7.0 POPULATION AND HUMAN HEALTH

7.1 INTRODUCTION

This chapter examines the existing environment and addresses the potential impacts on population and human health arising from the proposed power plant in Profile Park.

The two environmental factors of population and human health are addressed under separate headings. The assessment on population considers the current land use of the proposed power plant site, the current activities occurring within and in the vicinity of the site, local population information, employment profiles and tourism.

The study area for population and human health includes review of relevant information on a county and national scale but is mainly concentrated on the Electoral Districts (ED) within which the project is located.

The potential effects of the proposed power plant on other environmental factors which may also have an impact on human beings, as set out in Chapter 8 (Land, Soils and Geology); Chapter 9 (Hydrology and Hydrogeology); Chapter 10 (Air Quality and Climate); Chapter 11 (Noise and Vibration); Chapter 14 (Landscape and Visual Impact Assessment) and Chapter 15 (Traffic and Transport), are addressed in this chapter and discussed in more detail in the relevant chapters of this EIAR. A separate section setting out the likely interactions between this assessment and other technical assessments is presented in Chapter 18 (Interaction of the Foregoing).

7.1.1 STATEMENT OF AUTHORITY

This assessment has been carried out by Louise Byrne, Planner in TOBIN Consulting Engineers. Louise has 7 years' experience in development management for local government, semi-state and consultancy. Louise has a Masters in Regional and Urban Planning from University College Dublin and is a chartered member of the Royal Town Planning Institute.

7.2 METHODOLOGY

7.2.1 GENERAL

This assessment has been carried out in accordance with the following guidelines:

- Department of Housing, Planning and Local Government (DoHPLG), Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (2018);
- Environmental Protection Agency (EPA), Guidelines on the Information to be contained in Environmental Impact Assessment Reports (Draft) (2017); and
- European Commission (EC), Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (2017).

7.2.2 POPULATION

A desktop study and a site visit were carried out in order to examine relevant information pertaining to population impact assessment. A site visit was used to verify descriptions and information of the local area, and thus inform the impact assessment. Maps from Ordnance Survey Ireland (OSI) were used to identify current and historical land use in the area as well as relevant amenity facilities within the main settlement areas proximal to the proposed power plant. The following key information sources and guidance have been used in the completion of the population aspect of this Chapter:

- Central Statistics Office (CSO) – 2016 and 2011 Census and associated data;
- Fáilte Ireland website – https://www.failteireland.ie/
- Fáilte Ireland, EIAR Guidelines for the Consideration of Tourism and Tourism Related Projects;
- Ireland's Visit Dublin website – https://www.visitdublin.com/
- South Dublin County Council Development Plan 2016 – 2022; and
- OSI – Mapping and aerial photography.

The effects of the proposed power plant on the human environment are assessed in compliance with the EIAR Guidelines as outlined in Chapter 1 (Introduction).

7.2.2.1 Employment

Information on population statistics, employment and social data for the areas surrounding the proposed power plant have been obtained from the CSO and predominantly from the 2016 and 2011 Census records. Data has been captured on an Electoral District (ED) basis as this is the most appropriate scale for collated census data and is commonly used for defining the existing population profile. The ED within which the proposed project is located comprised the study area for this assessment.

7.2.2.2 Tourism

Information on other tourist attractions and initiatives in the area have been sourced from relevant websites, such as Discover Ireland, Visit Dublin, Tourism Ireland, those hosted by the Dublin Tourism Board and published literature.

A consultation letter on the proposed power plant was sent to Fáilte Ireland on 15th February 2021. No response was received however this assessment has taken account of Fáilte Ireland's *EIAR Guidelines for the Consideration of Tourism and Tourism Related Projects*. The Fáilte Ireland Guidelines state that *"the character of an area from a tourism perspective should be described and the principal types of tourism in the area. Where relevant, the specific environmental resources or attributes in the existing environment which each group uses or values should be stated and where relevant, indicate the time, duration or seasonality of any of those activities".* The Guidelines also note that *"Where possible the value of the contribution of such tourism assets and activities to the local economy should be provided"*.

7.2.3 HUMAN HEALTH

7.2.3.1 EIA Directive

The EIA Directive does not define the term 'human health', however the 2017 EC Guidance on the preparation of the EIAR states that *"human health is a very broad factor that would be highly project dependent. The notion of human health should be considered in the context of the other factors in Article 3(1) of the EIA Directive and thus environmentally related health issues (such as health effects caused by the release of toxic substances to the environment, health risks arising from major hazards associated with the Project, effects caused by changes in disease vectors caused by the Project, changes in living conditions, effects on vulnerable groups, exposure to traffic noise or air pollutants) are obvious aspects to study. In addition, these would concern the commissioning, operation and decommissioning of a Project in relation to workers on the Project and surrounding population".*

7.2.3.2 EPA EIAR Guidelines (2002 and 2017)

The 2017 Draft EIAR Guidelines published by the EPA state that *"while no specific guidance on the meaning of the term Human Health has been issued in the context of Directive 2014/52/EU, the same term was used in 3.3.6 the SEA Directive (2001/42/EC). The Commission's SEA Implementation Guidance states 'The notion of human health should be considered in the context of the other issues mentioned in paragraph (f)'".* Paragraph (f) (of Annex I of the SEA Directive) lists the environmental factors including soils, water, landscape, air etc.).

