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## 19.0 CUMULATIVE EFFECTS AND INTERACTIONS

### 19.1 Introduction

19.1.1 This Chapter of the Environmental Impact Assessment Report (EIAR) provides an assessment of the potential for cumulative and combined effects to occur as a result of the Proposed Development. Cumulative and combined effects are defined as follows:

- Cumulative effects are those that accrue over time and space from a number of development activities – the impact of the Proposed Development is considered in conjunction with the potential impacts from other projects or activities which are both reasonably foreseeable in terms of delivery (i.e. have planning consent or relevant applications which have been submitted and are in the planning system) and are located within a realistic geographical scope where environmental impacts could act together with the Proposed Development to create a more significant overall effect; and
- Combined effects are those resulting from a single development (the Proposed Development) on any one receptor that may collectively cause a greater effect (such as the combined effects of noise and visual disturbance impacts during construction on birds).

19.1.2 ‘*Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment*’ (Government of Ireland, 2018) provides high level guidance on the assessment of cumulative effects.

19.1.3 EPA’s ‘*Guidelines on the information to be contained in Environmental Impact Assessment Reports*’ (EPA, 2022) provides a checklist for the assessment of cumulative effects, it should be considered whether the EIAR has:

- ‘*described cumulative effects?*’
- ‘*considered cumulative effects due to cumulation of effects with those of other projects that are existing or are approved but not yet built or operational?*’

19.1.4 The assessment presented in this EIAR Chapter draws on the assessment of impacts provided in Chapters 7 to 18 of this EIAR, and information in the public domain relating to other known developments within the Study Area.

19.1.5 The cumulative impact assessment does not consider other developments that are already constructed and operating, as such existing developments are already accounted for in the baseline conditions established for the main assessments within Chapters 7 to 18 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” noted in paragraph 3.5.2 of the EPA’s Guidelines (EPA, 2022).

19.1.6 A similar application, **Submitted Development Ref: 21/2192**, has been submitted to Galway County Council (GCC) in November 2021 for a proposed a OCGT plant on the western portion of the existing Tynagh power station site and planned demolishing of the existing Tynagh CCGT Power Station site workshop, administration building and car park and relocate these items to the lands adjoining and to the immediate north of the power station facility. The Proposed Development, Tynagh North (the subject of this EIAR) is

for development of an OCGT facility on lands immediately to the north of the existing Tynagh CCGT Power Station site.

- 19.1.7 Tynagh North OCGT would function independently of the existing Tynagh Power Station and Submitted Development Ref. 21/2192 with separate diesel offloading and storage facility (required in the emergency event of an interruption to the gas supply at the same time as high demand for electricity generation). Tynagh North OCGT would be capable of generating 350MW of electricity and, as with Submitted Development Ref. 21/2192, would benefit from proximity to the existing gas and electricity grid infrastructure that serves Tynagh Power Station.
- 19.1.8 Subject to planning approval, the Applicant intends to develop both Submitted Development Ref: 21/2192 and Tynagh North OCGT. The Submitted Development Ref: 21/2192 within Tynagh Power Station is expected to begin development at the start of Q2 2023. The construction period of the Submitted Development would therefore potentially overlap for three months with the construction period of the Proposed Development, Tynagh North. Chapter 14 of this EIAR and Appendix 14H sets out the construction period overlap between the Proposed Development (Tynagh North) and the Submitted Development Ref: 21/2192 which could occur for 3 months between November 2024 – January 2025. In this respect, the Submitted Development Ref: 21/2192 is considered as ‘other development’ and is included into the cumulative impact assessment in this EIAR.
- 19.1.9 Full details of the Proposed Development are provided in Chapter 5: The Proposed Development. Full details of the Existing Site and Conditions are presented in Chapter 4 of this EIAR.

