# Contents

# 15 Population and Human Health

## 15.1 Introduction

This chapter describes the likely effects of the proposed development on population and human health. While most developments by people will impact other people, the principal goal of the developer is to ensure that negative effects on the population associated with the proposed development are avoided, and if that is not possible, that they are minimised.

This chapter has been prepared by Simon Grennan and Dan Garvey of Arup with John McAuley of Compliance Engineering Ireland Ltd. A description of the authors' qualifications and experience is presented in **Appendix 1.1**.

The proposed development comprises the following permanent and temporary elements:

**Landfall Compound** – a temporary landfall compound at Baginbun, where the high voltage direct current (HVDC) cable will be installed underground, below the beach and cliff at Baginbun Beach, by horizontal directional drilling (HDD);

**HVDC Cables** – two HVDC electricity cables with a nominal capacity of 500 megawatts (MW), installed underground from the landfall at Baginbun to the converter station, including jointing bays and ground level marker posts at intervals along the route;

**Converter Station** – a converter station situated close to the existing Great Island substation in Wexford;

**Tail Station** - a 220kV substation located beside the converter station. The tail station connects the HVAC 220kV cable into the 220kV grid via the existing Great Island substation;

**MV Substation** – an ESB MV substation will be located outside the converter station and tail station perimeter fences but within the landholding. This substation will provide the MV and LV connections required for the development;

**Converter station construction compound** - temporary compound for the construction of the converter station and tail station at Great Island;

**Cable Contractor compound** – three temporary cable contractor compounds will be required (i) at the landfall site close to Baginbun Beach (ii) at the proposed converter station and (iii) one along the onshore route in the townland of Lewistown;

**HDD Compounds** – temporary HDD contractor compounds are required. One will be located close to the cable contractor compound at Baginbun Beach with another HDD compound located at either side of the Campile River Estuary crossing;

**High Voltage Alternating Current (HVAC) Cables** – one 220 kV HVAC electricity cable circuit consisting of three cables, installed underground connecting the converter station via the tail station to the EirGrid Great Island substation;

**Fibre Optic Cables** – fibre optic cables for operation and control purposes, laid underground with the HVDC and HVAC cables;

**Community Gain Roadside Car Parking near Baginbun Beach** – in consultation with Wexford County Council, circa 54 roadside car parking spaces will be constructed; and

**Community Gain in Ramsgrange Village** – in consultation with Wexford County Council, extension to existing footpaths, four new streetlights and a speed activated sign at Ramsgrange.

For a full description of the development, refer to **Chapter** *3 Proposed Development*.

## 15.2 Assessment Methodology

### 15.2.1 General

The assessment of effects on population and human health involved a desk study of the relevant policies (as outlined in **Chapter 5** *Planning and Policy*) and other demographic information relevant to the area from the Central Statistics Office (CSO). Members of the public were also consulted, as described in **Section 1.11.2** of **Chapter 1** of this EIAR. The assessment addresses population and human health at a community level, not at the level of individuals.

As part of the PCI process, Greenlink Interconnector Limited prepared a Concept for Public Participation (CPP) which sets out its proposed strategy for public participation in the project consent process. This is a comprehensive document and ensures that the public will be consulted appropriately throughout the project. The CPP is included as **Appendix 1.7** to this EIAR.

A number of public consultations were carried out during the development of the project with the objective of providing updates to residents and interested parties. The aim of public consultation was to incorporate and consider feedback throughout the development process with the aim of developing a project to the highest standards. Perceptions of the proposed development are subjective; however, it is considered that the effects presented are representative of the effects on the majority of those residing/working within the study area, based on the feedback received at the public consultation events.

### 15.2.2 Guidance and Legislation

The assessment of the likely significant effects of the proposed development on population and human health has taken account of the policy and legislative documents listed in **Chapter 1** and **Chapter 5** of this EIAR, particularly Directive 2014/52/EU on the assessment of the effects of certain public and private projects on the environment and the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018). As outlined in **Chapter 1**, the project has been endorsed by the Commission for Regulation of Utilities, and is key cross-border infrastructure project, given EU priority as a Project of Common Interest.

The term human health was introduced in the amended 2014 EIA Directive. However, no definition or advice on how this new factor should be considered is provided in the Directive. Subsequent Guidance from the European Commission in 2017 (EC, 2017a) stated the following:

*"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."*

This chapter has also had regard to the guidance provided in recent national publications on the EIA Directive by the European Commission (EC, 2017b[1]), the Department of Housing Planning and Local Government (DHPLG, 2018[2]) and the EPA (EPA, 2017[3]). The health of the full population is considered, with the objective of protecting the health and well-being of the full population, including vulnerable people.

The identification of the sensitive receptors to the proposed development have been identified based upon the EPA Guidelines (EPA, 2017b and 2002) and Advice Notes (EPA, 2015 and 2003). These documents identify sensitive receptors as neighbouring landowners, local communities and other parties which are likely to be directly affected by the proposed development. In particular, homes, hospitals, hotels and holiday accommodation, schools and rehabilitation workshops and commercial premises are noted. Regard is also given to transient populations including drivers, tourists and walkers.

The issue of land use and compatibility with the surrounding areas has been assessed at the strategic level by the Strategic Environmental Assessments (SEAs) completed for the Wexford County Development Plan (WCC, 2013).

The SEA Environmental Report for the Wexford County Development Plan includes two specific Strategic Environmental Objectives (SEOs) for Population and Human Health:

- SEO PH1: *To protect and enhance people's quality of life based on high quality residential, community, working and recreational environments.*
- SEO PH2: *To protect human health through minimising the risk of polluting emissions including noise and vibrations from incompatible land-uses and emissions to air/water/soil from traffic, industrial processes and extractive industry.*

1 EC, 2017b, Commission Implementing Decision (EU) on greenhouse gas emissions for the year 2015 covered by Decision No 406/2009/EC of the European Parliament and of the Council
2 DHPLG (August 2018) Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment
3 EPA (August 2017) Guidelines on the information to be contained in Environmental Impact Assessment Reports

### 15.2.3 Categorisation of the Baseline Environment

Utilising the information gathered from the desktop study completed, it was possible to consider the people most affected by the proposed development and the potential likely significant effects on both individuals and the wider community.

The nearest sensitive receptors were identified, and a broad study area/zone of influence was identified within County of Wexford. Refer to **Figure 15.1**. Population data and human health data have been derived from information provided in the 2016 and 2011 Population Census (CSO, 2016 and 2011).

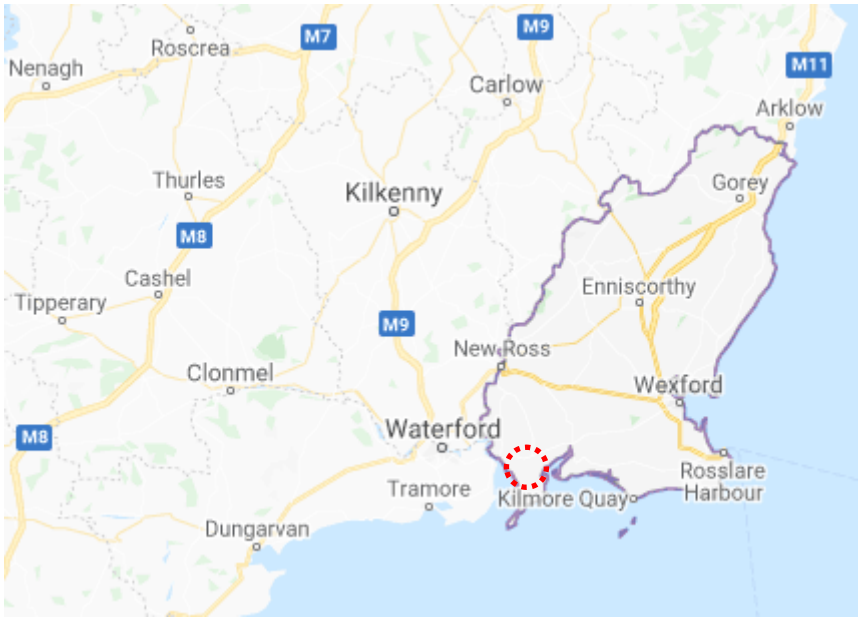


**Figure 15.1 Site Location in the Context of County Wexford | not to scale [mapping © Google 2020]**

### 15.2.4 Impact Assessment Methodology

This assessment of the likely significant effects of the proposed development on population and human health is qualitative.

