



Chapter 18: Interaction of the Foregoing Coolglass Wind Farm Vol. 2 EIAR

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Acronyms and Abbreviations

SLR	SLR Consulting Limited
EIAR	Environmental Impact Assessment Report
EIA	Environmental Impact Assessment
CEMP	Construction Environmental Management Plan
UN	United Nations



18.0 Introduction

Article 3 of Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment as amended by Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending ('EIA Directive') stipulates that

'The environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of a project on the following factors: (a) population and human health; (b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC; (c) land, soil, water, air and climate; (d) material assets, cultural heritage and the landscape; (e) the interaction between the factors referred to in points (a) to (d).

All elements of the Project are described in Section 3.5 of this EIAR and the description of the Proposed Development is found in section 3.8.1 of this EIAR.

In accordance with the requirements of the EIA Directive, this EIAR sets out environmental assessments of the likely significant environmental effects and impacts of the entire project under each required factor. Where relevant, the interaction between the factors, which is the interactions between specific environmental aspects and effects, are already addressed within each of the individual assessment topic areas or chapters of this EIAR. The purpose of this chapter is to draw attention to significant interactions and interdependencies between one topic and another.

18.1 Interaction of Environmental Factors

There is potential for interactions between one aspect of the environment and another which can result in potential for direct or indirect impacts, and which may be positive or negative. This chapter is completed based on a review of the assessments and results presented in the preceding chapters of this EIAR and by provision of a matrix to present the main interactions and interdependencies between specific environmental factors.

The matrix contains each of the environmental topics, which were considered as part of this EIAR, on both axes. These interactions have been identified for both the construction [C] operational [O] and decommissioning [D] phases, of the Proposed Development. Potential interactions during decommissioning will be similar to those of the construction phase. The matrix is presented in [Error! Reference source not found.](#) The assessments and results have previously been presented in the preceding chapters of this EIAR.

Full details of the significance of the effects and the relevant interactions of the environmental aspects along with any proposed mitigation are discussed within each of the individual preceding Chapters which included:

- Chapter 5 Population and Human Health
- Chapter 6 Air and Climate



- Chapter 7 Landscape And Visual
- Chapter 8 Land Soils And Geology
- Chapter 9 Water
- Chapter 10 Noise And Vibration
- Chapter 11 Cultural Heritage
- Chapter 12 Traffic and Transportation
- Chapter 13 Telecommunications and Aviation
- Chapter 14 Shadow Flicker
- Chapter 15 Biodiversity
- Chapter 16 Major Accidents and Disasters

The most dynamic interaction and interdependencies relate to the connection between ecology, soils, and hydrology. Changes in site run-off from changes and removal of soil cover can result in effects or changes on hydrology, both in terms of water quality and hydraulic regime, which may result in secondary ecological effects on vegetation patterns and habitats and species. The relationship and effects of these aspects have been fully considered in Chapter 15 Biodiversity of the EIA. The following is a summary of other key interactions.

18.1.1 Population and Human Health

Population and Human Health and Noise & Vibration and Air Quality & Climate

Plant and machinery used during the construction phase have the potential to cause a temporary nuisance through noise and dust emissions. Once operational, there will be noise from the wind turbines and substation, and as assessed in Chapter 10 of Volume 2 of this EIA, the Project as designed will not result in significant effects for all design permutations of the dimensions set out in **Table 1-1**.

During the operational phase, the Proposed Development will contribute towards eventual national decarbonisation which will have beneficial effects on air quality and climate change and a resultant positive effect on the human environment. This is outlined in Chapter 6 Air and Climate.

Population and Human Health and Water

There is potential for water pollution during the construction phase which could impact on different types of receptors including the human population. Chapter 9 of Volume 2 of this EIA has assessed the potential impacts and describes mitigation measures that will be implemented to ensure there are no significant effects from water pollution.

Population and Human Health and Landscape and Visual Resources

The most visually dominant infrastructure of the Proposed Development will be the wind turbines and the erection of the wind turbines will change the landscape to observers. Chapter 7 of Volume 2 of this EIA considers the magnitude of landscape change and assesses the landscape and visual impact of the project.



