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17.0 MATERIAL ASSETS

17.1 Introduction

17.1.1 This chapter of the Environmental Impact Assessment Report (EIAR) addresses the likely significant effects of the Proposed Development on Material Assets which for this assessment are defined as waste and materials assets.

Waste

17.1.2 Waste management in Ireland is subject to EU, national and regional waste legislation which defines how waste materials must be managed, transported, and treated. The overarching EU legislation is the Waste Framework Directive (2008/98/EC) which is transposed into national legislation in Ireland. The cornerstone of Irish waste legislation is the Waste Management Act 1996 (as amended).

17.1.3 During construction, operation (including maintenance), and decommissioning of the Proposed Development, the aim is to prioritise waste prevention, followed by re-use, recycling, recovery and lastly disposal as per the internationally recognised waste hierarchy (see Plate 17.1).

17.1.4 During construction of the Proposed Development, waste arising will be generated from general construction waste. Waste will also be generated during the operation and maintenance of the Proposed Development.

17.1.5 For the purposes of this assessment waste has been assessed with reference to waste arising during construction and operational phase.

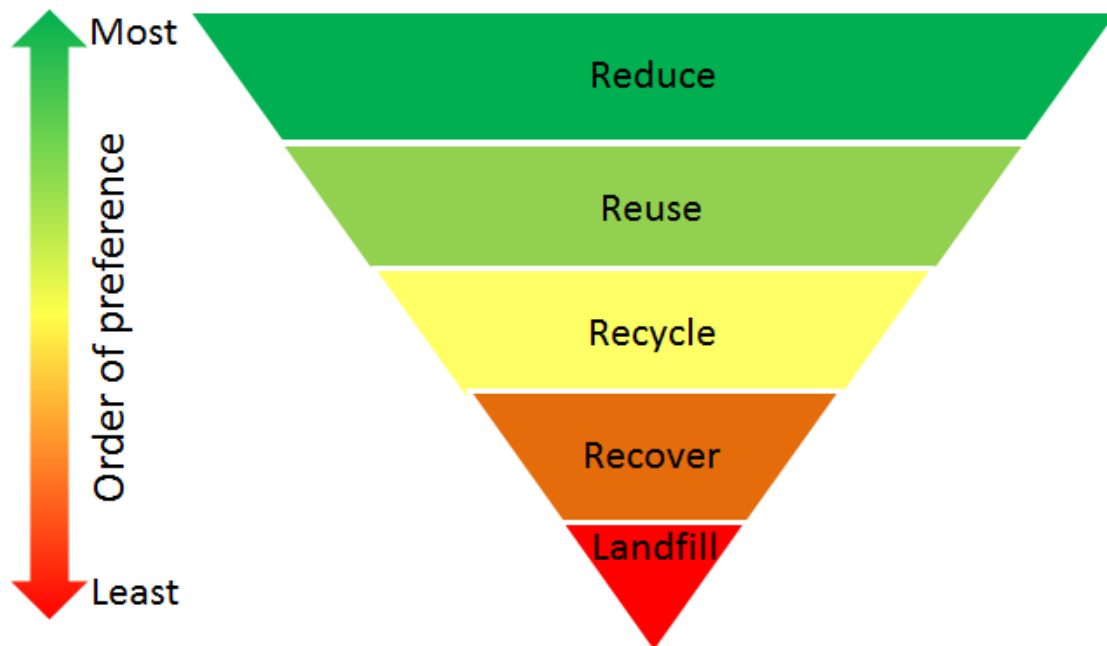
Material Assets

17.1.6 Materials are substances used in each lifecycle stage of a development, with a particular focus on the construction, operation and maintenance, and decommissioning phases.

17.1.7 For the purposes of this assessment the material assets which have been assessed include any material assets proposed as part of the Proposed Development, such as electrical infrastructure.

17.1.8 As per the EPA's '*Guidelines on the information to be contained in Environmental Impact Assessment Reports*' (EPA, 2022), these assets have been classified as material assets of human origin or natural origin.

Plate 17.1: The Waste Hierarchy



Source: Article 4 of the revised Waste Framework (Directive 2008/98/EC).

17.2 Methodology

- 17.2.1 Material assets and waste has been scoped into the assessment primarily because of the nature and scale of the Proposed Development (as described in Chapter 1: Introduction, and Chapter 5: The Proposed Development of this EIAR) and the timeline for the construction phase.
- 17.2.2 There is no specific set of Environmental Impact Assessment (EIA) guidelines for assessing material assets or waste, so this assessment has been tailored to the Proposed Development using best practice guidelines which include the Institute of Environmental Management and Assessment (IEMA) guidance on Materials and Waste in Environmental Impact Assessment (IEMA, 2020), Ireland's National Waste Policy 2020-2025, Regional Waste Management Plan 2015-21, the EPA National Waste Statistics Summary Report for 2020 and the EPA National Waste Statistics Web Resource.
- 17.2.3 The strategy for the management of waste from the construction phase is in line with the requirements of the Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects published in 2006.

Study Area

- 17.2.4 The study area for waste (including landfill sites) as part of this assessment is 30km from the Site. The rationale for 30km is in part to capture the current major active landfill sites within the Connacht – Ulster Region (CUR).
- 17.2.5 Material Assets in the form of on-site facilities and equipment proposed are identified within 100m of the Site and these assets have been classified as material assets of human origin or natural origin.

