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21

Cumulative Effects

21.0 Cumulative Effects

21.1 Introduction

This chapter of the EIAR consists of an assessment of the likely significant cumulative effects of the proposed Biomethane and Bio-based Fertiliser Production Facility at the former Lisheen Mine Site, Killoran, Moyne, Thurles, Co. Tipperary (hereafter referred to the proposed development) on the receiving environment in combination with other projects and an assessment of the inter-related effects (also known as interactive effects), between different environmental factors of the proposed development itself on the receiving environment.

Annex IV of the EIA Directive (2011/92/EU as amended by 2014/52/EU) requires that an EIAR provides a

"description of the likely significant effects of the project on the environment resulting from...the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources".

The cumulative effects between the proposed development and other "screened in" projects are described within each topic chapter (Chapters 7-19). Cumulative effects were assessed to a level of detail corresponding with the information that was available at the time of assessment.

Sections 21.2 outlines the relevant guidance and policy documents relevant to cumulative effects whilst Section 21.3 outlines the relevant definitions of cumulative effects.

21.2 Relevant Guidance and Policy

The cumulative effects assessment has been completed with reference to the following guidance documents:

- Department of Housing, Planning and Local Government (2018) Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment, August 2018.
- Environmental Protection Agency (2022) Guidelines on the Information to be contained in Environmental Impact Assessment Reports (May 2022) (EPA 2022 Guidelines).
- Environmental Protection Agency (2003) Advice Notes for Preparing Environmental Impact Statements.
- European Commission (2017) Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (EC 2017 Guidelines).
- European Commission (1999) Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions.

21.3 Definition of Cumulative Effects

The following definitions are generally used in the description of cumulative effects.

EC guidance (1999) notes that the “definitions of indirect and cumulative impacts and impact interactions often overlap”. The 1999 guidance defines cumulative impacts as *“impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project”*.

The EC guidance (2017) uses the following definition for cumulative effects:

“Changes to the environment that are caused by activities/projects in combination with other activities/projects”.

EC guidance (2017) also states that:

“It is important to consider effects not in isolation, but together, that is cumulatively. [...] Cumulative effects are changes to the environment that are caused by an action in combination with other actions. They can arise from:

- *The interaction between all of the different projects in the same area;*
- *The interaction between various impacts within a single Project (while not expressly required by the EIA Directive this has been clarified by the CJEU [Court of Justice of the European Union] [...].”*

Section 3.7.3 of the EPA guidelines (2022) define cumulative effects are defined as:

“The addition of many minor or significant effects, including effects of other projects, to create larger, more significant effects” “While a single activity may itself result in a minor impact, it may, when combined with other impacts (minor or insignificant), result in a cumulative impact that is collectively significant. For example, effects on traffic due to an individual industrial project may be acceptable; however, it may be necessary to assess the cumulative effects taking account of traffic generated by other permitted or planned projects. It can also be prudent to also have regard to the likely future environmental loadings arising from the development of zoned lands in the immediate environs of the proposed project.” ...

The EPA guidelines (2022) note that indirect effects are “sometimes referred to as secondary effects or impacts, these are defined by the European Commission guidance as “impact on the environment, which are not a direct result of the project, often produced away from (the site) or as a result of a complex pathway”.

21.4 Methodology

The consideration of potential cumulative effects is an important stage in the EIA process. Although the proposed development may not result in significant residual effects in isolation, when the proposed development is considered cumulatively with other projects, significant residual effects may occur.

Annex IV of the EIA Directive (2011/92/EU as amended by 2014/52/EU) requires that an EIAR provides a

"description of the likely significant effects of the project on the environment resulting from...the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources."

Further, the EPA 2022 Guidelines define cumulative effects as: 'The addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects.'

This EIAR has provided a description of the likely significant effects of the proposed development on the environment resulting from the cumulation of effects arising from *"other existing and/or approved projects"* as per the EIA Directive, taking into account any existing environmental issues relating to areas of particular environmental importance likely to be affected or the use of natural resources. The cumulative effects assessment (CEA) has specifically considered whether any of the identified projects in the local or wider area have the potential to exacerbate (i.e. alter the significance of) effects associated with the proposed development.