The descriptions of the effects and their significance follows the methodology provided in the 2002 *EPA Guidelines on the Information to be Contained in Environmental Impact Statements* (and the updated 2017 Draft Guidelines) (EPA, 2017 and 2002).

The possible effects on human health were assessed at a local level during the preparation of this chapter.

The electromagnetic field effects (EMF) are addressed by comparison with guidance on allowable levels of EMF published by the International Commission on Non-Ionizing Radiation Protection (ICNIRP). The ICNIRP limits have been adopted by the European Commission for the public and occupational application, for the protection of human health.

# 15.3 Baseline Environment

## 15.3.1 Introduction

An assessment of the receiving environment is necessary to predict the likely significance of the effects of the proposed development. Demographic data published by the Central Statistics Office (CSO) in Ireland helps to demonstrate the nature of the population near the proposed development and who could be affected during either the construction, operational or decommissioning phases.

## 15.3.2 Context

The proposed development is located within County Wexford. The converter station and tail station are located within the Electoral Division (ED) of Kilmokea. The landfall site at Baginbun Beach is located within the ED of Fethard. The onshore cable route passes through the EDs of Kilmokea, Ballyhack, Rathroe, Templetown and Fethard.

## 15.3.3 Demographics and Population

The CSO of 2016 recorded a population of 149,722 in County Wexford. This represents an increase of 2.9% from 2011 when the population was 145,320. The total housing stock recorded in Co. Wexford in 2016 amounted to 68,206. Refer to **Table 15.1** for an overview of population statistics for the various EDs within the Irish onshore working areas.

**Table 15.1: Population Statistics (Source: CSO, 2016 and 2011)**

| Electoral Division | 2016 | 2011 | Percentage Change |
|---|---|---|---|
| **Kilmokea** | 853 | 814 | 4.6% |
| **Ballyhack** | 1,241 | 1,302 | -4.9% |
| **Rathroe** | 824 | 838 | -1.7% |
| **Templetown** | 577 | 585 | -1.4% |
| **Fethard** | 850 | 890 | -4.7% |
| **Co. Wexford** | 149,722 | 145,320 | 2.9% |

As shown in **Table 15.1**, population is gradually declining in four of the five EDs, with an increase recorded in the northernmost part of the proposed development at Kilmokea (in the vicinity of Great Island).

The socio-economic composition of the population across the proposed development working areas and in Co. Wexford as a whole is presented in **Table 15.2**.

**Table 15.2: Socio-Economic Statistics (Source: CSO, 2016)**

| Social Class | Kilmokea ED | Ballyhack ED | Rathroe ED | Templetown ED | Fethard ED | Co. Wexford |
|---|---|---|---|---|---|---|
| Professional workers | 38 (4.4%) | 64 (5.1%) | 49 (5.9%) | 45 (7.8%) | 23 (2.7%) | 8,249 (5.5%) |
| Managerial and technical | 182 (21.3%) | 307 (24.7%) | 248 (30.1%) | 170 (29.5%) | 212 (24.9%) | 38,063 (25.4%) |
| Non-manual | 119 (13.9%) | 208 (16.8%) | 147 (17.8%) | 119 (20.6%) | 166 (19.5%) | 27,185 (18.1%) |
| Skilled manual | 147 (17.2%) | 224 (18.0%) | 139 (16.9%) | 89 (15.4%) | 162 (19.0%) | 24,880 (16.6%) |
| Semi-skilled | 141 (16.5%) | 187 (15.1%) | 99 (12.0%) | 64 (11.1%) | 151 (17.8%) | 18,975 (12.7%) |
| Unskilled | 51 (6.0%) | 57 (4.6%) | 50 (6.1%) | 23 (4.0%) | 27 (3.2%) | 7,188 (4.8%) |
| All others gainfully occupied and unknown | 175 (20.5%) | 194 (15.6%) | 92 (11.2%) | 67 (11.6%) | 109 (12.8%) | 25,182 (16.8%) |
| **Total** | **853** | **1,241** | **824** | **577** | **850** | **149,722** |

**Table 15.2** indicates that the socio-economic profile of the local populations is generally similar to that of the wider County.

The industries in which the population across the proposed development working areas and in County Wexford as a whole are employed in are presented in **Table 15.3**.

**Table 15.3: Persons Employed by Economic Sector (Source: CSO, 2016)**

| Industry | Kilmokea ED | Ballyhack ED | Rathroe ED | Templetown ED | Fethard ED | Co. Wexford |
|---|---|---|---|---|---|---|
| Agriculture, forestry and fishing | 24 (9.2%) | 57 (12.2%) | 46 (14.2%) | 35 (15.6%) | 30 (9.2%) | 4,310 (7.5%) |
| Building and construction | 23 (8.8%) | 41 (8.7%) | 24 (7.4%) | 32 (14.3%) | 35 (10.7%) | 4,002 (6.9%) |
| Manufacturing industries | 36 (13.7%) | 60 (12.8%) | 31 (9.6%) | 24 (10.7%) | 35 (10.7%) | 6,954 (12.0%) |
| Commerce and trade | 55 (21.0%) | 66 (14.1%) | 40 (12.4%) | 27 (12.1%) | 45 (13.8%) | 13,094 (22.7%) |
| Transport and communications | 16 (6.1%) | 46 (9.8%) | 28 (8.7%) | 13 (5.8%) | 20 (6.1%) | 3,492 (6.0%) |
| Public administration | 6 (2.3%) | 17 (3.6%) | 19 (5.9%) | 11 (4.9%) | 18 (5.5%) | 2,871 (5.0%) |
| Professional services | 65 (24.8%) | 100 (21.3%) | 74 (22.9%) | 56 (25.0%) | 78 (23.9%) | 12,824 (22.0%) |
| Other | 37 (14.1%) | 82 (17.5%) | 61 (18.9%) | 26 (11.6%) | 66 (20.2%) | 10,212 (17.7%) |
| **Total** | **262** | **469** | **323** | **224** | **327** | **57,759** |

**Table 15.3** indicates that significantly higher proportions of the local population are employed in the agriculture, forestry and fishing and construction industries, and lower numbers in the commercial sector, when compared with County Wexford as a whole.

The principal economic status of the population across the proposed development working areas and in County Wexford as a whole is presented in **Table 15.4**.

