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16.0 INTRODUCTION

16.1 Background

- 16.1.1 This chapter of the Environmental Impact Assessment Report (EiAR) addresses the likely significant effects of the Proposed Development on population and human health. It provides an overview, highlighting key aspects of the technical assessments completed and presented elsewhere in the EiAR that are relevant to human health.
- 16.1.2 This chapter also includes baseline population and health-related data to inform the overall conclusions of the chapter and presents information on health effects associated with the Proposed Development.

16.2 Methodology

- 16.2.1 The EiAR is provided in accordance with the EU EIA Directive 2011/92/EU and EIA Directive 2014/52/EU and the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (hereafter referred to as ‘the EIA Regulations’), in order to inform the consideration of the Proposed Development and provide the planning authority (An Bord Pleanála) with the environmental information that must be taken into account when determining the Planning Application. This chapter summarises health-related effects described elsewhere in Volume I of this EiAR.
- 16.2.2 The methodologies for these assessments, including identification of receptors and their sensitivity, identification of impacts and their magnitude, and assessment of effects, are set out in the relevant technical chapters or EiAR appendices.
- 16.2.3 Standardised terminology is used to describe the relative significance of effects throughout the EiAR (unless stated otherwise in specific chapters). Effects are described in EiAR Chapter 1, Table 1.4.
- 16.2.4 As outlined in EiAR Chapter 1: Introduction, for the purposes of this assessment, moderate and major effects are deemed ‘significant’.

Sources of Information and Data

- 16.2.5 The data sources and methods used in surveys are set out in Chapter 7: Air Quality and Climate, Chapter 11: Noise and Vibration, Chapter 13: Soils and Geology, and Chapter 12: Water Environment of this EiAR.
- 16.2.6 The health profiles produced by the Central Statistics Office have been referenced in the assessment. Data for 2016 has been used, representing the most up to date information (latest census information available – Census 2016. Refer to Section 16.7 – Limitations of this chapter for information).

Limitations or Difficulties

- 16.2.7 The Census which occurs every five years was due to take place in 2021 (the previous census being 2016) however the 2021 census was postponed due to the Coronavirus pandemic. The recent Census in Ireland took place on Sunday 03 April 2022, the results of which will not be available in full until 2023 (allowing for collation of the 2022 data). Only preliminary, limited results are available at the time of EiAR preparation.

- 16.2.8 The census information currently available from 2016 could therefore be misconstrued as presenting an out-of-date profile of the area. However, Census information can give an overall general indication of the health and wellbeing of residents in the area, and it is the most recent data available. There is little data available regarding the COVID-19 Pandemic, at a scale which would be relevant to this project.

16.3 Regulatory and Policy Framework

Legislative Background

- 16.3.1 Schedule 6 of the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 includes a requirement that the EIAR must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of a proposed development on population and human health.
- 16.3.2 The effects on health that have been considered in this EIAR relate primarily to those arising from emissions to air (Chapter 7: Air Quality and Climate), noise and vibration (Chapter 11: Noise and Vibration), land quality/ contamination (Chapter 13: Soils and Geology), and emissions to water (Chapter 12: Water Environment). The relevant legislation relating to each of these topics is presented in the respective chapters for these disciplines.

Planning Policy Context

- 16.3.3 Planning policy and guidance related to air quality, noise and vibration, land quality, water quality is presented in the relevant technical chapters of this EIAR. As stated in Section 9.1 of Ireland's National Planning Framework (Project Ireland 2040) (Government of Ireland, January 2019), planning decisions must take cognisance of 'creating a clean environment for a healthy society'. The Framework focuses on the following topics which are relevant to this EIAR (refer to Table 16.1).