## 19.2 Legislation and Planning Policy Context

- 19.2.1 This EIAR is provided in accordance with the EU EIA Directive 2011/92/EU1 and EIA Directive 2014/52/EU and the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018, in order to inform the consideration of the Application and provide the planning authority with the environmental information that must be taken into account when determining the Application.
- 19.2.2 The requirement for cumulative and combined impact assessments is stated in the relevant European Directive and domestic legislation, as detailed below:
- European Directive 2014/52/EU on the assessments of effects of certain public and private projects on the environment requires an assessment of: “the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the project”.
  - S.I. No. 296/2018 - European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 – “the cumulation of effects with other existing or approved developments, or both, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources”, and (ii) the description of the likely significant effects on the factors specified in paragraph (b)(i)(I) to (V) of the definition of ‘environmental impact assessment’ in section 171A of the Act should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the proposed development, taking into account the environmental protection objectives established

at European Union level or by a Member State of the European Union which are relevant to the proposed development.

### **19.3 Assessment Methodology**

- 19.3.1 This assessment aims to identify the likelihood for cumulative and combined effects expected to occur during the construction and operation (including maintenance) of the Proposed Development, and where possible, identify the possibility for significant effects.
- 19.3.2 Construction effects are assessed assuming construction of the Proposed Development starts in 2024. This assessment is on a worst-case basis because it is possible that other developments are permitted or approved between the date of the preparation of the EIAR and the date when construction commences.
- 19.3.3 The cumulative operational assessment considers the total effects of the Proposed Development and the other identified developments operating concurrently.
- 19.3.4 Cumulative effects during decommissioning of the Proposed Development are not considered as there is no defined time at which decommissioning will take place (it will be post 2052) and therefore no certainty of temporal overlap with other identified developments and their decommissioning.
- 19.3.5 There is no standard prescriptive method for assessing cumulative and combined effects and, in relation to cumulative effects, the extent to which the effects of other developments can be assessed quantitatively depends on the level of information available about the other developments. Such effects are, therefore, assessed by professional judgment, although matrices and modelling are used where appropriate and where enough information regarding the other developments exists. Where environmental assessment information regarding other developments is not available or uncertain, the assessment is necessarily qualitative. These limitations are outlined in Section 19.5.

#### Cumulative effects

- 19.3.6 A search of committed developments (i.e., one that has received full or outline planning permission) in the locality of the Proposed Development was undertaken using the An Bord Pleanála Online Planning search tool, the web map portal providing spatial information relevant to the planning process in Ireland (myplan.ie) and the GCC Online Planning Register. A desktop planning history search for the last five years and within 1km of the Proposed Development was undertaken using these resources to assess historical and current land use. Planning applications older than five years have not been assessed as they have been deemed to either have expired or have been constructed (due to the five-year life of planning consents). There are three planning applications as detailed in Table 19.1.

**Table 19.1: Study Area – Historic Planning Applications within the vicinity of the Proposed Development**

PLANNING APPLICATION	DATE SUBMITTED	SUMMARY DETAILS	ADDRESS/APPLICANT	STATUS
212192	24/11/2021	For the construction of an OCGT plant (299MW) and associated infrastructure and buildings, to the west of the existing Tynagh Power Station site.	EP Energy Developments Ltd.	Approved by GCC (April 2022). Currently under appeal to An Bord Pleanála (ABP-313538-22)
19633	26/04/2019	To extend workshop and to complete all associated site works.	Sperrin Galvanisers (IRE) Ltd. Derryfrench	Granted (Conditional) 29/07/2019
18221	26/02/2018	To extend workshop and to complete all associated site works.	Sperrin Galvanisers (IRE) Ltd. Derryfrench	Granted (Conditional) 20/04/2018

Source: Galway County Council Online Planning System and An Bord Pleanála Online Planning System – dated 25 January 2023.