**Table 15.4: Principal Economic Status (Source: CSO, 2016)**

| Principal Economic Status | Kilmokea ED | Ballyhack ED | Rathroe ED | Templetown ED | Fethard ED | Co. Wexford |
|---|---|---|---|---|---|---|
| At work | 262 (38.8%) | 469 (46.5%) | 323 (49.2%) | 224 (46.9%) | 327 (47.0%) | 57,759 (49.5%) |
| Looking for first regular job | 5 (0.7%) | 7 (0.7%) | 9 (1.4%) | 0 (0.0%) | 5 (0.7%) | 1,122 (1.0%) |
| Unemployed having lost or given up previous job | 67 (9.9%) | 73 (7.2%) | 43 (6.6%) | 23 (4.8%) | 54 (7.8%) | 10,356 (8.9%) |
| Student | 84 (12.4%) | 82 (8.1%) | 63 (9.6%) | 56 (11.7%) | 77 (11.1%) | 11,045 (9.5%) |
| Looking after home/family | 78 (11.5%) | 108 (10.7%) | 59 (9.0%) | 55 (11.5%) | 67 (9.6%) | 11,639 (10.0%) |
| Retired | 145 (21.4%) | 231 (22.9%) | 132 (20.1%) | 101 (21.1%) | 138 (19.8%) | 18,610 (15.9%) |
| Unable to work due to permanent sickness or disability | 34 (5.0%) | 38 (3.8%) | 26 (4.0%) | 17 (3.6%) | 27 (3.9%) | 5,892 (5.0%) |
| Other | 1 (0.1%) | 1 (0.1%) | 1 (0.2%) | 2 (0.4%) | 1 (0.1%) | 347 (0.3%) |
| **Total** | **676** | **1,009** | **656** | **478** | **696** | **116,770** |

**Table 15.4** shows that there is generally a higher proportion of retired people in the local population, with a consequent lower proportion in active employment, when compared with County Wexford as a whole.

## 15.3.4 Employment

**Live Register**

Live Register numbers are the only source of official information in relation to levels of people signing on at Social Welfare offices.

The Live Register is not designed to measure unemployment. It includes part-time workers (those who work up to three days a week) and seasonal and casual workers entitled to Jobseeker's Benefit or allowance. However, the live register is a good indicator of current levels of employment. The number of persons on the Live Register in June 2019 is the lowest number recorded in the seasonally adjusted series since February 2008. In unadjusted terms, there were 197,108 persons signing on the Live Register in June 2019. This represents an annual decrease of 30,957 (-13.6%) since June 2018.

The official indicator in relation to unemployment is that given in the Labour Force Survey, which does not give specific levels of employment for Wexford.

**Labour Force Survey**

The most recent published Labour Force Survey was taken for Quarter Two (Q2) of 2019. It was taken to look at national employment (CSO). There was an annual increase in employment of 2.0% or 45,000 in the year to the second quarter of 2019, bringing total employment to 2,300,00. This compares with an annual increase of 3.7% or 81,200 in employment in the previous quarter and an increase of 3.4% or 74,000 in the year to Q2 2018. Unemployment decreased by 13,600 (-9.4%) in the year to Q2 2019 bringing the total number of persons unemployed to 130,800. This is the 28th quarter in succession where unemployment has declined on an annual basis.

### 15.3.5 Human Health

Self-perceptions of health across the proposed development areas and in County Wexford as a whole are presented in **Table 15.5**. These statistics clearly show that the largest proportion of people across the Irish onshore working areas perceive their health to be very good.

**Table 15.5: Perception of Health (Source: CSO, 2016)**

| General Health | Kilmokea | Ballyhack | Rathroe | Templetown | Fethard | Co. Wexford |
|---|---|---|---|---|---|---|
| Very good | 466 (54.6%) | 684 (55.1%) | 464 (56.3%) | 345 (59.8%) | 505 (59.4%) | 88,401 (59.0%) |
| Good | 258 (30.2%) | 385 (31.0%) | 255 (30.9%) | 178 (30.8%) | 240 (28.2%) | 41,917 (28.0%) |
| Fair | 94 (11.0%) | 126 (10.2%) | 79 (9.6%) | 42 (7.3%) | 79 (9.3%) | 13,471 (9.0%) |
| Bad | 11 (1.3%) | 20 (1.6%) | 11 (1.3%) | 7 (1.2%) | 9 (1.1%) | 2,163 (1.4%) |
| Very bad | 4 (0.5%) | 6 (0.5%) | 1 (0.1%) | 1 (0.2%) | 4 (0.5%) | 458 (0.3%) |

| General Health | Kilmokea | Ballyhack | Rathroe | Templetown | Fethard | Co. Wexford |
|---|---|---|---|---|---|---|
| Not stated | 20 (2.3%) | 20 (1.6%) | 14 (1.7%) | 4 (0.7%) | 13 (1.5%) | 3,312 (2.2%) |
| **Total** | **853** | **1,241** | **824** | **577** | **850** | **149,722** |

**Figure 15.2** illustrates the trends in death rates per 100,000 for the four principal causes of death over the period 2007 – 2012 for all ages for the Wexford area, compared to the overall figures for Ireland.

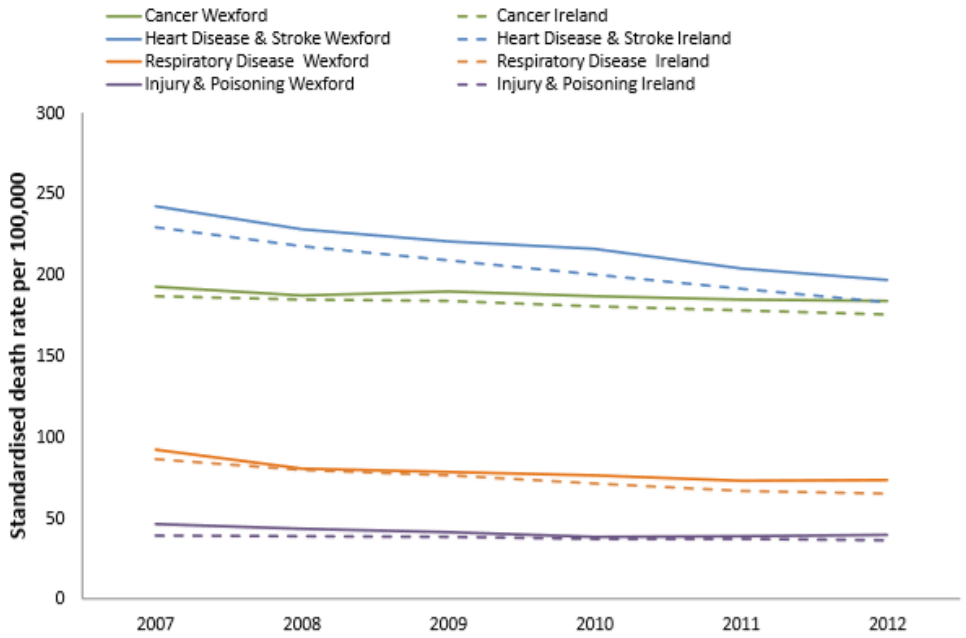


**Figure 15.2: Trends in death rates per 100,000 for the four principal causes of death over the period 2007 -2012 for all ages compared to Ireland. Note: Data is for County Wexford (Source: Health Profile 2015 Wexford).**

Information on the receiving environment with regard to air, noise and water quality, which has the potential to have effects on human health, is provided in **Chapter 7** *Air Quality and Climate*, **Chapter 8** *Noise and Vibration* and **Chapter 13** *Water and Hydrology*.

## 15.3.6 Character, Significance and Sensitivity

*Rural areas:*

Most of the proposed onshore cable route passes via public road through rural areas and also agricultural land. Most of the fields adjacent to the onshore cable route are used for agricultural practices.

*Residential areas:*

The onshore cable route does not pass through any extensive residential areas. The largest is Ramsgrange, a small village located on the R733, roughly halfway between the converter station site and the landfall site. Various shops and community facilities are in Ramsgrange village. These include Ramsgrange National School, Shielbaggan Outdoor Education Centre, a convent, a graveyard, a tennis court, a post office, a credit union, a convenience store, a bar/restaurant and a takeaway.

Aside from Ramsgrange, several residential properties are sporadically located along the onshore cable route. The onshore cable route also passes close to Dunbrody Abbey.

*Baginbun Beach:*

The landfall site near Baginbun Beach contains beach areas which provide amenity and health benefits to users and local residents. These are realised as opportunities for physical exercise and psychological benefits from social interaction or for personal interaction with nature. The aggregate benefits are inevitably greater where beaches are well-used, but not insignificant even for quieter areas such as Baginbun Beach. A snapshot of the use of Baginbun Beach during the summer of 2018 is presented in **Table 15.6**.

