Drumlins Park Wind Farm Substation & Grid Connection

Chapter 4: Population and Human Health

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Contents

4.1 Introduction

This chapter presents an assessment of the likely effects of the proposed development on population and human health. Human beings comprise a significant element of the environment and any likely effects on the status of population and human health must be comprehensively addressed. This includes the existence, activities and wellbeing of people. Whilst most developments will affect other people, the EIAR concentrates on those topics which are manifested in the environment such as, for example, new land uses, more buildings or greater emissions.

This EIAR also addresses the likely significant effects on population and human health in other specific chapters, including, for example, in respect of Air Quality & Climate (**Chapter 8**), Landscape (**Chapter 9**), Noise & Vibration (**Chapter 11**), Shadow Flicker (**Chapter 12**), Material Assets (**Chapter 13**) and interactions between these environmental issues and population and human health (**Chapter 14**).

Specific issues which are examined under this chapter include *inter alia*:-

- Economic Activity - will the development stimulate additional development and/or reduce economic activity?;
- 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?; 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 proposed development and population and human health receptors (e.g. 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 proposed development.

As the proposed development forms part of the overall Drumlins Park Wind Farm project, this chapter assesses the cumulative effects of the proposed development in-combination with the permitted Drumlins Wind Farm and all other existing, permitted and proposed developments, including those set out at **Chapter 1**.

It should be noted that the assessment of population and human health effects undertaken in respect of the Drumlin Park Wind Farm (see **Chapter 4 Volume III**) incorporated the construction of a 110kV electricity substation and associated grid connection. Therefore, it is considered that a comprehensive assessment of the likely impacts of a 110kV substation and ancillary infrastructure at the location of the proposed development has already been completed; however, due to minor alterations to the precise siting of infrastructure and to ensure that this EIAR is based on current and precise data, the proposed 110kV electricity substation and associated infrastructure has been fully re-assessed.

4.1.1 Statement of Authority

The assessment of likely significant effects on population and human health, and preparation of this EIAR chapter, has been undertaken by various members of the Galetech Energy Services (GES) Environment & Planning 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 developments which have been subject to EIA.

4.1.2 Description of the Proposed Development

A full description of the proposed development is presented in **Chapter 3**. In summary, the proposed development comprises the following main components:-

- A 110 kilovolt (kV) 'loop-in/loop-out' Air-Insulated Switchgear (AIS) electrical substation, including single-storey control buildings, energy storage system and all associated electrical equipment;
- Approximately 700m of 110kV underground electricity lines;
- Replacement of 1 no. existing pole-set with 2 no. lattice-type end masts, to a maximum height of up to 16m; and
- All associated and ancillary site development, excavation, construction, landscaping and reinstatement works, including provision of site drainage infrastructure.

The entirety of the proposed development is located within the administrative area of County Monaghan; while candidate quarries which may supply construction materials are also located within County Cavan.

4.2 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.

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* offer advice to planning authorities in determining planning applications for wind farm developments, including the likely significant effects on population. While the proposed development does not, of itself, comprise a wind farm development; given its close association to same, 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 (December 2019)

The draft *Revised Wind Energy Development Guidelines* were published in December 2019. The draft Guidelines include updates to several key aspects of wind energy development, including in respect of matters which interrelate with population and human health effects; namely noise, visual amenity and shadow flicker.

4.2.2 Local Policy

Relevant local planning policies are derived from the following:-

- Monaghan County Development Plan 2019-2025;
- Cavan County Development Plan 2014-2020; and
- Draft Cavan County Development Plan 2022-2028.

4.2.2.1 Monaghan County Development Plan 2019-2025

The *Monaghan County Development Plan 2019-2025* (MCDP) sets out that there are a number of challenges facing the county over the plan period, some of which are

considered to be relevant to the consideration of population and human health in this EIAR, namely:-

- Promoting sustainable economic and community development;
- Facilitating employment generating uses, delivering community facilities and ensuring adequate investment in infrastructure; and
- Protecting the built and natural heritage, recognising the key role these assets have, and other stakeholder's ambitions to promote tourism, in the county.

