c. 5.5km of the underground electricity line and the electrical control unit located in County Carlow. Electrical equipment suppliers, construction material suppliers and candidate quarries which may supply aggregates are located nationwide. As there is no likelihood of the works associated with the supply of such materials, including their delivery, resulting in significant population & human health effects; areas outside of counties Kilkenny and Carlow have therefore been screened out from further assessment within this chapter.

4.2 Policy and Guidance

This 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 project of this type.

4.2.1 National Policy

4.2.1.1 *Wind Energy Development Guidelines for Planning Authorities 2006*

The *Wind Energy Development Guidelines for Planning Authorities 2006* ('the 2006 Guidelines') offer advice to planning authorities in determining planning applications for wind farm developments, including the likely significant effects on human health and population. While the project does not, of itself, comprise a wind farm development; given its association with the permitted Seven Hills Wind Farm, the guidelines are also of relevance in assessing the suitability and appropriateness of locations for related ancillary infrastructure.

4.2.1.2 *Draft Revised Wind Energy Development Guidelines (2019)*

The *Draft Revised Wind Energy Development Guidelines* ('the Draft Guidelines') were published in December 2019. The Draft Guidelines include updates to several key aspects of the *Wind Energy Development Guidelines for Planning Authorities 2006*, including in respect of matters which interrelate with population and human health effects; namely noise, visual amenity and shadow flicker.

4.2.2 Regional Policy

Regional policy, as it relates to population and human health, is derived from the Southern Regional Assembly *Regional Spatial and Economic Strategy* (RSES). The RSES seeks to provide a framework through which national policies; including in relation to economic, environmental and quality of life factors; are implemented across the southern region, which includes counties Kilkenny and Carlow.

4.2.3 Local Policy

Relevant local planning policies are derived from the following:-

- *Kilkenny City & County Development Plan 2021-2027*; and,
- *Carlow County Development Plan 2022-2028*.

4.2.3.1 *Kilkenny City and County Development Plan 2021-2027*

The *Kilkenny City and County Development Plan 2021-2027* ('the Kilkenny CDP') sets out key principles and objectives regarding the delivery of development in an appropriate and sustainable manner, including the following:-

- To facilitate development of housing, economic development, services and infrastructure in the smaller towns and villages of the county at a scale and character which is appropriate in order to sustain and renew population and services in these areas;
- To ensure the highest standards of environmental protection in the assessment of planning applications for all development proposals;
- To ensure the sustainable development of the District towns in the County to achieve their target populations and enhance their capacity to attract new investment in employment, services and public transport for the benefit of their own populations and that of their rural hinterlands;
- To promote a diverse and sustainable local economy through the designation of sufficient lands for employment related uses, including facilities, to promote SME growth through the local area plans for the District towns;
- To integrate the planning and sustainable development of the county with regard to the social, community and cultural requirements of the county and its population;
- To prepare and support the implementation of a Green Infrastructure Strategy for County Kilkenny, as resources allow; and,
- To review the progress of the Climate Change Strategy, report on the progress to date, and thereafter develop a new strategy and action plan in line with national policy.

4.2.3.2 *Carlow County Development Plan 2022-2028*

The *Carlow County Development Plan 2022-2028* ('the Carlow CDP') outlines a set of strategic objectives which also relate to the project and population & human health, including as follows:-

- Transition to a low carbon and climate resilient County by developing renewable indigenous energy resources, by supporting energy efficiency, reducing energy demand, and by implementing mitigation and adaptation responses to climate change;
- Conserve and enhance the County's Green Infrastructure and ecosystem services supporting the sustainable management of natural assets and the biodiversity of the County's protected habitats and species to provide a wide

range of environmental, social and economic benefits to communities;
- Promote the provision and maintenance of high quality infrastructure and infrastructural networks and environmental services which seek to complement the overall economic and settlement strategy and contribute to the sustainable development of the area; and,
- Promote, develop and maintain sustainable communities in the County, through the provision of a range of facilities and services to meet the diverse and expanding needs of all residents including the needs of younger persons, thereby supporting community participation and social inclusion, and improving the quality of life for everyone

In particular, it is noted that, that the first strategic objective listed, above, and as set out in the Carlow CDP, recognises the requirement for Carlow to transition to a low-carbon climate resilient county through developing renewable energy resources. The construction and operation of the project will assist in achieving this strategic objective through the connection of the permitted White Hill Wind Farm; located partially in County Carlow; to the national electricity network.

4.2.4 Guidance

4.2.4.1 Environmental Protection Agency *Guidelines on the Information to be contained in Environmental Impact Assessment Reports (2022)*

The Environmental Protection Agency *Guidelines on the Information to be contained in Environmental Impact Assessment Reports (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 project gives rise to likely significant effects which affect economic or settlement patterns.

Whilst the project will not result in such development, it will give rise to the generation of employment during both the construction and operation phases as well as inward investment which may affect the local supply chain. On this basis, the EIAR baseline contains a brief summary of key socio-economic baseline data relating to the wider study area (see **Section 4.3.2** below) and the likely effects on this receiving environment are considered.

In relation to likely effects on human health, the EPA Guidelines highlight the importance of avoiding duplication of assessments (i.e. care should be taken to avoid 'double-counting' effects that are identified elsewhere in the corresponding chapter of the EIAR e.g. noise or air quality effects etc.). As a result, likely effects on population and human health which may arise from these specific environmental factors are addressed in their respective chapters. The likely interactions of these effects, if any, are also addressed at **Chapter 13**.

The EPA Guidelines further state that assessments of other health and safety issues, as relevant, may be carried out under other EU Directives (e.g. reports prepared under the Integrated Pollution Prevention and Control frameworks or SEVESO Directive etc.). In keeping with the requirement of the EIA Directive, an EIAR should take account of the results of such assessments without duplicating them.

4.2.4.2 *EIAR Guidelines for the Consideration of Tourism and Tourism Related Projects* (Fáilte Ireland)

These guidelines ('the Fáilte Ireland Guidelines') recognise that the impact and interaction of tourism with the environment is complex and the assessment of

environmental impacts is crucial to creating a sustainable tourism economy and protecting natural resources. It is also acknowledged that tourism can be affected both by direct and indirect effects of new developments as well as by interactions between new activities and tourism activities; for example, the effects of high volumes of heavy goods vehicles passing through hitherto quiet, scenic, rural areas.