The 2017 Draft EPA Guidelines also state that the above health assessment approach is *"consistent with the approach set out in the 2002 EPA Guidelines where health was considered through assessment of the environmental pathways through which it could be affected, such as air, water or soil".* The 2002 EPA Guidelines state *"The evaluation of effects on these pathways is carried out by reference to accepted standards (usually international) of safety in dose, exposure or risk. These standards are in turn based upon medical and scientific investigation of the direct effects on health of the individual substance, effect or risk. This practice of reliance upon limits, doses and thresholds for environmental pathways, such as air, water or soil, provides robust and reliable health protectors* [protection criteria] *for analysis relating to the environment".*

The 2017 Draft EPA Guidelines also note that in an EIAR, *"the assessment of impacts on population & human health should refer to the assessments of those factors under which human health effects might occur, as addressed elsewhere in the EIAR e.g. under the environmental factors of air, water, soil, etc."* and that *"assessment of other health & safety issues are carried out under other EU Directives, as relevant. These may include reports prepared under the Integrated Pollution Prevention and Control, Industrial Emissions, Waste Framework, Landfill, Strategic Environmental Assessment, Seveso III, Floods or Nuclear Safety Directives. In keeping with the requirement of the amended Directive, an EIAR should take account of the results of such assessments without duplicating them".*

7.2.3.3 IEMA Discussion Document (2017)

The Institute for Environmental Management and Assessment (IEMA) in the UK issued a discussion document in 2017 (IEMA, 2017) which it describes as a primer for discussion on what a proportionate assessment of the effects on health should be in EIA. It is a useful document

when considering what can and should be assessed in the context of EIA. Regard has been given to the general approach advocated in this document when compiling this chapter.

One of the messages in the IEMA document in terms of assessing health in EIA, is that there should be a greater emphasis on health outcomes (i.e. the potential effects on human health), rather than simply the health determinants (i.e. the agents or emissions which could have the potential to have health effects). The IEMA document noted that in EIA, there has previously been a strong focus on just the agents or emission levels (e.g. dust) rather than focusing on the effects of these agents/emission levels on human health. This change in emphasis does not mean a complete change in practice.

The IEMA document notes that *"public health is defined as the science and art of promoting and protecting health and well-being, preventing ill-health and prolonging life through the organised efforts of society and has three domains of practice: health protection, health improvement and improving services"*. The IEMA document suggests that these three domains should be considered in the assessment of health in EIA. Examples of health protection issues to be considered could include issues such as chemicals, radiation, health hazards, emergency response and infectious diseases whilst health improvement issues could include lifestyles, inequalities, housing, community and employment. Examples of improving services issues could include service planning, equity and efficiencies.

The WHO defined health, in its broader sense, in its 1948 constitution as *"a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity"*. Therefore, whilst the EPA EIAR Guidance is useful in terms of health protection, for a more holistic assessment, as per the IEMA document, it is also worthwhile to look at broader health effects in terms of opportunities for improvement of health and for improvement of access to services. While it is important to do this, it is also important not to attribute every conceivable event as being a health effect. To further rely on the WHO definition, a health effect would be something that would have a material impact on somebody's physical, mental and social well-being, be that positive or negative.

7.2.3.4 Health Impact Assessment and Environmental Impact Assessment

The 2017 IEMA Discussion Document notes that Health Impact Assessment (HIA) and EIA are separate processes and that whilst a HIA can inform EIA practice in relation to human health, a HIA alone will not necessarily meet the EIA human health requirement. HIA is not routinely carried out for infrastructure schemes in Ireland.

Guidance on HIA was issued by the Institute of Public Health in Ireland (IPHI) in 2009 (IPHI, 2009). There are, however, considerable difficulties in performing a HIA as outlined by the IPHI for infrastructural projects. Not least of these is the difficulty of getting baseline health data. It is quite difficult due to patient confidentiality, and other reasons, to accurately determine levels of even relatively common medical conditions in a relatively defined population that might be affected by a proposed project. In the absence of an accurate baseline, it is very difficult to assess qualitative and quantitative changes that might occur. One could use more generalised data that might exist for larger areas such as a city or county, but these would be at most an estimate of the local baseline and not accurate enough to allow for meaningful interpretation.

The 2017 IEMA Discussion document also notes that the WHO provides an overview of health in different types of impact assessment (WHO, 2014) and presents the WHO perspective on the relationship of HIA to other types of impact assessment as follows:

"The health sector, by crafting and promoting HIA, can be regarded as contributing to fragmentation among impact assessments. Given the value of impact assessments from a societal perspective, this is a risk not to be taken lightly…The need…and justification for separate HIA cannot automatically be derived from the universally accepted significance of health; rather, it should be demonstrated whether and how HIA offers a comparative advantage in terms of societal benefits…Health issues can, and need to, be included [in impact assessment] *irrespective of levels of integration. At the same time, from a civic society perspective, it would be unacceptable for HIA to weaken other impact assessments. A prudent attitude suggests optimizing the coverage of health along all three avenues*:

- *better consideration of health in existing impact assessments other than HIA;*
- *dedicated HIA; and*
- *integrated forms of impact assessment."*

It is clear, therefore, that the WHO does not support a stand-alone HIA unless it could be demonstrated to be of advantage over an EIAR. It is for these reasons that this health assessment is part of the EIAR and there is no stand-alone HIA.

The HIA is defined as a combination of procedures, methods and tools that systematically judges the potential, and sometimes unintended, effects of a policy, plan, programme or project on both the health of a population and the distribution of those effects within the population, whilst the health assessment in the context of EIA focuses the attention of the assessment on likely significant effects, i.e. on effects that are deemed likely to occur and, if they were to occur, would be expected to be significant (as per the requirements of the EIA Directive). Conducting a HIA will not necessarily meet the EIA Directive population and human health assessment requirement.

7.2.3.5 Health Protection

The assessment of human health for the proposed power plant, in terms of health protection, follows the approach set out in the 2017 EIAR Draft Guidelines and in the EC's Guidance on the preparation of the EIAR. It is also similar in nature to the US Environmental Protection Agency (USEPA) Guidance, entitled *Health Impact Assessment Resource and Tool Compilation* (USEPA, 2016). Human health protection is considered through the assessment of the environmental factors (pathways) through which health could be affected such as air, noise, water and soils. The USEPA Guidance includes a four-step approach which is represented graphically in Figure 7-1.