Potential impacts on the visual and residential amenities of the area including protected views, scenic routes and designated scenic landscapes and public rights of way are set out as key priorities for the county over the lifetime of the MCDP (Section 15.20). The MCDP also sets out, as one of its priorities, to promote the County as a location for industry that is attractive and competitive in terms of inward investment. Furthermore, promoting the renewable energy sector and clean technology usage in existing and proposed industrial developments, including the use of alternative and renewable energy sources, is set out as a priority (Section 4.5)

4.2.2.2 Cavan County Development Plan 2014-2020

As set out above, candidate quarries which may supply construction materials to the proposed development site are located within County Cavan. The *Cavan County Development Plan 2014-2020* (CCDP) sets out a number of strategic aims for the county over the plan period, some of which are relevant to the assessment of effects on population and human health namely;-

- Protecting and enhancing the cultural, built and natural heritage of the county, including water quality and environmental quality;
- Encouraging the development of employment opportunities throughout the county;
- Providing good quality, accessible leisure, social and amenity services and spaces in an equal manner across the county;
- Ensuring that the principles of quality of life and sustainable development informs all decisions which relate to development within the county; and
- Providing good quality services infrastructure including adequate and appropriate drinking water and waste water treatment.

4.2.2.3 Draft Cavan County Development Plan 2022-2028

The *Cavan County Development Plan 2022-2028* is currently under preparation and will seek to guide future development within County Cavan in a proper and sustainable manner. The pre-draft Issues Paper, produced in June 2020, was reviewed to evaluate the matters raised as they relate to population and human health including sustainable development, environment and climate change, economic development and employment, rural development and tourism.

4.2.3 Guidance

4.2.3.1 *Draft EPA Guidelines on the Information to be contained in Environmental Impact Assessment Reports* (2017)

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 on economic or settlement patterns.

Whilst the proposed development will not likely result in any such effects, it will lead to the generation of employment during the construction and operational phases as

well as inward investment which may affect local business supply chains.

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 air, water and soil). The importance of avoiding duplication of the assessment of likely effects is highlighted (i.e. care should be taken to avoid 'double-counting' effects that are identified elsewhere in the corresponding chapter of the EIAR, for example noise or air quality effects). As a result, likely effects which may arise from these specific environmental topics are addressed in their respective chapters. The likely interactions of these effects, if any, are addressed in **Chapter 14**.

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

Whilst there are no other environmental permits required for the proposed development in addition to the necessary planning permission, this EIAR does contain elsewhere a detailed consideration of effects related to population and human health, most notably in relation to Air Quality and Climate (**Chapter 8**), Landscape (**Chapter 9**), Noise & Vibration (**Chapter 11**), Shadow Flicker (**Chapter 12**) and Material Assets (**Chapter 13**).

As the 2017 Guidelines have not been adopted and remain in draft format, consideration has also been given to the EPA *Guidelines on information to be contained in Environmental Impact Statements (EIS)' (2002*) and accompanying Advice Note, insofar as they relate to population and human health, and the proposed development.

4.2.3.2 Fáilte Ireland '*Guidelines on the treatment of Tourism in an Environmental Impact Assessment*'

These Guidelines recognise that tourism can be affected both by the structures or emissions 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 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. A number of typical assets are listed including accommodation, golf courses, visitor sporting facilities and historical and cultural sites, walking and scenic routes. The EIAR should indicate the numbers of premises and visitors likely to be affected directly and indirectly.