Construction Phase

Waste

- 17.2.6 Waste will be generated during all stages of the construction works. A Site Waste Management Plan will be prepared prior to construction phase and the Engineering and Construction (E&C) contractor will be required to seek to minimise waste arising at source and, where such waste generation is unavoidable, to maximise its recycling and reuse potential. Recycling of materials will take place off-site at appropriately licensed facilities where noise and dust are more easily managed and less likely to impact on surrounding properties.
- 17.2.7 The Applicant will require that the E&C Contractor separates the waste streams on Site as outlined in the Outline Construction Environmental Management Plan (oCEMP) (refer to Appendix 5A, EIAR Volume II,) and as agreed in a final CEMP (to be agreed prior to construction), prior to them being taken to an appropriately licensed waste facility for recycling. Copies of all Waste Transfer Notes and Hazardous Waste Consignment Notes for wastes removed from Site will be retained by the E&C Contractor for the required timeframe under legislation.
- 17.2.8 Excluding excavation material (through an on-site cut/ fill balance with no material exported off site but a volume of clean fill imported), the majority of typical construction waste types will be generated in small quantities (see Table 17.7) and these will be then recycled, with the remainder disposed off-site by a licensed waste contractor.
- 17.2.9 The quantities of construction waste generated during the construction phase of the Proposed Development have been calculated for assessment purposes using the Smartwaste waste benchmark data (Smartwaste/ BRE, 2012). While the Proposed Development is not a building, the criteria for industrial buildings has been used, which are available based on either construction spend and building floor area (see Table 17.1).

Table 17.1: Waste Benchmarks

TYPE OF DEVELOPMENT	AVERAGE m ³ /100m ²	AVERAGE m ³ /£100K
Industrial Buildings	13.0	10.8

Source: Smartwaste/ BRE (2012)

- 17.2.10 The benchmark value for m³ of waste per 100 m² of floor area has been used for this assessment and is considered to represent a realistic worst-case estimate.
- 17.2.11 Waste and its significance during the construction phase has been assessed by:
 - Establishing the baseline for inert landfill capacity within 30km of the Site;
 - Estimating the likely quantity of surplus excavated materials that is likely to be generated by the Proposed Development; and
 - Comparing the quantity of surplus excavated materials from the Proposed Development to the baseline inert landfill capacity and assessing the likely impact on that capacity and ability of these sites to accept the waste.

Material Assets

- 17.2.12 There is potential for disruption to existing materials assets on Site during the construction phase of the Proposed Development and these are outlined in Section 17.5.

Operational Phase

Waste

- 17.2.13 As described in Chapter 5: The Proposed Development, operational waste will include consideration of fuels from the secondary fuel storage facility. An inline fuel treatment plant will be required to remove any contaminants from the secondary fuel that may accumulate during storage, which will be collected in a tank contained within the bunded area prior to its safe disposal.
- 17.2.14 These residue wastes will be managed in accordance with the revised Waste Framework Directive (2008). The waste management methods for these operational phase generated wastes are considered in this assessment.
- 17.2.15 Staff generated waste is outside the scope of this assessment. For the Proposed Development staff numbers will not increase above the existing power station staff personnel and there will be no foul water generated through these proposals.
- 17.2.16 Waste from general maintenance activities would consist of general industrial waste, consisting predominantly of paper, cardboard, plastic, and wooden packaging material; worn and damaged metal items etc.; and a small amount of waste oil. Waste oil will be classified as hazardous waste, whereas the other waste is likely to be classified as non-hazardous. This would be disposed of in accordance with operational Waste Management Plan.
- 17.2.17 An operational Waste Management Plan will be developed as part of the Industrial Emissions (IE) Licence for the Proposed Development.
- 17.2.18 Waste effects and their significance during the operational phase have been assessed by:
- Establishing the current annual baseline for inert waste arisings within 30km of the Site and for hazardous waste arisings nationally;
 - Calculating the likely quantity of waste generated during the operational phase of the Proposed Development and comparing to the annual baseline arisings of these wastes; and
 - Any waste generated have been assessed as a worst-case scenario. This involves transporting wastes off site to a suitable landfill facility.
- 17.2.19 County Galway's landfill capacity statistics are detailed in Section 17.4 and are drawn from the following sources:
- Connacht Ulster Region: Waste Management Plan 2015 – 2021;
 - Waste Collection Benchmarking Report for the Irish Waste Management Association in 2018; and
 - Construction and Demolition Waste, Soil and Stone Recovery/ Disposal Capacity Update Report 2020 for all Waste Management Plans 2015 – 2021.

Material Assets

- 17.2.20 Material Assets within 100m of the Site are also considered within this assessment. This is considered a reasonable distance in terms of sensitive material asset receptors (such as residential receptors) with respect to the Proposed Development.
- 17.2.21 Several of the topics below are already outlined within the EIA and are not replicated here. Refer to the relevant EIA chapters within their respective baseline, predicted

impacts, mitigation measures, and residual impacts sections for an understanding of these material assets.

- Material Assets of human origin including transport infrastructure (refer to EIAR Chapter 14: Traffic), community amenities (refer to EIAR Chapter 16: Population and Human Health).
- Material Assets of natural origin including land use (refer to EIAR Chapter 15: Land Use), geological resource (refer to EIAR Chapter 13: Soils and Geology), and natural amenities (refer to EIAR Chapter 9: Biodiversity).

Significance of Effects

Waste

17.2.22 The methodology for classification of effects for waste is tailored from the standard methodology set out in Chapter 1: Introduction of this EIAR, but given the nature of the assessment this is considered to be appropriate to assess the impacts associated with waste based upon best practice and professional judgment.