Figure 7-1: Four-step Risk Assessment Process (Source: USEPA, 2016)

This USEPA risk assessment process is similar to the Irish 2017 EIAR Draft Guidelines in that the potential noise, air, soils and water effects which could affect human health are identified (Hazard Identification), the scale of these potential effects (Dose-Response Assessment) and their duration (Exposure Assessment) are assessed and the significance of the potential impact on human health is determined (Risk Characterisation).

It should be noted that the identification of individual environmental hazards and the associated potential effects and duration are undertaken in other chapters of this EIAR. The associated significance in terms of the potential impact on human health is then considered in this chapter.

7.3 BASELINE ENVIRONMENT

7.3.1 POPULATION

7.3.1.1 Land Use

The site of the proposed power plant is located in Profile Park, Dublin 22 which is approximately 3.15km west of Clondalkin town centre.

Profile Park is a 100 acre (40.5 Ha) fully enclosed, private business park. Existing tenants within Profile Park and the surrounding business and enterprise parks include Google, Microsoft, Digital Realty Trust, Telecity and others. Immediately adjacent to Profile Park is the Castlebaggot 110 / 220 kV substation which provides electrical transmission connectivity to the national electricity transmission grid system.

The site of the proposed power plant is greenfield. The north western and eastern boundaries of the site are defined by the internal road network within Profile Park. The existing Digital Realty Trust is located immediately to the south of the site. The are no land use/activities on the existing site. The immediate area is predominantly commercial / industrial in nature. Outside of this, Grange Castle Golf Course is located approximately 120m east of the site and Baldonnel Aerodrome 450m south of the site. The nearest residential properties are located some 400m to the south of the site and some 450 m to the north east.

Electrical power will be exported from the power plant's main transformers to the existing Castlebaggot 220 / 110 kV Substation which is operated by EirGrid or to a new proposed 110

kV substation in Profile Park. No confirmed details of this potential new substation were available for consideration as part of this EIAR.

The nearest primary schools to the proposed site is Talbot Senior National School and Nano Nagle Junior National School, each located approximately 2.25km north east of the site. Other national schools within the vicinity of the site include Sacred Heart National School, located approximately 2.66km east of the site and Adamstown Castle Educate Together, located 2.65km north west of the site.

TU Tallaght (Technological University Dublin) campus is the nearest third level campus at 5.72 km south east of the site. Maynooth University is located 12.68km north west of the site and Trinity College Dublin is located 12km east of the site.

Public transportation available in the around the proposed site includes a Dublin Bus Route no. 68 and Niteline Route no. 69N.

A number of community facilities and amenities are available in the wider geographical area.

- Peamount Hospital, Deansrath Health, Cherry Orchard Hospital and Tallaght University Hospital
- Nangor Medical Centre, Clondalkin Medical Centre, Primacare / Griffeen Medical Centre
- Clondalkin Garda Station, Rathcoole Garda Station and Tallaght Garda Station
- Tallaght Fire Station
- Sacred Heart Presbytery Church, Newlife Community Church, Immaculate Conception Church and St Johns Church of Ireland
- The Mill Centre, Riverwalk Plaza and Citywest Shopping Centre

Further detailed description of the proposed project is provided in Chapter 3 (Description of the Proposed Development) of this EIAR.

7.3.1.2 Population Trends

An examination of the existing population in the study area has been carried out to identify population trends, density and to define the properties/receptors surrounding the proposed site. Census data from the period 2006 – 2016 available from the CSO[5] has been summarised in Table 7-1. The proposed power plant would be located in the local authority area of South Dublin County Council and within the Electoral Division (ED) Clondalkin Village:

Table 7-1: Population Trends 2006 – 2016

Area	Population 2006	Population 2011	Population 2016	% Change from 2006 - 2016
State	4,239,848	4,588,252	4,761,865	+12.3%
Leinster	2,295,123	2,504,814	2,634,403	+14.8%
South Dublin CC	246,935	265,205	278,767	+12.09%
Clondalkin Village ED	8,718	8,492	9,152	+5%

[5] https://www.cso.ie/en/census/ (Accessed on 01 March 2020)

During the period of 2006 to 2016, the population increased nationally by approximately 12.3% with the population of South Dublin County increasing by 12.09%. During this time, the population of Clondalkin Village ED increased by 5%, which represents an increase of 434 persons for the area. This illustrates that the population of the local area is increasing at a slower rate than rates at county, regional and national level.

Population density measures the number of persons occupying a geographical area in proportion to the size of that area. It is a useful indicator of settlement patterns in the area surrounding the proposed project and South Dublin County overall.

Table 7-2 shows population density for the study area as well as South Dublin County Council and shows generally sparser population in the study area compared with the overall county.

Table 7-2: Population Density 2016

Area	Population Density 2016 (persons/km^2)
South Dublin County	1251.53
Clondalkin Village ED	57.56*

*This figure is based on the Small Area (SA) 267053001[6], which indicates that the density of the Small Area is low in comparison to the County overall. This partly reflects the nature of land use activities in the area surrounding the proposed site, which is predominantly made up of industrial uses, open amenity space and a small proportion of low density housing development.

7.3.1.3 Property/Receptors

The locations of properties and buildings (referred to as receptors) in the vicinity of the proposed power plant have been identified using address data from the Geodirectory database which is used to populate Eircodes. The validity of the Geodirectory data has been confirmed by way of publicly available mapping, aerial imagery, street-level imagery and a ground truthing survey carried out in March 2021. All receptors within 1km of the proposed site boundary have been identified and used to inform assessments within this EIAR.

A total of 146 no. receptors from the Geodirectory database, ground truthing exercise and planning search were identified. The locations of these receptors in relation to the proposed power plant are shown in Figure 7-2 with a summary of identified receptors presented in Table 7-2.