In general, the CEA does not consider other projects that are already constructed and operating, as such existing projects are already accounted for in the baseline conditions established for the main assessments within Chapters 7 to 19 of this EIAR. The requirements of the EIA Directive and guidelines to consider existing projects is therefore dealt with in those chapters. This chapter considers only proposed developments, being the *"permitted or planned projects"* as noted in Section 3.7.3 of the EPA 2022 Guidelines.

The CEA has considered likely significant cumulative effects arising from other existing and/or approved projects that may arise during construction and operation of the proposed development.

The cumulative construction assessment considers the total effects of the proposed development and other identified projects being constructed concurrently. It is assumed that the construction of the proposed development starts in 2025/2026. Projects where construction has been completed prior to 2025/2026 are therefore not included in the cumulative construction assessment. The cumulative operational assessment considers the total effects of the proposed development and other identified projects operating concurrently.

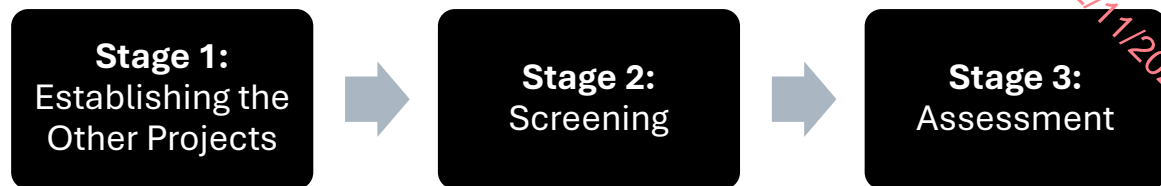


Figure 21.1: CEA Methodology. (Source)

Stage 1: Establishing the long list of ‘other existing and/or approved projects’

The first stage in determining cumulative effects was to identify a long list of “other existing and/or approved projects” deemed potentially relevant to be included in the CEA. This stage took into account any existing environmental issues relating to areas of particular importance likely to be affected or the use of natural resources. (The long list of projects and associated mapping is provided at **Volume3: Appendix 21.1.**)

The following sources of information have been examined to identify relevant projects which have the potential for cumulative/in-combination effects:

Data Topic	Data Source
Planning - An Bord Pleanála	An Bord Pleanála website (http://www.pleanala.ie/index.htm) – for details of projects under appeal, Strategic Infrastructure Development (SID), Strategic Housing Developments (SHD), Large-scale Residential Developments (LRD) and other major projects (focused on 7.5km radius emanating from the development area).
Local Authority Planning (including Part 8 Applications)	Planning websites of Tipperary County Council (focused on 7.5km radius emanating from the development area). Planning websites of the neighbouring local authority (Kilkenny County Council) was also reviewed.
Planning – National Database	National Planning Application Database (https://data.gov.ie/dataset/national-planning-applications) – for downloadable list of planning applications sent from Local Authorities (focused on the relevant planning authorities)
EIA Portal	The EIA Portal (https://www.housing.gov.ie/planning/environmental-assessment/environmental-impact-assessment-eia/eia-portal) maintained by the Department of Housing, Planning and Local Government – for applications for development consent accompanied by an EIAR; (focused on 7.5km radius emanating from the development area).
Water Projects	Uisce Eireann’s website, which includes a page on its projects https://www.water.ie/projects/
EPA	EPA website, for details on projects subject to licences and permits such as Industrial Licensing, Waste licences and Wastewater Discharges (http://www.epa.ie/)

Table 21.1: Long List data sources.

Given the location and nature of the proposed development, a tiered approach has been adopted to establish the long list of “other existing and/or approved projects.” This approach is not hierarchical nor based on any weighting but rather organises projects by their proximity to the proposed development site. The assessment considers only publicly available information at the time of the study.

It is noted that the list of developments in this Chapter is non-exhaustive. There are a wide variety of other applications and permissions in the area. However, minor developments, such as one-off housing, erection of signage and other minor structures and extensions, have been excluded due to the absence of potential for significant cumulative impacts. Lapsed and refused permissions have also been excluded.