Table 16.1: National Policy Objectives relating to improving and maintaining human health in planning

Topic	National Policy Objectives
Water Quality	Objective 63 - Ensure the efficient and sustainable use and development of water resources and water services infrastructure in order to manage and conserve water resources in a manner that supports a healthy society, economic development requirements and a cleaner environment.
Air Quality	Objective 64 - Improve air quality and help prevent people being exposed to unacceptable levels of pollution in our urban and rural areas through integrated land use and spatial planning that supports public transport, walking and cycling as more favourable modes of transport to the private car, the promotion of energy efficient buildings and homes, heating systems with zero local emissions, green infrastructure planning and innovative design solutions.
Noise Quality	Objective 65 - Promote the pro-active management of noise where it is likely to have significant adverse impacts on health and quality of life and support the aims of the Environmental Noise Regulations through national planning guidance and Noise Action Plans.

16.3.4 The following National Policy Objective 52 has also been set:

“The planning system will be responsive to our national environmental challenges and ensure that development occurs within environmental limits, having regard to the requirements of all relevant environmental legislation and the sustainable management of our natural capital.”

16.3.5 Further information on planning policy has been outlined in Chapter 2: Planning Policy of this EiAR.

16.4 Baseline Environmental Conditions and Constraints

Existing Baseline

16.4.1 This section considers the community profile in the Study Area (defined below). The Study Area in this instance is based on the Galway County Council (GCC) Administrative Boundary (refer to Plate 16.1), for which statistics are available (Study Area 1 Data is also available on the All-Island Research Observatory (AIRO) Map Viewer published by Maynooth University for the Tynagh, Pallas, Moat, Killimor, Abbeygormacan and Bracklagh Townlands, which also gives more detail in the local area of the Proposed Development (Study Area 2).

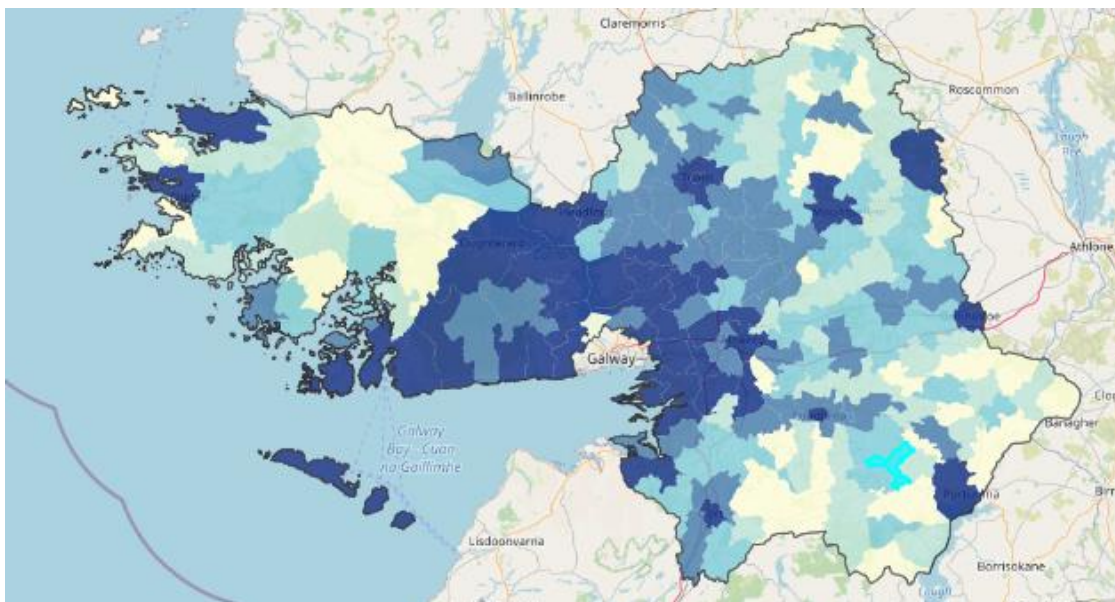


Plate 16.1: Galway County Council Administrative Boundary (Study Area 1). Tynagh Townland is also highlighted (Study Area 2) (Source: AIRO, 2021).

16.4.2 The baseline environment is represented by the rural fringe of Galway City and for the most part, the landscape is dominated by low intensity grazing and uncultivated, undulating lands and bog and areas zoned for built residential, commercial, industrial and amenity development.