[6] **http://airomaps.nuim.ie/id/Census2016/** (Accessed 02/03/2021)

Figure 7-2: Receptors Within 1km of Site Boundary

Table 7-2: Summary of Receptors Within 1km of the Site Boundary

Receptor Type	No. Within 1km of Proposed Site Boundary
Sensitive Receptors (incl. planning submitted and granted)	26
Non-Habitable Buildings (including commercial buildings)	118
Unconfirmed Buildings	2
Total	**146**

7.3.1.4 Property Values

Data available from the CSO on property values is presented in terms of Eircode Routing Key areas. The proposed site is located within Eircode Routing Key Area Dublin 22. The CSO data for the year to February 2021[7] show that the median price of residential properties sold across the area is €275,000.

7.3.1.5 Employment & Economy

Employment is an important indicator of the economic standing of an area. This section examines employment status and unemployment levels in the region of the proposed power plant. The Labour Force Survey undertaken by the CSO provides details of unemployment on a regional level. As the site is located in the Eastern & Midland Region (IE061)[8], data for this region is used to illustrate unemployment in the area.

Table 7-3 illustrates the findings from the Q4 2019 Labour Force Survey published by the CSO[9]. The first case of Covid-19 was reported in Ireland at the end of February 2020 and measures required in accordance with the public health guidance were introduced on 12 March 2020. As a result, the Labour Force Survey statistics from Q1 2020 to present are affected by the crisis and, therefore, employment statistics pre-crisis have been used a more representative indicator.

The unemployment rate in Table 7-3 is the number of unemployed persons expressed as a percentage of the total labour force (aged 15 – 74). The unemployment rate for the State in Q4 2019 was 4.5% while the unemployment rate for the Eastern and Midland Region was 4.4% showing that unemployment in the region (in Q4 2019) was comparable to the State.

The participation rate is the number of persons available to the labour force (i.e. persons from 15 – 74 years old either working or looking for work) expressed as a percentage of the total population. In Q4 2019, the participation rate in the State was 62.7%, which is comparable to the Eastern and Midland Region, which had a recorded participation rate of 64.8%.

Table 7-3: Labour Force Survey (Q4 2019)

Location	Unemployment Rate	Participation Rate
State	4.5%	62.7%
Eastern and Midland Region	4.4%	64.8%

The CSO also publishes figures relating to the Live Register. These figures are not strictly a measure of unemployment as they include persons who are legitimately working part-time and signing on part-time. However, the Register can be used to provide an overall trend within an area.

[7] https://www.cso.ie/en/interactivezone/visualisationtools/housepricesbyeircode/ (Accessed on 05 March 2021)
[8] NUTS 3 – Nomenclature of Territorial Units for Statistics (NUTS) created by Eurostat
[9] https://www.cso.ie/en/releasesandpublications/er/lfs/labourforcesurveylfsquarter42019/ (Accessed on 05 March 2021)

The figures in Table 7-4 show that over the period of December 2018 – December 2019, there was an 8.9% decrease in the number of persons on the Live Register in the State as a whole and an 8.8% decrease in the number of persons on the Live Register in the Eastern and Midland Region[10]. Despite a decreasing trend in Live Register figures (pre-COVID-19 crisis), the overall trend indicates a need for further employment in the Eastern and Midland Region.

Table 7-4: Live Register Figures (December 2018 – December 2019)

Location	December 2018	December 2019	% Change
State	199,669	181,996	-8.9%
Eastern & Midland Region	47,662	43,437	-8.8%

Section 4 of the South Dublin County Council Development Plan 2016 – 2022 sets out the Economic Development Policy Objectives for South Dublin to facilitate and support economic growth in an environmentally sustainable manner. The following key aims have been identified:

- To strengthen existing employment centres;
- To strengthen the integration between employment, housing and transportation with a view to promoting compact urban areas and reducing car dependency;
- To support high-value jobs as companies seek to move up the value chain and undertake higher value-added activities in Ireland.
- To facilitate economic growth by consolidating existing industrial and commercial areas and by ensuring that there is an adequate supply of serviced employment lands at suitable locations.
- To promote the regeneration of underutilised industrial areas in a manner which enhances the local economy and encourages a sequential approach to development;
- To provide for a range of business accommodation types, including units suitable for small business.

Some of the relevant policy objectives identified in the South Dublin County Council Development Plan 2016 - 2022 in support of the above aims:

- ET1 Objective 3: To support the continued development of economic clusters to the west of the County by prioritising compatible and complementary enterprise and employment uses that would not undermine the established character of these areas.
- ET1 Objective 4: To support the renewal of underutilised industrial areas to the east of the M50 and in proximity to Tallaght and Clondalkin Town Centres.
- ET1 Objective 6: To direct people intensive enterprise and employment uses such as major office developments (>1,000sq.m gross floor area) into lands zoned Town Centre and Regeneration Zones in Tallaght, lands zoned Town Centre in Clondalkin and also to lands zoned District Centre and Enterprise and Employment, and Regeneration Zones subject to their location within 400 metres of a high capacity public transport node (Luas/Rail), quality bus service and/or within 800 metres walking distance of a Train or Luas station, the latter

[10] https://www.cso.ie/en/releasesandpublications/er/lr/liveregisterdecember2019/ (Accessed on 05 March 2021)

requiring demonstration of required walking distance or provision of a permeability project, in accordance with the Permeability Best Practice Guide (2013), to achieve same.

The South Dublin County Council Development Plan 2016-2022 acknowledges that the geographic location of South Dublin County on the edge of the Dublin Region presents an economic opportunity to provide large serviced sites that can attract large-scale investment to the area. South Dublin County seeks to protect and enhance this economic strength to ensure the region remains competitive through provision of suitable locations for development. The proposed site is located within a larger industrial area, Grange Castle Business Park, which is identified in the South Dublin County Council Development Plan as an area with capacity to attract large scale industry.

7.3.1.6 Tourism

The area surrounding the proposed site is characterised by industrial land uses and activity. Tourism therefore is not present within the immediate vicinity of the site. Notwithstanding this, it is helpful to understand the site within a national, regional and county wide context.