Table 17.2: Waste management assessment criteria and significance of assessment

EFFECT	CRITERIA FOR EFFECTS OF WASTE GENERATED (CONSTRUCTION PHASE)	CRITERIA FOR EFFECTS OF WASTE GENERATED (OPERATIONAL PHASE)	SIGNIFICANCE
Negligible	Negligible increase in waste arisings less than 0.1% of current available disposal capacity; causing insignificant burden to the local and regional waste management infrastructure.	Negligible increase in waste arisings less than 0.1% of current annual waste arisings in the region (for inert waste) and nationally (for hazardous waste).	Not Significant
Minor	Minor increase in waste arisings between 0.1% and 1.9% of current available disposal capacity; causing a minor burden to the local and regional waste management infrastructure.	Minor increase in waste arisings between 0.1% and 1.9% of current annual waste arisings in the region (for inert waste) and nationally (for hazardous waste).	Not Significant
Moderate	Moderate increase in waste arisings between 2% and 5% of current available disposal capacity; potentially causing moderate burden to the local and regional waste management infrastructure.	Moderate increase in waste arisings between 2% and 5% of current annual waste arisings in the region (for inert waste) and nationally (for hazardous waste).	Significant

EFFECT	CRITERIA FOR EFFECTS OF WASTE GENERATED (CONSTRUCTION PHASE)	CRITERIA FOR EFFECTS OF WASTE GENERATED (OPERATIONAL PHASE)	SIGNIFICANCE
	infrastructure.		
Major	Large increase in waste arisings greater than 5% of current available disposal capacity; potentially causing significant burden to the local and regional waste management infrastructure.	Large increase in waste arisings greater than 5% of current annual waste arisings in the region (for inert waste) and nationally (for hazardous waste).	Significant

Source: South Humber Bank (2019)

17.2.23 In line with the assessment methodology outlined in EIAR Chapter 1: Introduction, only moderate and major effects are considered to be significant for the purposes of this assessment.

Material Assets

17.2.24 Material Assets are assessed with direct reference to Tables 17.3 – 17.6 and make reference to sensitivity, magnitude, and significance of effect.

17.2.25 Sensitivity has generally been defined according to the relative value or importance of the feature, i.e. whether it is of international, national, regional or local importance; by the sensitivity of the receptor in the case of the air quality and noise assessment; or by susceptibility or vulnerability to change in the case of landscape and visual aspects.

17.2.26 Typical criteria for assessing the sensitivity of an environmental receptor are listed in Table 17.3.

Table 17.3: Environmental Sensitivity and Typical Descriptions

VALUE (SENSITIVITY)	TYPICAL DESCRIPTORS
Very High	Very high importance and rarity, international scale and very limited potential for substitution.
High	High importance and rarity, national scale and limited potential for substitution.
Medium	High or medium importance and rarity, regional scale, limited potential for substitution.
Low (or lower)	Low or medium importance and rarity, local scale.
Negligible	Very low importance and rarity, local scale.

17.2.27 Typical descriptions and criteria for defining the magnitude of an impact are listed in Table 17.4.

Table 17.4: Magnitude of Impact and Typical Description

MAGNITUDE	TYPICAL CRITERIA DESCRIPTORS
Major	Loss of resource and/ or quality and integrity of resource, severe damage to key characteristics, features or elements (Adverse).

MAGNITUDE	TYPICAL CRITERIA DESCRIPTORS
	Large scale or major improvement of resource quality; extensive restoration or enhancement major improvement of attribute quality (Beneficial).
Moderate	Loss of resource, but not adversely affecting the integrity; partial loss of/ damage to key characteristics, features or elements (Adverse). Benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality (Beneficial).
Minor	Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements (Adverse). Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk of negative impact occurring (Beneficial).
Negligible	Very minor loss or detrimental alteration to one or more characteristics, features or elements (Adverse). Very minor benefit to or positive addition of one or more characteristics, features or elements (Beneficial).
No change	No loss or alteration of characteristics, features or elements, no observable impact in either direction.

17.2.28 Table 17.5 provides an example of the significance categories in which an impact arising from the Proposed Development could be categorised.

Table 17.5: Significance Categories

SIGNIFICANCE CATEGORY	TYPICAL DESCRIPTORS OF EFFECT
Very Large	Only adverse effects are normally assigned this level of significance. They represent key factors in the decision-making process. These effects are generally, but not exclusively, associated with sites or features of international, national, or regional importance that are likely to suffer a most damaging impact and loss of resource integrity. However, a major change in a site or feature of local importance may also enter this category.
Large	These beneficial or adverse effects are considered to be very important considerations and are likely to be material in the decision-making process.
Moderate	These beneficial or adverse effects may be important but are not likely to be key decision-making factors. The cumulative effects of such factors may influence decision-making if they lead to an increase in the overall adverse effect on a particular resource or receptor.
Slight	These beneficial or adverse effects may be raised as local factors. They are unlikely to be critical in the decision-making process but are important in enhancing the subsequent design of the project.
Neutral	No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

17.2.29 Table 17.6 shows how the interaction between sensitivity and magnitude results in the significance of an environmental effect.

Table 17.6: Example Matrix for Determining Significance

		MAGNITUDE OF IMPACT				
		No change	Negligible	Minor	Moderate	Major
SENSITIVITY	Very High	Neutral	Slight	Moderate or Large	Large or Very Large	Very Large
	High	Neutral	Slight	Slight or Moderate	Moderate or Large	Large or Very Large
	Medium	Neutral	Neutral or Slight	Slight	Moderate	Moderate or Large
	Low	Neutral	Neutral or Slight	Neutral or Slight	Slight	Slight or Moderate
	Negligible	Neutral	Neutral	Neutral or Slight	Neutral or Slight	Slight

17.3 Regulatory and Policy Framework

17.3.1 Relevant policies, legislation and guidance have been considered as part of the materials and waste assessment, which have informed the identification of receptors and resources and their sensitivity, the assessment methodology, the potential for significant environmental effects, and required mitigation.

