atmos CONSULTING

61253

Environmental Impact Assessment Report

Cummeennabuddoge Wind Farm

Chapter 18: Interactions of the Foregoing

Cummeennabuddoge Wind (DAC)

September 2024

Contents

Glossary of Terms

Term	Definition
The Applicant	Cummeennabuddoge Wind Designated Activity Company (DAC)
The Agent	Atmos Consulting Limited
Environmental Advisors and Planning Consultants	Atmos Consulting Limited
Environmental Impact Assessment	A means of carrying out, in a systematic way, an assessment of the likely significant environmental effects from a development
Environmental Impact Assessment Regulations	Schedule 6 of the Planning and Development Regulations 2001(as amended)
Environmental Impact Assessment Report	A document reporting the findings of the EIA and produced in accordance with the EIA Regulations
The Proposed Development	Cummeennabuddoge Wind Farm
The Proposed Development Site	The land enclosed by the red line shown on Figure 1-1a
The Planning Act	Directive 2011/92/EU (as amended by Directive 2014/52/EU, the EIA Directive).

List of Abbreviations

Abbreviation	Description
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EPA	Environmental Protection Agency
KCC	Kerry County Council
NIS	Natura Impact Assessment
RTC	Road Traffic Collisions

18 Interactions of the Foregoing

18.1 Introduction

This Chapter of the EIAR assesses the potential for interaction between the significant effects and the measures to mitigate those effects identified in Chapters 5-17 of this EIAR.

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, the EIA Directive, European Commission (2011, 2014) states that:

> *"The environmental impact assessment shall identify, describe and assess … the direct and indirect effects of a project on the following factors:*
>
> *(a) human beings, fauna and flora;*
>
> *(b) soil, water, air, climate and the landscape;*
>
> *(c) material assets and the cultural heritage;*
>
> *(d) the interaction between the factors referred to in points (a), (b) and (c)."*

As each chapter is based on the same assumptions in terms of the description of the project and potential releases to the environment, each assessment does account for potential effects on multiple factors; e.g. releases to the water environment that would affect both hydrology (in terms of water quality) and impacts on aquatic species.

In this way the findings of the assessments presented in Chapters 5-17 of this EIAR take into account potential interactions between the different factors. This chapter therefore summarises those interactions.

18.1.1 Statement of Authority

This chapter has been prepared by Malcolm Sangster MSc (Environmental Chemistry), BSc (Hons) Chemistry of Atmos Consulting Ltd.

Malcolm has 23 years' experience in Environmental Assessment, 15 of which specifically in the undertaking of EIA. This has included the review of all technical aspects of the EIA and the assessment of the interaction of potentially significant effects.

18.2 Methodology and Approach

18.2.1 Guidance

Guidelines on the information to be contained in Environmental Impact Assessment Reports

The Environmental Protection Agency (EPA) Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA 2022) states that:

> *"It is general practice to include a matrix to show where interactions between effects on different factors have been addressed. This is usually done using the actual headings used in the EIAR. … This is typically accompanied by text describing the interactions."*

18.2.2 Assessment Methodology

The determination of the potential for interaction between the factors has been undertaken in accordance with the guidance, in particular in terms of the matrix contained in the above guidance. As per the guidance this matrix has been adapted to reflect the headings of the assessment Chapters in this EIAR and is shown in Table 18-1 below.