National Tourism Development Authority (Fáilte Ireland) periodically collates statistics on overseas visitors to Ireland and regions within the country. Table 7-5 shows the most recent overseas tourism statistics from 2018[11] and 2019[12] for the country and the Dublin region, which includes South Dublin County Council.

Table 7-5: Overseas Tourism Statistics 2018 & 2019

Location Travelled To	Tourist No.'s	Tourist Expenditure
Ireland (2019)	9.7 million	€5.6 billion
Ireland (2018)	9.6 million	€5.6 billion
Dublin (2018)	6,309,000	€2.09illion

In relation to domestic tourism (tourism involving residents of one country traveling only within that country), the Fáilte Ireland 2018 data reports 10.9 million domestic trips in 2018, an increase of over 13% on 2017. The majority (40%) of these domestic trips were recorded as short (1-3 days) holiday trips with trips to visit friends/relatives reported at 34% of all domestic trips. Most of these trips are shown to occur in the late summer period (July – September) with the majority of domestic holidaymakers engaging in hiking/walking (26%).

11 http://www.failteireland.ie/FailteIreland/media/WebsiteStructure/Documents/3_Research_Insights/Key-Tourism-Facts-2018.pdf?ext=.pdf(Accessed on 08 March 2021)

12 https://www.failteireland.ie/FailteIreland/media/WebsiteStructure/Documents/3_Research_Insights/4_Visitor_Insights/KeyTourismFacts_2019.pdf?ext=.pdf (Accessed on 30 April 2021)

Fáilte Ireland statistics for 2018 show that County Dublin (of which South Dublin County Council is part of) attracted 6,309,000 overseas visitors with associated revenue generation of €2,095 million. The county supported 1,700,000 domestic trips for the same year.[13]

South Dublin County seek to support and facilitate the development of the County's tourism and leisure sector. The county enjoys a variety of natural, cultural and built heritage resources with the South Dublin Tourism Strategy 2015 identifying a range of actions to develop tourist products. Furthermore, Destination Dublin, A Collective Strategy for Tourist Growth to 2020 has been developed to aid development of the tourist product. Some of the attractions within the vicinity of the proposed site are:

- Grange Castle Golf Course is the closest tourist attraction to the proposed power plant; Located approximately 221m south east of the site, the course is owned by South Dublin County Council;
- Corkagh Park is located 1.28km south east of the proposed site. The park is approximately 120 hectares in size and originally formed part of a manor house and estate Camac Valley Tourist: Caravan & Camping Park is located c. 1.7km south east of the proposed site, within the Corkagh Park demesne;
- Clondalkin Round Tower is built on the site of a monastery and dates back to the 7th century. It is located approximately 3.23 km north east of the proposed power plant and is one of only four remaining round towers in Dublin;
- The largest attraction in the vicinity of the proposed power plant is the Dublin Mountains Park, which is located approximately 5.24 km to the south, providing high quality recreation amenity and experience for both domestic and overseas visitors;

To enhance visitor experiences across the whole of county Dublin, Fáilte Ireland has launched a tourism initiative and website called Visit Dublin [14] to provide comprehensive information on attractions and events across the area.

7.3.2 HUMAN HEALTH

Evidence shows that different communities have varying susceptibilities to health effects both positive and negative as a result of social and demographic structure, behaviour and relative economic circumstance. Whilst specific health data for individuals in the vicinity of the proposed power plant is confidential and difficult to establish, a community profile has been identified to establish the baseline health profile of the area and compare this profile to the rest of the country.

A group made up of the Health Services Executive (HSE) and the Irish Health Repository (IHP), known as Lenus, have published separate health profiles for all the Local Authorities areas in Ireland. The most recent County Health Profiles published are from 2015[15] (Lenus, 2015) and

[13] http://www.failteireland.ie/FailteIreland/media/WebsiteStructure/Documents/3_Research_Insights/Key-Tourism-Facts-2018.pdf?ext=.pdf (Accessed on 08 March 2021)

[14] https://www.visitdublin.com/

[15] https://www.lenus.ie/bitstream/handle/10147/584044/Dublin+South.pdf?sequence=1(Accessed on 08 March 2021)

have been used to establish a community health profile for South Dublin County Council in which the proposed power plant is situated.

The key facts in the 2015 Health Profile relating to South Dublin County Council are:

- The proportion of the population for the area are aged over 65 years is 8.7%, which is considered low when compared with the national rate of 11.7%
- The area has the highest rate of lone parent households (2.9% higher than the national rate) and an above average number of households which are local authority rented.
- Average births for the area is 18.8%, whilst for the nation is 15.8 %. In addition, breastfeeding rates are above average with a rate of 53.7%, whereas the national rate is 46.6%.
- Cancer rates and mortality rates are above the national average.

It is important to realise when viewing these figures that they relate to the entire administrative area of South Dublin County Council and a population of 265,205 in the 2011 Census. While the published data can be taken as being correct, it may not necessarily accurately reflect the health profile of smaller areas which are within the study area and close to the proposed power plant.

The map of deprivation included in the County Health Profile shows that South Dublin County Council experiences higher levels of Disadvantage when compared with levels of the nation overall as shown in Figure 7-3: Map of Levels of Deprivation in South Dublin County Council (Source: Extract from Health Profile 2015 South Dublin).