EU Legislation/ Directives

17.3.2 Waste Framework legislation establishes the legal structure for the prevention and management of waste. The European Commission has prepared waste framework legislation to govern this broad approach and the principles for managing waste across all Member States. The principal European framework legislation:

- European Directive (2008/98/EC on Waste Framework Directive);
- Council Decision (200/532/EC) establishing a list of wastes;
- Regulation (1013/2006) on the shipments of waste;
- Directive on Industrial Emissions (2010/75/EU); and
- Implementing the EU Landfill Directive (1999/31/EC).

17.3.3 The revised Waste Framework Directive (WFD) of November 2008 sought to position the EU as a recycling society with broad aims to avoid waste generation and to use waste. The roadmap to a resource efficient Europe published by the European Commission in September 2011 defined objectives and identified a key milestone in not just management of waste but to recognise it as a resource and thereby create a circular economy with residual waste reduced as far as possible.

17.3.4 Article 4 of the 2008 WFD set out five steps for dealing with waste, ranked according to environmental impact; this was known as the waste hierarchy.

17.3.5 In the Republic of Ireland, the primary legislation for waste is provided by the Waste Management Act (WMA) 1996 and the Protection of the Environment Act 2003. The main objectives of the WMA are to deliver a more effective organisation in relation to waste management and to enable measures designed to improve performance in relation to the prevention and recovery of waste.

European Framework Policy

- 17.3.6 The 8th Environmental Action Programme has been formally adopted by the European Parliament and Council and will be guiding the implementation of environmental policy for Member States.
- 17.3.7 The Roadmap to a Resource Efficient Europe is the 7th and last of the Europe 2020 Strategy flagship initiatives which aim to shift towards a resource efficient, low carbon economy to achieve sustainable growth for Europe. The Roadmap proposes ways to increase resource productivity and decouple economic growth from resource use and its environmental impact.

National Framework Policy

- 17.3.8 The intention of these main National waste policies is to improve how Ireland manages waste, which often, in the first instance, means moving away from landfill towards more sustainable practices.
- Waste Management - Taking Stock and Moving Forward (2004);
 - National Strategy on Biodegradable Waste Management (2006);
 - Our Sustainable Future: A Framework for Sustainable Development for Ireland (2012);
 - A Waste Action Plan for a Circular Economy: Ireland's National Waste Policy 2020-2025 (2020)
 - The Circular Economy Programme 2021-2027 (2021); and
 - National Hazardous Waste Management Plan 2021–2027 (2021).
 - Circular Economy Act (2022)

A Waste Action Plan for a Circular Economy: Ireland's National Waste Policy 2020-2025

- 17.3.9 The Waste Action Plan for a Circular Economy (hereinafter referred to as the “Plan”) is Ireland's new roadmap for waste planning and management. It drives the delivery on national targets under EU legislation and shifts focus away from waste disposal, looking instead to how resources can be preserved by creating a circular economy. The Plan replaces the previous national waste policy, ‘A Resource Opportunity – Waste management policy in Ireland’, and sets the cooperation with the Regional Waste Management Planning Offices and the City and County Management Association as a key task to replace the existing Regional Waste Management Plans with a National Waste Management Plan for a Circular Economy. The latter was expected to come into effect in 2022; however, as of January 2023 it has not been published.
- 17.3.10 The Plan sets out a range of aims and targets for the State and the measures by which these will be achieved. Supported by the new Waste Management (Circular Economy) Bill, which was signed into law on 22 July 2022, its overarching objectives are to:
- Shift the focus away from waste disposal and treatment to ensure that materials and products remain in productive use for longer thereby preventing waste and supporting reuse through a policy framework that discourages the wasting of resources and rewards circularity;
 - Make producers who manufacture and sell disposable goods for profit environmentally accountable for the products they place on the market;
 - Ensure that measures support sustainable economic models;

- Harness the reach and influence of all sectors including the voluntary sector, R&D, producers/ manufacturers, regulatory bodies, civic society; and
- Support clear and robust institutional arrangements for the waste sector, including through a strengthened role for Local Authorities (LAs).

Connacht – Ulster Region (CUR) Waste Management Plan 2015 – 2021

17.3.11 The waste management plans in Ireland are statutory planning documents. Their objective is to set out a framework for the prevention and management of wastes for a defined area. The preparation of the waste plan is the statutory responsibility of the Local Authority. Once prepared, a plan is valid for a period of up to six years. The regional plans are to be replaced by a new National Waste Management Plan for a Circular Economy which was initially expected to be published by January 2022; however, as of January 2023, it has not.

17.3.12 The key measures of the plan are:

- Encourage more reuse and repair activities in the region particularly at civic amenity facilities;
- Deliver communication, awareness and on the ground activities which lead to a lasting change in the behaviours of citizens and businesses towards their wastes;
- Increase the level of source-segregated kerbside collections in the region with a strong focus on ensuring that a three-bin system becomes commonplace at household and commercial levels;
- Implement and regulate the new national pay-by-weight charging system;
- Enforce the regulations related to household and commercial waste to tackle the problem of unmanaged waste and other issues;
- Plan and develop higher quality waste treatment infrastructure including new reprocessing, biological treatment, thermal recovery and pre-treatment facilities;
- Grow the biological treatment sector, in particular composting and anaerobic digestion, by supporting the development of new facilities;
- Support the development of thermal recovery in the region which meets the needs of the region and the State in reducing the export of residual wastes for treatment abroad; and
- Ensure existing and future waste facilities do not impact on environmentally sensitive sites through proper assessments and siting.

17.3.13 The plan also targets reducing and eliminating all landfilling of major waste streams including municipal, industrial and construction and demolition wastes by 2030 in favour of recovery of residual wastes.