The Fáilte Ireland Guidelines set out that the EIAR should indicate the location of sensitive nearby 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, both directly and indirectly.

4.2.4.3 *EMF & You: Information about Electric & Magnetic Fields and the electricity network in Ireland* (ESB, 2017)

The provision of electrical apparatus is common practice throughout Ireland and their installation does not give rise to any specific health concerns. The extremely low frequency (ELF) and electrical magnetic fields (EMF) associated with the operation of the electrical equipment will, as is required by legislation, comply fully with the international guidelines for ELF and 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.

The ESB document '*EMF & You*' (ESB, 2017)[1] provides further practical information on EMF.

4.2.4.4 Supplementary Guidance & Information Sources

Other advice and guidance, reviewed as part of the baseline assessment and in developing the assessment methodology include:-

- *Code of Practice for Wind Energy Development in Ireland* (Department of Communications, Climate Action and Environment, 2016);
- *Best Practice Guidelines for the Irish Wind Energy Industry* (Irish Wind Energy Association, 2012);
- *Best Practice Principles in Community Engagement and Community Commitment* (Irish Wind Energy Association, 2013);
- *An Enterprising Wind: An economic analysis of the job creation potential of the wind sector in Ireland* (Irish Wind Energy Association, 2014); and,
- *Electricity Transmission Studies: Evidence-Based Environmental Studies* (EirGrid, various).

Key socio-economic data for the baseline has been derived from:-

- Central Statistics Office (CSO);
- *Kilkenny City & County Development Plan 2021-2027;*
- *Carlow County Development Plan 2022-2028;*
- Carlow County Council – *A socio-demographic profile of Carlow 2019;*
- Pobal Profiling GIS Data (https://maps.pobal.ie/);
- Fáilte Ireland data in conjunction with websites of relevant tourism sites and amenities in the area;
- Fáilte Ireland – *Key Tourism Facts 2022* (2023);
- Kilkenny County Council *Tourism Development Strategy and Action Plan 2023-2028;*

[1] https://esb.ie/docs/default-source/default-document-library/emf-public-information_booklet_v9.pdf?sfvrsn=0

- Carlow Tourism *County Carlow Tourism Strategy and Action Plan 2020-2025*;
- Kilkenny County Council – *Local Economic and Community Plan 2023-2028;*
- Carlow County Council – *Local Economic and Community Plan 2023-2029*;
- The British Horse Society - *Advice on Wind Turbines and Horses – Guidance for Planners and Developers* (2015);
- Marshall Day Acoustics – *Noise Effects on Animals – A literature review* (2014); and,
- OSI mapping and aerial photography.

4.3 Methodology

4.3.1 Desk Based Research

The majority of effects on population and human health receptors are likely to be experienced during the construction phase. These are likely to include potential beneficial effects on the local economy, including employment opportunities and increased spend on local services as well as potential adverse effects, such as restrictions on farming operations or general disruption to the amenity of the local area, including in respect of road traffic, which may indirectly impact on its recreation or tourism value. Once operational, effects are likely to be primarily related to the visual impact and potential noise effects from the project.

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; and landscape. The findings of these assessments are cross referenced in this chapter, but the assessment will not be repeated to avoid duplication.

Employment effects and direct expenditure are quantified using data provided by the Developer and, where necessary, using standard industry data. Opportunities for local businesses and the local labour market to be involved in supply chain activities will be identified and where possible quantified.

4.3.2 Study Area

The spatial focus of the assessment is undertaken at two levels. Firstly, effects on specific community, recreation and tourism receptors are assessed at a local level which is defined as 5km around the electricity substation site and 500m around the electricity line route and is referred to as the 'Local Study Area' (LSA).

Economic effects are assessed 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 project. This study area comprises the counties within which the project is situate; i.e. counties Kilkenny and Carlow; and is referred to as the 'Wider Study Area' (WSA). Given the scale of the project, it is not considered necessary to assess effects at a national or international level.

Study Areas	Spatial Extent
Wider Study Area	County Kilkenny and County Carlow
Local Study Area	5km from the electricity substation and 500m around the underground electricity line

Table 4.1: Study Area Details

A desk-based review of existing conditions in the area has been undertaken, covering the following themes:-

- Wider Study Area
  - Population;
  - Labour Market/Education and Skills;
  - Business Diversity and Supply Chain; and,
  - Visitor Economy.
- Local Study Area
  - Recreational assets;
  - Visitor attractions; and,
  - Visitor accommodation and other businesses/services serving the tourism economy.

4.3.3 Consultation

A range of statutory and non-statutory organisations have been consulted with as part of the EIAR scoping process (see **Chapter 1**). The responses which are relevant to likely effects on population and human health are summarised in **Table 4.2** and provided at **Annex 1.7**.

Consultee	Comments	Reference within EIAR
Kilkenny County Council	Kilkenny County Council advised that Uisce Éireann's drinking water source(s) and on public water supply.	Assessed at **Chapter 7**.
Carlow County Council	Carlow County Council advised that the effects on residential amenity and adjoining land uses must be addressed.	Assessed at **Section 4.5.1.2** and **Section 4.5.2.2** below.
Health and Safety Authority	The Health and Safety Authority advised that, as the project is outside the scope of the *Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015 (S.I. 209 of 2015),* it has no observations on the project.	Incorporated into methodology.
Fáilte Ireland	Supplied copy of *EIAR Guidelines for the Consideration of Tourism and Tourism Related Projects*.	Incorporated into methodology.

Table 4.2: Scoping advice relating to Population & Human Health

Separately, the Developer has also engaged in an extensive public consultation process during the design phase of the project. This process involved two different approaches in which the Developer consulted with the local community by seeking the input of local residents, landowners, business owners and all relevant stakeholders.

Firstly, door-to-door consultation was undertaken, by the Project Manager/Community Liaison Officer (CLO), with dwellings located in the environs of the electricity substation. Where residents were present during the visit, they were advised of the details of the project and advised of means of contacting the CLO, with comments being invited and welcomed. In addition, residents were provided with an information pack which included further details of the project. Where residents were not present on the day of the visit, the CLO, where possible, left an information pack which included details of how the CLO could be contacted.