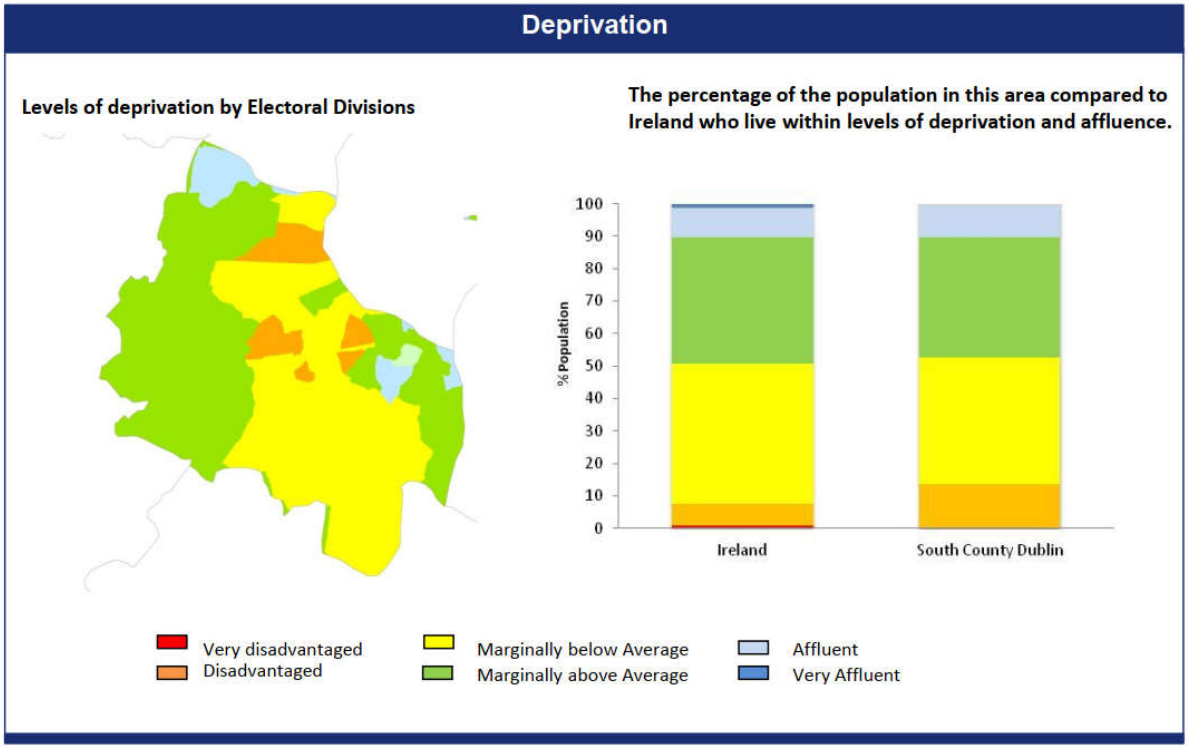

Figure 7-3: Map of Levels of Deprivation in South Dublin County Council (Source: Extract from Health Profile 2015 South Dublin)

As outlined previously, it is not possible or necessary to identify every vulnerable individual. However, every human community contains vulnerable individuals; be those the old, the very young or because they have conditions which may make them more susceptible. Examples are diverse and can include asthma, autism, and those with psychological illness. It is important to note that Health Standards are set for the vulnerable and not for the robust.

The emergence of the Covid-19 virus in Ireland in the early part of 2020 has presented a new human health risk and concern amongst the general public across the country and within the proposed power plant study area. Public health measures, including varying levels of restrictions, are being actively implemented at this time (June 2021) and the medium to long term effects of the virus on national and local human health is not currently known. The existing environment in terms of Covid-19 impact is in flux and the public health advice requires cognisance to be taken of potential restrictions and all measures required to prevent the spread of the disease.

7.4 ASSESSMENT OF SIGNIFICANT EFFECTS ON POPULATION

7.4.1 DO NOTHING EFFECTS

Under a Do-Nothing Scenario, the existing lands would remain unchanged as a greenfield site. As such there would be no emissions generated from the construction or operation of the proposed power plant or potential effect associated with noise, vibration, air, visual or traffic. The opportunities for local employment and additional economical spend from the construction and operation of the proposed power plant would not be realised.

7.4.2 CONSTRUCTION PHASE

7.4.2.1 Land Use

As set out Section 3.4.1, it is expected that construction will commence in 2023 with design, construction, and commissioning activities lasting for approximately 20 months. The plant is expected to be fully operational in 2024/25 subject to timely receipt of the necessary statutory consents. The total number of construction staff on-site will vary during the construction phase of the works but are expected to peak at approximately 50 persons. This will result in a negative, short-term and moderate effect on land use.

7.4.2.2 Population Trends

It is anticipated that there would be a positive direct effect on local population trends as a result of the construction of the proposed power plant. Employment generation is considered to involve 50 persons during peak activities on site and this short-term increase in employment may also result in a short-term increased need for accommodation locally. This short-term positive effect will add value to the local economy. Otherwise, the construction of the proposed power plant would not result in any permanent change to local population trends within the area or across South Dublin County Council. There will be a short-term and imperceptible effect on population.

7.4.2.3 Property/Receptors

Access to the proposed site will be via a new site entrance from an existing industrial estate roadway with access to the industrial estate provided north of the site via the R134. The potential traffic effects are discussed in detail in Chapter 15 (Traffic and Transportation).

Negative effects on the local population as well as residential properties as a result of construction work, including construction related traffic movements, could impact on noise and air quality. In addition, there is potential for works to impact local residential amenity, i.e. a residents enjoyment of their home.

The delivery of construction equipment and materials is proposed via existing public roads, which are currently used by heavy goods vehicles (HGV)s. Notwithstanding, there will be a short-term increase in traffic related effects during the construction phase. These effects are assessed in detail in the Chapter 10 (Air Quality and Climate) and Chapter 11 (Noise and Vibration).

It is considered that any negative effects arising during construction will be slight and short term in nature. In addition, it should be noted that properties located along the R134, which will experience an increase in construction traffic movements are located at a distance from the proposed power plant site, with the nearest residential dwellings located 412m south and 442m north east of the proposal.

7.4.2.4 Property Value

The construction works for the proposed power plant will not have any impact on the local property values. Profile Park and its surrounding business parks are zoned for 'Employment and Industry' and there is significant construction being undertaken in this area with no evidence of a reduction in house prices arising from this construction activity. The effect on property value will be neutral.