Construction and Demolition of Waste Stream Guidance in Ireland

17.3.14 Ireland does not have a specific regulation on Construction and Demolition waste. This stream is managed through policy. The 2008 EU WFD set a target of 70% by weight for Construction and Demolition Waste. In 2019, the EPA reported that Ireland had exceeded this target with a recovery rate of 84% recorded, surpassing the 2020 target. This represents an improvement on the recovery rate of 71 per cent achieved in 2016 and 77 per cent achieved in 2018.

Local Development Plans

Galway County Development Plan 2022-2028

17.3.15 The Galway County Development Plan 2022 – 2028 (CDP) sets out an overall strategy for the planning and sustainable development of the functional area of Galway County Council (GCC), recognising the importance of delivering new and enhanced infrastructure and utilities in a sustainable manner.

17.3.16 The strategic aims with reference to waste include:

- To minimise the amount of waste creation within the County and promote a practice of reuse, recycling and recovery prioritised in that order, over the disposal of waste;
- To ensure that residual waste is disposed of in an appropriate and environmentally friendly fashion.

17.3.17 Section 7.6 of the CDP outlines ten waste management policies objectives as outlined in Plates 17.2 and 17.3.

Plate 17.2 Galway County Development Plan 2022-2028: Waste Management Policy Objectives — Objectives WM 1 to WM 4

WM 1	Connacht and Ulster Waste Management Plan 2015-2021
Support the implementation of the Connacht and Ulster Waste Management Plan 2015-2021 or any updated version of this document within the lifetime of the plan.	
WM 2	Requirements for Waste Management
Support and promote the circular economy principles, prioritising prevention, reuse, recycling and recovery, and to sustainably manage residual waste. New developments will be expected to take account of the provisions of the Waste Management Plan for the Region and observe those elements of it that relate to waste prevention and minimisation, waste recycling facilities, and the capacity for source segregation.	
WM 3	Waste Recovery and Disposal Facilities
Support and facilitate the provision of adequate waste recovery and disposal facilities for the county.	
WM 4	Waste Legalisation
To require that all waste disposal shall be undertaken in compliance with the requirements of the Environmental Protection Agency and relevant Waste Management Legislation.	

Plate 17.3 Galway County Development Plan 2022-2028: Waste Management Policy Objectives — Objective WM 5

WM 5	Construction and Environmental Management Plans
<p>Construction Environment Management Plans shall be prepared in advance of the construction of relevant projects and implemented throughout. Such plans shall incorporate relevant mitigation measures which have been integrated into the Plan and any lower tier Environmental Impact Statement or Appropriate Assessment. CEMPs typically provide details of intended construction practice for the proposed development, including:</p>	
<p>(a) location of the sites and materials compound(s) including area(s) identified for the storage of construction refuse;</p>	
<p>(b) location of areas for construction site offices and staff facilities;</p>	
<p>(c) details of site security fencing and hoardings;</p>	
<p>(d) details of on-site car parking facilities for site workers during the course of construction;</p>	
<p>(e) details of the timing and routing of construction traffic to and from the construction site and associated directional signage;</p>	
<p>(f) measures to obviate queuing of construction traffic on the adjoining road network;</p>	
<p>(g) measures to prevent the spillage or deposit of clay, rubble or other debris;</p>	
<p>(h) alternative arrangements to be put in place for pedestrians and vehicles in the case of the closure of any public right of way during the course of site development works;</p>	
<p>(i) details of appropriate mitigation measures for noise, dust and vibration, and monitoring of such levels;</p>	
<p>(j) containment of all construction-related fuel and oil within specially constructed bunds to ensure that fuel spillages are fully contained (such bunds shall be roofed to exclude rainwater);</p>	
<p>(k) disposal of construction/demolition waste and details of how it is proposed to manage excavated soil, including compliance with 2006 Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects, Department of the Environment, Heritage and Local Government;</p>	
<p>(l) a water and sediment management plan, providing for means to ensure that surface water runoff is controlled such that no silt or other pollutants enter local water courses or drains;</p>	

17.4 Baseline Environmental Conditions & Constraints

Waste

17.4.1 There has been a significant increase in the landfill levy annually since 2008 which has assisted in diverting waste away from landfill; diverting waste up the hierarchy thus reducing the need for landfill sites within County Galway. Other factors which have encouraged the approach away from landfills include:

- Changes to landfill licensing;
- The development of thermal recovery capacity;
- The availability of overseas thermal recovery capacity; and
- Increased mechanical treatment of residual waste facilities.

Major Active Landfill Sites within 30km

17.4.2 The Connacht – Ulster Region Waste Management Plan 2015 – 2021 gives a summary of the existing capacity within the Connacht Ulster region. There are two active landfills currently open which are Rathroeen Landfill in Ballina, County Mayo and Scotch Corner Landfill, Castleblaney, County Monaghan. As of 2014, the remaining capacity for Rathroeen was 175,000 tonnes and the remaining capacity for Scotch Corner was also 175,000 tonnes.

17.4.3 There are no major active landfill sites located within 30km of the Site. The nearest landfill which is currently closed is East Galway Residual Landfill located approximately 16km to the north of the Site. This landfill does have remaining capacity but it is not considered financially viable to reopen at this time. In 2018, East Galway Residual Landfill which is licensed by the EPA was placed on a list for failing to meet the necessary environmental standards for the fourth quarter of 2017.

17.4.4 In 2008 there were eight operating licensed landfills in the CUR region but by 2012 this had reduced to four. Landfills that closed from 2008 to 2012 included; Derrinnumera Landfill (Mayo County Council), Ballnacarrick Landfill (Donegal County Council), Ballaghderreen Landfill (Roscommon County Council) and Carrobrowne Landfill (Galway City Council).