4.2.3.3 ESB '*EMF & You: Information about Electric & Magnetic Fields and the electricity network in Ireland*'

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

- Department of Communications, Climate Action and Environment 'Code of Practice for Wind Energy Development in Ireland' (DCCAE, 2017);
- IWEA 'Best Practice Guidelines for the Irish Wind Energy Industry' (IWEA, 2012);
- IWEA 'Best Practice Principles in Community Engagement and Community Commitment' (IWEA, 2013); and
- IWEA 'An Enterprising Wind': An economic analysis of the job creation potential of the wind sector in Ireland (IWEA, 2014).

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

- Central Statistics Office (CSO);
- Monaghan County Development Plan 2019-2025;
- Cavan County Development Plan 2014-2020;
- Pobal Profiling GIS Data (https://maps.pobal.ie/);
- Fáilte Ireland data in conjunction with websites of relevant tourism sites and amenities in the area;
- Monaghan County Council Tourism Statement of Strategy and Work Programme 2017-2022;
- Monaghan Local Economic & Community Plan 2015-2021;
- Cavan Local Economic and Community Plan 2016-2021; 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 beneficial economic multiplier effects on the local economy, including employment opportunities as a result of increased spend on local services as well as possible adverse effects, such as restrictions on farming operations, neighbouring businesses or general disruption to the amenity of the local area, which may indirectly impact on its recreation or tourism value. Once operational, effects as a result of the proposed development are likely to be primarily related to the visual impact (if any).

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 and climate, noise, and shadow flicker. 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.

Employment effects and direct expenditure are quantified using data provided by the Applicant 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

Due to the nature of the proposed development, a study area of 5km radius around the proposed development site is assessed to be sufficient to assess the likelihood of

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

significant effects on population and human health. While economic effects on a wider scale are assessed to be likely with regard to the entire Drumlins Park Wind Farm, these effects will be assessed in the cumulative assessment sections of this chapter. Given the scale of the proposed development, it is not intended to assess effects at a national or international level.

4.3.3 Consultation

A range of statutory and non-statutory organisations have been consulted as part of the EIAR scoping process as discussed in **Chapter 1** (**Volume I**). The responses which are relevant to likely effects on population and human health are identified in **Table 4.1** below.

Consultee	Date of Correspondence	Comments	Reference within EIAR
Failte Ireland	27 May 2020	Supplied copy of Guidelines on the treatment of tourism in an Environmental Impact Statement	Incorporated into methodology.

Table 4.1: Scoping feedback relating to Population and Human Health

Separately, the Applicant has previously engaged in an extensive public consultation process in relation to the now-permitted Drumlins Park Wind Farm. A comprehensive overview of the Applicant's approach to public consultation is provided at **Annex 1.7** (**Volume II**).

4.3.4 Approach to Assessment of Effects

This chapter assesses the likely construction, operational and decommissioning 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;
- jobs; and
- recreation and tourism assets.

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);
- 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 effects. In assigning receptor sensitivity, consideration is given to the following:-

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

Based upon expert judgement, four levels of sensitivity are used; High, Medium, Low and Negligible. The proposed sensitivity criteria are set out in **Table 4.2** below.

4.3.7 Magnitude Criteria

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

4.3.8 Defining Significant Effects

The significance of an effect is assessed by combining the magnitude of the impact and the sensitivity of the receptor, as shown in **Table 4.2**. Four levels of effect are used; Major, Moderate, Minor and Negligible.

Where an effect is classified as Major, this is assessed 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 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.

Sensitivity or Value of Resource or Receptor	Magnitude of Impact			
	High	Medium	Low	Negligible
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible
Negligible	Minor	Negligible	Negligible	Negligible

Table 4.2: Level of Effect Matrix

4.3.9 Approach to Mitigation

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

4.3.10 Cumulative Effects

Consideration will be given to the likely cumulative effect of the proposed development in combination with other existing, permitted and proposed developments, including those set out at **Chapter 1**.

4.3.11 Limitations of Assessment

Certain information regarding project design, in particular information regarding capital expenditure and construction employment, will not be available until the

normal procurement process has been completed. Therefore, this chapter provides estimates, based on experience on other projects, of likely spend and employment during construction sufficient to allow for assessment in this EIAR.