Combined effects

19.3.7 Combined effects are by their nature interactive, the effect of one impact is dependent or influenced by another effect. For example, the removal of trees can have landscape, visual and ecological effects, or an individual residential receptor can be affected by noise and visual impacts. Combined effects can also arise from different types of impact within a single topic on a receptor, such as the combined visual impact of vegetation removal and erection of a mixed used development on a single receptor. Table 19.2 outlines the likely interacting combined impacts.

**Table 19.2: Interaction of Combined Impacts on the Proposed Development**

	LANDUSE	CULTURAL HERITAGE	LANDSCAPE AND VISUAL	BIODIVERSITY	SOILS AND GEOLOGY	NOISE AND VIBRATION	WATER ENVIRONMENT	AIR QUALITY AND CLIMATE	TRAFFIC	POPULATION AND HUMAN HEALTH	MAJOR ACCIDENTS AND DISASTERS
Land use		✓		✓		✓				✓	✓
Cultural Heritage	✓		✓	✓	✓	✓	✓	✓	✓		✓
Landscape and Visual	✓	✓		✓							✓

<b>Biodiversity</b>	✓				✓	✓	✓	✓	✓	✓	✓
<b>Soils and Geology</b>		✓		✓			✓	✓		✓	✓
<b>Noise and Vibration</b>	✓	✓		✓					✓	✓	✓
<b>Water Environment</b>	✓	✓			✓			✓		✓	✓
<b>Air Quality and Climate</b>	✓	✓							✓	✓	✓
<b>Traffic</b>	✓	✓		✓		✓				✓	
<b>Population and Human Health</b>	✓				✓	✓	✓	✓	✓		✓
<b>Major Accidents and Disasters</b>	✓	✓	✓	✓	✓	✓	✓	✓		✓	

19.3.8 Examples of key potential combined effects are:

- Biodiversity and Water Environment – interactive impacts could potentially occur to the surface water environment. They could include potential impacts on aquatic species, requiring mitigation measures;
- Cultural Heritage and Landscape and Visual – interactive impacts could potentially occur in relation to the landscape character and setting of cultural heritage assets;
- Cultural Heritage and Noise and Vibration – interactive impacts arising from construction related vibration activities potentially piling depending upon the method implemented;
- Cultural Heritage and Soils and Geology – interactive impacts arising from dewatering could potentially impact on cultural heritage sites;
- Population and Human Health and other topics – interactions in the human environment are typically complex within an EIAR as there is the potential for receptors to be impacted in a number of ways; and
- Major Accidents and Disasters and other topics – interactive impacts are typically complex within an EIAR as there is the potential for receptors to be impacted in a number of ways, such as an explosion or major storm event.

Significance of Effects

19.3.9 The cumulative effects of other developments with the Proposed Development are assessed against the significance criteria outlined in Table 19.3. These effects are determined from the potential impacts identified in the individual assessments. Mitigation measures are identified if required, and where relevant residual impacts assessed.

**Table 19.3: Determining Significance of Cumulative Effect**

SIGNIFICANCE	EFFECTS
<b>Major</b>	Additional changes, due to relationship with other developments, substantially affecting the elements therein. For example, a major impact is likely when a receptor of high sensitivity is affected by a high magnitude of additional change.
<b>Moderate</b>	Additional change, due to relationship with other developments, affecting, to a lesser degree or the elements therein. For example, a moderate impact is likely when a receptor of medium sensitivity is affected by a medium magnitude of additional change.
<b>Minor</b>	Slight additional change, due to relationship with other developments. For example, a minor impact is likely when a receptor of low sensitivity is affected by a small magnitude of additional change.
<b>Not Significant</b>	No or minimal perceptible additional change, due to relationship with other developments.