17.4.5 The waste quantities outlined below within the Connacht – Ulster Region Waste Management Plan 2015 – 2021 are for the historic years 2010, 2011 and 2012 where there is a full overview of waste amounts available. This is the latest comprehensive data for the CUR region.

Commercial Wastes

17.4.6 Commercial waste for the CUR region amounted to approximately 160,000t. As outlined within the available Report, commercial waste is often segregated at source and collected by private waste collectors where it arises.

- **Construction and Demolition Wastes**

The CUR region showed an increase in this waste from 2011 to 2012. The national figures show a major decline over a longer duration of time (18 million tonnes in 2007 compared to 3 million tonnes in 2011).

- **Industrial Wastes**

There was a steady increase in both non-hazardous (46k tonnes in 2012) and hazardous wastes (5k tonnes in 2012) within the CUR reporting period. Household waste has been screened out of this assessment as only commercial and industrial waste are of relevance.

Material Assets

Key Existing Material Assets

- 17.4.7 As part of Chapter 7: Infrastructure, Utilities and Environmental Protection within the Galway County Development Plan 2022 – 2028, Figure 7 provides a high level of overview of existing utilities within the Galway area.
- 17.4.8 In terms of the existing site, it is supplied by a natural gas pipeline running north which diverts east to Ballinasloe and west towards Athenry and Galway City. The nearest gas substation is located near Claregalway (over 20km to the north-west). The existing on-site Above Ground Installation (AGI) connects the existing Tynagh CCGT Power Station with the existing natural gas transmission network.
- 17.4.9 The existing layout of the Tynagh Power Station site contains a 220kV Switchyard, which includes: two export bays to the national grid, one incoming bay from the existing generator, and all associated switch gear, relays and protective equipment.
- 17.4.10 In terms of existing electrical infrastructure, there is a 220kV overhead powerline running directly from Cashla to Oldstreet. The existing substation connects to this line approximately 1km north-east of the site.
- 17.4.11 There is a network of drainage systems at the existing Tynagh Power Station Site including stormwater drains and gullies.
- 17.4.12 In terms of other utilities on the existing site, there is a natural gas fired turbine, heat recovery steam generator, steam turbine, electrical transformers and controls, air cooled condenser, diesel tank, water processing and water tank.

17.5 Predicted Impacts

Do Nothing Scenario

- 17.5.1 If the Do-Nothing Scenario is taken forward, with regard to the topic assessed in this Chapter, there will be no generation of waste products as a result of the Proposed Development and no impacts with regard to the upgrade and/ or connection of utilities proposed as part of the Proposed Development.

Construction Phase - Waste

- 17.5.2 Based on the Proposed Development design and layout, the total footprint for all proposed structures, including ground level hard standing, is less than 3 ha (although the wider planning application boundary is 8.3ha which includes the wider landholding).
- 17.5.3 The quantities of different wastes that will be generated has been calculated by using the following sources:
- Smartwaste/ BRE Benchmark Data; and
 - Provisional estimates from WRAP (Waste & Resources Action Programme publications).
- 17.5.4 Using the benchmark data for waste generation for this type of Proposed Development (see Table 17.1), the total estimated waste arisings will be approximately 30 tonnes (rounded up). This has been calculated as follows:

New Industrial Building Waste Benchmark

- Proposed Development has <3 ha. floor space / 100 = 10m² (per 100m²) x 13 (which is the Smartwaste guidance benchmark) = 390m²

- 17.5.5 This figure then allowed the typical waste amounts from a new industrial building to be estimated in tonnes.
- 17.5.6 Provisional estimates have been made based on average composition data for construction waste type from new-build industrial buildings published by WRAP (WRAP, 2009, Table D2), and are represented in Table 17.7. These estimates relate to the quantities of waste generated, and not the quantities of waste requiring landfill disposal. It is expected that a significant proportion of the waste will be suitable for re-use or recycling.

Table 17.7: Estimated construction waste types and tonnages for the Proposed Development

WASTE TYPE	ESTIMATED TONNES (TPA)
Asphalt and tar	3
Binders	0
Bricks	0
Canteen/office/ad hoc from Construction teams	1
Concrete	0
Electrical and electronic equipment	0
Floor covering (soft)	0
Furniture	0
Gypsum	1
Hazardous	1
Inert	0
Insulation	0.5
Liquids	0
Metals	3
Oils	0
Packaging	2
Plastics	0.5
Tiles and ceramics	0
Timber	1
Mixed	11
Other	0
Totals (rounded up)	24

**These are estimated average amounts only based on best practice benchmarking.*

- 17.5.7 The estimates of waste generated for the Proposed Development during construction as shown in Table 17.7 above demonstrate that the estimated tonnage produced for the Proposed Development would be Negligible (Not Significant) in line with the stated methodology in Table 17.2 (less than 0.1% of the remaining landfill capacity of the CUR Region).

- 17.5.8 In a worst-case scenario, any wastes in Table 17.7 not recycled or reused would be sent to landfill. In this scenario there would also be a Negligible impact as the total waste would not exceed 0.1% of the available landfill capacity in the CUR region (within 30km) for inert material.
- 17.5.9 Based on the topographical data of the existing Site and the Proposed Development layout and floor levels it is calculated that the site preparation will require a clean fill importation requirement of 21,000m³. The site design and layout has been designed to ensure that the volume of excavation and cut on the brownfield site will be limited to minimise earthworks and any excavated material will not be exported off site.