Secondly, a public information event was held in the locality. This event afforded members of the public; including those who may not have previously been consulted with and were not initially contacted by the CLO due to the location of their residence; the opportunity to discuss the project with members of the project team.

A comprehensive overview of the Developer's approach to public consultation is provided at **Annex 1.8**.

4.3.4 Approach to Assessment of Effects

This chapter assesses the likely construction, operational and decommissioning phase effects on:-

- the local economy (employment and economic output);
- the local population;
- opportunities for local involvement in the business supply chain and employment, i.e. how the key construction and operational activities will translate into investment;
- recreation and tourism assets; and,
- land use, through possible effects arising from improved access to the countryside.

4.3.5 Sensitivity Criteria, Magnitude and Significance Thresholds

Likely effects will be assessed in line with the following parameters:-

- beneficial or adverse (or neutral);
- extent (the area over which the effect occurs);
- likelihood (i.e. likely or unlikely);
- duration (the time for which the effect is expected to last prior to recovery or replacement of the resource or feature);
- reversibility (permanent or temporary); and,
- timing and frequency.

4.3.6 Sensitivity Criteria

There are no published standards that define receptor sensitivity relating to population and human health assessments. As a general rule, the sensitivity of each receptor or receptor group is based on its importance or scale and the ability of the baseline to absorb or be influenced by the identified impacts. In assigning receptor sensitivity, consideration is given to the following:-

- importance of the receptor e.g. local, regional, national, or international;
- availability of comparable alternatives;
- ease at which the resource could be replaced;
- capacity of the resource to recover or adapt to identified impacts over a period of time; and,
- level of usage and nature of users (e.g. sensitive groups such as people with disabilities).

Based upon competent expert judgement, five levels of sensitivity are used: Very High, High; Medium, Low and Negligible. Proposed sensitivity criteria are set out in **Table 4.3** below.

4.3.7 Magnitude Criteria

The magnitude of impact is evaluated based on the change that occurs with respect to the baseline conditions. Five degrees of magnitude are used: Very High, High; Medium, Low and Negligible.

4.3.8 Defining Significant Effects

The level of an effect is assessed by combining the magnitude of the impact and the sensitivity of the receptor as shown in **Table 4.3**. Five main levels of effect are used: Imperceptible, Slight, Moderate, Substantial and Profound; while further sub-levels are

formed by amalgamating the main levels (e.g. Moderate-slight).

Where an effect is classified as 'Profound' or 'Substantial', this is considered to represent a 'significant effect' in terms of the EIA Directive. Where an effect is classified as Moderate, this may be considered to represent a 'significant effect' but is subject to competent expert judgement and interpretation, particularly where the sensitivity or impact magnitude levels are not clear or are borderline between categories or the impact is intermittent.

Magnitude	Sensitivity of Receptor				
	Very High	High	Medium	Low	Negligible
Very High	Profound	Profound-Substantial	Substantial	Moderate	Slight
High	Profound-Substantial	Substantial	Substantial - moderate	Moderate-slight	Not Significant
Medium	Substantial	Substantial moderate	Moderate	Slight	Imperceptible
Low	Moderate	Moderate-slight	Slight	Not Significant	Imperceptible
Negligible	Slight	Not Significant	Imperceptible	Imperceptible	Imperceptible

Table 4.3: Level of Significance Matrix

4.3.9 Approach to Mitigation

Mitigation measures, additional to those environmental measures embedded in the project design, are considered in order to mitigate any likely significant adverse effects that are identified through the assessment process.

4.3.10 Cumulative Effects

Consideration is given to the likely cumulative effect of the project in combination with other existing, permitted and proposed developments, including those listed at **Chapter 1**.

4.3.11 Limitations of Assessment

Certain information, in particular information regarding capital expenditure and construction employment, will not be available until the normal pre-construction procurement processes have been completed. This assessment provides estimates, based on experience from other projects, of likely spend and employment during construction sufficient to allow assessment in this EIAR.

Information on interrelated effects is informed by the assessments undertaken on other environmental factors which are set out in the relevant chapters of this EIAR. Any assessment limitations are also set out in those chapters.

The status of certain individual receptors (e.g. accommodation businesses, etc.) may be subject to change. Information reported in this chapter is based on the receiving environment survey work, as described in **Section 4.4**.

4.4 Description of Existing Environment

4.4.1 Wider Study Area

4.4.1.1 Population

The most recent estimates show that the current population of County Kilkenny stands at 104,160, which is less than 2.1% of Irelands total population, as a whole, of 5.15 million according to CSO Census 2022 data. The current population of County Carlow stands at 61,968, which is less than 1.3% of Irelands total population (CSO, 2022).

4.4.1.2 Labour Market/Education and Skills

2022 Census data for County Kilkenny[2], published in September 2023, indicates that there were 46,196 persons aged 15 years and over whose principal economic status was 'at work'; whilst 1,273 were short-term unemployed, 2,105 were long-term unemployed and 629 were looking for their first regular job.

2022 Census data for County Carlow[3] indicates that there were 26,792 persons aged 15 years and over whose principal economic status was 'at work'; whilst 810 were short term unemployed, 1,560 were long term unemployed and 429 were looking for their first regular job.

4.4.1.3 Business Diversity and Supply Chain

Data on an area's business population can be obtained from the CSO census data. This data source can be used to identify the structure of the local business base by sector. This is potentially useful in assessing the capacity of the local area to accommodate supply chain activity for infrastructure and other largescale construction projects, such as the subject project. **Table 4.4** provides the latest available data, taken from the 2022 Census, on the structure of the local business base, both in absolute and relative terms.