Projects that have already been built and are operational, which are not listed in this chapter, have either been incorporated into the baseline environment or assessed as having no potential to exacerbate effects. The general approach is to include developments that have been permitted or consented but are not yet operational. However, in certain circumstances, the assessment has extended to include additional projects, as described below.

For example, some projects that are currently in the planning or consenting stages but have not yet been consented are included in the assessment.

The rationale for project selection is provided below, organized into four distinct tiers:

- Tier 1: On-site projects (i.e., those located on the lands of the former Lisheen Mine).
- Tier 2: Projects within a 2.5km radius.
- Tier 3 Projects within a 2.5-7.5km radius.
- Tier 4 Projects beyond a 7.5km radius.

This tiered structure ensures a thorough and transparent assessment of both proximity and potential cumulative impacts, addressing the full range of developments that may interact with the proposed site.

Stage 2: Screening of the Long List of ‘Other Projects’

Stage 2 of the CEA involved a screening exercise of the “Long List” whereby each of the EIA Specialists (considered whether each of other projects have the potential to give rise to likely significant cumulative effects with the proposed development during the construction and operation phases. Many of the projects were screened out by the EIA Specialists for a number of reasons including the location, scale and nature of the project, level of confidence in the publicly available data provided, predicted construction timelines etc. The outcome of this ‘screening’ exercise for the wider scheme EIAR topics and the reasons why certain projects were screened out are provided in Section 21.5 below.

Stage 3: CEA

Following Stage 2, those projects which were “screened in” by the EIA Specialists were carried forward for assessment. The results of the Stage 3 CEA are presented in the main body of chapters within the EIAR.

Table 21.3 below in Section 21.6 presents a summary of the overall CEA of the “screened-in” projects in combination with the proposed development for all EIA topics.

21.5 Stage 2: Screening

21.5.1 Screening Results of Long List

As noted above, Stage 2 involved a screening exercise whereby each of the EIA Specialists considered whether each of the other projects have the potential to give rise to likely significant cumulative impacts with the proposed development during the construction, operation and decommissioning phases. Many of the projects were screened out by the EIA Specialists for a number of reasons including the location, scale, nature and construction timing of the projects. The outcome of this ‘screening’ exercise is presented in **Table 21.2** below.

The reasoning why certain projects were screened out is also provided below in Section 21.5.2.

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Project No.	Project Name / Type	EIA Factor												
		Pop & Human Health	Biodiversity	Land and Soils	Hydrology and Hydrogeology	Air Quality	Climate	Noise and Vibration	Traffic and Transportation	Waste	Utilities	Archaeology and Cultural Heritage	Landscape and Visual	Risk Management
1	Acorn Recycling Workshop and Truck Washout	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
2	Irish Bioeconomy Foundation Research and Development Unit	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
3	Glanbia Biorefinery (1)	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
4	Glanbia Biorefinery (2) (Modifications to Application Reg. Ref. 18601296)	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓
5	Soleirtricity Solar PV Farm	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	X	✓
6	Revive Environmental	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
7	O'Grady Agricultural Shed and Milking Unit		✓	✓	✓									
8	O'Grady Livestock Underpasses		✓	✓	✓									
9	Cooleeny Cheese (1)		✓	✓	✓						✓			
10	Cooleeny Cheese (2)		✓	✓	✓						✓			
11	Cooleeny Cheese (3)		✓	✓	✓						✓			
12	NaringTech		✓	✓	✓									
13	Hogan's Drain & Pipe Cleaning		✓	✓	✓									