7.4.2.5 Employment/Economy

The proposed power plant will lead to the support and creation of direct and indirect employment during construction. At a local level, employment will rise on site and at a national level, employment will be created through specialised construction services as well as through the supply of building equipment and materials. It is anticipated that the proposed power plant will have the following effects locally:

- Increased generation of development activities such as site monitoring/surveys, site investigations, legal fees, consultancy studies during pre-construction and construction works, etc.;
- Increased spending locally by construction employees; and
- Increased demand for accommodation and sustenance will be required in the locality for workers on site.

As a result, the construction phase of the proposed power plant will have a short-term, slight positive effect on employment and economy in the local area.

7.4.2.6 Tourism

There are a number of tourism attractions and public amenities within the study area including the Grange Castle Golf Course, Corkage Park, Clondalkin Round Tower and the Dublin Mountains Park. It is not considered that construction work will have any direct or negative impact on tourist amenities. In addition, there are no anticipated negative effects arising from construction for local recreational users. Effects are predicted to be neutral.

Potential effects on receptors with regards to noise and vibration, air, traffic and visual appearance are assessed in the relevant chapters of this EIAR.

7.4.3 OPERATIONAL PHASE

7.4.3.1 Land Use

The site of the proposed power plant will change from a greenfield site zoned for 'Enterprise and Employment' development to a power plant. This will result in a long-term and significant effect on land use which is consistent with the land use zoning of the site and its environs.

7.4.3.2 Population Trends

The power plant will be minimally manned with a dedicated team with responsibility for carrying out routine maintenance, attending meetings, accepting deliveries and security services. Out of hours security services will be arranged to ensure the site is secure. There will be an imperceptible effect on population.

7.4.3.3 Property/Receptors

It is not anticipated that the proposed power plant whilst in operation will have any significant or long term impact on sensitive local receptors (dwellings) within the area. As set out in section 7.6.1.3, the nearest residential dwellings are located 412m south and 442m north east of the proposed power plant. Potential effects on receptors with regards to noise, air, visuals etc are assessed in the relevant chapters of this EIAR.

7.4.3.4 Property Value

The proposed power plant is not predicted to have any impact on the local property values. Profile Park and its surrounding business parks are zoned for 'Employment and Industry' and there is significant development of similar commercial and industrial infrastructure in this area with no evidence of a reduction in house prices. The effect on property value will be neutral.

7.4.3.5 Employment/Economy

The power plant will be minimally manned with a dedicated team with responsibility for carrying out routine maintenance, attending meetings, accepting deliveries and security services. There will be an imperceptible direct effect on employment however the indirect effects of the power plant may include facilitating additional data centre development. In the event that this was to occur this would result in employment and other commercial opportunities which would have a slight to moderate positive effect.

7.4.3.6 Tourism

The Fáilte Ireland Guidelines state that *"The impact upon tourism can be considered within this section through the sensitivities of hospitality, safety and pace of life. Changes in population can impact the perception of pace of life or safety in a particular location".* The Guidelines also note that *"Impacts upon these issues in areas which rely heavily on tourism or have a particular sensitive tourism generator should be considered in this section".*

As noted previously, there are a number of relevant tourism attractions and public amenities within the study area including the Dublin Mountains Park, as well as the adjacent Grange Castle Golf Course and Corkagh Park.

It is not anticipated that the operation of the proposed power plant will have any direct or negative impact on tourist amenities or local recreational amenities. Effects are predicted to be neutral.

7.4.4 DECOMMISSIONING PHASE

The proposed power plant is expected to be operational for at least 25 years. On cessation of activities, the plant will either be redeveloped as a power related facility or the site will be redeveloped in an alternative form.

In the event that the plant is decommissioned, the following programme will be implemented:

- All plant equipment and machinery will be emptied, dismantled, and stored under appropriate conditions until it can be sold. If a buyer cannot be found, the material will be recycled or disposed of through licensed waste contractors and hauliers. If plant and machinery is required to be cleaned on site prior to removal, all necessary measures will be implemented to prevent the release of contaminants;
- All waste will be removed from the facility; and
- The site and all associated buildings will be secured.
- Waste will be recycled wherever possible. All waste movement, recycling, and disposal operations will be controlled by licensed waste contractors.

Details of provisions to decommission and render safe or remove all materials, waste, ground, plant, or equipment contained on or in the site that may result in environmental pollution will be agreed with the Environmental Protection Agency and set out in a Decommissioning Management Plan as part of the Industrial Emissions Licensing process. It is expected that effects will be similar or reduced from those predicted during the Construction Phase.

7.5 ASSESSMENT OF SIGNIFICANT EFFECTS ON HUMAN HEALTH

The following sections provide a summary of some of the available material in relation to potential effects of the proposed power plant on human health.

7.5.1 DO NOTHING EFFECTS

Under a Do-Nothing Scenario, the existing lands would remain unchanged as a greenfield site. The health benefits to the country associated with replacing fossil fuels with sustainable forms

of energy development would be lost and alternative candidate sites would not be supported by the operation of this project.

7.5.2 CONSTRUCTION PHASE

7.5.2.1 Air Quality and Dust Emissions

The greatest potential effect on air quality during the construction phase of the proposed power plant is from construction dust emissions as a result of excavation works, infilling and landscaping activities and storage of soil in stockpiles. This leads to the potential for nuisance dust. While construction dust tends to be deposited within 350 m of a construction site, the majority of the deposition occurs within the first 50 m (IAQM, 2014). The extent of any dust generation depends on the nature of the dust (soils, peat, sands, gravels, silts etc.) and the nature of the construction activity. In addition, the potential for dust dispersion and deposition depends on local meteorological factors such as rainfall, wind speed and wind direction.

The construction of the proposed power plant will take place away from residential properties (receptors) with the nearest receptor located over 400m from the plant. As set out in Chapter 10, dust and particulate matter effects from the site will be negative, short-term and imperceptible in nature, posing no nuisance at nearby receptors.