Industry	Kilkenny 2022		Carlow 2022	
Managers, Directors and Senior Officials	3,831	7.7%	2,023	6.9%
Professional Occupations	9,582	19.3%	4,504	15.4%
Associate Professional and Technical Occupations	5,211	10.5%	2,884	9.9%
Administrative and Secretarial Occupations	4,359	8.8%	2,431	8.3%
Skilled Trades Occupations	8,602	17.3%	4,882	16.7%
Caring, Leisure and Other Service Occupations	4,124	8.3%	2,255	7.7%
Sales and Customer Service Occupations	2,856	5.8%	1,896	6.5%
Process, Plant and Machine Operatives	3,404	6.7%	2,390	8.2%
Elementary Occupations	4,131	3.3%	2,717	9.3%
Not stated	3,474	7%	3,180	10.9%
Total	**49,574**	-	**29,162**	-

[2] https://visual.cso.ie/?body=entity/ima/cop/2022&boundary=C03789V04537&guid=2ae19629-14a8-13a3-e055-000000000001

[3] https://visual.cso.ie/?body=entity/ima/cop/2022&boundary=C03789V04537&guid=2ae19629-1492-13a3-e055-000000000001

Table 4.4: Persons at work or unemployed by occupation

Source: CSO Census data 2022

The data in **Table 4.4** shows that 'Professional Occupations', 'Skilled Trades Occupations' and 'Associate Professional and Technical Occupations' have the highest percentage of the work force in County Kilkenny; whilst 'Not Stated' comprises 7% of the workforce. For County Carlow, 'Skilled Trades Occupations', 'Professional Occupations' and 'Associate Professional and Technical Occupations' have the highest percentage of the work force; whilst 'Not Stated' comprises 10.9% of the workforce.

4.4.1.4 Visitor Economy

Fáilte Ireland combines counties together to form 7 no. different regions across Ireland for which tourism statistics are produced. Counties Kilkenny and Carlow form part of the 'South East' region along with counties Wexford and Waterford.

The latest data for the South East region related to domestic travel was published in 2022 while data for non-domestic (outside of Republic of Ireland) visitors was published in 2019. The findings indicate that:-

- there was a total of 2,210,000 overseas visitor trips to the region in 2019 generating approximately €2 billion income; and,
- there was a total of 283,000 trips by residents from Northern Ireland to the region in 2019 generating approximately €95 million income; and,
- there was a total of 1,899,000 trips by Irish residents to the region in 2022 with an estimated expenditure of approximately €419 million.

The policies contained within the Kilkenny CDP and Carlow CDP are also focussed on developing the counties as tourism destinations. The Kilkenny CDP refers to recent developments that are to be encouraged and supported within the tourism sector. These projects include the 'Kilkenny Greenway' and 'Thomastown' while the continued development of Mount Juliet as a unique luxury destination, and the recent addition of Mountain View in Ballyhale, offer accommodation for visitors to the area.

Within the Kilkenny tourism sector, recent developments that are to be encouraged within the Kilkenny CDP 2021-2027 include:-

- Callan – Cultural Hub;
- Castlecomer Discovery Park;
- Graiguenamanagh Hub;
- Inistioge and Woodstock Estate; and,
- Kilkenny Greenway.

Further amenity or tourism attractions located within County Kilkenny include:-

- Kilkenny Castle & Gardens;
- National Design & Craft Gallery;
- St. Mary's Cathedral;
- St. Canice's Cathedral & Round Tower;
- The Black Abbey;
- Dunmore Cave;
- Jerpoint Abbey;
- Knockroe Passage Tomb;
- Castlecomer Discovery Park;
- Shankill Castle;

- Kilfane Glen & Waterfall;
- Carlow-Kilkenny National Cycling Route;
- North Kilkenny Cycle Loop;
- East Kilkenny Cycle Loop; and,
- Nore Valley Walking Route.

The Carlow CDP sets out that the county has a wide range of historical, cultural and landscape interests that have the potential to raise the county's profile as a significant tourist destination. In particular, the Carlow CDP 2022-2028 notes that the county's appeal is recognised and benefits from the promotion of Fáilte Ireland's 'Ancient East' brand which encompasses the rich heritage and cultural assets that Ireland has to offer.

Policies within the Carlow CDP are focussed on promoting the development of greenways and blueways at appropriate locations and supporting the provision of small-scale complementary facilities and businesses along these greenways and blueways to enhance user experience. The Carlow CDP refers to the 'Barrow Valley Greenway' which, if viable, would significantly boost the appeal of tourism in the county and provide possibilities for linkages with similar infrastructure in adjoining counties. There are also policies to enhance and support opportunities for the use of the county's uplands and waterways, including the River Barrow and the River Slaney, such as recreational activities, boat storage and rest areas.

Further amenity or tourism attractions located within County Carlow include:-

- Ducketts Grove House;
- Lisnavagh House;
- Hardymount House & Gardens;
- Altamount Gardens;
- Huntington Castle;
- Borris House;
- Kilgraney House;
- Oak Park Forest Park;
- Clogrennane Woods;
- St. Mullins Ecclesiastical Village;
- Carrigbeg Riding Stables;
- Clashganny River Adventures;
- Gordon Bennett Route;
- Carlow-Kilkenny National Cycling Route; and,
- Barrow Way.

4.4.2 Local Study Area

The following section describes the baseline environment for the LSA i.e. within 5km of the project. As set out at **Section 4.3.2**, this component of the baseline covers:-

- Community;
- Recreation;
- Visitor economy assets; and,
- Land use.

4.4.2.1 Community

The project is located in east County Kilkenny and west County Carlow; with Paulstown, being located c. 1km to the south, Oldleighlin located c. 3km to the north east and Muine Bheag located c. 3km to the east, being the notable settlements

located within the LSA. However, there are also a number of nucleated clusters which exist at crossroads/junctions (e.g. Castlewarren and The Ridge).

Paulstown is classified within the 'Rural Town and Village' category in the Kilkenny CDP. The Kilkenny CDP seeks to support the development of smaller towns and villages, in accordance with Objective NOP18(b) of the National Planning Framework, to:-

> "*develop a programme of new homes in small towns and small villages with local authorities and agencies such as Irish Water and local communities to provide serviced sites with the appropriate infrastructure to attract people to build their own homes and live in small towns and villages*".

The settlement of Muine Bheag is identified as a Tier 2 'District Town' in the Carlow CDP which are classified as:-

> "*Well-developed serviced settlements with a moderate level of jobs supporting services and community facilities with good transport links and capacity for continued commensurate growth to become more self-sustaining*".

District towns are described as settlements which have a population in excess of 1,500 no. persons which provide housing, employment or service function. Muine Bheag, which is the third largest settlement in County Carlow, benefits from transport links and a strong employment base.