Project No.	Project Name / Type	EIA Factor												
		Pop & Human Health	Biodiversity	Land and Soils	Hydrology and Hydrogeology	Air Quality	Climate	Noise and Vibration	Traffic and Transportation	Waste	Utilities	Archaeology and Cultural Heritage	Landscape and Visual	Risk Management
14	Derryville Environmental Solutions (1)		✓	✓	✓									
15	Derryville Environmental Solutions (2)		✓	✓	✓									
16	Lisheen III Wind Farm	✓	✓	✓	✓									
17	Lisheen III Wind Farm	✓	✓	✓	✓									
18	Bruckana Windfarm	✓	✓	✓	✓									
19	Templederry Energy Resources Solar Farm		✓	✓	✓									
20	Engie Developments Solar Farm		✓	✓	✓									
21	Shannon Resources (former Galmoy Zinc and Lead Mine)	✓	✓	✓										
22	Overhead electricity line from Thurles to the Borrisoleigh.			✓	✓									
23	Borrisbeg Wind Farm	✓	✓	✓	✓									
24	Gromane Limited			✓										

Table 21.1: Projects ‘Screened In’ (Note: a ✓ denotes a project is “screened in” If the cell is blank, it is screened out.)

21.5.2 Reasons for Screening out Projects

This section sets out why projects were screened in / out for each environmental topic covered within the EIA.

Population and Human Health

On-site projects and Projects within 2.5km radius: It was concluded that the 'on-site' projects were most likely to contribute to any cumulative effects with the proposed development. However some projects within Tier 2 'up to 2.5km' radius have been screened in due to the nature of the developments.

Projects within 2.5-7.5km radius and Projects 7.5km and beyond: Given the distance and location of the projects the development area, they are unlikely to create direct or indirect significant negative cumulative effects between these projects and the proposed development on population and human health. Therefore, all projects within 2.5-7.5km and beyond projects with the exception of the former Galmoy Zinc and Lead Mine) have all been screened out from further assessment.

Biodiversity

A distinguishing factor with regard to biodiversity is the potential for ecological connectivity between the sites. Sites that are ecologically connected to the proposed development area, such as those with ecological corridors or hydrological connectivity have been screened in for assessment. This includes projects located upstream, downstream, or within the same WFD waterbody catchment. Many of these sites are within the Suir catchment, which poses a potential for cumulative impacts on biodiversity, including species and habitats of conservation concern.

Conversely, two projects in Kilkenny were screened out, as no potential ecological connectivity was found, reducing the likelihood of significant cumulative biodiversity impacts.

Land, Soils and Geology

During the operational phase of the proposed development, no significant cumulative effects on land, soils, and geology are anticipated.

However, during the construction phase of the proposed development, while there is no requirement to remove excavated soils from the site, where potentially unsuitable material is identified through engineering and environmental assessment, it could potentially be directed to the same receiving waste facilities for recovery or disposal as excavated materials from other developments. Furthermore, the importation of aggregates to the proposed development may be sourced from the same borrow site as other permitted developments. Therefore,

there may be potential cumulative effects on land, soils, and geology due to the combined effect of waste management activities and material importation from this and other nearby developments.

For this reason all projects included in the long list of “*other existing and/or approved projects*”, including the permitted but not yet constructed Biorefinery proposed by Glanbia (now Tírlán) at the former Lisheen Mine site, have been screened in for further assessment to evaluate their cumulative effects comprehensively.

Hydrology and Hydrogeology

On-site projects and Projects within 2.5km radius and Projects within 2.5-7.5km radius and Projects 7.5km and beyond

A key differentiator with regard to hydrology and hydrogeology is the potential for hydraulic connectivity between the sites. Sites that are seen to be hydraulically connected to the site have been screened in. This includes projects upstream, downstream, connected via groundwater flow paths and sites within the same WFD waterbody. The majority of the sites are within the Suir catchment and as such there is potential for cumulative effects.

Two long listed projects within Kilkenny were seen to have no potential for hydraulic connectivity and were screened out.

Air Quality (including Odour)

On-site projects and Projects within 2.5km radius: A review of the planned and permitted projects within the vicinity of the site was undertaken. Planned and permitted projects which are within 500 m of the proposed development and with construction phases were screened in as it is considered they could lead to cumulative construction dust impacts.

Projects within 2.5-7.5km radius and Projects 7.5km and beyond: All other developments are outside the 500 m cumulative zone of influence and have been scoped out of cumulative assessment, as there no direct or indirect significant negative cumulative effects predicted between these projects and the proposed development on air quality.