Information on likely inter-related effects is informed by the assessments undertaken on other topics, which are set out in those topic chapters. Any limitations are set out in those chapters.

The status of certain individual receptors, for example, employment status, will be subject to change; however, information reported in this chapter is based on the baseline survey work described in **Section 4.4**.

4.4 Description of Existing Environment

4.4.1 Population

The most recent estimates show that the current population of County Monaghan stands at 61,386, which is less than 1.3% of Irelands total population (CSO, 2018); while County Cavan's population is estimated at 76,176, which is less than 1.6% of Ireland's population as a whole of 4.8 million.

4.4.2 Labour Market/Education and Skills

2016 Census data for County Monaghan indicates that there were 25,549 persons aged 15 years and over whose principal economic status was 'at work', whilst 350 were looking for their first job and 3,481 were unemployed having lost or given up their previous job. The overall unemployment rate stood at 13%.

2016 Census data for County Cavan indicates that there were 30,509 persons aged 15 years and over whose principal economic status was 'at work', whilst 603 were looking for their first job and 4,810 were unemployed having lost or given up their previous job. The overall unemployment rate stood at 15.1%

4.4.3 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 host supply chain activity for infrastructure and other large-scale construction projects such as the proposed development. **Table 4.3** provides the latest (2016) data on the structure of the local business base, both in absolute and relative terms.

Industry	Monaghan 2016 %		Cavan 2016 %	
Managers, Directors and Senior Officials	1,902	6.6%	2,228	6.3%
Professional Occupations	3,861	13.3%	4,492	12.7%
Associate Professional and Technical Occupations	1,855	6.4%	2,651	7.5%
Administrative and Secretarial Occupations	2,607	9.0%	3,241	9.2%

Skilled Trades Occupations	5,945	20.5%	7,661	21.7%
Caring, Leisure and Other Service Occupations	2,293	7.9%	2,761	7.8%
Sales and Customer Service Occupations	1,512	5.2%	1,889	5.3%
Process, Plant and Machine Operatives	3,372	11.6%	3,601	10.2%
Elementary Occupations	2,896	10.0%	3,290	9.3%
Not stated	2,787	9.6%	3,505	9.9%
Total	29,030	-	35,319	-

Table 4.3: Persons at work or unemployed by occupation

Source: CSO Census Data 2016 (CSO, 2017)

The data in **Table 4.3** shows that commerce & trade, professional services and manufacturing have the highest percentage of the work force.

4.4.4. Visitor Economy

Fáilte Ireland combines counties together to form eight different regions across Ireland for which tourism statistics are produced. The counties of Monaghan and Cavan are part of the Borders regions along with Leitrim, Sligo, Donegal and Louth; which comprises the largest region. The latest data for the Border region was published in 2017 and indicates that:-

- there was a total of 746,000 overseas visitor trips to the region, generating approximately €271 million;
- there was a total of 1 million trips by Irish residents to the region generating approximately €189 million; and
- there was a total of 648,000 trips by residents from Northern Ireland to the region generating approximately €141 million.

This results in the Border region being the 5th highest earning of the eight Irish regions (Fáilte Ireland, 2017).

Within the Borders region, County Monaghan attracts 60,000 overseas visitors (7.42% of the total), with a total revenue of €25 million. County Cavan attracts 107,000 overseas visitors (13.24%) with a revenue of €48 million.

The MCDP sets out that the County has a wide range of historical, cultural and landscape interests that, if sensitively managed, have the potential to raise the County's profile as a significant tourist destination that will strengthen the County's offering under the Ireland's Ancient East destination brand.

MCDP policies are also focussed on developing the county as a destination with some policies relate to development of tourism trail and festivals. Targeted investment in these projects in future years is likely to form an important part of this overall strategy.