Construction Phase - Material Assets

Electrical and gas utilities

- 17.5.10 The Proposed Development will have separate connections to this infrastructure, by way of a new Above Ground Installation (AGI) to connect to the existing high pressure gas pipeline to the west, and a new bay within the existing electricity substation to the south.
- 17.5.11 An additional electrical bay will be located within the existing electrical substation compound to allow the plant to export electricity to the electricity network. This ancillary infrastructure is assessed in the EiAR and will be constructed by ESB Networks. A short-term power connection outage will be required to facilitate substation connection works.
- 17.5.12 A new gas AGI will be created to deliver the required gas capacity for the Proposed Development. The facility will be designed to Gas Network Ireland (GNI) specifications and will be similar in nature to the existing AGI on site. This ancillary infrastructure is assessed in the EiAR and the detailed design of the AGI will be completed by GNI. It will include a pressure reduction station, preheating equipment, metering equipment and various shutoff and control valves. In the construction phase there will be a limited short outage to the gas supply for connection and commission of the expanded AGI infrastructure.
- 17.5.13 In terms of significance, there will be a low sensitivity associated with these material assets. The magnitude of impact will be minor as there will be a minor change in utilities required. As a result, for this material asset, the significance of impact without mitigation will be Neutral or Slight.

Operational Phase - Waste

Secondary Fuel Storage and Transfer Facility

- 17.5.14 The proposed plant is required under the Grid Code to maintain a secondary fuel supply of approximately 5,400 tonnes (6,600m³) of distillate fuel which will be contained in a tank within a proposed bunded area. The purpose of this secondary fuel is to ensure that power can still be supplied to the electricity network in the event of an interruption to supply from the gas connection. The secondary fuel will only be used in the unlikely event that both the gas connection is unavailable and the other generation on the transmission grid cannot meet demand.
- 17.5.15 A fuel treatment plant will be required to remove any contaminants from the secondary fuel that may accumulate during storage, which will be collected in a (fuel treatment) tank contained within the bunded area prior to its safe removal and disposal off site at a suitably licenced facility. The tank would be emptied when necessary, approximately twice per annum.
- 17.5.16 A fuel forwarding pump will forward the secondary fuel from the storage area to the plant when required.

17.5.17 The safe disposal of contaminants from the secondary fuel supply will not be significant in terms of amount or frequency.

17.5.18 As a result, and in line with the stated methodology presented in Table 17.2, this would represent a Negligible impact (no waste arisings) and thus is considered not significant.

Chemicals and liquid effluents

17.5.19 In terms of other waste used as part of the operation and running of the Proposed Development, small quantities of other chemicals (i.e., lubrication oils, propane, CO₂ cleaning agents and glycol/ antifreeze) will also delivered to and from the Proposed Development and stored in existing stores on site.

17.5.20 In a worst-case scenario for a development of this type, the consumable wastes produced are considered Negligible when compared to the methodology outlined in Table 17.2.

17.5.21 This is due to the fact that chemicals and effluents will increase in amount by less than 0.1% of current annual waste arisings in the region.

Operational Phase - Material Assets

Electrical and gas utilities

17.5.22 The Proposed Development will have separate connections to this infrastructure, by way of a new Above Ground Installation (AGI) to connect to the existing high pressure gas pipeline to the west, and a new bay within the existing electricity substation to the south – both the AGI and new bay in the substation and associated connections are assessed in this EIA.

17.5.23 A gas AGI will be constructed and a gas pipeline (internal to the site) will connect the AGI to the proposed OCGT. The existing gas infrastructure has a low sensitivity as the AGI and gas connection to the Site already exists and only a connection is required. This new infrastructure will be maintained by GNI. In terms of significance, there will be a low sensitivity associated with this material asset. The magnitude of impact will be 'no change' as there will be no measurable change in utilities required. As a result, for this material asset, the significance of impact without mitigation (Table 17.6) will be Neutral.

17.5.24 The Proposed Development will have an underground electrical connection to the existing substation. An additional electrical bay will be located within the existing electrical substation compound to allow the plant to export electricity to the electricity network. This new infrastructure will be maintained by ESB Networks.

17.5.25 The OCGT will be connected (within the Site) to this new electrical bay via buried cables.

17.5.26 The existing grid infrastructure has a low sensitivity as the substation already exists and only a connection is required. The magnitude of impact will be moderate as there will be additional power generation created. As a result, for this material asset change the significance of impact without mitigation (Table 17.6) will be Slight Beneficial.

Decommissioning

17.5.27 Full details of the decommissioning works would be presented in a Decommissioning Plan (including a Decommissioning Environmental Management Plan) to be produced and agreed with EPA as part of the IE Licence and site surrender process for the facility at the end of the design life.

17.5.28 Effects arising from the process of decommissioning of the Proposed Development are considered to be of a similar nature and duration to those arising from the construction process and therefore have not been considered separately in this chapter. The majority

of materials produced during decommissioning are likely to be concrete and steel, which are both considered likely to be recycled rather than being disposed of.