Climate

A significant benefit of the proposed development will be its impact on assisting in Ireland’s ability to meet its carbon reduction target over its lifecycle. The long list provided shows a number of other planning permissions for approved renewable energy schemes. It was considered appropriate to screen in these projects due to their significant beneficial cumulative effects. All other projects were screened out.

Noise and Vibration

On-site projects and Projects within 2.5km radius: The list of other existing/approved applications has been screened as part of the cumulative assessment, developments within a 2.5km radius of the proposed anaerobic digester have been included as part of the cumulative assessment. Due to the distances between developments Wave Dynamics have determined that those in closest proximity warrant assessing of cumulative impacts,

Projects within 2.5-7.5km radius and Projects 7.5km and beyond: Sites beyond 2.5km were screened out due to the distance from the proposed development and relevant noise sensitive receptors. Therefore everything outside of this radius has been omitted from the cumulative assessment.

Traffic and Transportation

On-site projects and Projects within 2.5km radius: Projects such as residential and commercial developments, were screened out as they were not likely to require any temporary full or partial road closures during their construction phases and due to the contribution of the proposed development on traffic volumes being considered low or negligible.

Projects within 2.5-7.5km radius and Projects 7.5km and beyond: Given the distance and location of the projects from 2.5km and beyond from the development area, there are no direct or indirect significant negative cumulative effects predicted between these projects and the proposed development on traffic and transportation. Some of these projects do not generate any traffic/will not generate a legible amount of traffic therefore they have been screened out. Therefore, the 2.5-7.5km and beyond projects have all been screened out from further assessment.

Material Assets – Waste

On-site projects and Projects within 2.5km radius: Developments on-site/within a 2.5km radius were screened in as they were considered to have the potential to overlap with the proposed development leading to an increase in municipal wastes in the area due to the increased number of contractors. Additionally, the volume of construction and demolition wastes would increase with an increased number of construction developments in the area.

Projects within 2.5-7.5km radius and Projects 7.5km and beyond: It is considered that these projects will not overlap in their requirement for local waste collection facilities due to their distance from the scheme.

Material Assets – Utilities

On-site projects and Projects within 2.5km radius: The projects within the category ‘on-site projects and projects within 2.5km radius’ were found to have generally proposed works of a similar nature to that of the proposed development site with a focus on Material Assets only. These projects were screened in to the assessment.

Projects within 2.5-7.5km radius and Projects 7.5km and beyond

Projects from the category ‘projects within 2.5-7.5km and projects 7.5km and beyond’ were excluded from consideration due to factors such as their location, scale, and nature of the proposed development.

Archaeology and Cultural Heritage

On-site projects and Projects within 2.5km radius: All projects have been screen out. It is considered that potential cumulative impacts will not occur in relation to the archaeological record as the developments within a 500m radius of the site all occupy areas that were subject to full archaeological excavation in the late 1990s. As such none of them will impact archaeology and therefore cumulative impacts cannot occur.

No cumulative impacts are predicted in relation to the operation of the proposed development and those developments within 500m, as no operational impacts are predicted as a result of the operation of the proposed development (subject to this EIAR).

Projects within 2.5-7.5km radius and Projects 7.5km and beyond: Proposed developments outside of the 500m study area for the assessment of the archaeological, architectural and cultural heritage resource, have been screened out of the cumulative impact assessment due to their distance from the proposed development.

Landscape and Visual

On-site Projects and Projects within a 2.5 km Radius: Projects within this category were assessed for potential cumulative landscape and visual impacts due to their proximity to the proposed development. These on-site and nearby projects generally involve similar types of development with a focus on renewable energy and industrial land use. Given their relevance and visibility within a 2.5 km radius, these projects were screened in for cumulative landscape and visual impact assessment.

Projects within 2.5-7.5 km Radius and Beyond: Projects located within a 2.5-7.5 km radius, as well as those beyond 7.5 km, were excluded from cumulative consideration. Due to their greater distance, these projects are not visible in combination with the proposed development, and their location and scale reduce the likelihood of significant cumulative impacts on landscape character or visual receptors. Therefore, cumulative landscape and visual impacts were not deemed likely for projects beyond the 2.5 km radius.