Table 18-1: Interaction Matrix - Potential for Interacting Impacts

	Population & Human Health		Landscape & Visual		Traffic and Transport		Biodiversity		Ornithology		Soils, Geology & Hydrogeology		Hydrology, Water Quality & Flood Risk		Air & Climate		Noise		Cultural & Archaeological Heritage		Shadow Flicker		Material Assets		Risk of Major Accidents	
	Construction & Decommissioning	Operations	Construction & Decommissioning	Operations	Construction & Decommissioning	Operations	Construction & Decommissioning	Operations	Construction & Decommissioning	Operations	Construction & Decommissioning	Operations	Construction & Decommissioning	Operations	Construction & Decommissioning	Operations	Construction & Decommissioning	Operations	Construction & Decommissioning	Operations	Construction & Decommissioning	Operations	Construction & Decommissioning	Operations	Construction & Decommissioning	Operations
Population & Human Health																										
Landscape & Visual																										
Traffic and Transport																										
Biodiversity																										
Ornithology																										
Soils, Geology & Hydrogeology																										
Hydrology, Water Quality & Flood Risk																										
Air & Climate																										
Noise																										
Cultural & Archaeological Heritage																										
Shadow Flicker																										
Material Assets																										
Risk of Major Accidents																										

18.3 Impact Interactions

This section describes the potential interactions between the impacts identified through assessments presented in Chapter 5-17 of this EIAR.

18.3.1 Population and Human Health – Landscape and Visual Impact Assessment

Chapter 6: Landscape and Visual Impact Assessment of this EIAR predicts no significant effects on vehicular, recreational or settlements or residential receptors during any phase of the Proposed Development. Neither are any of the 27 viewpoints assessment are predicted to experience significant effects. Accordingly, no significant effects on population and human health are predicted during any phase of the Proposed Development.

18.3.2 Population and Human Health – Soils, Hydrology and Hydrogeology

Chapter 10: Soils, Hydrology and Hydrogeology identifies the potential for peat landslide to have an effect of people during the construction and operational phases of the Proposed Development (no potential risk is identified for the decommissioning phase).

A Peat Stability Risk Assessment (Appendix 10-2 of this EIAR has been conducted with the assessment concluding the peat stability risk for the proposed infrastructure is negligible to low.

18.3.3 Population and Human Health – Hydrology, Water Quality and Flood Risk

Chapter 11 – Hydrology, Water Quality and Flood Risk identifies that the construction phase of the Proposed Development has the potential to give rise to some water pollution as a result of site activities, and any water pollution could have a potential significant effect on other users of that water within the catchment.

Potential surface water abstractions for human consumption were identified as part of the assessment with no abstractions identified with the potential to be affected by the Proposed Development. Accordingly, there is no potential for interaction between Population and Human Heal

18.3.4 Population and Human Health – Air and Climate

Chapter 12: Air and Climate of this EIAR has identified no significant effect on human receptors during any phase of the Proposed Development.

18.3.5 Population and Human Health – Noise

Chapter 13 Noise has determined that there will be short term breaches of the applicable noise level at Receptor 52 during the construction phase of the Proposed Development due to the construction of an access track in the vicinity of this receptor

(construction phase), however, the short duration of this activity means that the effect would be non-significant.

Significant noise impact is predicted at R65 during the night-time and R153 during the operational phase of the Proposed Development. This will be mitigated through the use of a turbine specific curtailment strategy making use of reduced noise operational modes. Deployment of this mitigation means that no significant residual noise and population and human health are predicted.

18.3.6 Population and Human Health -Shadow Flicker

Shadow Flicker has the potential to cause disturbance and annoyance to residents, however, there is no evidence of impacts on health. Chapter 15: Shadow Flicker of this EIAR identifies the potential for shadow flicker at two properties during the operation phase of the Proposed Development.

Application of curtailment in the form of automated shutdown of the appropriate turbines during the times when potential shadow flicker may occur will reduce the flicker experienced at those properties to zero.

18.3.7 Population and Human Health – Risk of Major Accidents

Chapter 17: Risk of Major Accidents identified no significant risk of major accidents with the potential to affect population and human health during any phase of the Proposed Development.

18.3.8 Landscape and Visual Impact Assessment –Archaeology, Architectural and Cultural Heritage

Chapter 14 Archaeology, Architectural and Cultural Heritage has identified that the Proposed Development (operational phase) will have a long-term negative moderate (indirect –visual) effect on the surrounding archaeological, architectural and cultural heritage landscape, specifically CH083 The Paps Archaeological Landscape.