16.4.3 The Galway Council Development Plan 2022 – 2028 (CDP), informed by the National Planning Framework (NPF) and Regional Spatial and Economic Strategy (RSES) 2020 – 2032, includes a Core Strategy that aims to ensure an appropriate amount of land is reserved in the right locations to meet population and housing targets. The 2016 Census recorded a population of 179,390 for County Galway, with the majority (77.8%) living in

smaller towns and villages, and rural areas. The NPF sets out a targeted pattern of growth for Galway to 2026 with the projected population to range between 300,000 to 308,500 persons, though projections estimate the population will grow to 211,100 by 2028, an 8.2% increase from 2022’s 195,056. In terms of the household projections, the CDP states that the overall housing demand over the plan period is expected to be 10,738 units, which equates to 1,534 housing units per annum.

16.4.4 More recently, the Northern and Western Regional Assembly produced the RSES 2020 – 2032 which identified the challenges faced from a population that is dispersed across the region yet set to grow by one million people over the next 20 years. The strategy sets out to achieve the NPF Targets by:

- Delivering compact growth (direct new growth to existing urban areas) in metropolitan and regional growth centres;
- Delivering compact growth in key towns;
- Developing derelict and underutilised sites within urban areas; and
- Delivering critical enabling infrastructure and services.

16.4.5 The National Policy Objectives for the population of the Northern and Western Region are outlined in Table 16.2.

Table 16.2: Population Projections via the National Planning Framework

NATIONAL POLICY OBJECTIVE	NORTHERN AND WESTERN REGION
1. Growing Our Regions	+160,000–180,000 people (1m total) +115,000 in employment (450,000 total)
2. Building Stronger Regions: Accessible Centres of Scale	- Galway City and Suburbs: +40,000–45,000 people (at least 120,000 total)
3. Compact, Smart, Sustainable Growth	50% of new city housing within existing Galway City and suburbs footprint 30% all new housing elsewhere, within existing urban footprints

16.4.6 The number of households within the county grew by 5.7% as recorded by Census 2022 data. The figures demonstrate that the population has increased significantly in recent years despite the effect of the economic recession of 2008 – 2011. The population is, however, unlikely to grow at a rapid enough rate to meet the original projections of the Regional Planning Guidelines and the RSES.

Table 16.3: Population of Galway and relevant Townlands

	2022	2016	2011	2006	2002
Tynagh Townland	482	447	442	414	369
Pallas Townland	413	397	401	420	399
Moat Townland	142	147	176	162	158
Killimor Townland	722	702	698	702	674
Abbeygormacan Townland	459	411	416	415	426
Bracklagh Townland	492	464	460	427	418
Galway City	83,456	78,668	75,529	72,414	65,832
Total County Galway	276,451	258,058	250,653	231,670	209,077

Source: Central Statistics Office

- 16.4.7 In its most recent publication on Health Status and Health Service Utilisation 2010 (CSO, 2011), the CSO provides information of a number of health statuses. The statistics are reflective of the region, in this case, the West of Ireland. It shows, for example, in terms of self-perception of Health Status, 85% of adults perceive their health as being either Very Good or Good. This compares to 89% in Dublin, 87% in the South-West and 84% in the Midlands. There are also statistics on doctor-diagnosed medical conditions including, for example, asthma, chronic bronchitis, diabetes, and mental health problems, as well as others. In all cases, prevalence of these conditions is similar to other areas of the country. In general, therefore, the statistics suggest a health status broadly consistent with the Irish population as a whole.
- 16.4.8 Although humans are deemed sensitive receptors, some groups are deemed more vulnerable to air pollution, such as children and elderly people. Although the Site is surrounded by rural and residential properties that may house children or older adults, no schools, nursing homes, or hospitals are present in the Study Area.