17.6 Mitigation and Enhancement Measures

Construction Phase

- 17.6.1 As good practice, an up-to-date utilities plan should be produced and submitted to GCC prior to construction showing all utilities present on the existing site before construction begins.
- 17.6.2 An oCEMP has been prepared and is presented within Appendix 5A of this EIAR (refer to Volume II). This will be finalised by the E&C Contractor prior to the start of construction.
- 17.6.3 The oCEMP sets out a framework how waste will be managed during construction, and opportunities to re-use and recycle waste will be implemented in accordance with the waste hierarchy.
- 17.6.4 The site design and layout has been designed to ensure that the volume of excavation and cut on the brownfield site will be limited to minimise earthworks and any excavated material will not be exported off site.
- 17.6.5 Waste arisings will be prevented and designed out where practicable through working with suppliers to minimise wastage in materials and packaging. Section 5.9 of the oCEMP in Appendix 5A of this EIAR details the measures to be taken with regards to waste minimisation.
- 17.6.6 The Applicant will require that the contractor separates the waste streams on Site as outlined in the oCEMP and as agreed in a final CEMP, prior to them being taken to an appropriately licensed waste facility for recycling. Copies of all Waste Transfer Notes and Hazardous Waste Consignment Notes for wastes removed from site will be retained by the contractor for the required timeframe under legislation.
- 17.6.7 Contractors will be required to adopt good practice in construction waste management which will reduce the quantity of waste generated. The following approaches will be implemented in order to minimise the quantities of waste requiring disposal:
- Agreements with material suppliers to reduce the amount of packaging or to participate in a packaging take-back scheme;
 - Re-use of materials, e.g., re-use of excavated soil for landscaping or ramp embankments. Concrete will be either taken off Site for crushing and re-use.
 - Segregation of waste at source.
- 17.6.8 The following waste management measures will be implemented in order to reduce the likelihood of any localised impacts of waste on the surrounding environment:
- Damping down of surfaces during spells of dry weather and brushing/ water spraying of heavily used hard surfaces/ access points across the Site;
 - Off-site prefabrication, including the use of prefabricated structural elements, cladding units, toilets, mechanical and electrical risers and packaged plant rooms;
 - Open burning of waste or unwanted materials will not be permitted on Site;
 - All hazardous materials including fuels, chemicals, cleaning agents, solvents and solvent containing products to be securely stored in sealed containers at the end of each day prior to storage in protected and bunded storage areas;

- Any waste effluent will be tested and disposed of at the correctly licensed facility by a licensed specialist contractor(s);
- Materials requiring removal from the Site will be transported using licensed carriers and records will be kept detailing the types and quantities of waste moved, and the destinations of this waste, in accordance with the relevant regulations; and
- Before construction takes place, the contractor will identify all existing public utilities within 200m of the Proposed Development. These will be mapped and communicated to all contractors working on the Proposed Development.

Operational Phase

17.6.9 The Environmental Management System (EMS) that will be developed and maintained for the Proposed Development in operation as required by the EPA and will include procedures for the management of waste in accordance with relevant legislation.

17.6.10 A Waste Management Plan will be developed as part of the IE Licence for the Proposed Development.

17.7 Residual Effects

17.7.1 The residual effects after mitigation are outlined in Table 17.8.

17.7.2 All Material Assets after mitigation will have a Negligible or Slight Beneficial residual effect once mitigation measures including those within the oCEMP (Appendix 5A, refer to EIAR Volume II) are taken into account.

Table 17.8: Waste & Material Assets Residual Impacts

MATERIAL ASSETS	CONSTRUCTION OR OPERATIONAL PHASE IMPACT	SIGNIFICANCE BEFORE MITIGATION	RESIDUAL SIGNIFICANCE AFTER MITIGATION
WASTE			
Waste Arisings	Construction	Negligible	Negligible
Chemical and liquid effluents	Operational	Negligible	Negligible
MATERIAL ASSETS			
Electrical utilities	Construction	Neutral or Slight	Neutral or Slight
Electrical utilities	Operational	Slight Beneficial	Slight Beneficial
Gas utilities	Construction	Neutral or Slight	Neutral or Slight
Gas utilities	Operational	Neutral	Negligible

17.8 Cumulative Effects

17.8.1 This section of the chapter assesses the potential effects of the Proposed Development combined with the potential effects of other development schemes (referred to as ‘cumulative developments’) within the surrounding area.

Cumulative Effects during Construction

17.8.2 Based on a review of planning applications and permitted developments, as presented in EIAR Chapter 15: Land use, there are no significant projects proposed that are likely to give rise to cumulative effects in conjunction with the Proposed Development.

Cumulative Effects During Operation

- 17.8.3 There will be no cumulative impacts during the operational phase on material assets or waste.

17.9 References

Department of the Environment, Climate and Communications (2020) A Waste Action Plan for a Circular Economy: Ireland's National Waste Policy 2020-2025.

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EPA (2004) Waste Management - Taking Stock and Moving Forward.

EPA (2006) National Strategy on Biodegradable Waste Management (2006).

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EPA (2022). Guidelines on the Information to be Contained in Environmental Impact Assessment Reports.

EPA (2022) National Waste Statistics Summary Report for 2020.

European Commission (2008) Directive 2008/98/EC on waste (Waste Framework Directive), (Online). Available at: <https://ec.europa.eu/environment/waste/framework/>. Accessed 2nd December 2020.

European Commission (2000) Council Decision (200/532/EC) of 3 May 2000 replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive

European Commission (2006) Regulation (1013/2006).

European Parliament (2010) Directive on Industrial Emissions (2010/75/EU) The Industrial Emissions Directive of the European Parliament and of the Council of 24 November 2010 on industrial emissions.

European Commission (2008) European Directive (2008/98/EC) on Waste Framework Directive.

EU Council (1999) Implementing the EU Landfill Directive (1999/31/EC) on the landfill of waste.

European Union (2013) The 8th Environmental Action Programme.

European Parliament (2011) The Roadmap to a Resource Efficient Europe.

Galway County Council (2022) County Development Plan 2022-2028.

IEMA (2020) IEMA Guide to Materials and Waste in Environmental Impact Assessment.

Mayo County Council (2015) Lead Author - Connacht – Ulster Waste Management Plan 2015 - 2021 (CUR).

Smartwaste / BRE (2012) BRE Waste benchmark data.

UK Government (1990) Environmental Protection Act 1990, (Online).