The potential impact on landscape and visual resources during the construction phase will be temporary such as the use of construction machinery. The operation of the Proposed Development will introduce wind turbines into a natural, but already highly modified landscape.

Population and Human Health and Material Assets (including Traffic)

Chapter 12 of Volume 2 of this EIA discusses how the construction phase of the Proposed Development will give rise to increased traffic including abnormal loads for delivery of turbine components and is likely to create some short-term inconvenience for other road users. A Construction-phase Traffic Management Plan will be implemented to manage traffic coming to and from the Site.

Overall, the interaction with Material Assets is considered a positive effect, resulting from the Project's contribution to the electricity supply with the provision of a clean energy source.

18.1.2 Biodiversity including Ornithology

Biodiversity and Land and Soil

There will be some habitat loss during excavation of certain works areas. There will be disturbance to fauna caused by the construction activity. Forestry will be felled to facilitate the construction of infrastructure.

The forestry will be replanted elsewhere resulting in no net loss. A site specific Biodiversity Enhancement Plan (see Technical Appendix 15.11 found in Volume III of this EIA) will minimise the effects of any habitat loss. The likely significant impact and mitigation measures are described in full in Chapter 15 of Volume 2 of this EIA. Mitigation measures will be implemented and there will be no significant inter-related effects.

Biodiversity and Water

There is the potential for water pollution from different sources during the construction works. This could cause a deterioration in the quality of aquatic habitats and thereby adversely impact the fauna that depend on the habitat. These impacts and any others including drainage are fully assessed in Chapters 9 and 15 of Volume 2 of this EIA. The mitigation measures to reduce potential impacts are also described therein. Mitigation measures will be implemented and there will be no significant inter-related effects.

Biodiversity and Noise & Vibration

Noise from construction works will likely result in some avoidance behaviour by fauna. This is addressed in Chapter 15 of Volume 2 of this EIA. There may be disturbance and avoidance behaviour during the construction works, however this will be temporary and short term. Overall, the inter-related effects will not be significant as mitigation measures will be implemented.

Biodiversity and Landscape

The development of the Project infrastructure including roads and hardstandings, borrow pits and peat and spoil storage areas will alter the local landscape. The borrow pits will be re-instated and the material storage areas managed to incorporate them back into the natural landscape as much as possible through measures detailed in the CEMP.



Ornithology and Land and Noise & Vibration

The civil engineering works require the excavation of land resulting in some habitat loss which may have been utilised by birds. The plant and machinery required to do the works will generate noise emissions. The habitat loss and disturbance/ avoidance impacts are described in Chapter 10 of Volume 2 of this EIA and mitigation measures proposed as described. There may be disturbance and avoidance behaviour during the construction works, however this will be temporary and short term. Overall, the inter-related effects will not be significant.

18.1.3 Land, Soil and Geology

Land and Soil and Water and Biodiversity and Cultural Heritage

The civil engineering works will require the excavation and movement of overburden and rock. This will lead to habitat loss and potential sources of pollution for surface and groundwater. There is also the potential for previously unrecorded sites of archaeological interest to be disturbed during excavation works. The potential for all these interactions and the resultant effects are assessed in detail in the relevant chapters in Volume 2 of this EIA. The likely impacts will be avoided or minimised through the topic specific mitigation measures.

18.1.4 Air and Climate

Air and Climate Change and Water and Biodiversity

A Surface Water Management Plan has been completed as part of the Project to outline the drainage system particularly for the upland wind farm site. The runoff control measures for the Proposed Development Site have been designed in the context of storm events of varying duration and intensity. The drainage design is modular to manage run-off from each turbine area as a unit which includes keeping clean water isolated from the works area to limit the volume of sediment laden run-off to be managed and also to maximise natural recharge of run-off. Since the Surface Water Management Plan is designed for the construction phase (worst case), no additional allowance is made for a possible increase in rainfall intensity due to climate change in the future. While the design remains the same, the potential for extreme rainfall events may be more frequent which may result in more incidences of stopped works during heavy rainfall. Therefore, the interaction between Climate Change and Water may see construction work stoppages due to weather conditions happening more frequently.