**Table 15.6: Use of Baginbun Beach in Summer 2018 (based on observations by the EIAR team)**

| Date | Time | People | Vehicles | Kayaks | Boats at Anchor | Other Comments |
|---|---|---|---|---|---|---|
| 27/06/18 | 13:30 | 68 | 33 | 9 | 2 | Low tide at 12:12 |
| 04/07/18 | 14:30 | 70 | 35 | 10 | 2 | Warm sunshine – 13 lobster pots |
| 31/07/18 | 12:30 | 20 | 12 | 12 | Not recorded | Also, a number of dog-walkers in the vicinity |
| 01/08/18 | 13:20 | 5 | 2 | 0 | 2 | Drizzly rain – 3 lobster pots |
| 27/08/18 | 14:50 | 2 | 4 | 0 | 0 | Warm sunshine – three lobster pots |

## 15.4 Potential Effects

### 15.4.1 Do-Nothing Scenario

In the scenario where the proposed development does not proceed as planned, none of the effects as set out in this chapter would occur. Under the 'do nothing' scenario, the population and human health baseline as presented in **Section 15.3** would persist and no significant effects would arise.

In addition, under the 'do nothing' scenario the positive effects associated with the proposed development, such as the creation of employment during construction and operation, the economic benefits associated with an increase

in local trade and the construction of additional road-side car parking spaces near Baginbun Beach and pedestrian amenity improvements at Ramsgrange would not arise.

### 15.4.2 Construction Phase

#### 15.4.2.1 General Amenity

The construction of the proposed development will result in some dust, noise and vibration emissions which have the potential to affect amenity, accessibility, business, tourism and employment, population and human health. Construction visual effects have the potential to have an impact on amenity. The closest sensitive receptor (residential dwelling) is located approximately one metre from the edge of the proposed cable route red-line boundary.

These effects are addressed in detail in **Chapter 7** *Air Quality and Climate*, **Chapter 8** *Noise and Vibration* and **Chapter 11** *Landscape and Visual* and discussed below, where relevant.

Baginbun Beach is popular with locals and tourists, especially during the summer months. Construction works at the landfall site (close to Baginbun Beach) will be completed outside of July and August to avoid impacts in this peak season in the area. Access to Baginbun Beach will be maintained to the public for the duration of the construction works in this area. Use of horizontal directional drilling techniques here and at the Campile River Estuary is a design measure that will reduce the potential for adverse amenity impacts at both locations. There will be some disturbance to amenities in Dunbrody (which is close to the Campile River Estuary crossing) during the construction phase, however, no on road works will be carried out during July or August to avoid disturbance during peak tourist season. There will be no long-term loss of these amenity features, therefore there will be no significant negative effects on the general amenity in the area.

#### 15.4.2.2 Journey Amenity

The level of traffic generated during the construction phase of the proposed development has the potential to affect road users. Potential effects on the local transport network and resultant disruptions to vehicle, pedestrian and cyclist movements are discussed in **Chapter 6** *Traffic and Transportation*. There will be a short-term significant effect on the residents and road users in the vicinity of the HVDC cable trench excavations and cable installation works for the duration of the works. Once the cable works have been completed, there will imperceptible effect on the road network or on traffic.

Construction of the converter station and the HVAC cable will have a short-term slight effect on road users.

#### 15.4.2.3 Accessibility

Access to local residences, shops and community facilities along the onshore cable route will be maintained during the construction phase.

This will include the residences, shops and community facilities located in Ramsgrange; which is the most significant residential area through which the onshore cable route passes. However, as noted above road closures are predicted during the construction of the proposed development and therefore cause temporary severance. However, the route has bene selected to avoid unnecessary closures and where possible only lane closure will occur. Over the 23km of HVDC cable, there will be 400m of road closures.

Potential disruption to the use of shops and community facilities in Ramsgrange and in other built up areas along the onshore cable route, should it occur, will be temporary.

Access to private property and residential dwellings will be maintained at all times during the construction of the proposed development.

Therefore, the potential effect on accessibility in Ramsgrange is considered to be a slight negative, temporary effect.

As outlined above, access to Baginbun Beach will be maintained to the public for the duration of the construction works in this area. The provision of 54 parking spaces on the access road to Baginbun Beach, once completed, will have a permanent positive effect on the beach amenity (further details on the provision of car parking spaces is discussed in **Appendix 3.1** *Community Gain*).

#### 15.4.2.4Business, Tourism and Employment

Greenlink is anticipated to provide employment for 250 people in Ireland during the construction phase, with significant investment in materials and services (€400 million for the overall project in Ireland and overseas). The vast majority of the 250 will be employed on the construction works. Refer to **Chapter 4**, *Construction Strategy*.

This employment will have a positive short-term effect on the local economy with local businesses likely to benefit from an increase in demand for their goods and services. There will also be increased use of material assets and greater waste generated in the local area.

The construction phase will also generate demand for some locally sourced inputs such as materials or machinery. This would result in a positive effect on the local economy.

The construction phases of the proposed development will create employment, which will give rise to greater use of natural resources and greater waste generation, and in addition to greater use of material assets in the region. These indirect effects are addressed in **Chapters 14** and **16** respectively.

The construction works will have limited effects on tourism. There is potential for a short-term disturbance to tourists in the form of noise and air emissions and possible visual effects due to the close proximity of the works to Baginbun Beach. The construction works close to Baginbun Beach will be completed outside of the months of July and August as this is peak season in the area. However, given the heritage significance of the beach there will be an effect on recreational amenity regardless of the timing of the works.

There will be some disturbance to amenities in Dunbrody, Ramsgrange and wider cycle routes through the diversion of traffic during the construction phase, however, no on road works will be carried out during July or August to avoid disturbance during peak season. This disturbance would be slight negative and temporary, lasting for the duration of the construction works in these areas only. The additional parking spaces on the access road to Baginbun Beach, once completed, will have a positive effect on tourism (further details on the provision of car parking spaces is discussed in **Appendix 3.1** *Community Gain*).

Tourist traffic on the road network could also be affected. Refer to **Section 15.4.2.2** above.

### 15.4.2.5Human Health

The construction strategy requires all contractors to comply with legislation and good industry practice with regard to the health and safety of both workers and the public. The construction contractors and workforce will comply fully with relevant Public Health guidance, current at the time construction works are underway, in relation infectious diseases or a pandemic. As required by regulation and legislation, a Health and Safety Plan will be prepared to address health and safety issues from the design stages through to completion of the construction and maintenance phases. This plan will be reviewed and updated as required, as the development progresses. The Project Supervisor Construction Stage will assemble the Safety File as the project progresses. Further details are provided in **Chapter 4** *Construction Strategy*.

**Table 15.7** presents a summary of the conclusions of the assessments of the effects of air and noise emissions and major accident and disasters on human health during the construction of the proposed development.

**Table 15.7: Potential effects on Human Health during construction**

| Aspects | Potential Effects on Human Health | Additional information |
|---|---|---|
| Air Quality | Background concentrations of air pollutants are well below the air quality standard limits determined for the protection of human health. Any increase in the concentrations, due to the construction of the proposed development, are not expected to cause an exceedance of the air quality standards. Following the implementation of mitigation measures, dust from construction related activities is predicted to have a short term, **slight negative** effect. | Chapter 7 Air Quality and Climate, Section 7.4.2 |
| Noise and Vibration | The noise associated with cable route construction, including traffic noise, will exceed the daytime 65dBLAeq criterion for short periods of time at residences along the route. As the noise impacts will be temporary and discontinuous, the effects will be temporary and locally significant for residences adjacent to the cable route | Chapter 8, Noise and Vibration, Section 8.4.2 |

| Aspects | Potential Effects on Human Health | Additional information |
|---|---|---|
| | during daytime hours. No exceedance is predicted during construction of the converter station site.<br>Vibration limits as per BS 7385-24 will be adhered to during construction to minimise the effects of vibration on human health | |
| Major Accidents and Disasters | No plausible major accidents or disaster hazards were identified, to which the proposed development will be vulnerable. No plausible potential risks were identified which would result in the proposed development causing a major accident or disaster on or outside the site of the proposed development. | Chapter 17 Major Accidents and Disasters, section 17.4.7 |

There will be no emissions of toxic substances to the environment, during the construction phase, which could have an effect on human health. The construction works are not expected to cause any change to disease vectors (typically insects such as ticks, fleas, flies, sandflies and some freshwater snails). The construction phase will have no effect on living conditions or on vulnerable groups in the vicinity or wider area.