**19.4 Cumulative Effects Assessment**

Air Quality

- 19.4.1 During construction, dust emissions to air from other committed developments and cumulative emissions sources in the area around the site are not close enough to generate cumulative impacts should they occur at the same time, aside from the Submitted Development Ref: 21/2192. The magnitude of effect considered in the non-cumulative assessment of dust emissions would remain the same when considering cumulative effects including the construction phase of the Submitted Development Ref: 21/2192. The effect is therefore considered to be not significant.
- 19.4.2 During the operational phase, the emissions to air from other committed developments within 1km of the Proposed Development have been assessed as separate groups within the dispersion model.
- 19.4.3 For annual mean concentrations of NO<sub>2</sub>, the maximum predicted process contribution within the model domain is 1.3µg/m<sup>3</sup>; such a change can be considered to be not significant.
- 19.4.4 The cumulative model results for 99.79<sup>th</sup> percentile 1-hour NO<sub>2</sub> concentrations identified when operating on natural gas fuel and backup fuel, an overall effect which is not significant would occur throughout the modelled domain. At the most affected sensitive receptor, the predicted impact is 19.4µg/m<sup>3</sup> or 9.7% of the short-term NO<sub>2</sub> air quality standard.
- 19.4.5 The cumulative model results for eight-hour rolling CO concentrations are considered to be not significant throughout the modelled domain.
- 19.4.6 For the cumulative emissions modelling assessment, with the magnitude of the predicted impacts and NO<sub>2</sub> and CO concentrations, it is considered unlikely that the Proposed Development will interfere with policies or plans in place to bring about sustained achievement of the AQS values. The overall cumulative effect on human health of

changes in NO<sub>2</sub> and CO concentrations due to emissions from the Proposed Development and other combustion sources is considered to be not significant.

- 19.4.7 The screening thresholds for sensitive ecological receptors are not exceeded.
- 19.4.8 To conclude, cumulative impacts on air quality are expected to be negligible. Any other proposed developments which are not accounted for in background pollutant concentrations would be unlikely to cause a significant impact.

#### Climate

- 19.4.9 The greenhouse gas (GHG) emissions assessment has been considered in the context of Ireland's national GHG emissions, thereby demonstrating the cumulative effect at a country level.

#### Cultural Heritage and Archaeology

- 19.4.10 There is a likelihood of the Proposed Development causing a cumulative impact to the identified cultural heritage resource by interacting with the other committed developments to affect the settings of a regionally important heritage asset within the 1km study area during the construction and operational phases. This asset is the thatched house (RPS 3648).
- 19.4.11 Submitted Development Ref:21/2192 relates to the construction of an OCGT plant (299MW) and associated infrastructure and buildings located to the immediate south of the Proposed Development and 400m to the north-east of the thatched house (RPS 3648). Planning Application 19633 is located at the Sperrin Galvanisers (IRE) Ltd which is adjacent to the west of the Site, 460m to the north of the thatched house (RPS 3648).
- 19.4.12 The use of construction noise and vibration mitigation measures including the adoption of 'best practicable means' will ensure that the construction noise and vibration levels are controlled to the lowest levels practicable. Additionally, the noise and vibration assessment concluded that no significant adverse effects are expected at nearby receptors, which are located at a closer or similar distance from the Proposed Development as RPS 3648, with regards to the construction phase as a result of the Proposed Development in combination with other developments.
- 19.4.13 Similarly, with the implementation of mitigation measures described in EIA Chapter 11: Noise and Vibrations Section 11.6, no significant noise and vibration impacts associated with the operation of the Proposed Development in combination with other developments are expected.
- 19.4.14 The thatched house (RPS 3648) is largely screened by the existing earthen bund and construction and operational traffic will not pass this asset. Additionally, noise assessments found no significant impacts on sensible receptors located closer or similar distances from the Proposed Development as the thatched house. Therefore, its distance from the above-mentioned developments and the Proposed Development will mitigate any potential impacts from construction noise.

#### Biodiversity

- 19.4.15 No planning applications were identified as having the potential to act together causing cumulative effects with the Proposed Development as they are all small-scale developments, except for the Submitted Development Ref: 21/2192 to the south of the site. The site of this Proposed Development OCGT is located on a brownfield site of existing hardstanding currently utilised as a car park, warehouse and administrative

building. There will be no loss of habitat and the Submitted Development Ref:21/2192 will have no impacts on significant ecological features.