Chapter 6: Landscape and Visual Impact Assessment identifies a significant effect on the landscape resources within the Proposed Development Site and on the Kerry County Council (KCC) Visually Sensitive Area during the operational phase of the Proposed Development. This area partially overlaps with the Paps Archaeological Landscape. The interaction of the effects on these designated areas is considered to be a **significant effect**.

18.3.9 Traffic and Transport-Air and Climate

The increase in traffic volumes associated with the construction and decommissioning phases of the Proposed Development has the potential to result in increasing air pollution from dust arising due to movements of vehicles on unsurfaced roads within the site.

Chapter 7: Transport and Access has determined that the increase in traffic volumes on the road network is non-significant; however, Chapter 12: Air and Climate has determined that there is the potential for a significant negative effect due to dust arising as a result of vehicle movements within and exiting the site during the construction and decommissioning phases.

A number of mitigation measures is therefore proposed which, when implemented will reduce the impact to Non-Significant.

There will be no increase in overall traffic volumes during the operational phase of the Proposed Development and no associated effects on air and climate.

18.3.10 Traffic and Transport – Noise

According to the transport assessment undertaken as part of this EIA (presented in Chapter 7 of this EIAR), the increase in traffic volumes as a result of the construction of the Proposed Development would be no more than 15% along the existing road network. Therefore, the contribution to the overall noise environment would be negligible and Non-Significant.

The effect on noise receptors as a result of decommissioning is considered to be the same as construction. There is no predicted effect as a result of the operational phase.

18.3.11 Traffic and Transport – Major Accidents and Natural Disasters

Chapter 17: Major Accidents and Natural Disasters identifies that he construction of the Proposed Development will result in an increase in road traffic volumes on public highway which potentially increases the risk of a road traffic collisions (RTC). As any RTC would require the involvement of emergency services all RTCs are considered as Major Accidents for the purpose of that assessment.

The Chapter concludes using an average of the annual RTC statistics compiled as part of the traffic statistics of 27 collisions per year, the construction of the Proposed Development is not likely to result in a single additional RTC over the course of the 24 month construction period.

Similar impacts would be expected for decommissioning with negligible effects anticipated for operation. Accordingly no significant effects are anticipated for any phase of the Proposed Development.

18.3.12 Biodiversity – Ornithology

The Proposed Development has the potential to affect the ecological and ornithological receptors and of the designated site the qualifying species of the Statutory Designated Sites in the vicinity of the Proposed Development Site. The effects on these sites is considered in the Natura Impact Assessment (NIS) accompanying the consent application.

However, there is no overlap between the qualifying species or habitats of the designated sites.

Whilst the Proposed Development will have effects on both biodiversity and ornithology; those effects are considered separately in Chapters 8: Biodiversity and 9: Ornithology.

18.3.13 Biodiversity – Hydrogeology

The Proposed Development will result in the loss of peat and the associated plant communities during the construction phase of the Proposed Development. The habitats associated with the peat will be restored and enhanced in accordance with the measures identified in Chapter 8: Biodiversity with new and restored habitats reaching maturity during the operation phase.

There will be no effect of biodiversity during the decommissioning phase as only the above ground structures will be removed with no disturbance to habitats and species.

18.3.14 Biodiversity – Hydrology

Chapter 8: Biodiversity identifies that there is the potential for the construction of the Proposed Development to result in pollution reaching the watercourses on Site which then in-turn drain into the River Clydagh as part of the SAC. Pollution could change the water quality, biology and chemistry of the watercourses flowing through and draining the Site and consequently the aquatic species they support.

The water quality assessment presented in Chapter 11: Hydrology, Water Quality and Flood Risk has determined that predicted effect of discharges from the site as a result of the Proposed Development would cause no significant adverse effect to concentrations of suspended solids in the SAC, and no significant effect to qualifying interests.

However, the assessment for the release of nutrients into the River Clydagh as a result of pre-construction felling, concludes that without mitigation there would be a potentially major adverse effect which would affect qualifying interests in the Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC.