In terms of Climate Change, increasing global temperatures adversely affects ecosystems and biodiversity. The Proposed Development is a renewable energy project which will contribute to Ireland's commitments in the 2023 Climate Action Plan, in the Paris Agreement and contribute to UN Sustainable Development Goal 13. The Project has been designed to avoid areas of biodiversity value with infrastructure predominantly sited within conifer forest as set out in Chapter 6 of Volume 2 of this EIA.

18.1.5 Landscape and Visual

Landscape and Visual and Cultural Heritage

The Proposed Development infrastructure has the potential to alter the landscape setting of recorded sites and monuments in the area. The potential impacts and mitigations are described in detail in Chapter 11 of Volume 2 of this EIA. The Proposed Development is



not situated within a designated landscape, therefore the inter-related effects will not be significant, this is examined in Chapter 7 of Volume 2 of this EIA.

18.1.6 Shadow Flicker

Shadow Flicker and Population and Human Health

The Applicant is committed to a zero-shadow flicker strategy which means that the turbines shadow flicker module will be programmed to shut down whenever the conditions for shadow flicker at a property are met. The full shadow flicker assessment is described in Chapter 14 of Volume 2 of this EIA. The inter-related effects will not be significant.

18.2 Risk of Major Accidents

Overall it is expected that the Project will not result in significant effects resulting in the risk of major accidents and disasters, nor is the Project considered vulnerable to risks of major accidents and disasters. Threats to the environment are assessed in Chapter 16 of Volume 2 of this EIA. There is no peat found on this Site. Landslide susceptibility is covered within Chapter 8 of Volume 2 of this EIA, and is identified as Low to Moderate, with no record of landslides in the vicinity of the Site.

There is potential for the proposed development to be impacted by severe weather including increased wind storms. However, wind turbines are designed to withstand extreme weather conditions with brake mechanisms installed within the turbines so that they only operate under specific wind speeds and will shut-down during high wind speed events. Therefore, there is very low risk to the proposed development from high wind speeds.

A Flood Risk Assessment was also carried out for the Proposed Development site (See Technical Appendix 9.3 found in Volume III of this EIA). The assessment found the Proposed Development and associated infrastructure is located within a low risk area and as such is appropriate from a flood risk perspective. Furthermore, significant pluvial flood zones are mapped within the Proposed Development Site, as would be expected in mountainous terrain with sloping topography.

Large scale wind farms are typically located in rural areas and this is the case with Proposed Development which is situated on Fossy Mountain. There are no industrial sites or regulated manufacturing sites within proximity to the Site. Proposed Development is not associated with any other regulated activity or industry and is a renewable energy development which is not associated with large volumes of chemicals or hazardous materials. It is not adjacent to or associated with any Seveso site and is not governed by the S.I. No. 209/2015 - Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015 (as amended). The risk to humans of major accidents and disasters associated with industrial activities is therefore absent.

During the operational life of the Proposed Development, particularly in the context of climate change, there is the potential for increased storm events and severe weather. Wind turbines are designed for specific wind parameters and will shut down during high wind speed events. Therefore, the potential effects of climate change on the operational stage of the Proposed Development may involve curtailment where the turbines will be