Major Accidents and Disasters

On-site projects and Projects within 2.5km radius

A review of the planned and permitted projects within the vicinity of the site was undertaken. Planned and permitted projects which are within 500 m of the proposed development were screened in as it is considered they could lead to potential cumulative construction impacts.

Projects within 2.5-7.5km radius and Projects 7.5km and beyond

All other developments are outside the 500 m cumulative zone of influence and have been scoped out of cumulative assessment as there no direct or indirect significant negative cumulative effects predicted between these projects and the proposed development on major accidents and disasters.

21.6 Stage 3 CEA

Section 21.5 above explains why projects were screened in/out for CEA for which environmental topics.

Table 21.3 below lists the environmental topics for which the long list of projects were screened in during construction and operational phases.

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Environmental Topic	Screened – In Projects	Significance of Effects
Population and Human Health	Projects 1, 2, 3, 4, 5, 6, 16, 17, 18, 21, 23	<p>During the construction phase, the residual effects of the proposed development alone on population and human health will range from negative temporary slight to negative temporary significant. During the construction phase, potential cumulative effects from the screened-in projects in-combination with the proposed development were identified in locations where cumulative traffic and transport impacts occur in conjunction with significant effects on accessibility and journey patterns.</p> <p>During the operational phase, the impact of the proposed development provision of employment within the area is predicted to result in in a permanent, positive, significant health and wellbeing effect at the regional level.</p>
Biodiversity	Projects 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24	<p>Construction Phase</p> <p>During the construction phase, in a worst-case scenario there is potential for negative cumulative impacts to hydrologically connected waterbodies. These potential impacts include the accumulation of excess sediment and the mobilisation of contaminants from multiple source projects, both of which can affect the water quality of surface and groundwater bodies. In the absence of mitigation measures, there is a potential ‘negative’, ‘moderate’, ‘medium-term’ impact on the receiving waterbodies including the Cooleeny Stream, River Drish, Thurles Groundwater Body (GWB) and downstream systems.</p> <p>Cumulative impacts on fauna primarily relate to increased noise and activity levels. In-combination impacts from noise/disturbance are likely to be most pronounced during the construction phase. This is a short-term, localised impact.</p> <p>Operational Phase</p> <p>During operation, all foul water from the proposed development will be directed into the anaerobic digestion process, with no discharge to surrounding waterbodies, thereby avoiding potential cumulative impacts on aquatic habitats and species dependent on</p>

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Environmental Topic	Screened – In Projects	Significance of Effects
		<p>them. As a result, effects on the hydrological environment are expected to be “neutral,” “imperceptible,” and “permanent,” with no adverse impact on local biodiversity.</p> <p>Surface water from the proposed development will be treated and attenuated prior to discharging to the Cooleeny Stream located approximately 20m south of the site. The 2023 AER for the Lisheen Mine (EPA, 2024) recorded continued non-compliances of COD, Suspended Solids, Zinc and Ammonia at the SW1 discharge from the Cloheen Pond to the Cooleeny Stream. Based on the dilution which will occur within the Cooleeny Stream, it is considered that the discharge of treated, clean surface water runoff from the proposed development will reduce the overall pollutant load in the stream and there will be a cumulative ‘positive’, ‘slight’, and ‘long term’ impact of the receiving water quality. This improvement would be beneficial for aquatic biodiversity.</p> <p>During operation, a localised increase in traffic and noise is predicted. Given its setting in an active industrial area, the proposed development is not predicted to significantly increase long term noise and disturbance levels. Therefore, no significant cumulative impacts have been identified.</p>
Land, Soils and Geology	Projects 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24	<p>During the operational phase of the Proposed Development, no significant cumulative effects on land, soils, and geology are anticipated. However, during the construction phase of the Proposed Development, while there is no requirement to remove excavated soils from the site, where potentially unsuitable material is identified through engineering and environmental assessment, it could potentially be directed to the same receiving waste facilities for recovery or disposal as excavated materials from other developments. Furthermore, the importation of aggregates to the Proposed Development may be sourced from the same borrow site as other permitted developments. Therefore, there may be potential cumulative effects on land, soils, and geology due to the combined effect of waste management activities and material importation from this and other nearby developments.</p>