This requires the implementation of the mitigation measures presented in Chapter 11: Hydrology, Water Quality and Flood Risk. With the implementation of those measures the residual effect on both water quality and biodiversity receptors

18.3.15 Biodiversity – Noise

The noise effects of the Proposed Development would be limited to short term disturbance during the construction and decommissioning and would be non-significant. The noise generated during the operational phase is not considered to have the potential in impact on biodiversity receptors.

18.3.16 Ornithology – Noise

The noise effects of the Proposed Development would be limited to short term disturbance during the construction and decommissioning and would be non-significant. The noise generated during the operational phase is not considered to have the potential in impact on ornithology receptors.

18.3.17 Soils, Geology and Hydrogeology – Hydrology Water Quality and Flood Risk

Interaction between surface and groundwater are considered in Chapter 11: Hydrology, Water Quality and Flood Risk which determined that excavations required as part of the construction phase may result in the discharge of contaminated water to surface water receptors. Mitigation in the form of settlement ponds and filter strips to reduce any potential impact in that instance.

The Proposed Development will include permanent and temporary spoil storage. Exposed soils have potential to release fine sediments in surface water runoff or where excavations come in contact with surface watercourses. Measures to control reduced quality runoff from spoil comprise filtration of runoff over intact vegetated buffers, and / or collection and treatment of runoff in settlement features.

Storage of peat may also cause barriers and affect preferential surface water flow routes. Consequently, temporarily or permanently redirected surface water flows may starve areas where water currently flows, or cause flooding of areas where water currently does not flow.

Spoil drainage will be designed on a bespoke basis for spoil storage areas to allow controlled dewatering and prevent washout of suspended solids to the receiving water environment.

With the application of the mitigation measures described in Chapter 11: Hydrology, Water Quality and Flood Risk, the residual risk to hydrology receptors is considered as Not Significant.

18.3.18 Soils, Geology and Hydrogeology – Major Accidents and Natural Disasters

Chapter 17: Major Accidents and Natural Disasters identifies peat landslide as posing a risk of a major accident. As discussed above the peat stability risk has been determined to be low to negligible with the associated low risk of a major accident as a result of peat landslide. This applies to all phases of the Proposed Development.

18.3.19 Hydrology Water Quality and Flood Risk – Major Accidents and Natural Disasters

Chapter 17: Major Accidents and Natural Disasters identifies flooding as posing a risk both to the Proposed Development through a natural disaster and a major accident as a result of the Proposed Development.

Flood Risk Assessment undertaken as part of this EIAR (Technical Appendix 11-1). This concludes that the Proposed Development is not considered as being at risk of flooding.

The alteration of natural drainage systems and changes in land use can result in increased run off rates and cause flooding downstream.

The Proposed Development will include the removal of forestry and a change in habitat; however, this is not dissimilar to the changes experienced through the normal crop rotation on the Proposed Development Site and will not result in a significant change to the hydrological regime (see Chapter 11 of this EIAR).

Accordingly, there is no significant risk of a major accident or natural disaster as a result of the Proposed Development.

18.4 Mitigation Measures

Where any potential interactive negative impacts have been identified above, a full suite of mitigation measures has been included in the relevant Chapters of the EIAR. 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 presented in each relevant Chapter.

18.5 Conclusion and Residual Effects

The interaction of the effects of the Proposed Development during the operational phase on the KCC Visually Sensitive Area in the area partially overlapping with the Paps Archaeological Landscape. is considered to be a **significant effect**.

No other significant effects have been identified.

18.6 References

EPA. (2022). Guidelines on the information to be contained in Environmental Impact Assessment Reports (Online) Available at https://www.epa.ie/publications/monitoring--assessment/assessment/EIAR_Guidelines_2022_Web.pdf Accessed 20/10/22

European Commission (2011, 2014). 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). [Online]. Available at: https://environment.ec.europa.eu/law-and-governance/environmental-assessments/environmental-impact-assessment_en [Accessed 19/12/2023]