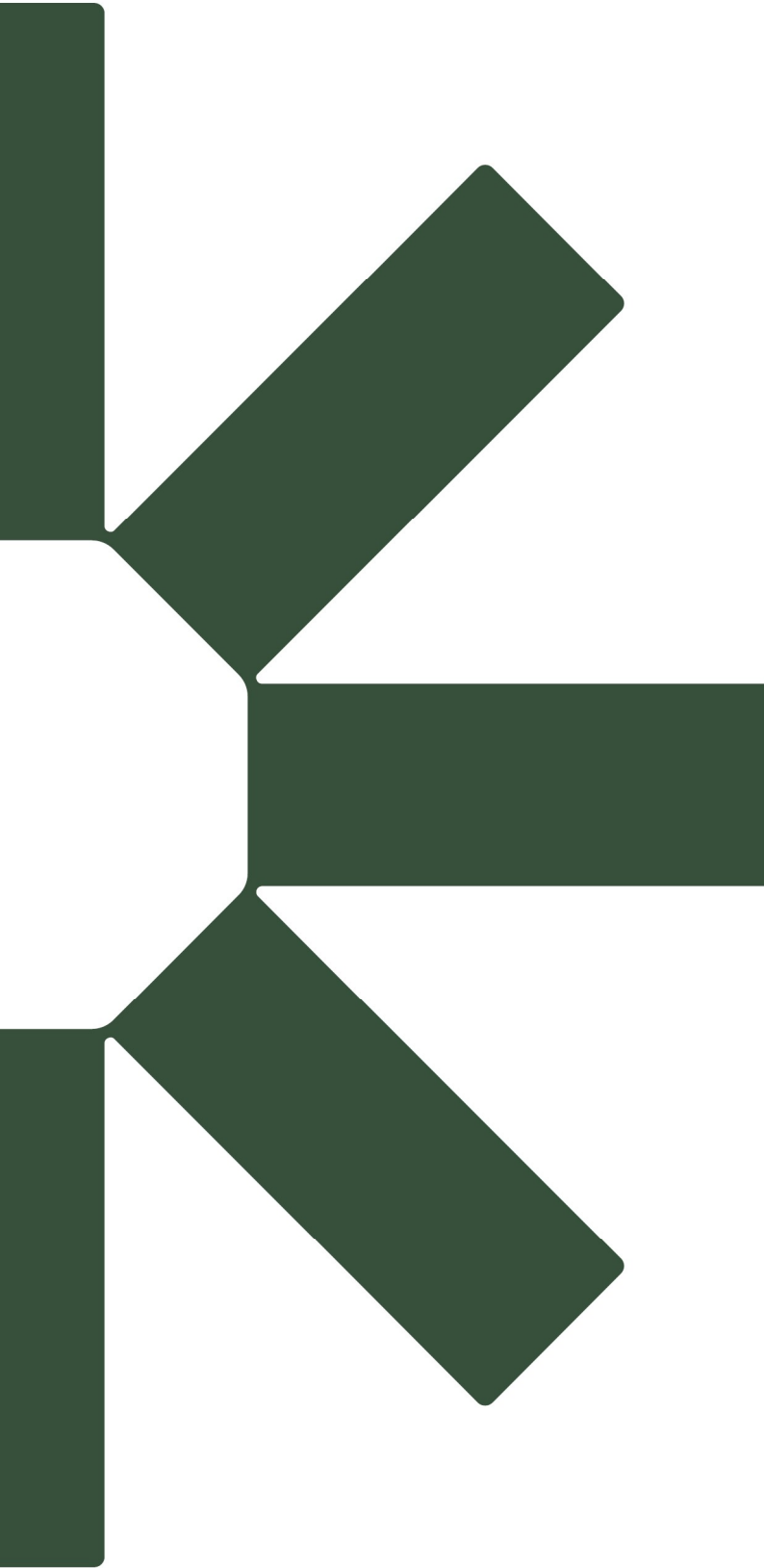
restricted from operation due to severe winds but does not present a likely risk of a major accident and disaster.

Table 18-1 Interactions of the foregoing

	Population & Human Health, and Material Asset	Air Quality & Climate	Landscape and Visual	Lands, Soils and Geology	Water	Noise and Vibration	Archaeology & Cultural Heritage	Traffic and Transport	Telecommunications and Aviation	Shadow Flicker	Biodiversity (and Ornithology)
Population & Human Health and Material Assets		C/O/D	C/O/D	C/D	C/D	C/O/D		C/D	O	O	
Air and Climate	C/O/D							C/D			
Landscape and Visual	O						O				
Lands, Soils and Geology					C/D		C				C/D
Water	C/D			C/D							C/D
Noise and Vibration	C/O/D										
Archaeology and Cultural Heritage			O		C/D						
Traffic and Transport	C/D	C/D				C/D					C/D
Telecommunications and Aviation											
Shadow Flicker	O										
Biodiversity (and Ornithology)				C/D	C/D	C/O/D					

	Interaction
C	Construction Phase
O	Operation Phase
D	Decommissioning Phase





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