16.5 Predicted Impacts

Air Quality

- 16.5.1 In relation to Air Quality, the likely impacts to Human Health as a result of the Proposed Development are detailed Chapter 7: Air Quality and Climate, Section 5 of this EIA.
- Construction Phase*
- 16.5.2 The risk of impact from dust and particulates upon human receptors during construction has been classed as Low for the following activities: earthworks; construction; and track-out. This is due to the distance from the activity source to the receptors (the closest

being the Equestrian centre 260m north-east), and the existing low background concentration of particulates (<24 µg/m³) (refer to EIAR Volume II Appendix 7A: Air Quality Assessment).

Operational Phase

- 16.5.3 The impact upon human receptors from NO₂ or CO from the Proposed Development emissions has been assessed (refer to EIAR Chapter 7: Air Quality and Climate, and EIAR Volume II Appendix 7A: Air Quality Assessment). The impacts have been identified as Negligible due to not exceeding any AQS.

Noise and Vibration

- 16.5.4 A full assessment of Noise and Vibration has been undertaken in Chapter 11: Noise and Vibration of this EIAR.

Construction Phase

- 16.5.5 The impacts on residential (human) receptors from construction noise and vibration are assessed (in EIAR Chapter 11) to be Negligible due to the Predicted Construction Sound Pressure Level being below the assessment criteria as defined in EIAR Chapter 11. Impacts on human health from the Construction Phase Traffic on the Tynagh Road have been found to be Minor due to a 1.5dB increase in noise from road traffic. The N65 would experience a Negligible impact due only having a 0.3dB increase.

Operational Phase

- 16.5.6 Operational phase noise emissions were predicted with a 3D sound model developed using the CadnaA sound modelling software package and assessed in accordance with the criteria contained in the document 'Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities' (NG4) (EPA, 2016) (NG4). Initial modelling indicated that, without mitigation, the Proposed Development would exceed the relevant noise criteria at nearby sensitive receptor locations.

Water Environment

- 16.5.7 A full assessment of the Water Environment has been undertaken in Chapter 12: Water Environment of this EIAR.

Construction Phase

- 16.5.8 No direct adverse impacts to human health were identified in the Chapter 12: Water Environment. However, it is acknowledged there could be indirect impacts from the contamination of groundwater and surface water which may occur during construction in the absence of mitigation measures. These include: spillages; contaminated and sediment laden site runoff; groundwater flooding; and changes to overland flow.

Operational Phase

- 16.5.9 Adverse impacts were identified in the Chapter 12: Water Environment that could indirectly impact human health (it particularly), contamination of ground water (through sub-surface contaminant migration), surface water from spills, and flooding due to a change in impermeable surfaces.

Soils and Geology

- 16.5.10 A full assessment of Soils and Geology has been undertaken in Chapter 13: Soils and Geology of this EIAR.

Construction Phase

- 16.5.11 In terms of adverse human health impacts related to soils and geology, temporary adverse impacts could exist for off-site receptors (e.g., impacts on urban/ industrial land users, residents, and construction workers, through the inhalation of contaminated dust and dermal contact with contaminated soil following ground disturbance).

Operational Phase

- 16.5.12 Adverse impacts relating to contamination of groundwater which could indirectly impact human receptors through sub-surface contaminant migration has been identified in the Water Environment Chapter 12: Soils and Geology of this EIAR.

Employment

- 16.5.13 The applicant has a policy of employing and training local people in respect of all its development projects. There will be direct employment opportunities created as a result of the operational phase of the project.

Construction Phase

- 16.5.14 With regard to the construction phase, levels of employment will vary throughout the construction period. Local businesses will also benefit from the opportunity to supply materials, plant, and equipment during the construction phase which will represent a significant capital investment. The impact would therefore likely be Moderate Beneficial during construction.

Operational Phase

- 16.5.15 There will be a high degree of automation in the Proposed Development with all processes controlled from a central control room. During the operational phase, the Proposed Development will be operated, maintained, and managed by suitably qualified and trained personnel. The impact would therefore likely be Minor Beneficial during operation.