There are no significant tourism attractions within the study area; however, the Kingfisher Cycle Route and a number of walking trails are located just beyond the study area including Bellamont Forest and Rossmore Forest Park. Other visitor

economy receptors located beyond the study area include Hilton Demesne and Castle Saunderson.

4.4.5 Community

The proposed development is located c. 4km south-west of the village of Newbliss. Newbliss is identified as a Tier 4 settlement/village in the MCDP and contains a small number of shops and services. The MCDP acknowledges that Tier 4 settlements:-

> *"have the necessary infrastructural capacity to ensure they can continue their function as local growth settlements and serve the needs of their hinterlands."*

4.4.6 Recreation

There are several features of recreational interest within the study area as described below.

4.4.6.1 Clones Golf Club

Clones Golf Club lies approximately 5km west of the proposed development and comprises a 20-hole golf course laid out over parkland. The golf course is unusual in that it has 20 holes (rather than the typical 18-hole course). The receptor is considered to be of local value and therefore sensitivity is low for the purposes of this assessment.

4.4.6.2 Fishing

There is one lake located within the study area identified on the fishing website MyFishMaps (accessed in August 2019) comprising Killynenagh Lough. This lake is considered to be local value and sensitivity is low.

Based on a review of the background materials identified in the methodology section of this chapter and through consultation with Inland Fisheries Ireland, it is recognised that recreational fishing is likely to take place on other lakes and watercourses in the region.

4.4.6.3 Walking Paths, Trails and Cycling

The National Trails Office (NTO) of Sport Ireland is responsible for all Waymarked Trails. There are no national waymarked trails which pass through the study area.

4.4.7 Tourism

4.4.7.1 Accommodation

There are a small number of self-catering properties rental properties within the study area 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 of is therefore low.

4.4.7.2 Land Use

The proposed development site is predominately used for agriculture and does not provide recreational or tourist 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.

4.5.1 Construction Phase

4.5.1.1 Population Sustainability & Residential Amenity

Construction of the proposed development is expected to have a duration of 15-18 months with works to occur the hours of 07:00 to 19:00 Monday to Friday and 07:00 to 13:00 hours on Saturday. Except for certain specific works, for example 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 proposed development will be below acceptable limits. It notes 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 proposed electricity substation which, due to the separation distances to dwellings, which result in any significant noise effects. For a short period, estimated to be 1-2 no. days, construction works on the proposed grid connection infrastructure will be undertaken in close proximity to 2 no. dwellings. However, 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 to be significant in EIA terms.

Chapter 13 (Transport & Access section) notes that the construction phase is estimated to generate 1,772 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 proposed development site. Overall, the likely effects are not assessed to be significant and are concluded to be a slight, 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 site or access roads.

4.5.1.2 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 proposed development 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.

While the construction of the proposed development will not require the delivery of abnormal loads, traffic management will be coordinated with the local authority and An Garda Síochana to ensure the minimisation of any likely effects. Most of the projected 1,772 HGV trips will be to transport aggregates to the site from existing quarries/sources identified in **Chapter 13** and the importation of electrical apparatus via the principal haul route (R189, private access tracks from the R189, and the LT62013). The precise transportation route to the Drumlins Park Wind Farm main site entrance junction will depend on the source of materials but all suppliers will be

instructed to utilise the regional road network insofar as possible and to avoid local roads insofar as possible. This is likely to involve traffic movements through small communities but will not add appreciably to the existing volume of traffic on these roads. In all, construction traffic movements are assessed to have a slight-to-moderate negative effect of a temporary nature on general amenity and well-being.

Whilst it is noted that the construction material haul routes do not interact with any specific cycling or walking routes, provision will be made to ensure that access is not restricted for local residents, landowners and business owners; adequate provision for pedestrians is retained; and that the local road network remains free from mud, dust and any other debris associated with the construction of the proposed development.

4.5.1.3 Employment and Local Investment

During the 15-18 month construction phase of the proposed development, there will be economic effects resulting from expenditure on items such as site preparation, purchase and delivery of materials, plant, equipment and components. Information provided by the Applicant, based on experience at other similar developments in Ireland, indicates that there is expected to be a total on-site workforce of approximately 100 no. employees; however, the number of employees present at any given time will vary. It is highly likely that a significant percentage of these workers will be sourced from the local labour market within counties Monaghan and Cavan, with the remainder being sourced from Ireland as a whole.

The indicative investment sums have been set out in **Table 4.4** providing the breakdown of the total development and capital expenditure required to develop and construct the proposed development. Expenditure comprises approximately €6.5 million for the proposed development.

Item	Description	Cost
Development Expenditure	The processes up to the point of financial close or placing firm orders to proceed with construction, and project management costs incurred by the Applicant.	€500,000
Electricity Substation & Ancillary Electrical Equipment	The activity by component manufacturers and their suppliers.	€3.5 million
Civil Works	The activity by civil contractors and their suppliers; including access tracks, drainage cable trenching and end mast foundations.	€1.25 million
Electrical Works	The activity by electrical contractors and their suppliers, including cables, electrical switch gear, protection and control system.	€1.25 million
Total		**€6.5 million**

Table 4.4: Breakdown of Estimated Capital Investment

The procurement of goods and services is likely to have a significant positive effect on the local economy. 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. aggregates;
- plant and equipment hire;
- vehicle servicing/tyres;
- fencing;
- fuel;
- security;
- waste management;
- building construction, electrical, plumbing, roofing, flooring, plastering and joinery services;
- signing and lighting;
- telecommunications;
- drainage;
- planting and seeding;
- catering;
- professional services; and
- accommodation.

The appointed contractors will be actively encouraged to develop local supply chains throughout the area, 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 living costs whilst they are based in the area. These effects are further explored in the following section.

4.5.1.4 Effects on Tourism Economy

The construction period is anticipated to last for 15-18 months and is likely to benefit the local economy through expenditure on purchases of accommodation, food, drink, fuel, etc. which will be required to sustain the construction workforce. These beneficial effects will 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.

Anecdotal evidence, based on other 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 long term enhancement. Where construction staff or personnel are making use of local accommodation, all relevant public health guidelines will be fully adhered to.

Whilst overall likely effects to the tourism economy are assessed to be negligible and not significant (beneficial or adverse), as with any major capital investment in a locality, the benefits 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.

4.5.1.5 Accidents or Natural Disasters

As set out within **Chapter 6** and **Chapter 7** of this EIAR, the proposed development is

not likely to be a source of pollution during either the construction or operational phases, predominately due to the limited volume of hydrocarbons stored on site and the bunding arrangements ensuring that spillages and/or leaks do not occur. In the event of an accident on-site, mitigation measures, as set out in the above chapters, will ensure that any likely significant environmental effects do not occur.

The likelihood of significant natural disasters occurring at the proposed development site is low. Ireland is a geologically stable country with a mild temperate climate. The possible natural disasters that may occur are therefore assessed to be limited to flooding and fire. The risk of flooding is addressed in **Chapter 7** and, given the nature of the hydrological environment and topography of the site, the risk of flooding is assessed to be negligible.

It is assessed that the risk of significant fire occurring, affecting the proposed development and causing it to have significant environmental effects is limited. There are no habitat types located within the proposed development site, or its immediate environs, which are particularly susceptible to fire and no tracts of forestry are present. The proposed development will be operated to the highest standards, will be regularly inspected and subject to ongoing maintenance. This maintenance schedule will ensure that all electrical equipment is monitored to assess for fire risk. Should a fire occur, standard procedures will be implemented by Eirgrid and emergency services to mitigate the effects of same and ensure that local residents are not adversely affected.

As discussed above, there are no significant sources of pollution associated with the proposed development with the likelihood of causing any likely significant environmental or health effects. Furthermore, one of the core mitigation-by-design features of the proposed development, is maximising the distance to residential dwellings which further limits any likelihood of any significant human health effects in the unlikely event 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 proposed developments sites and in the vicinity. However, the proposed development site is not regulated by, connected with, or proximate to any site regulated under the Control of Major Accident Hazards Involving Dangerous Substances Regulations (i.e. sites regulated in accordance with the SEVESO Directives) and there is no likelihood of cumulative effects or interactions with any such site.

4.5.1.6 Cumulative Effects

This assessment has taken into account the likely cumulative effect of the proposed development with the permitted Drumlins Park Wind Farm and all other existing, permitted and proposed developments, including those set out at **Chapter 1**.

It is likely that cumulative effects will arise in relation to the construction of other permitted or proposed developments should the construction phases overlap with the proposed development; however, given the temporary nature of the construction phase, it is assessed that none of these projects are likely to result in significant cumulative beneficial or adverse socio-economic or population and human health effects.

4.5.2 Operational Phase

4.5.2.1 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.

4.5.2.2 General Amenity & Well-Being

The proposed development itself will be located on private land and no right of ways are affected.

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 proposed development 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 proposed development, 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 proposed development might adversely affect the visitor appeal of the area. It is concluded, therefore, that occasional views of the proposed development are not expected to adversely affect the local amenity value of the area.

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

All electricity, both natural and man-made, produces two types of fields: electric fields and magnetic fields. The proposed grid connection cables will comply with the international guidelines for ELF-EMF set by the International Commission on Non-Ionizing Radiation Protection (ICNRP), which is an advisory agency to the World Health Organisation.

Electrical equipment and apparatus is located a substantial distance from any residence with no possible EMF impact. The substation, when operational, will also comply with ICNIRP and EU guidelines relating to exposure to EMF.

4.5.2.3 Economic Effects & Employment

When the proposed development is operational, it will require a team of personnel to provide servicing, maintenance, repairs and other operational support. It is estimated that up to 2 no. 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:-

- site and 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 (e.g. extra technicians onsite for during wind farm maintenance and servicing).

The Applicant 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.

4.5.2.4 Effects on Tourism Economy

Chapter 9 of the EIAR assesses in detail the likely landscape and visual effects of the proposed development. The chapter concludes that the significance of visual impact will range between 'Moderate-slight' and 'Imperceptible' for visual receptors and that the proposed development will not give rise to significant landscape and visual effects in EIA terms.

Notwithstanding these considerations, it is assessed that there is no evidence to suggest that an occasional view of the proposed development, including cumulatively with the Drumlins Park Wind Farm, might adversely affect the visitor appeal of the area. The proposed development site is relatively remote, is set into the landscape and surrounded by the drumlin landscape by virtue of its chosen location, and will be substantially screened from the local road network and visual receptors as a result of landscaping proposals (see **Chapter 3**). Based on the evidence gathered from previous studies, occasional views of the proposed development are not assessed as likely to act as a deterrent to visitors or discourage repeat visits to the area.

4.5.2.5 Cumulative Effects

This assessment has taken into account the cumulative effects of the proposed development with the permitted Drumlins Park Wind Farm and all other existing, permitted and proposed developments, including those set out at **Chapter 1**.

It is assessed that none of these projects are likely to result in significant cumulative positive or adverse socio-economic or population and human health effects in combination with the proposed development.

Community Benefit Funds and Community Investment

The operation of the proposed development, in conjunction with the permitted wind farm, will bring about a number of financial benefit packages to the study area. These packages include investment opportunities, community benefit funds, contributions to local resident energy costs, payment of business rates to Monaghan County Council and rental income accrued by involved landowners. Each of these packages is discussed below.