- 19.4.16 Current operations close enough to have a cumulative effect such as the nearby Sperrin Galvanising process works have also been examined to determine whether dust or air quality from both sites could act in combination with one another.
- 19.4.17 Given the size, scale, distance, and nature of other planning applications for minor works, new dwellings, and other operating industrial plants, none will combine with the existing application to cause cumulative impacts.
- 19.4.18 Following the consideration of all other projects and plans in the surrounding environment, it has been determined that none will act cumulatively with the current project to cause significant environmental impacts. The likelihood of adverse likely significant effects on biodiversity is negligible and not significant.

#### Landscape and Visual

- 19.4.19 Cumulative landscape and visual effects may result from additional changes to the baseline landscape or views as a result of the Proposed Development in conjunction with other developments of a similar type and scale.
- 19.4.20 No applications were identified as having potential to act cumulatively with the Proposed Development as they are all small-scale developments, except for a proposed OCGT (Submitted Development Ref 21/2192) and the existing Tynagh CCGT Power Station to the south of the boundary. However, these developments are already located in an area of industrial character; the site of Submitted Development Ref:21/2192 is located on a brownfield site of existing hardstanding currently utilised as a car park, warehouse and administrative building. Therefore, given the size, scale, and nature of other planning applications, none will interact with the Proposed Development to cause significant cumulative impacts.

#### Noise and Vibration

- 19.4.21 Potentially limited (approximately 3 months) overlap with the Submitted Development 21/2192 for the construction of an OGCT plant at the existing Tynagh Power Station site is anticipated. This planning application has been granted permission (subject to conditions) however it is currently subject to an appeal which has not yet been determined. The current construction programmes for each development indicate that the period of construction expected to generate most noise at each project would not overlap. However, a worst-case approach has been adopted assuming the noisiest phase of both construction works occur at the same time.
- 19.4.22 Cumulative predicted construction noise levels (refer to EiAR Chapter 11) for the estimated noisiest period of construction for both developments are below the weekday daytime and Saturday morning assessment criteria of 65 dB LA<sub>eq,T</sub>.
- 19.4.23 No significant cumulative adverse effect is therefore expected at residential receptor positions with regards to construction phase noise levels generated by on-site activities.
- 19.4.24 A negligible impact is predicted on the N65 and a minor impact is predicted on LP4310 Gurtymadden to Tynagh Road. No significant cumulative adverse effect is therefore expected at residential receptor positions with regards to construction phase traffic noise levels generated by additional traffic flows on existing roads.

- 19.4.25 The operation of the Proposed Development is expected to coincide, at times, with the operation of the workshop associated with planning applications 18221 and 19633. Sperrin Galvanisers are understood to have been operating during the baseline survey, therefore any noise from their existing operations is included in the measured baseline levels. Industrial noise is likely to include some noise from Sperrin Galvanisers at location M2. Planning application 19633 states that if the application is approved it “will further reduce any perception of noise emissions and loss of residential amenity locally”. Therefore, no cumulative operational impact with the Proposed Development is anticipated.
- 19.4.26 Due to the nature of the Submitted Development Ref: 21/2192 it is likely to operate at the same time as the Proposed Development during the evening and daytime, but not at night. The evening and daytime operational noise criteria are 5 dB and 10 dB higher than the night-time criteria respectively. Therefore, as both plants are designed to meet the night-time criteria the cumulative impact of both plants operating at the same time would not exceed the evening and daytime criteria. Submitted Development Ref: 21/2192 has been granted permission (subject to conditions) however it is currently subject to an appeal which has not yet been determined. Subject to planning approval being obtained for the Submitted Development Ref: 21/2192, the Applicant intends to build out and operate both Submitted Development Ref: 21/2192 and the Tynagh North OCGT. The likelihood of simultaneous night-time operation is insignificant, however should there be a requirement to operate the Submitted Development Ref: 21/2192 and Tynagh North simultaneously during night-time periods, the operator will apply additional mitigation/technical design modifications to one or both of the developments to ensure the cumulative noise impact does not exceed the noise criteria set out in Table 11.11 of EIA Chapter 11.