Taking into consideration the scale and nature of the proposed construction works and the mitigation measures to be implemented, it can be concluded that there will be no significant effect on human health as a result of the construction of the proposed development. To minimise the effects of the proposed development on human health during construction site specific management plans, such as a Construction Environmental Management Plan (which incorporates a Construction Waste Management Strategy) and Construction Traffic Management Plan have been developed are included as **Appendix 4.1** and **6.1** respectively. These detailed and robust plans outline the mitigation and monitoring measures to be implemented.

### 15.4.3 Operational Phase

#### 15.4.3.1 General Amenity

Baginbun Beach is popular with locals and tourists, especially during the summer months. Currently, visitors park along both sides of the narrow approach road to the beach and, at particularly busy times, the parking extends around the corner onto the L4049, at the western end of the approach road. This parking creates congestion and is a hazard for road users, particularly pedestrians. The provision of 54 road-side parking spaces on the access road to Baginbun Beach, once completed, will have a positive effect for

[4] BS 7385-2 (1993) Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration

the users of this amenity (further details on the provision of car parking spaces is discussed in **Appendix 3.1** *Community Gain*).

Once the cable is laid, the HDD access pits, compounds and all trench works will be restored and therefore will not have a permanent impact on general amenity.

Noise will be generated during the operational phase from the converter station and tail station. These emissions have the potential to affect population and human health. However, noise emissions will not be significant and all plant at the converter station and tail station, which have the potential to generate noise, will be housed within buildings, suitably located within the site, or acoustically shielded, thereby limiting noise breakout to the atmosphere. Refer to **Chapter 8** *Noise and Vibration* for further details.

Considering the size and scale of the converter station site and associated structures it is predicted the site will have a visual effect on the surrounding population as it will be visible from a number of locations with varying sensitivities. However, as the converter station and tail station will be located adjacent to the current power station and sub-station at Great Island, they will be visually in keeping with the immediate surroundings. **Chapter 11** *Landscape and Visual* includes further details.

Therefore, no significant effects on general amenity are envisaged during the operational phase of the proposed development.

#### 15.4.3.2 Journey Amenity

Traffic generated during the operational phase of the proposed development will be minimal.

There will be two personnel stationed at the converter station at all times, operating the interconnector. In addition, it is expected that one or two vehicles will attend the site every week for an inspection, of the converter station site and other areas of the onshore routing, if required. Each inspection will be limited to approximately four hours and will take place within normal working day hours.

As these traffic levels are considered very low the effects during the operational phase on the local transport network and associated disruptions to vehicle and pedestrian movements are predicted to be imperceptible.

Further details are provided in **Chapter 6** *Traffic and Transportation*.

#### 15.4.3.3 Accessibility

As with the construction phase, access and parking at Baginbun Beach will not be affected during the operational phase of the proposed development. The provision of 54 road-side parking spaces on the access road to Baginbun Beach will have a permanent positive impact on the users of the beach amenity as currently, visitors park along both sides of the narrow approach road to the beach which creates congestion and is a hazard for road users, particularly pedestrians. This permanent parking will be provided following the completion

of the main construction works. Further details on the provision of car parking spaces is discussed in **Appendix 3.1** *Community Gain*.

The provision of additional footpaths and lighting at Ramsgrange will improve local accessibility in the village and support sustainable transportation modes.

No negative accessibility effects are envisaged during the operational phase.

### 15.4.3.4Business, Tourism and Employment and Consumers

Once operation has commenced, Greenlink will provide significant additional interconnection between Ireland, the UK and onwards to mainland Europe. It will provide additional transmission network capacities, reinforcing the existing electricity grids in south-east Ireland and contributing to Ireland's strategic interconnection objectives. Greenlink will ultimately provide significant benefits to consumers and businesses in Ireland, Wales, Great Britain and mainland Europe. The advantages are as follows:

- Contribution to security and continuity of electricity supply;
- Increased efficiency of the interconnected systems – commercial electricity exchanges established result in more efficient technologies and allow energy to be transported from cheaper to more expensive locations;
- Increased competition between neighbouring systems;
- Greater integration of renewable energies; and
- Inward investment and the provision of employment.

By reducing curtailment of wind and solar energy, and facilitating export of surplus power, Greenlink will improve the efficiency of power networks, with associated improvements in wholesale power prices for renewable generation.

Greenlink is anticipated to provide permanent employment for approximately 20 people for the overall project in Ireland. Of this figure approximately five people will have particular responsibility for the proposed development during the operational phase. Of these five, two personnel will be stationed at the converter station at all times operating the interconnector. Therefore, Greenlink will have an imperceptible positive, long term effect on business and employment in Ireland.

The operation of Greenlink will have imperceptible effects on tourism in Ireland. The provision of 54 parking spaces on the access road to Baginbun Beach will have a positive impact on the beach amenity for tourists. Further details on the provision of car parking spaces is discussed in **Appendix 3.1** *Community Gain*.

### 15.4.3.5Human Health

No effects on human health are predicted during the operational phase. GIL will comply fully with relevant Public Health guidance, current during the operation of the proposed development, in relation infectious diseases or a pandemic. **Table 15.8** presents a summary of the conclusions of the assessments of the effects of air and noise emissions and major accident and disasters on human health during the operation of the proposed development.

**Table 15.8: Potential effects on Human Health during operation**

| Aspects | Potential Effects on Human Health | Additional information |
|---|---|---|
| Air Quality | Background concentrations of air pollutants are well below the air quality standard limits determined for the protection of human health. There will be no routine operational process emission to air. Any increase in the concentrations, due to the operation of the proposed development, are not expected to cause an exceedance of the air quality standards. Significant effects on air quality are not predicted, and therefore adverse health effects will not occur. | Chapter 7 Air Quality and Climate, Section 7.4.3.1 |
| Noise and Vibration | At all receptors the predicted noise levels are within the EPA guidelines for typical noise limits from licensed industrial facilities. As noted above, these limits are typically used by planning authorities for a wide range of proposed developments which have the potential for generating noise. Note that the closest residential sensitive receptor is highlighted, with a predicted noise level of 39.6dB LAeq, which is well below the EPA guidance levels, and therefore adverse health effects will not occur. | Chapter 8, Noise and Vibration, Section 8.4.3.2 |
| Major Accidents and Disasters | No plausible major accidents or disaster hazards were identified, to which the proposed development will be vulnerable. No plausible potential risks were identified which would result in the proposed development causing a major accident or disaster on or outside the site of the proposed development, and therefore adverse health effects will not occur. | Chapter 17 Major Accidents and Disasters, section 17.4.7 |

There will be no emissions of toxic substances to the environment, during the operation of the proposed development, which could have an effect on human health. The operation of the proposed development is not expected to cause any change to disease vectors or have any effect on living conditions or on vulnerable groups in the vicinity or wider area.

**Electromagnetic Fields**

Electromagnetic Fields (EMF) will be generated by the proposed cables. For the HVDC circuit with cables carrying the maximum continuous load current, the EMF flux levels have been predicted.