The Applicant is committed to operating a community benefit fund in accordance with Irish Wind Energy Association (IWEA) best practice guidance and it will be available to the community at a rate of €2 euro per MWh produced resulting in a investment of approximately €270,000 per annum for up to 15 years. There will also be a community investment element available where there will be an opportunity for all local residents to participate if they wish to do so. The structure for the investment scheme will form part of the Renewable Energy Support Scheme (RESS) design.

The community benefit fund will be administered by a committee set up by the Applicant. Members of the local community are also likely to be appointed to the committee, thus allowing the local community to prioritise the fund for the projects which matter most to their identified needs. Preference will be given to local projects and initiatives, thereby contributing to the vitality and viability of the local population, and to projects which are considered to represent an environmental benefit or incorporate a renewable energy element. This fund will be made available, and distributed annually, for up to 15 years.

In addition to the above community fund, as part of the permitted Drumlins Park Wind Farm development, the Applicant has committed to making a €1,000 annual contribution to the electricity/energy costs of all non-involved dwellings located within 1.8km of a wind turbine.

Based on current rates, the Drumlins Park Wind Farm (including the proposed development) would make a substantial annual business rates payment of €990,000 to Monaghan County Council. This annual payment to the Local Authority would have far reaching benefits across the entirety of County Monaghan.

It should also be noted that, over the lifetime of the proposed development (and indeed the entire Drumlins Park Wind Farm project), a substantial investment will have been made by the Applicant to the landowners whose landholdings form part of the proposed development. It is highly likely that the landowners will reinvest a significant volume of this sum into the local economy and supply chains through various means which will, in turn, result in further community gains.

Benefits will accrue from these various income streams and, depending on the choices made, is likely to have a positive effect on the material well-being of local residents as well as wider spin-off and multiplier economic benefits.

The long term nature of the income will also allow the community to plan ahead, to draw in other sources of match funding to maximise the benefits, and investment projects could be designed to match local priorities. This will likely result in a positive effect of moderate or major importance to the study area.

4.5.3 Transboundary Effects

Whilst the majority of local economic effects are anticipated to arise within the 5km study area, it is possible that a small number of supply chain contracts could involve companies within Northern Ireland (NI). Should this occur, it is possible that a small number of benefits may arise within local NI supply chain companies, although the effects are expected to be negligible.

No other transboundary effects are predicted to arise as a result of the proposed development.

4.5.4 Decommissioning Phase

As set out at **Chapter 3** (**Sections 3.2** and **3.8**), the proposed development will form part of the national electricity network and decommissioning of the substation is not proposed. Therefore, decommissioning phase effects will not occur.

4.6 Mitigation & Monitoring

4.6.1 Construction Phase

Allowing for the implementation of 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 proposed development and therefore no

mitigation measures are required to reduce or remedy any effect.

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 proposed development and therefore no mitigation measures are required to reduce or remedy any adverse effect.

4.6.3 Decommissioning Phase

As set out at **Chapter 3** (**Sections 3.2** and **3.8**), the proposed development will form part of the national electricity network and decommissioning of the substation is not proposed. Therefore, no decommissioning phase mitigation measures are required.

4.7 Residual Effects

4.7.1 Construction Effects

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

4.7.2 Operational Effects

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

4.7.3 Decommissioning Effects

As set out at **Chapter 3** (**Sections 3.2** and **3.8**), the proposed development will form part of the national electricity network and decommissioning of the substation is not proposed. Therefore, residual decommissioning phase effects will not occur.

4.8 Summary

The assessment presented 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 proposed development on population and human health. In order to avoid 'double-counting', the assessment focuses on those factors which might result in economic, social, and 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 the respective chapters of this EIAR

The overall conclusion of this chapter is that any adverse effects of the proposed development on population and human health are assessed as unlikely to be significant. 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 proposed development will not likely result in any significant adverse effects, it will constitute, alongside the permitted Drumlins Park Wind Farm, a major investment in the local economy and will likely lead to the generation of employment during both the construction and operational phases as well as inward investment which will have a likely significant positive effect on the local population and human health.

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