#### Water Environment

- 19.4.27 Based on a review of planning applications, Submitted Development Ref: 21/2192 is the only development with the potential to give rise to cumulative effects on the Water environment in conjunction with the Proposed Development. Subject to planning approval being obtained for the Submitted Development Ref: 21/2192, the Applicant intends to build out and operate both Submitted Development Ref: 21/2192 and the Proposed Development, Tynagh North OCGT.
- 19.4.28 Similar mitigation measures are proposed for both the Proposed Development and the Submitted Development Ref: 21/2192 and no significant cumulative effects due to the two schemes on either flooding or water quality in local watercourses are anticipated should both separate schemes proceed.

#### Soils and Geology

- 19.4.29 Based on a review of planning applications and permitted developments, there are no significant projects proposed that are likely to give rise to cumulative effects in conjunction with the Proposed Development.
- 19.4.30 The Proposed Development, the existing Tynagh Power Station, the Submitted Development Ref: 21/2192 and the adjacent Sperrin Galvanisers Ltd. sites are all sited within the footprint of a historic mine site with proven pre-existing ground quality issues resulting from a combination of the natural soil and bedrock mineralisation in the area and the historic mining operations (1960s to 1980s). The majority of the Proposed Development will be constructed on a made ground platform constructed of clean, imported fill material above the former mining site ground level and there are no extensive

excavations proposed, so the underlying soils and geology will not be significantly impacted upon by the Proposed Development. The Proposed Development is therefore not predicted to give rise to any cumulative impacts to soils or geology at the site and surrounding area at either the construction or operational phase.

#### Traffic

- 19.4.31 Subject to approval, the Submitted Development Ref:21/2192 within Tynagh Power Station is expected to begin development at the start of Q2 2023. Its construction period Development would therefore potentially overlap for three months with the construction period of the Proposed Development, between November 2024 – January 2025. During this period, a combined maximum of 208 development trips will be generated. The peak overlap generated a total of 80 LGV trips and 128 HGV trips, resulting in 208 two-way trips in total.
- 19.4.32 The total daily traffic is higher than the cumulative traffic during the overlap and therefore the 208 trips do not need to be assessed. However, it is noted that the cumulative traffic in this overlap period generates a higher percentage of HGV trips.
- 19.4.33 Based on a 12-hour working day, this would equate to 5.33 HGV arrivals per day during the 3-month construction overlap period. A total of 6 HGV arrivals each day have been assessed, which is higher than this generation. Therefore, the 5.33 HGV arrivals per day will have a lower impact and does not need assessed. The overlap in the construction period between the Submitted Development Ref:21/2192 and the Proposed Development is therefore acceptable and shows that the traffic in this period remains within road capacity.
- 19.4.34 It should be noted that the cumulative traffic has not been assessed along with outage traffic as this was previously assessed for the higher development traffic. The results of this assessment showed that the traffic remains within road capacity and therefore no significant cumulative impact is expected