Oldleighlin is identified as a Tier 5 'Smaller Serviced Rural Village' in the Carlow CDP which are classified as:-

> "*Villages with more limited services established populations <200 and settlement structure which provide important local level services and community facilities.*"

4.4.2.2 Recreation

Given the rural nature of the LSA and the absence of a significant number of settlements, recreational facilities are somewhat limited.

Barrow Valley Greenway and Blueway

A number of recreational amenities are located along the Barrow Valley Greenway and Blueway which is located c. 3km east of the project site. The River Barrow produces an amenity value which provides a range of water-based recreational activities and a walking/cycling route. The receptor is assessed to be of regional value with a medium sensitivity for the purposes of this assessment.

Muine Bheag (Bagenalstown) Town Park

Muine Bheag (Bagenalstown) Town Park is located c. 3km east of the project site and has a recreational and amenity value to Muine Bheag. Facilities include a playground for children and an open green space. Such facilities can provide a range of informal, passive and active recreational spaces. The receptor is assessed to be of local value and therefore sensitivity is low for the purposes of this assessment.

Muine Bheag (Bagenalstown) Swimming Club

Muine Bheag (Bagenalstown) Swimming Club is located c. 3km east of the project site. The facilities include an outdoor swimming pool and parking. The receptor is assessed to be of local value and therefore sensitivity is low for the purposes of this assessment.

McGrath Park

McGrath Park is a multi-use recreational facility which includes playing fields for Muine Bheag (Bagenalstown) Pitch & Putt, Muine Bheag (Bagenalstown) Cricket Club, St. Andrew's GAA Club and Liah's Hurlings. Facilities include playing fields and parking. The receptor is assessed to be of local value and therefore sensitivity is low for the purposes of this assessment.

Muine Bheag (Bagenalstown) 1916 Monument

The monument comprises a small landscaped area and includes a monument commemorating the 1916 Easter Rising. The receptor is assessed to be of local value and therefore sensitivity is low for the purposes of this assessment.

Barrow Rangers GAA Club

Barrow Rangers GAA Club is located c. 700m from the project site and has facilities which include a playing field and parking. The receptor is assessed to be of local value and therefore sensitivity is low for the purposes of this assessment.

Paulstown 06 Football Club

Paulstown 06 Football Club is located c. 800m from the project site and has facilities which include a playing field and parking. The receptor is assessed to be of local value and therefore sensitivity is low for the purposes of this assessment.

Paulstown Community Hall

Paulstown Community Hall is located c. 800m from the project site and acts as a local receptor in the village of Paulstown. The community hall offers facilities for indoor sports, parties, clubs and parking. The receptor is assessed to be of local value and therefore sensitivity is low for the purposes of this assessment.

Paulstown Playground

Paulstown Playground is located c. 1km to the south of the project site and provides a recreational amenity to the village. Facilities include a playground for children and a small open green space. Such facilities can provide a range of informal, passive and active recreational spaces. The receptor is assessed to be of local value and therefore sensitivity is low for the purposes of this assessment.

St. Andrew's Catholic Church

St. Andrew's Catholic Church was built in the 19th Century. The receptor is assessed to be of local value and therefore sensitivity is low for the purposes of this assessment.

St. Mary's Church of Ireland

St. Mary's Church of Ireland was built in the 19th Century. The receptor is assessed to be of local value and therefore sensitivity is low for the purposes of this assessment.

Shankill Church of Ireland

Shankill Church of Ireland was built in the 18th Century. The receptor is assessed to be of local value and therefore sensitivity is low for the purposes of this assessment.

Church of the Assumption

Church of the Assumption was built in the 18th Century. The receptor is assessed to be of local value and therefore sensitivity is low for the purposes of this assessment.

St. Laserian's Cathedral

St. Laserian's Cathedral is a 13th Century monastic settlement, that originally dates from the 7th Century, and regularly welcomes educational tours and tourists. The grounds, located c. 2.5km northeast of the project, include a place of worship and a graveyard. The receptor is assessed to be of local value and therefore sensitivity is low for the purposes of this assessment.

Reevanagh Woods

Reevanagh Woods is located c. 2.5km west of the project site and offers a walking or cycling trail within commercial forestry. The receptor is assessed to be of local value and therefore sensitivity is low for the purposes of this assessment.

Old Leighlin GAA Club

Old Leighlin GAA Club is located c. 2.5km northeast of the project site. The facilities include a football playing field and parking. The receptor is assessed to be of local value and therefore sensitivity is low for the purposes of this assessment.

Old Leighlin Basketball Club

Old Leighlin Basketball Club is located c. 2.5km northeast of the project site. The facilities include an internal playing court and parking. The receptor is assessed to be of local value and therefore sensitivity is low for the purposes of this assessment.

Oldleighlin 1798 Memorial Garden

The memorial garden, located c. 2.5km northeast of the project, comprises a small landscaped area and includes a plaque commemorating the 1798 Rebellion. The receptor is assessed to be of local value and therefore sensitivity is low for the purposes of this assessment

Tourism

Accommodation

There are a small number of self-catering properties and rental properties within the LSA which are marketed via third party marketing sites, such as Airbnb. The accommodation businesses identified are considered to be of local value and their sensitivity is therefore low.

Land Use

The project site, and the LSA, is predominately used for agricultural/forestry and quarrying related purposes and does not generally provide for notable recreational or tourism uses.

4.5 Description of Likely Effects

The following sections assess the effects which are likely to arise during the construction, operational and decommissioning phases of the project.

4.5.1 Construction Phase

4.5.1.1 Effects on the WSA

Employment and Local Investment

During the 15-18 month construction phase of the project, there will be economic effects resulting from expenditure on site preparation, purchase and delivery of materials, plant, equipment and components. Information provided by the Developer and based on experience at other similar projects in Ireland, indicates that there is expected to be a peak on-site workforce of c. 40 no. workers. It is highly likely that a significant percentage of these workers will be recruited from the local labour market within the WSA, with the remainder being recruited from Ireland as a whole.

The most significant project infrastructure is the electricity substation and the underground electricity cables. The indicative investment sums have been set out in **Table 4.5** providing the breakdown of the total development and capital expenditure required to develop and construct the project. Total investment comprises approximately €15 million for the project.