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Environmental Topic	Screened – In Projects	Significance of Effects
Hydrology and Hydrogeology	Projects 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 23	<p>Construction Phase</p> <p>During the construction phase of the Proposed Development, in a worst-case scenario there is potential for negative cumulative effects to hydraulically connected waterbodies. These include effects to water quality of surface and groundwater bodies due to accumulation of excess sedimentation and mobilisation of contaminants from multiple source projects. In the absence of mitigation measures, there is a potential ‘negative’, ‘moderate’, ‘medium-term’ effect on the receiving waterbodies including the Cooleeny Stream, River Drish, Thurles GWB and downstream waterbodies.</p> <p>Operational Phase</p> <p>Water Resources - Water supply to the Proposed Development will be from the existing Moyne GWS. Correspondence dated 6 August 2024 states that the proposed water supply connection is feasible. The Moyne GWS water supply will be operated in accordance with relevant approvals therefore there will be no cumulative effects associated with the Proposed Development on the supply network and water resources. The associated cumulative effect on the hydrological and hydrogeological receiving environment will be ‘neutral’, ‘imperceptible’ and ‘permanent’.</p> <p>Water Quality - Foul water from the Proposed Development will be input into the anaerobic digestion process. There will be no discharge of foul water from the site during the operational phase and therefore no other potential cumulative effects associated with the Proposed Development. The associated cumulative effect on the hydrological and hydrogeological receiving environment will be ‘neutral’, ‘imperceptible’ and ‘permanent’.</p> <p>Surface water from the Proposed Development will be treated and attenuated prior to discharging to the Cooleeny Stream located approximately 0.02km south of the site. The</p>

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Environmental Topic	Screened – In Projects	Significance of Effects
		2023 AER for the Lisheen Mine (EPA,2024) recorded continued non-compliances of COD, Zinc, Suspended Solids and Ammonia at the SW1 discharge from the Cloheen Pond to the Cooleeny Stream. Based on the dilution which will occur within the Cooleeny Stream, it is considered that the discharge of treated, clean surface water runoff from the Proposed Development will reduce the overall pollutant load in the stream and there will be a cumulative ‘positive’, ‘slight’, and ‘long term’ effect of the receiving water quality.
Air Quality	Projects 1, 2, 3, 4, 5, 6	There is the potential for cumulative construction dust effects should the construction phases overlap with that of the proposed development. However, the dust mitigation measures outlined in Section 11.6.1 will be applied throughout the construction phase of the proposed development which will avoid significant cumulative effects on air quality. With appropriate mitigation measures in place, the predicted residual cumulative effect on air quality associated with the construction phase of the proposed development are considered direct, short-term, negative and not significant , which is overall not significant in EIA terms.
Climate	All projects screened out	N/A
Noise and Vibration	Projects 1, 2, 3, 4, 5, 6	The committed developments within a 2.5 kilometre radius of the existing site have been reviewed. The potential in combination effects with the committed developments has been found to be negligible. Based on the developments that have submitted a noise impact assessment as part of an EIAR chapter or as a standalone document have all been deemed suitable developments for the area, with noise levels predicted to be in line with the existing noise climate and in line with EPA criteria. The combination of these chapters and the distances between the developments, and the predicted noise emissions of the proposed anaerobic digestion facility, lends that there will be no negative noise impact from the in-combination operation of the developments at the NSLs outlined in this chapter.
Traffic and Transportation	Projects 1, 2, 3, 4, 5, 6	The developments which were screened in will generate approximately 491 two-way vehicle movements per day along the Lisheen Mine HGV route.