#### Land Use

- 19.4.35 Cumulative effects associated with land use for the Proposed Development are associated with planning applications which have been assessed as part of the land use assessment.
- 19.4.36 The nearest permitted planning application is by Sperrin Galvanisers Ltd (Reference Number: 19633 and 18221). The acoustic barriers permitted in that application have been constructed, while construction on the permitted extension to the existing workshop has not commenced. The permitted extension lies within the current site boundary of Sperrin Galvanisers Ltd and therefore there will be no direct impacts or Cumulative effects from the Proposed Development with respect to the construction or operational phases.
- 19.4.37 'Submitted Development Ref: 21/2192' relates to planning application Ref. 21/2192 (submitted as an application to Galway County Council in November 2021, and currently awaiting determination by ABP under Ref. PL07.313538) - that is a separate 299MW development and project to that of the Proposed Development which is for a 350MW facility. Subject to planning approval being obtained for the Submitted Development Ref: 21/2192, the Applicant intends to build out and operate both Submitted Development Ref: 21/2192 (a 299MW OCGT) and the Tynagh North 350MW OCGT. As such, to ensure the Submitted Development Ref: 21/2192' is adequately considered cumulatively in the EIA, a 'future baseline' scenario is assessed where appropriate rather than an existing baseline scenario. There will be no direct impacts or cumulative effects from the Proposed

Development with respect to construction or operational phase on this planning application

19.4.38 There will be no cumulative effects in terms of land use on the existing Tynagh Power Station on site.

19.4.39 There will be no cumulative effects associated with the Proposed Development associated with other planning applications.

#### Material Assets

19.4.40 Based on a review of planning applications, there are no other developments that are likely to give rise to cumulative effects in conjunction with the Proposed Development during construction.

19.4.41 Furthermore, there is no overlap of construction programmes with those planning applications already outlined.

19.4.42 There will be no cumulative impacts during the operational phase on material assets or waste from Sperrin Galvanisers or the proposed dwelling house.

#### Major Accidents and Disasters

19.4.43 There will be overlap of 3 months between construction of the Proposed Development and the construction of the Submitted Development Ref:21/2192. Thus, there is the potential for short-term, temporary effects associated with major accidents or disasters to occur. However, provided that standard and good practice mitigation is implemented through their respective CEMP (refer to EIAR Volume II, Appendix 5A: oCEMP), the cumulative risk can be effectively managed and there would not be a significant impact. As such, there would not be any additional cumulative impacts during construction.

19.4.44 The Proposed Development, the Tynagh Power Station and the Submitted Development Ref: 21/2192 will be managed by experienced operating personnel to ensure communication and cooperation in activities thus reducing risk and the potential for accidents. In addition to implementing the mitigation measures outlined in Chapter 18, risk assessment reviews such as HAZID will be conducted at an appropriate stage of the process to capture any potential cumulative effects or impacts from Proposed Development, the Submitted Development Ref: 21/2192 and the existing Tynagh Power Station site operating adjacent to each other.

### **19.5 Combined Effects Assessment**

19.5.1 Combined effects are defined as those resulting from a single development, in these circumstances the Proposed Development, on any one receptor that may collectively cause a greater effect (such as the combined effects of noise and air quality/ dust impacts during construction on local residents). Mitigation of combined effects is best achieved through management and control measures to prevent the individual impacts in the first instance or reduce the impacts themselves and therefore reduce the likelihood of such interactions occurring. Table 19.4 provides a qualitative assessment of the potential for combined effects.