Item	Description	Cost
Development Expenditure	Works undertaken up to the point of commencement of construction.	€500,000
Electricity Substation & Ancillary Electrical Equipment	The purchase, supply and installation of all equipment and apparatus including the control building, control units, overhead line, and interface masts.	€10 million
Civil Works	The activity by civil contractors and their suppliers; including access tracks, drainage, and substation compound.	€1 million
Electricity Underground Cable	The activity by electrical contractors and their suppliers, including cables and ancillary equipment.	€3 million
Total		**€15 million**

Table 4.5: Breakdown of Estimated Capital Investment

The procurement of goods and services is likely to have a significant positive effect on the local economy. Of the level of investment presented above, local contract spend (within the WSA) could be in the region of €4 million (c. 25%) over the development and construction period.

The types of supply chain companies that could benefit from this expenditure are wide ranging and are likely to include, but not limited to, the following:-

- haulage and transport services;
- traffic management;
- materials supply, e.g. stone aggregates and concrete;
- plant and equipment hire;
- vehicle servicing/tyres;
- fencing;
- fuel;
- security;
- waste management;

- building construction, electrical, plumbing, roofing, flooring, plastering and joinery services;
- signage and lighting;
- drainage;
- planting and landscaping;
- catering;
- professional services; and,
- accommodation.

The contractors appointed by the Developer will be actively encouraged to develop local supply chains throughout the WSA and work with local subcontractors and service providers.

In addition, local businesses and services are likely to experience indirect benefits during the construction phase works as the workforce spend locally on general living costs whilst they are based in the area. These effects are further explored in the following section.

It is also noted that the equine industry is a substantial employer in the WSA. Having regard to other assessments contained within this EIAR (particularly at **Chapter 11**), it is assessed that there will be no likely significant adverse effect on the equine industry during the construction phase.

Tourism Economy

The construction period is anticipated to last for approximately 15-18 months and, as stated, is likely to benefit the local economy through expenditure on purchases of accommodation, food, fuel etc. which will be required to sustain the construction workforce. These beneficial effects would be experienced by businesses already operating within the tourism sector, as well as those that are partly dependent on tourism for their income, for example the retail sector.

Anecdotal evidence, based on other similar construction projects, demonstrates that local businesses such as accommodation providers welcome the enhanced level 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 in improvements that would not otherwise be affordable, leading to a longer 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 unable to find local accommodation (for example, if accommodation was in use by construction workers) during the construction phase.

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

4.5.1.2 Effects on the LSA

Population Sustainability & Residential Amenity

Construction of the project is expected to have a duration of c. 15-18 months with works to occur between the hours of 07:00 to 19:00 Monday to Friday and 07:00 to 13:00 hours on Saturday. Except for any possible emergency works, construction activity is not expected to occur generally outside of these hours, or on Sundays or public holidays.

Construction works will generate noise; with **Chapter 11** concluding that noise levels at properties nearest to the project will be below acceptable limits. The assessment concludes that noise levels will be temporary in nature and will diminish with distance. The most significant contribution to noise is likely to arise from construction vehicles, plant and machinery during the construction phase. The majority of construction activity during the construction phase will be located at the electricity substation which, due to the separation distances to dwellings, will not give rise to any likely significant noise effects.

Activities related to the installation of the underground electricity cables will be undertaken in close proximity to residential dwellings along the proposed route. However, due to the transient nature of such works; and the likely rate of progress (c. 100m per day); it is predicted that dwellings will only experience noise effects over the course of 1-2 no. days. Due to the characteristics of the noise likely to be generated, which will be similar to standard roadworks or agricultural activities, and their temporary duration; the effect is not assessed as likely to be significant.

Chapter 13 (Transport & Access section) notes that the construction phase is estimated to generate 2,736 heavy goods vehicle (HGV) trips during the 15-18 month construction period. It is also estimated that 15 no. light goods vehicle (LGV) trips will be generated daily as staff and personnel travel to and from the project site. Overall, the likely effects are not assessed to be significant and are concluded to range from moderate-slight to imperceptible, negative effect of short-term duration and high probability.

No likely significant effects on population sustainability are anticipated and likely effects on residential amenity are expected to be slight to moderate negative, of a temporary nature with the specific effects dictated by the proximity of individual residences to the project site.

General Amenity & Well-Being

Construction works will be temporary in nature. As discussed above, these are proposed to occur within daytime hours and not on Sundays or Public Holidays. The electricity substation will be located on private lands and no rights-of-way will be affected during construction. The site will be appropriately fenced off with appropriate warning signs to prevent unauthorised access in accordance with health and safety requirements. There will likely be visual effects during construction, but these will be temporary in nature and comparable to those of agricultural operations already occurring in the locality.

The installation of the underground electricity line will result in disruption to local residents, landowners and business owners. However, as part of traffic management measures, appropriate alternative access routes will be provided to traffic passing through the area; while it can be confirmed that access will be maintained at all times for local residents, landowners and business owners. In addition, adequate provision

for pedestrians will be retained while measures will be implemented to ensure that the local road network remains free from mud, dust and any other debris associated with the construction of the project.

While the construction of the project will not require the delivery of abnormal loads, traffic management will be coordinated with Kilkenny County Council, Carlow County Council and An Garda Síochana to ensure the minimisation of any likely effects. Most of the projected 2,736 HGV trips will be to transport aggregates to the site from existing quarries/sources. The precise transportation route to be utilised will depend on the source of materials but all suppliers will be instructed to utilise the national and regional road network insofar as possible and to avoid local roads where possible. While the delivery of materials and equipment is likely to involve additional traffic movements through small communities, it will not add appreciably to the existing volume of traffic on these roads. In all, construction traffic movements are assessed to have a moderate-slight negative effect of a temporary nature on general amenity and well-being.

The route of the underground electricity line intersects with that of a high-pressure gas pipeline along the L6673. The gas pipeline is located at a depth of 3.2m while the underground electricity line will be excavated to a depth of c. 1.2m. Given the requirement to undertake excavations in the immediate environs of the gas pipeline, there is a risk of accidental collision and the accidental release of gas. In the event of an accidental release of gas, the effect on population and human health is assessed as likely to be moderate-slight, indirect and short-term.

Land Use

The project site generally comprises improved agricultural grassland, used for pastoral farming activities, small pockets of forestry and semi-natural areas which are also present in the wider landscape, as well as the public road network. The Developer is in regular dialogue with the involved private landowners who have agreed to the use of their lands for the project. A series of measures designed to minimise any likely land use effects, including the clear identification of lands which may be subject to works and measures to ensure that disturbed lands are reinstated appropriately and returned to agricultural use insofar as possible, are included in agreements between the Developer and the respective landowners. Procedures to facilitate and ensure the safe continuation of agricultural operations during the construction phase have also been developed.

During the construction phase, there will be temporary disruption to road users along the route of the electricity line.

Tourism and Recreation Assets

As the sensitivity of all but 1 no. of the tourism/recreational receptors within the LSA is assessed to be low, and the magnitude of any adverse effects would also be low, the 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 project.

It has been assessed that the Barrow Way Greenway/Blueway has a medium level of sensitivity, due to its regional importance. However the magnitude of adverse effects is assessed as being negligible and therefore the overall level of significance (of effect on this recreational facility) is assessed as being imperceptible, in accordance with **Table 4.3** above.

The effect on businesses within the LSA would be beneficial; although, as the sensitivity is low, the magnitude of effect is not expected to be more than negligible. Beneficial effects on individual businesses may be higher, particularly where they are regularly used by construction staff, as this affords them regular income that is not seasonally dependent. However, until contracts are agreed, and construction commences, it is not known which businesses would specifically benefit.

The detailed CEMP, to be prepared prior to the commencement of construction, will set out measures to ensure that local residents/businesses are informed of the construction work including the location and duration of temporary road closures and the identification of alternative routes during the construction works. Given the temporary nature of the construction works, the measures to be implemented and the low sensitivity of the receptors, the effect is assessed to be negligible and not likely to be significant.

Major Accidents or Natural Disasters

As set out within **Chapter 6** and **Chapter 7** of this EIAR, the project is not identified to be a likely source of pollution during either the construction or operation phases, predominately due to the drainage infrastructure to be installed, the limited volume of hydrocarbons stored on site and the bunding arrangements to ensure that spillages do not occur. In the event of an accident on-site, mitigation measures set out in the above chapters will ensure that significant environmental effects are unlikely to occur.

Site investigations have undertaken at the project site and ground conditions are well known and understood with no evidence of any likely ground instability.

There is limited likelihood for significant natural disasters to occur at the project site. Ireland is a geologically stable country with a generally mild temperate climate. The potential natural disasters that may occur are therefore assessed as being limited to flooding and fire. The risk of flooding is addressed in **Chapter 7**. It is assessed that the risk of significant fire occurring, affecting the project and causing it to have significant environmental effects, is limited. As discussed above, there are no significant sources of pollution from the project with the potential to cause environmental or health effects. Furthermore, one of the core 'mitigation by design' features of the project (maximising the distance to residential dwellings) further limits any likelihood of significant human health effects as a result of accidents or natural disasters.

Major industrial accidents involving dangerous substances pose a significant threat to human health and the environment. Such incidents can give rise to serious injury to local residents or result in damage to the environment, both within development sites and in the vicinity. However, the project site is not regulated by or connected/proximate to any site regulated under the Control of Major Accident Hazards Involving Dangerous Substances Regulations (COMAH/SEVESO Directive) and there is no likelihood of effects on, or interactions with, any such site.

4.5.1.3 Cumulative Effects

It is possible for cumulative effects to arise in relation to the construction of other permitted or proposed developments should the construction phases overlap with the project. In particular, we refer to the permitted White Hill Wind Farm which will be constructed in conjunction with the subject project. However, given the separation distance between the core construction area of the wind farm and that of the subject project (i.e. electricity substation), it is assessed that adverse cumulative effects in respect of noise and traffic will not arise such that significant effects on population

and human health could arise. It should be noted, however, that positive cumulative effects could be experienced by individual suppliers of construction materials, accommodation providers and other tourism service providers during the construction phase.

While there are a number of existing, permitted or currently proposed developments within the WSA and LSA, it is assessed that none of these projects are of a sufficient scale or nature to be likely to result in cumulative socio-economic, population or human health effects.

4.5.2 Operational Phase

4.5.2.1 Effects on the WSA

Employment and Investment

During the operational phase, the project will be largely unmanned and will not require personnel to be permanently in attendance. The project will be regularly maintained and managed by EirGrid/ESB Networks personnel and is estimated to contribute 0.25 full time equivalent jobs.

Further employment is anticipated to be supported directly and indirectly elsewhere in Ireland during the operational phase. Indirect effects are expected to be generated throughout the operational phase. Indirect effects arise from the placing of contracts with other businesses, both in the local area and elsewhere in Ireland, supplying services and materials to the project. Examples of such supply chain activity would include the procurement of:-

- site and building maintenance;
- waste management;
- civil engineering contractors for site maintenance, access track maintenance, grass cutting, and weed control etc.;
- supply of consumable items (e.g. spare parts, etc.); and,
- electrical equipment inspections.

In addition to the above, local shops, cafes and accommodation providers often experience an increase in business during the operation phase.

The Developer will seek to secure positive benefits for the local economy by encouraging the use of local labour, manufacturers and suppliers where possible during the operation phase.

No significant effects on the equine industry are assessed as likely during the operational phase.

Tourism Economy

Chapter 9 of the EIAR assesses in detail the likely landscape and visual effects of the project. The chapter concludes that the significance of visual impact will range between not significant and imperceptible for visual receptors and that the project will not give rise to significant landscape and visual effects.

Notwithstanding these considerations, it is assessed that there is no evidence to suggest that an occasional view of the project might adversely affect the visitor appeal of the area. The project site is relatively remote and will be substantially screened from the public road network and visual receptors as a result of landscaping proposals (see **Chapters 3** and **9**). Accordingly, it is assessed that the project will not

result in any significant effect on the tourism economy.

4.5.2.2 Effects on the LSA

Population Sustainability & Residential Amenity

On the basis of specific assessments undertaken in this EIAR, no likely significant effects have been identified in respect of water, air & climate, landscape, or noise which could adversely affect the sustainability of population or residential amenity in the locality.

General Amenity & Well-Being

The project will be located within the public road network and on private land and no right of ways will be affected during the operational phase.