Population*Construction Phase*

- 16.5.16 The Proposed Development would have a Negligible impact upon the regional population of Galway. However, a temporary increase in the number of workers during construction phase (potentially up to 200 at peak time) may require employees to stay at suitable accommodation (e.g., hotels, B&B's, etc.) in the local area. It is not expected this would have adverse impact, rather it may have a beneficial impact in terms of goods and services providers.

Operational Phase

- 16.5.17 The Proposed Development would not have an impact upon the local or regional population during operation. Due to a projected increase in population, the Proposed Development would likely bring beneficial impacts in terms of a reliable power supply during periods of high demand in the future. This is pertinent due to the RSES Plan for compact growth in urbanised areas of Galway and the wider towns in the Northern and Western Regional Area.

16.6 Mitigation and Enhancement Measures

16.6.1 Mitigation measures are set out in the relevant technical chapters of this EiAR. No additional mitigation has been identified in this chapter. Those technical chapters which include information which may affect the population of the area are detailed below, with specific reference to the Mitigation and Enhancement Measures section:

- EiAR Chapter 7: Air Quality and Climate, Section 8;
- EiAR Chapter 11: Noise and Vibration, Section 7;
- EiAR Chapter 12: Water Environment, Section 6; and
- EiAR Chapter 13: Soils and Geology, Section 6.

Air Quality

Construction Phase

16.6.2 The mitigation outlined within the Outline Construction Environmental Management Plan (oCEMP) (refer to Appendix 5A, EiAR Volume II) will prevent any adverse impact upon human health arising as a result of dust and particulates from construction activities.

Operational Phase

16.6.3 The air quality assessment of operational impacts has assumed that the ELVs will be met for the operational plant as required under the IED as amended by the revised BREF (the European Commission produces best available technique reference documents or BREF notes) and in accordance with use of BAT under the environmental permitting regime. Apart from the embedded mitigation outlined within Chapter 7: Air and Climate, there are no additional mitigation measures required in terms of reducing impacts to human health from air quality.

Noise and Vibration

Construction Phase

16.6.4 The mitigation outlined within the oCEMP (Appendix 5A) will prevent any adverse impact upon human health arising from noise and vibration as a result of construction activities.

Operational Phase

16.6.5 An investigation was carried out to determine noise mitigation measures that can be incorporated into the Proposed Development design. These investigations included consultations with equipment suppliers to ensure the measures and reductions presented are achievable. Full details of the noise mitigation measures incorporated are provided in Chapter 11: Noise and Vibration of this EiAR.

16.6.6 Table 11.14 displays the Resultant Sound Power Level and the Predicted Operational Sound Levels from each of the proposed operational plant. In addition to the plant outlined in Table 11.14, to lower the sound output from the Proposed Development to the desired levels during operation (i.e., the sound level at the residential receptors would be below the NG4 criteria), an acoustic barrier is included in the design of the OCGT layout (as referenced in EiAR Chapter 5: Proposed Development).

16.6.7 Subsequent modelling indicates that, with mitigation, sound emissions from the Proposed Development comply with the relevant criteria.

16.6.8 Therefore, no significant adverse impact is expected at residential receptor positions with regards to operational phase sound levels.

Water Environment

Construction Phase

16.6.9 The mitigation outlined within the oCEMP (refer to Appendix 5A, EIA Volume II) will prevent any adverse impact upon human health arising from spillages or flooding as a result of construction activities.

Operational Phase

16.6.10 Measures to prevent the risks of fire, flooding, spillages, or other potentially major incidents will be embedded in the design of the Proposed Development.

16.6.11 Measures to prevent potentially major incidents include:

- Compliance with all relevant health, safety and environmental legislation;
- Design, build and operation in accordance with good industry practice;
- Regular maintenance and inspections to reduce the risk of equipment failures;
- Bunded storage areas for liquid chemicals;
- Regular maintenance and housekeeping to reduce the likelihood of leakages and improve leakage detection; and
- Spill kits stored on site.

16.6.12 Procedures will be in place to clearly outline the responsibilities, actions and communication channels for operational staff and personnel on how to deal with emergencies should they occur. Staff will also receive the level of training required for their role and position. This will include dealing with events such as fires, spillages, flooding, etc. Such measures will be included in the site operating and management system and regulated by Environmental Protection Agency (EPA) through the Industrial Emissions (IE) Licence.

16.6.13 A Flood Risk and Drainage Assessment is presented within Appendix 12A (refer to EIA Volume II). This describes the proposed strategy for dealing with surface water runoff to prevent any impacts to the Proposed Development or surrounding lands and properties using below ground cellular storage.

Soils and Geology

Construction Phase

16.6.14 The mitigation outlined within the oCEMP (Appendix 5A) will prevent any adverse impact upon human health arising from spillages and contaminated groundwater as a result of construction activities.

Operational Phase

16.6.15 The Proposed Development will be operated in line with appropriate standards and the operator will implement and maintain an Environment Management System (EMS) which will be certified to International Standards Organisation (ISO) 14001. The EMS will outline requirements and procedures required to ensure that the Proposed Development is operating to the appropriate standard. This will include dealing with events such as spillages that could impact groundwater quality.

Employment

Construction Phase

- 16.6.16 No mitigation is required for employment during the Construction phase to prevent any significant adverse effects.

Operational Phase

- 16.6.17 No mitigation is required for employment during the Operational phase to prevent any significant adverse effects.

Population Size

Construction Phase

- 16.6.18 No mitigation is required for the size of the local or regional population during the Construction phase to prevent any significant adverse effects.

Operational Phase

- 16.6.19 No mitigation is required for the size of the local or regional population during the Operational phase to prevent any significant adverse effects.

16.7 Residual Effects

- 16.7.1 EIA Chapter 7: Air Quality and Climate, Chapter 11: Noise and Vibration, Chapter 12: Water Environment, Chapter 13: Soils and Geology, and Chapter 14: Traffic do not identify any significant adverse human health related effects. In terms of the local and regional population, no significant adverse effects are expected as a result of the Proposed Development.

16.8 Cumulative Effects

- 16.8.1 During the construction phase, the site will employ good practice measures and suitable mitigation such that there would be no significant effect on receptors beyond the Site boundary (as outlined in the relevant technical chapters and the oCEMP). Other developments in the vicinity of the Proposed Development would be expected to bring forward a scheme with suitable measures in place to prevent significant impacts at receptors due to construction dust, noise and vibration, and water pollution.
- 16.8.2 In November 2021, a planning application and EIA were submitted to GCC for a separate development project, an 299MW OCGT plant on the western portion of the existing Tynagh Power Station site. Approved Development Ref: 21/2192 proposed to demolish the existing Tynagh Power Station site workshop, administration building and car park, relocate these items to the brownfield lands to the immediate north of the Tynagh Power Station facility and develop a separate OCGT plant on the western part of the Power Station Site.
- 16.8.3 Approved Development Ref: 21/2192 was subsequently appealed and approved by An Bord Pleanála (PL 07.313538) following a Third Party appeal against Galway County Council's decision to grant permission. Planning approval was obtained for the Approved Development Ref: 21/2192, however the Applicant is unable to implement it (i.e. will not build/operate the Approved Development Ref: 21/2192') for the foreseeable future due to a range of viability constraints.

16.8.4 For robust EIA assessment purposes it is nonetheless assumed that the Approved Development may proceed at some point in the future. As such, to ensure the Approved Development Ref: 21/2192' is adequately considered cumulatively in the EiAR, a 'future baseline' scenario is assessed where appropriate rather than just an existing baseline scenario and the cumulative impact of the existing Tynagh Power Station, the Approved Development Ref:21/2192 and the Proposed Development are considered cumulatively. As assessed and outlined in Chapter 19: Cumulative Effects, during operation, no cumulative effects have been identified in terms of air quality and climate, noise and vibration, soils and geology, and the water environment which would produce a significant effect upon human health receptors.

16.9 References

Central Statistics Office Ireland (2011) *Health Status and Health Service Utilisation Survey*.

European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018

Northern and Western Assembly (2018) Regional Spatial and Economic Strategy.

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