**Table 15.9** summarises the EMF levels at various distances from the cable.

**Table 15.9 – Predicted EMF Values for Proposed Power Line**

| Location | Static Magnetic Flux Density (micro Tesla) |
|---|---|
| Peak Level (100% load) | 19 |
| 1m (100% load) | 15 |
| 25m (100% load) | 0.11 |
| 50m (100% load) | 0.028 |
| 100m (100% load) | 0.007 |

Typically, the burial depth of the cables is 1 metre, the shallowest burial is approximately 0.9 metres. Houses and other buildings are typically several meters away. The closest house has a distance of 1 metre from the centre of the cable circuit.

Compared to the limits provided by International Commission on Non-Ionising Radiation Protection (ICNIRO), the static magnetic fields which can be expected on the surface level are well below. Furthermore, the magnetic flux density of 19 micro Tesla is also much lower than the value of 500 micro Tesla mentioned by ICNIRP as the restriction levels per IEC and CENELEC for people with implanted electronic / ferromagnetic medical devices. Note that the ICNIRP restriction level for people without implanted medical devices is 400,000 micro Tesla (400 milli Tesla).

Directly above the cable, on full load, the contribution to the magnetic field are predicted to be 19 micro Tesla. At 1m the level has decreased to 15 micro Tesla. As can be seen from the data above, the levels decrease very quickly with distance. As the existing earth's magnetic field is 49 micro Tesla the levels from the cable will not be significant. As the direction of the earth's magnetic field and the contribution from the cable are unlikely to exactly align the levels do not add. As a result, the measured levels typically exhibit as change of direction of the existing magnetic as opposed to an increase in magnetic field. At distances of more than 1m the effect of the magnetic field from the power line will not be noticeable.

The magnetic field generated by the cable system is predominately DC, generating a static magnetic field similar to the earth's magnetic field as noted earlier. The cable circuit will also generate low level time varying magnetic fields due to time varying currents superimposed on the DC current, called ripple which is a natural effect of the AC to DC conversion at the converter stations at each end. The time varying (AC) current component will generate low level AC fields. The levels of AC current and hence the AC emissions will be controlled by filtering at the converter stations. As a result, the AC magnetic field emissions from the cable will be negligible compared to the respective ICNIRP guideline limits.

The nearest residential receptor is 450m from the converter station. The converter station will comprise DC and AC systems and there will be electromagnetic fields close to the building. The converter station and surrounding equipment is designed to ensure that the negligible electromagnetic fields would be produced outside the boundary fence. The

nature of the equipment in the converter station means that magnetic fields will decrease rapidly with distance. Outside the boundary fence, they will be well below the exposure limits. The converter station is assessed as having no adverse effects.

Refer to **Appendix 15.1** for a detailed assessment of the EMF levels that will be generated by the proposed development.

### 15.4.4 Decommissioning

As mentioned in **Chapter 3** *Proposed Development*, once the interconnector ceases operation the proposed development will be decommissioned. Equipment and all above ground civil works at the converter station and tail station will be removed and the site returned to its previous state. Underground cables will remain in-situ as there would be more of an environmental impact in their removal. Above ground structures along the cable route will be removed, and their locations reinstated.

#### 15.4.4.1General Amenity

The decommissioning works along the cable route will be minimal. The potential emission of dust, noise and vibration will be slight and of very short duration. The impact on general amenity will be negligible.

#### 15.4.4.2Journey Amenity

The level of traffic generated during the decommissioning phase of the proposed development has the potential to affect road users. Potential effects on the local transport network and resultant disruptions to vehicle and pedestrian movements are discussed in **Chapter 6** *Traffic and Transportation*. There will be a short-term slight impact on the residents and road users in the vicinity of the decommissioning works along the cable route. There will be a slight increase in traffic on the road network associated with decommissioning the converter station and tail station. Effects on journey amenity are predicted to be negative, very short-term and slight.

#### 15.4.4.3Accessibility

Access to local residences, shops and community facilities along the onshore cable route will be maintained during the decommissioning phase. Potential disruption to the users of shops and community facilities in Ramsgrange and in other built up areas along the onshore cable route, should it occur, will be of very short duration. Therefore, the potential effect on accessibility in Ramsgrange is considered to be a slight negative and very short duration.

Access to Baginbun Beach will be maintained to the public for the duration of the decommissioning works in this area.

#### 15.4.4.4Business, Tourism and Employment

Greenlink is anticipated to provide employment up to 20 people on site for three to four months during the decommissioning phase. Most of these will be

employed in decommissioning the converter station and tail station. This employment will have a positive short-term effect on the local economy with local businesses likely to benefit from an increase in demand for their goods and services. This would result in a short-term positive effect on the local economy.

There will also be increased use of utilities and greater waste generation. These indirect effects are addressed in **Chapters 14** and **16** respectively.

Decommissioning will have a very limited effect on tourists and tourism in the area, as the effects on the local amenity and the road network will be are predicted to be negative very short-term and slight.

### 15.4.4.5Human Health

The demolition contractor and workforce will comply fully with relevant Public Health guidance, current at the time demolition works are underway, in relation infectious diseases or a pandemic. The decommissioning phase is not expected to have any significant effects on human health. The key pathways by which human health could be affected relate to emissions to air, noise and vibration, and major accidents. **Table 15.10** presents a summary of the conclusions of the assessments of the effects of air and noise emissions and major accident and disasters on human health during the decommissioning of the proposed development.

**Table 15.10: Potential effects on Human Health during decommissioning**

| Aspects | Potential Effects on Human Health | Additional information |
|---|---|---|
| Air Quality | Background concentrations of air pollutants are well below the air quality standard limits determined for the protection of human health. Any increase in the concentrations, due to the decommissioning of the proposed development, are not expected to cause an exceedance of the air quality standards. Significant effects on air quality are not predicted. | Chapter 7 Air Quality and Climate, Section 7.4.4.1 |
| Noise and Vibration | No exceedance of the daytime criterion of 65bBl$_{Aeq}$ is predicted during decommissioning of the converter station site.<br>Vibration limits as per BS 7385-25 will be adhered to during decommissioning phase to minimise the effects of vibration on human health | Chapter 8, Noise and Vibration, Section 8.4.4.2 |
| Major Accidents and Disasters | No plausible major accidents or disaster hazards were identified, to which the proposed development will be vulnerable. No plausible potential risks were identified which would result in the proposed development causing a major accident or | Chapter 17 Major Accidents and Disasters, section 17.4.7 |

[5] BS 7385-2 (1993) Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration

| Aspects | Potential Effects on Human Health | Additional information |
|---|---|---|
| | disaster on or outside the site of the proposed development. | |

There will be no emissions of toxic substances to the environment, during the decommissioning of the proposed development, which could have an effect on human health. The decommissioning phase of the proposed development is not expected to cause any change to disease vectors or to have any effect on living conditions or on vulnerable groups in the vicinity or wider area.

## 15.5 Mitigation Measures and Monitoring

### 15.5.1 Mitigation

#### 15.5.1.1 Construction Phase

There will be dust, noise and vibration emissions as well as traffic effects during the construction of the proposed development. The selected construction methodologies will minimise these short-term effects. Mitigation measures as discussed below, will also help to avoid/minimise effects during the construction phase of the proposed development.

Measures which will be implemented to minimise effects on the general amenity of residents will include:

- The erection of directional and information signage where paths are temporarily closed;
- The provision of information to local householders during the construction phase;
- The provision of community liaison and nomination of personnel to manage community relations;
- The implementation of a Construction Environmental Management Plan (CEMP) to minimise effects of construction works on local amenity and on traffic flow (refer to **Chapter 4** *Construction Strategy* and **Appendix 4.1** for further details); and
- The preparation of an emergency response plan to cover foreseeable risks; and
- Construction works in the landfall site (close to Baginbun Beach) will be completed outside of July and August to avoid effects during the peak season in the area.