**Table 19.4: Potential for combined effects**

<b>POTENTIAL COMBINED EFFECT</b>	<b>ASSESSMENT</b>
<p>Combined effects of air quality, water environment, noise, traffic and visual amenity impacts on human receptors</p>	<p><b>Construction</b></p> <p>The dust emissions to air during construction are considered to be not significant. The overall effect of changes in NO<sub>2</sub> and CO concentrations due to emissions from the Proposed Development is also considered to be not significant during construction. Noise effects at all residential receptors during construction of the Proposed Development are predicted to be not significant and noise effects as a result of changes in road traffic levels during construction are also predicted to be not significant. The impact to groundwater quality through the mobilisation of existing contaminants in soil and the migration of introduced contaminants in soil as a result of spillages into groundwater receptors is likely to be negligible. Traffic related effects are predicted to be not likely to result in any significant effects in traffic terms with there being minimal overall impact on the local roads on roadside receptors. Landscape and visual effects and their significance at construction stage will be temporary and adverse.</p> <p>On the basis of these findings and taking into account that the construction phase is short-term, it is considered that human/ residential receptors will experience no significant combined effects as a result of dust, noise, water, road traffic and visual impact during the construction phase.</p> <p><b>Operation</b></p> <p>The air quality assessment undertaken finds the effect of the operation of the Proposed Development on the identified human receptors to be negligible (not significant). Noise effects at all residential receptors during the operation of the Proposed Development are predicted to be negligible (not significant). The impact to groundwater quality through the mobilisation of existing contaminants in soil and the migration of introduced contaminants in soil as a result of spillages into groundwater receptors is likely to be negligible. Traffic related effects are not significant due to the small daily traffic flow generation. The main landscape effects of the Proposed Development will be associated with the introduction of the emissions stack and air intake plant, integrating with the established industrial character of the site and its surroundings. It is anticipated that the Proposed Development will not change the existing prevailing industrial landscape character within the core and wider study area, but it will add to the industrial character components within the overall landscape character area.</p> <p>On the basis of these findings, it is considered that human/ residential receptors will experience no significant combined effects as a result of dust, noise, water, road traffic and visual during the operation of the Proposed Development.</p> <p><b>Decommissioning</b></p> <p>The combined effects of decommissioning on human receptors would be similar to the combined effects reported above for construction.</p>

<b>POTENTIAL COMBINED EFFECT</b>	<b>ASSESSMENT</b>
<p>Combined effects of air quality/ dust, noise, water quality impacts on ecological receptors</p>	<p><b>Construction</b></p> <p>The ecological assessment presented in EIAR Chapter 9: Biodiversity considers the combined effects of noise, air quality, visual and water quality impacts on ecological receptors in the vicinity of the Site during construction, as well as habitat loss. During construction, there will potentially be an increase of lighting, noise, and visual disturbance. However, with the implementation of mitigation measures described in EIAR Chapter 9: Biodiversity, impacts on biodiversity associated with the construction and operation of the Proposed Development are considered unlikely to constitute a significant effect.</p> <p><b>Operation</b></p> <p>Air quality modelling has concluded that the Proposed Development will not give rise to significant adverse air quality effects on sensitive habitats or species within European sites. The Screening for Appropriate Assessment (AA) concluded there will be no likely significant effects to any European site as a result of the construction phase of the Proposed Development. There are no operational phase impacts predicted that would impact breeding birds.</p> <p><b>Decommissioning</b></p> <p>The ecological assessment concludes that the effects of decommissioning on ecological receptors will be similar or less than the effects of construction. Pre-works surveys will be undertaken, and appropriate impact avoidance or mitigation measures will be implemented as necessary. No significant residual effects are predicted.</p>

**19.6 Limitations**

19.6.1 Any limitations that were encountered during the individual assessments are detailed within each of the EIAR Chapters referenced. The cumulative assessment is based on a desk study of planning applications, development plan documents, and relevant national/ regional/ local development frameworks within the Zone of Influence.

**19.7 Conclusions**

19.7.1 The assessment of cumulative effects has considered a number of other developments with the Proposed Development and the likelihood of significant cumulative effects to arise from the other identified developments together with the Proposed Development. Also included in the assessment is a summary of interacting effects of the Proposed Development and between assessment topics.

19.7.2 Through the consideration of the information available (at the time of assessment), it is concluded that there is no likelihood of any significant residual cumulative effects with the three planning applications (Ref 212192, Ref 19633, and Ref 18221) and the existing Tynagh Power Station.

19.7.3 The assessment of combined effects has not identified any significant combined effects where the combination of effects would result in a different rating of effect to that already predicted in the individual technical assessments.

## **19.8 References**

EPA (2022) Guidelines on the information to be contained in Environmental Impact Assessment Reports.

Government of Ireland (2018) Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment.