

13 INTERACTION OF THE FOREGOING

13.1 INTRODUCTION

The Environmental Impact Assessment Report supports the development of a 110kV substation and grid connection in the townlands of Ballinowlart North, Ballykilleen and Cloncreen, Co. Offaly, (please refer to chapter 2 for a full description of the project). This EIAR has presented the environmental assessments of the 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.

13.1 SCOPE AND METHODOLOGY OF ASSESSMENT

Article 3 of EIA Directive 2014/52/EU 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).

The purpose of this chapter is to draw attention to important interactions and interdependencies between one factor or topic and another. Consequently, this chapter now highlights those interactions of the environmental aspects and topics previously detailed and assessed throughout this EIAR. The potential for interactions between one aspect of the environment and another can result in direct or indirect effects, which may be positive or negative. This chapter is completed based on a desktop review and by provision of a matrix to present the main interactions. The assessments and results have previously been presented in the preceding chapters of this EIAR.

13.2 INTERACTION OF ENVIRONMENTAL IMPACTS

While all environmental aspects can be inter-related to some extent, the following outlines the key interaction potential between each of the various environmental subject areas considered in this EIAR for both the construction and operational phases of the proposed Kilcumber Bridge 110kV substation project.

Human Environment Interactions:

- Air Quality and Climate
- Civil Engineering and Roads/Traffic
- Noise
- Landscape and Visual Resources
- Material Assets

Civil Engineering and Roads/Traffic Interactions

- Human Environment
- Biodiversity
- Land and Soils

Biodiversity Interactions:

- Water Quality
- Land and Soils
- Air Quality and Climate
- Noise

Water Interactions:

- Biodiversity
- Human Environment

Land and Soils Interactions:

- Water Quality
- Biodiversity
- Archaeology and Cultural Heritage
- Air Quality and Climate

Air Quality and Climate Interactions:

- Human Environment
- Biodiversity
- Material Assets

Noise and Vibration Interactions:

- Human Environment
- Biodiversity
- Ornithology

Landscape and Visual Resource Interactions:

- Archaeology and Cultural Heritage
- Material Assets
- Human Environment

Archaeology and Cultural Heritage Interactions:

- Material Assets

Traffic and Transport Interactions:

- Human Environment
- Noise
- Air Quality and Climate
- Material Assets

Material Assets Interactions:

- Human Environment
- Archaeology and Cultural Heritage
- Civil Engineering and Roads/Traffic

A matrix has been generated to summarise the relevant interactions and interdependencies between specific environmental aspects and a significance rating has been given. The matrix is presented in **Table 13-1**. It contains each of the environmental topics, which were considered as part of this environmental impact assessment, on both axes. These interactions have been identified for both the construction [C] and operation [O] phases of the proposed development and have been classified as minor or major based on the impacts previously identified. The significance rating is made in accordance with EPA significance rating criteria. Full details of the significance of the impacts and the relevant interactions of the environmental aspects along with any proposed mitigation are discussed within each of the individual preceding Chapters.

A number of main interactions have been identified in the EIAR. These are set out below and have been addressed in the relevant chapter.

13.2.1 Main Interactions

Biodiversity and Civil Engineering and Roads/Traffic

The interaction between biodiversity and civil engineering and roads/traffic is expected to be greatest during the construction phase. These impacts have been assessed in the Biodiversity Chapter. Construction scheduling and the recommended mitigation measures set out in the project CEMP will reduce any impacts.

Land and Soils and Water and Civil Engineering and Roads/Traffic

Soil and rock will require excavating to accommodate the footprint of the substation and the access road. These construction works also have the potential to negatively impact on surface water. The project will be developed in line with the drainage proposal for surface water management detailed in the Chapter 2 of this EIAR and the CEMP as part of the civil works to ensure adequate protection of water courses during the construction phase.

Biodiversity and Water Quality and Land and Soils

Site activities during the construction phase have the potential to give rise to some water pollution, and consequential indirect effects (such as disturbance and deterioration of habitat quality) on flora and fauna that use that use water within the same catchment. A CEMP has been designed for the project to ensure implementation of control and mitigation measures to protect water quality. The site drainage system will remain for the operational phase and is designed to minimise significant effects on biodiversity.

13.2.2 Minor Interactions

Minor Interactions include temporary effects on landscape and visual resources during the construction phase e.g. use of construction machinery. The construction phase has the potential to generate noise and dust, which could create a temporary nuisance. The construction phase of the project will also give rise to increased traffic and is likely to create some short-term inconvenience for other road users.

Table 13-1 Matrix of Environmental Factor Interactions

	POPULATION AND HUMAN HEALTH	BIODIVERSITY	LAND AND SOIL	WATER	AIR AND CLIMATE CHANGE	NOISE AND VIBRATION	LANDSCAPE AND VISUAL	CULTURAL HERITAGE	TRAFFIC	MATERIAL ASSETS
POPULATION AND HUMAN HEALTH	Construction			Construction	Operation	Construction	Construction	Construction		Construction
BIODIVERSITY		Construction	Construction	Operation	Construction	Construction				Operation
LAND AND SOIL		Construction	Construction	Construction	Construction			Construction		
WATER	Construction	Construction	Construction	Construction						
AIR AND CLIMATE CHANGE	Operation	Construction	Construction		Construction					Construction
NOISE AND VIBRATION	Operation	Construction				Construction				
LANDSCAPE AND VISUAL	Construction						Construction	Operation		
CULTURAL HERITAGE	Construction		Construction				Construction	Construction		
TRAFFIC	Operation								Construction	
MATERIAL ASSETS	Construction				Construction					Construction
	Operation				Operation					Construction

Construction
Operation
++ Positive effect

13.2 MITIGATION AND RESIDUAL EFFECTS

Where any potential interactive negative effects have been identified in the above, a full schedule of appropriate mitigation measures have already been included in the relevant chapters (Chapters 3 - 12) of the EIAR; summarised in Chapter 14. The implementation of these mitigation measures will reduce or remove the potential for these effects. Information on potential residual effects, and their significance, is also given in each chapter.

13.3 CONCLUSION

While all environmental aspects can be inter-related to some extent, this final chapter highlighted the prominent interactions. The significance of the impacts and the relevant interactions of the environmental aspects are previously discussed within each of the individual chapters. There are a number of main interactions indicated. During the construction phase, the proposed substation development may impact on the local environment; however mitigation measures, good site management and best construction practices will mitigate and reduce identified impacts.

Overall, the development of the Kilcumber Bridge 110kV substation will facilitate a number of renewable energy projects to connect to the national electricity grid, which will be beneficial at a local and wider level. Having the required grid infrastructure in place is important to assist in meeting both domestic and European energy targets and is in line with sustainable development principles to facilitate indigenous renewable energy.