7.5.2.2 Noise and Vibration

During the construction phase of the proposed power plant there will be some effect on nearby noise sensitive properties due to noise emissions from site traffic and other construction activities. However, given the distances between the main construction works and nearby noise sensitive properties and the fact that the construction phase of the development is temporary in nature, it is expected that the various noise sources will not be excessively intrusive. Furthermore, the application of binding noise limits and hours of operation, along with implementation of appropriate noise and vibration control measures, will ensure that noise and vibration effect is kept to a minimum. Noise effects are predicted to be slight and short term. Vibration effects are predicted to be not significant and momentary.

7.5.2.3 Health and Safety

All activities carried out by the appointed Contractor on the proposed power plant will be in accordance with the requirements of the *Safety, Health and Welfare at Work Act 2005* as amended and Regulations made under this Act. The CEMP sets out the Health and Safety requirements for the project including the erection of fencing, signage and notification of commencement of works to the Health and Safety Authority (HSA).

7.5.3 OPERATIONAL PHASE

7.5.3.1 Air Quality

Air dispersion modelling was undertaken to assess the impact of the proposed power plant with reference to EU ambient air quality standards which are based on the protection of human health. As demonstrated by the dispersion modelling results set out in Chapter 10 (Air Quality and Climate), emissions from the site are compliant with all National and EU ambient air quality limit values and, therefore, will not result in a significant effect on human health. In relation to

the spatial extent of air quality effects from the site, ambient concentrations will decrease significantly with distance from the site boundary.

7.5.3.2 Noise and Vibration

With respect to the operational phase of the proposal, the predicted noise and vibration levels are expected to be within best practice noise limits. Noise effects are predicted to be slight and long term. Vibration effects are predicted to be not significant and long term.

7.5.3.3 Health Benefits

Aside from the potential socio-economic benefits previously discussed, there are environmental benefits to the proposed power plant. The current and historical practice of fossil fuel combustion with the associated release of a range of pollutants including particulate matter, oxides of nitrogen, sulphur dioxide, carbon dioxide and many others is well documented. The release of these pollutants from the power generation sector is also a major contributor to global warming and the resulting changing effects on our climate.

The phasing out of coal, gas and peat burning power plants in Ireland is a key step in achieving Ireland's 2030 decarbonisation ambition as set out in the Climate Action Plan 2019 and the placement of fossil fuels in electricity generation by clean renewable wind energy will have significant benefits for air quality and slowing down global warming.

The contribution of the proposed power plant to a decrease in reliance on fossil fuel combustion will have a moderate to significant positive long-term effect on the health and well-being of the general population.

7.5.3.4 Residential Amenity

Residential amenity relates to the human experience of a person's home, derived from the general environment and atmosphere associated with the residence. The quality of residential amenity is influenced by a combination of factors, including site setting and local character, land-use activities in the area and the relative degree of peace and tranquillity experienced at the residence. The nearest dwellings to the proposed power plant are located approximately 400m south and 450m north east of the site. Access to the proposed site will be via an existing access to Profile Park via the R134 and therefore these properties will be unaffected by the proposed power plant. There will therefore be a neutral effect on amenity.

As noted previously, there are no anticipated negative effects on residential amenity arising from the operation of the proposed power plant. Further detail on the assessment of noise, vibration, air quality and traffic are set in their respective chapters of this EIAR.

7.5.4 DECOMMISSIONING PHASE

As set out in Section 7.4.4, details of provisions to decommission and render safe or remove all materials, waste, ground, plant, or equipment contained on or in the site that may result in environmental pollution will be agreed with the Environmental Protection Agency and set out in a Decommissioning Management Plan as part of the Industrial Emissions Licensing process. It is expected that effects will be similar or reduced from those effects predicted during the Construction Phase.

7.6 MITIGATION AND MONITORING MEASURES

7.6.1 CONSTRUCTION PHASE

No specific mitigation or monitoring measures are proposed in terms of population and human health outside of those specified in the respective technical chapters of this EIAR as referenced in Section 7.1.

7.6.2 OPERATIONAL PHASE

No specific mitigation or monitoring measures are proposed in terms of population and human health outside of those specified in the respective technical chapters of this EIAR as referenced in Section 7.1.

7.6.3 DECOMMISSIONING PHASE

It is envisaged that the proposed power plant will be operational for at least 25 years and on cessation of activities, the plant will either be redeveloped as a power related facility or the site will be redeveloped in an alternative form. In the event where the facility is decommissioned, details of provisions to decommission and render safe or remove all materials, waste, ground, plant, or equipment contained on or in the site that may result in environmental pollution will be agreed with the Environmental Protection Agency as part of the Industrial Emissions Licensing process.

7.7 CUMULATIVE EFFECTS

In the assessment of cumulative effects, any other existing, permitted or proposed developments in the surrounding area have been considered where they have the potential to generate in-combination or cumulative effects with the proposed power plant. The potential for cumulative effects on the local population and human health, in particular with regard to noise, vibration, air, traffic and visual effects are discussed in the relevant chapters as identified in Section 7.1.

7.8 RESIDUAL EFFECTS

7.8.1 CONSTRUCTION PHASE

The proposed power plant will have a slight positive residual impact on the local economy through construction worker spending.

7.8.2 OPERATIONAL PHASE

The proposed power plant will support the balancing of the grid to enable greater renewable development on a national scale and help to achieve targets in national energy and climate change policies as well as provide the possibility for the future connection of data centre development to a direct energy supply. This is a direct positive long-term residual effect at a national level.

7.8.3 DECOMMISSIONING PHASE

With an operational life expectancy of 25 years, the plant will either be redeveloped as a power related facility or the site will be redeveloped in an alternative form. In the event where the facility is decommissioned, details of provisions to decommission and render safe or remove all materials, waste, ground, plant, or equipment contained on or in the site that may result in environmental pollution will be agreed with the Environmental Protection Agency as part of the Industrial Emissions Licensing process.