Industry-standard traffic management measures will be put in place to alleviate construction-related traffic disruptions. Refer to **Chapter 6** *Traffic and Transportation* for further details.

Dust emissions will be controlled throughout the construction phase. Refer to **Chapter 7** *Air Quality and Climate* for details of dust mitigation measures.

Noise and vibration disturbance will also be minimised. Best practice measures for noise control on construction sites will be adhered to during construction. Refer to **Chapter 8** *Noise and Vibration* for further details of noise and vibration mitigation measures.

As required by regulation and legislation, a Health and Safety Plan will be prepared to address health and safety issues during the construction phase. This plan will be reviewed and updated as required, as the development progresses. The Project Supervisor Construction Stage will assemble the Safety File as the project progresses. Further details are provided in **Chapter 4** *Construction Strategy*.

#### 15.5.1.2Operational Phase

The overall effects of the proposed development will be permanent and positive, and therefore mitigation is only proposed for the operational phase when maintenance works are required.

Maintenance works may be undertaken at various intervals post-construction at the converter station and tail station and along the onshore cable route if required. Mitigation measures during the operational phase will relate primarily to these maintenance works and will broadly reflect those employed for the construction phase but on a much smaller scale.

#### 15.5.1.3Decommissioning Phase

The same mitigation measures will be employed for the decommissioning phase as for the construction phase, where relevant, and updated to reflect best practice at that time.

### 15.5.2 Monitoring

No additional monitoring has been proposed in addition to those outlined in **Chapter 7** *Air Quality and Climate* and **Chapter 8** *Noise and Vibration*, with respect to effects from the construction and/or operation and/or decommissioning of the proposed development.

## 15.6 Residual Effects

### 15.6.1 Construction Phase

There will be short term adverse effects on population and human health during the construction phase of the HVDC cable, from increased dust, noise and traffic. These are discussed in the relevant chapters of this EIAR, with suitable mitigation measures identified to avoid or minimise effects. Following the implementation of these mitigation measures, there will be no significant residual effects on population and human health in the area.

- Dust from construction related activities, machinery and haulage trucks are predicted to have a short term, slight negative effect on human health. Following implementation of the mitigation measures as detailed in the CEMP e.g. spraying of exposed earthwork activities, stockpiles and site haul

roads during dry weather; sweeping of hard surface roads etc the residual effect is not significant.

- Exceedance of the daytime noise limit will occur for short periods at certain residences along the proposed cable route. However, this effect will be temporary and locally significant. To minimise the effects of noise on human health, abatement measures such as the provision of acoustic barriers will be provided, especially in the vicinity of sensitive locations. Following implementation of such mitigation measures the residual effect is predicted to be not significant.
- Inconvenience due to roadworks, diversions and road closures will be experienced by local residence and road users during construction of the cable route. There will be a short-term significant disruption to journey amenity and access for local road users in the immediate vicinity of the HVDC cable installation works. However, with the implementation of the Construction Traffic Management Plan the residual effect is expected to be short term and temporary. Once construction of the proposed development has been completed, there will be no residual impact on the road network or traffic

During the construction phase employment of approximately 250 workers will have a short-term positive on the local area.

### 15.6.2 Operational Phase

The delivery of the proposed development will result in significant long-term positive effects on the electricity network of Ireland, which will in turn bring benefits to the population of the Country.

The construction of 54 additional parking spaces on the access road to Baginbun Beach will be a moderate residual permanent beneficial effect on local access and amenity.

The extension to the footpath and the additional streetlights in Ramsgrange will be a moderate residual permanent beneficial effect on local amenity.

### 15.6.3 Decommissioning Phase

No significant residual effects on population and human health are predicted, in the decommissioning phase.

## 15.7 Cumulative and Transboundary Effects

### 15.7.1 Cumulative Effects

#### 15.7.1.1 Cumulative Effects - All Elements of Greenlink

The proposed development forms part of the Greenlink project, which also includes offshore elements, and works in Wales. The cumulative, transboundary or interactive effects of all elements of Greenlink will be positive and will include the contribution to security of electricity supply and increased competition in the electricity markets, which will support business, tourism and

employment in Wales as well as in Ireland. There will be no other cumulative effects on population or human health.

### 15.7.1.2Cumulative Effects – Other Projects

The proposed development may give rise to cumulative effects with other proposed developments, either consented or currently under construction. Two projects have been identified, which are of sufficient scale to potentially give rise to cumulative effects. These are the Great Island – Kilkenny 110kV Line Uprate Project and Great Island Energy Storage System. These projects are described in **Chapter 18** *Cumulative, Transboundary and Interactive Effects*.

A Planning and Environmental Considerations Report for the Great Island – Kilkenny 110kV Line Uprate Project, prepared by Tobin Consulting Engineers, was submitted to accompany the planning application. The report did not present a detailed assessment of the effects of the project on population and human health. Section 5.2.2 of the report concluded that, "*Due to the nature of the project located in rural areas, outside of population centres, it is considered that the proposed works will not adversely affect population and human beings.*"

An environmental report, prepared by Meridiem Renewables Ltd, was submitted to accompany the planning application for the Great Island Energy Storage System. The environmental report page 18 addressed the effects of the project on human health as follows:

*"The electricity generation sector is the second largest contributor to $CO_2$ emissions in Ireland through the burning of fossil fuels. During the fossil fuel burning process, a number of pollutants are released to air, which can lead to health issues in humans such as respiratory problems if the person is exposed for prolonged periods. The proposed ESS is a step in the right direction to ensuring the transition to a low carbon energy future free from fossil fuels and damaging air pollutants."*

**Construction Phase**

The construction phase of the line uprate project will overlap temporally with the proposed development and it will involve the same type of construction activities as the proposed development. However, there will be minimal spatial overlap, as the line uprate project will extend from the existing Great Island Eirgrid 220kV substation 49km northwards into Kilkenny.

The energy storage project will be constructed before the main mobilisation on the site of the converter station and tail station. However, If the construction of the energy storage system is concurrent with the bulk excavation works on the site of the converter station, there is potential for cumulative effects, as the sites are located adjacent to each other. Should this situation arise, noisy construction activities will be planned and phased, in consultation with the construction management team for the energy storage system project, to ensure that the relevant noise limits are achieved as set out in this chapter. Consequently, there is not expected to be a cumulative negative noise impact on the health of the nearest residential receptors, which are more than 450m from the converter station site.

Background concentrations of air pollutants in the area are well below the air quality standard limits determined for the protection of human health. Any increase in the concentrations, due to the construction of the energy storage project and the proposed development, are not expected to cause an exceedance of the air quality standards. Following the implementation of mitigation measures, dust from construction related activities is predicted to have a short term, slight negative effect.

Construction of the three projects will generate employment which will be a moderate positive effect.

**Operational Phase**

During operation of the three projects, the uprated line project, the energy storage project and the converter station and tail station will generate EMFs. However, as the level of an EMF declines very rapidly with distance from source, there will be negligible combined magnetic field, at the nearest sensitive receptors, which are more than 450m from the converter station. There is no potential for cumulative negative impact on human health with the HVDC cable, as sensitive receptors along the cable route will be spatially separate from the line uprate and energy storage projects.

There will be minimal traffic or emissions to air from the three developments, once operational. No cumulative effects on air quality, which could potentially affect human health, are predicted.

The operation of the three projects will support the electricity grid, which will have a significant beneficial effect on business, tourism and employment.

**Demolition Phase**

The life of the energy storage project will be 20 years, according to the environmental report submitted with the planning application. It is assumed that the line uprate will have a similar like to the proposed development, which will be 40 years. The demolition of the energy storage project will occur 20 years before the demolition of the proposed development. Consequently, there is not expected to be a cumulative impact from demolition activities. It is assumed that demolition of the line uprate project and proposed development will occur at the same time and will involve similar activities. However, they will be spatially separated and there is not expected to be a negative noise, dust or other impact on human beings.