In terms of the specific effect of the development on tourism or amenity, **Chapter 9** identifies the receiving landscape to be of 'Medium-low' sensitivity and that the significance of impact of the project will be 'Moderate-slight'. Given this 'Medium-low' sensitivity classification, there are only a few receptor locations where users, such as residents or tourists, are likely to be highly attuned to the landscape. The project, therefore, is assessed as being unlikely to result in significant landscape-related effects on general amenity and well-being.

Notwithstanding these considerations, it is noted that there is no evidence to suggest that an occasional view of the project might adversely affect the amenity of the area. It is concluded, therefore, that occasional views of the project are not expected to adversely affect the local amenity value of the area.

During the operational phase of the project, noise levels sufficient to cause noise induced hearing damage or sleep disturbance are not likely to occur. The full results of the noise assessment are presented at **Chapter 11**.

All electricity, both natural and man-made, produces two types of fields: electric fields and magnetic fields. The proposed electricity line will comply with the international guidelines for extremely low frequency (ELF) and electromagnetic fields (EMF) set by the International Commission on Non-Ionizing Radiation Protection (ICNRP), which is an advisory agency to the World Health Organisation. The ESB document *EMF & You (2017)* illustrates that electric fields arising from underground electricity lines are negligible. The document further notes that magnetic fields experienced directly above a 110kV underground electricity line is 0.13-microteslas (μT). In the case of both electric fields and magnetic fields, the predicted levels are substantially below the limits set out by the ICNIRP.

At the electricity substation, it is predicted that EMF levels will be approximately 5μT. Given the substantial separation distance from the electrical apparatus within the electricity substation to the nearest residential dwelling, it is assessed that EMF levels at residential dwellings will be imperceptible.

During the operational phase, it is assessed that the project will have no effect on the GNI gas pipeline and that there are no risks to population and human health.

Economic Effects & Employment

When the project is operational, it will require a team of personnel to provide servicing, maintenance, repairs and other operational support. It is estimated that up to 0.25 engineers and technicians (full time equivalent) will be needed to provide operational

support to the project.

Further employment is anticipated, directly and indirectly, elsewhere in Ireland during the operational phase. Additional to the likely direct effects on employment during the operational phase, there will also likely be indirect employment effects arising from the placing of contracts with other businesses, both in the local area and elsewhere in Ireland, supplying services and materials to the project during its operational phase. Examples of such supply chain activity would include the procurement of:-

- control building maintenance;
- waste management;
- general site maintenance including grass cutting and weed control;
- supply of consumable items (e.g. lubricants and oils, spare parts, office supplies, etc.); and
- in addition, local shops, cafes, accommodation providers and hotels often experience an increase in business during the operational phase.

The Developer will seek to secure positive benefits for the local economy by encouraging the use of local labour, manufacturers and suppliers where possible during the operational phase.

4.5.2.3 Cumulative Effects

While there are a number of existing, permitted or currently proposed developments within the WSA and LSA, including the White Hill Wind Farm; it is assessed that none of these projects are of a sufficient scale or nature to have the likelihood to result in in-combination population and human health effects during the operation phase of the project. With specific reference to the White Hill Wind Farm, An Bord Pleanála previously assessed that effects on residential amenity would not be significant and would be avoided through the implementation of mitigation measures.

4.5.3 Decommissioning Phase

As set out at **Chapter 3** (**Sections 3.2** and **3.7**), the electricity substation will form part of the national electricity network and decommissioning will not occur.

The underground electricity line will be decommissioned upon decommissioning of the White Hill Wind Farm. The electricity line will be removed from its ducting and transported to an approved waste handling facility for re-use or recycling. The electrical control unit will be decommissioned and removed from site for re-use or recycling. Minor traffic disruption and noise emissions may be experienced by local residents; however, significant effects are not likely to arise.

4.6 Mitigation & Monitoring

4.6.1 Construction Phase

Allowing for the implementation of embedded mitigation set out elsewhere within this EIAR, no likely significant adverse effects have been identified in respect of socio-economic receptors arising from construction of the project and therefore no mitigation measures are required to reduce or remedy any adverse effect. In terms of beneficial effects, individual businesses or receptors may experience substantial effects during the construction phase of the project.

As identified above, a series of mitigation measures has been agreed with the involved landowners regarding the management of agricultural activities during the

construction phase and will be implemented in full.

4.6.2 Operational Phase

No likely significant adverse effects have been identified in respect of socio-economic receptors arising from the operation of the project and therefore no mitigation measures are required to reduce or remedy any adverse effect.

Mitigation measures proposed elsewhere in this EIAR; including in respect of water protection, noise minimisation and protection of the GNI gas pipeline; will ensure that significant population or human health effects are unlikely to occur.

4.6.3 Decommissioning Phase

Other than the implementation of standard best practice procedures, no decommissioning phase mitigation measures are required.

4.7 Residual Effects

4.7.1 Construction Phase

No significant residual adverse construction effects are assessed as likely to occur.

4.7.2 Operational Phase

No significant residual adverse operational effects are assessed as likely to occur.

4.7.3 Decommissioning Phase

No significant residual adverse decommissioning effects are assessed as likely to occur.

4.8 Summary

The assessment undertaken in this chapter has evaluated data from a range of sources, including the findings and conclusions of other assessments within this EIAR, to determine the likely effects of the project on population and human health. In order to avoid 'double-counting', the assessment focuses on those factors which are likely to result in economic, social, health and safety effects. Other specific assessments on population and human health, including, for example, in respect of noise, visual impact and air quality, are assessed separately elsewhere in this EIAR.

It is assessed that the construction phase of the project will likely result in beneficial effects on employment and local investment, on the tourism economy, and to a greater extent local businesses, including tourism businesses, operating within the WSA. The operational phase of the project will likely have a positive effect on employment and investment as well as a minor beneficial effect on local businesses.

The overall assessment of this chapter is that the project will have no likely significant adverse effects on population and human health. No specific mitigation measures, other than full adherence to all health and safety and public health guidance, have therefore been identified as being required. However, whilst the project is not likely to result in any significant effects, it will constitute, alongside the permitted White Hill Wind Farm, a major investment in the local economy which will have a positive effect on the local population and human health.