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Environmental Topic	Screened – In Projects	Significance of Effects
		<p>Across a typical 8-hour working day, this equates to 60 two-way trips per hour, or an average of 1 trip per minute.</p> <p>It is likely that there will be some impact on the surrounding roads during the construction period which will have negative, temporary impacts on the surrounding area.</p>
Material Assets: Waste	Projects 1, 2, 3, 4, 5, 6	<p>There will be a greater demand on existing local waste management services and on regional waste acceptance facilities</p> <p>However, the capacity of waste collection companies and waste management facilities in County Tipperary have been designed with forward planning and expansion in mind to cater for a growing population. It is necessary that all the developments provide the infrastructure and services to assist with segregating waste at source, in order to reduce the generation and disposal of non-recyclable mixed waste.</p> <p>The predicted cumulative effect will be short term, not significant, and negative.</p>
Material Assets: Utilities	Projects 1, 2, 3, 4, 5, 6, 9, 10, 11	<p>The nature of the projects identified are of such a scale that there are no largely negative residual impacts.</p> <p>We would note that a large feed from the ESB Grid is required for some of the projects reviewed. However, due to the source of renewable energy (existing and proposed) within the area, the overall residual effect still remains low.</p> <p>In general, the overall cumulative impact is considered low with a low residual impact.</p>
Archaeology and Cultural Heritage	Projects 1, 2, 3, 4, 5, 6	<p>Within regards to projects proposed within 500m of the proposed development, potential cumulative impacts will not occur in relation to the archaeological record as these developments all occupy areas that were subject to full archaeological excavation in the late 1990s. As such none of them will impact archaeology and therefore cumulative</p>

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Environmental Topic	Screened – In Projects	Significance of Effects
		impacts cannot occur. No cumulative impacts are predicted in relation to the operation of the proposed development and those developments within 500m, as no operational impacts are predicted as a result of the operation of the proposed development (subject to this EIAR).
Landscape and Visual	Projects 1, 2, 3, 4, 6	<p>Projects within a 2.5 km radius within this category were assessed for potential cumulative landscape and visual impacts due to their proximity to the proposed development. The results of the assessment are that no cumulative effects will arise. Please refer to baseline photographs and verified photomontages (available in Volume 3: Appendix 18.1).</p> <p>The assessment concluded that there are no likely significant direct or indirect cumulative effects on landscape and visual predicted during the construction, operation, or decommissioning phases of the proposed development.</p>
Risk Management – Major Accidents and Disasters	Projects 1, 2, 3, 4, 5, 6	<p>There are no expected impacts from these projects from a major accidents and disasters perspective, as such, there are no significant cumulative effects with the proposed development from a major accidents and disasters perspective.</p> <p>During the construction phase, since there are no likely negative impacts on the project or to off-site receptors, the cumulative impacts, of major accidents and disasters, are considered imperceptible and neutral to the proposed development and to cumulative developments in the surrounding area.</p> <p>During the operational phase, since there are no likely negative impacts to off-site receptors, the cumulative impacts, of major accidents and disasters, are considered imperceptible and neutral to the proposed development and to cumulative developments in the surrounding area.</p>

Table 21.3: Cumulative Effects Assessment.

21.7 CEA Mitigation Measures

Further mitigation for the proposed development is not proposed as it is considered that the proposed mitigation measures discussed in each chapter of the EIAR will ensure that there are no long lasting negative impacts as a result of the proposed development.

21.8 Overall Cumulative Residual Effects

The CEA undertaken in each chapter of the EIAR presents an outcome of no likely significant cumulative effects on receptors surrounding the proposed development.

21.9 Conclusion

No significant negative cumulative impacts are anticipated to occur during the construction, or operational phases of the proposed development, provided that the mitigation and monitoring measures outlined in this EIAR are properly implemented.

Please refer to the specialist Chapters of this EIAR for cumulative impact assessments with respect to each environmental factor considered within this EIAR.

21.10 References

- Department of Housing, Planning and Local Government (2018) Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment, August 2018.
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (EPA 2022);
- Guidance on the Preparation of the Environmental Impact Assessment Report (European Commission 2017);
- Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions (European Commission 1999); and
- Environmental Impact Assessment of Projects: Guidance on the preparation of the Environmental Impact Assessment Report (European Union 2017).