The demolition phase will generate employment which will be a minor positive impact on business.

### 15.7.1.3Combined Individual Effects

Residents in the vicinity of the cable works have the potential to be significantly negatively affected by construction traffic, direct disturbance, noise and vibration, dust emissions, and visual effects when the excavation of the cable trench, installation of ducting and reinstatement is underway in their vicinity. The in-combination effects will be short-term but significant.

### 15.7.2 Transboundary Effects

Considering the nature and location of the proposed development as described in **Chapter 3** and **Chapter 4** no negative transboundary effects are predicted.

Once operation has commenced, Greenlink will provide significant additional interconnection between Ireland, the UK and onwards to mainland Europe. It will provide additional transmission network capacities, reinforcing the existing electricity grids in south-east Ireland and contributing to Ireland's strategic interconnection objectives. Greenlink will ultimately provide significant benefits to consumers and businesses in Ireland, Wales, Great Britain and mainland Europe. The advantages are as follows:

- Contribution to security and continuity of electricity supply;
- Increased efficiency of the interconnected systems – commercial electricity exchanges established result in more efficient technologies and allow energy to be transported from cheaper to more expensive locations;
- Increased competition between neighbouring systems;
- Greater integration of renewable energies; and
- Inward investment and the provision of employment.

By reducing curtailment of wind and solar energy, and facilitating export of surplus power, Greenlink will improve the efficiency of power networks, with associated improvements in wholesale power prices for renewable generation.

## 15.8 Impact Assessment Summary

| Receptor | Potential Effects | Mitigation | Monitoring | Residual Effects |
|---|---|---|---|---|
| Construction Phase | | | | |
| Local and transient population | • Possible effects on the general amenity of the surrounding area (air and noise emissions, effects on the visual amenity) in particular in close proximity to Baginbun Beach.<br>• Possible effects on road network<br>• Possible disruption to accessibility to local businesses and community facilities | • Mitigation measures relating to traffic and transportation, air quality, noise and visual amenity are discussed in **Chapters 6, 7, 8** and **11** respectively.<br>• Access to local residences, shops and community facilities along the onshore cable route will be maintained during the construction phase.<br>Additional mitigation measures include –<br>• The erection of directional and information signage where paths are temporarily closed;<br>• The provision of information to local householders during the construction phase;<br>• The provision of community liaison and nomination of personnel to manage community relations;<br>• The implementation of a Construction Environmental Management Plan (CEMP) to minimise effects of construction | Monitoring measures in relation to air quality and noise are discussed in Chapters 7 and 8 respectively | Short-term, significant negative, for duration of HVDC cable installation. |

| Receptor | Potential Effects | Mitigation | Monitoring | Residual Effects |
|---|---|---|---|---|
| | | works on local amenity and on traffic flow (refer to **Chapter 4** *Construction Strategy* and **Appendix 4.1** for further details);<br>• The preparation of an emergency response plan to cover foreseeable risks; and<br>• Construction works in the landfall site (close to Baginbun Beach) will be completed outside of July and August to avoid impacts in this peak season in the area.<br>• No on road works will be carried out during July or August to avoid disturbance during peak season at Dunbrody. | | |
| Tourism | • There is potential for a disturbance to tourists in the form of traffic, noise and air emissions and possible visual effects due to the close proximity of the works to Baginbun Beach and the wider area including Ramsgrange (e.g. cycle routes may receive additional traffic due to diversions). | • Construction works in the landfall site (close to Baginbun Beach) will be completed outside of July and August to avoid effects in this peak season in the area<br>• The implementation of a Construction Environmental Management Plan (CEMP) to minimise effects of construction works on local amenity and on traffic flow (refer to **Chapter 4** *Construction Strategy* and **Appendix 4.1** for further details); | | Short-term, significant negative on tourism, for duration of HVDC cable installation. |

| Receptor | Potential Effects | Mitigation | Monitoring | Residual Effects |
|---|---|---|---|---|
| | | | | |
| Human Health | Possible effects on human health as a result of the construction works | • Implementation of the CEMP in relation to control of dust, noise, and emissions to air from construction vehicles | As specified in the CEMP | None |
| Businesses and Employment | There is like to be a positive effect on businesses as a result of the proposed development as there is likely to be an increase in demand for their goods and services. The construction phase will also generate demand for some locally sourced inputs such as materials or machinery.<br><br>The proposed development will provide employment during the construction | None | None | None |
| Operational Phase | | | | |
| Local and Transient Population | • Possible effects on the general amenity of the surrounding area (noise emissions, effects on the visual amenity) in particular in close proximity to the converter station site. | • All plant at the converter station and tail station, which have the potential to generate noise, will be housed within buildings, thereby limiting noise breakout to the atmosphere.<br><br>• The converter station and tail station will be located adjacent to the current power station and sub-station at Great | None | The provision of long-term energy security for the people of Ireland.<br><br>Additional parking spaces on the access road to Baginbun Beach and extended footpath and additional street lighting at Ramsgrange village will be a permanent moderate beneficial effect. |

| Receptor | Potential Effects | Mitigation | Monitoring | Residual Effects |
|---|---|---|---|---|
| | • The proposed development will provide an improved energy security to the people of Ireland<br>• Additional parking spaces on access road to Baginbun Beach will be a positive effect<br>• Extended footpath and additional street lighting at Ramsgrange village | Island and mounding of earthworks will be created around the converter station and will be landscaped appropriately. It will be visually in keeping with the immediate surroundings. | | |
| Business, Tourism, Employment and Consumers | • Contribution to security and continuity of electricity supply;<br>• Increased efficiency of the interconnected systems – commercial electricity exchanges established result in more efficient technologies and allow energy to be transported from cheaper to more expensive locations;<br>• Increased competition between neighbouring systems;<br>• Greater integration of renewable energies; and<br>• By reducing curtailment of wind and solar energy, and facilitating export of surplus power, Greenlink will improve efficiency of power | None | None | • Contribution to security and continuity of electricity supply;<br>• Increased efficiency of the interconnected systems – commercial electricity exchanges established result in more efficient technologies and allow energy to be transported from cheaper to more expensive locations;<br>• Increased competition between neighbouring systems;<br>• Greater integration of renewable energies; and<br>• By reducing curtailment of wind and solar energy, and facilitating export of surplus power, Greenlink will improve efficiency of power |

| Receptor | Potential Effects | Mitigation | Monitoring | Residual Effects |
|---|---|---|---|---|
| | networks, with associated improvements in wholesale power prices for renewable generation.<br>• Greenlink is anticipated to provide permanent employment for approximately 20 people during the operational phase for the overall project, five people will have particular responsibility for the proposed development.<br>• Additional parking spaces on access road to Baginbun Beach will be a positive effect | | | networks, with associated improvements in wholesale power prices for renewable generation.<br>• Greenlink is anticipated to provided permanent employment for approximately 20 people during the operational phase for the overall project, of which approximately five people will have particular responsibility for the proposed development.<br>• Additional parking spaces on the access road to Baginbun Beach will be a permanent moderate beneficial impact. |

## 15.9 Conclusion

As stated above, with the implementation of the proposed mitigation measures and monitoring, there will be no significant residual negative effects on population and human health during the construction phase. Once commissioned the proposed development will have a significant long-term positive effect on the electricity network of Ireland, which will in turn bring benefits to the population of the Country. In addition, the construction of 54 additional parking spaces will have a moderate residual permanent beneficial effect on local access and amenity. The extended footpath and additional street lighting at Ramgrange village will contribute to pedestrian safety and residential amenity.

## 15.10 References

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