

Appendix 4.5 Major Accidents and Disasters

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Introduction

Schedule 4 of the EIA Regulations lays out the information which is to be contained within an EIA Report. Part 8 states *“A description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned. Relevant information available and obtained through risk assessments pursuant to legislation of the European Union such as Directive 2012/18/EU of the European Parliament and of the Council or Council Directive 2009/71/Euratom or relevant assessments may be used for this purpose provided that the requirements of this Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies.”*

This Appendix reviews potential major accidents and disasters which may occur and the likelihood of them occurring to/from the Proposed Development. If potential significant effects are identified this Appendix provides a cross-reference to the appropriate section of the EIA Report where the effects are assessed in detail.

Natural Disasters

Earthquake

There has been one earthquake impacting the site area of the Proposed Development on record (Earthquake Track, 2020). This earthquake occurred in 2018 and was a 2.5 magnitude earthquake with an epicentre located 1 km east-south-east of Gourrock at a depth of 10 km. The choice of turbine model will be carefully considered by the Applicant and the design and construction of the foundations will take into consideration the ground conditions and risk of earthquakes. Therefore, there is both a very low likelihood of an earthquake occurring and a low sensitivity to earthquake of the Proposed Development. Therefore, overall risk from earthquake is considered to be very low and no significant effect is anticipated. Earthquakes are scoped out of further assessment in the EIA Report.

Tsunamis

Tsunamis affecting the British Isles are extremely uncommon, and there have only been two confirmed cases in recorded history (Haslett *et al.*, 2009; Haslett *et al.*, 2010). The Proposed Development will lie between 85 and 236 m. In the very unlikely event of a tsunami, the sensitivity of the site is considered to be low due to its significant height above sea level. Considering the extremely low likelihood of such an event occurring and the low sensitivity of the Proposed Development to tsunami, no significant effect is anticipated. Tsunamis have been scoped out of further assessment in the EIA Report.

Volcanic Eruptions

The most recent evidence of major volcanic activity in Scotland can be found within the Scottish Palaeogene centres of the British Palaeogene Igneous Province dated to approximately 56 million years ago during the Paleocene-Eocene thermal maximum (Troll *et al.*, 2019). There has been no evidence of major eruptions in Scotland since this epoch. Therefore, volcanic eruptions are considered to have a very low likelihood in the area occupied by the Proposed Development and no significant effect is anticipated from volcanic eruption. Volcanic eruptions are scoped out of further assessment in the EIA Report.

Landslide

Through study of both the SNH Carbon and Peatland Map (SNH, 2016) and also peat probe surveys undertaken on-site by the Applicant, it has been determined that peat is present on site. The risk of peat slide to the Proposed Development has been assessed in Appendix 10.2 and is considered to be of a negligible to low level. Landslides are therefore scoped out of further assessment in the EIA Report.

Severe Weather

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, no significant effect is anticipated, and high wind storms are scoped out of further assessment in the EIA Report.

There is a risk that ice may accumulate on turbine blades, nacelles and towers under the right conditions. The ice may then be released from the blades and cause injury. However, turbine technology has evolved to avoid the possibility of ice throw through the shut-down of the turbines in the appropriate conditions and the detection of ice on the blades. Therefore, the risk of ice throw from the Proposed Development is considered to be very low and no significant effects are anticipated. Ice throw is therefore scoped out of further assessment in the EIA Report.

As with all tall structures there is a possibility that the wind turbines will attract lightning strikes. Turbine technology now has appropriate lightning protection measures to ensure that the lightning is conducted harmlessly to the ground. Therefore, the likelihood of a lightning strike causing damage to the Proposed Development is considered to be low and no significant effects are anticipated. Lightning strike is scoped out of further assessment in the EIA Report.

Flooding

The SEPA Indicative River & Coastal Flood Map (SEPA, 2019) shows the majority of the site area as being outside any area of identified flood risk. The immediate banks of the Skelmorlie Water are shown as being at up to a high risk of flooding over a stretch of approximately 1.5 km of the watercourse. However, this risk classification generally does not extend more than 50 m from the edge of the watercourse and all proposed infrastructure is far outwith this high risk classification area.

Highly localised areas of up to high risk of surface water flooding are shown on the map, along the course of Skelmorlie Water, Rigghill Burn, Fank Burn and the unnamed watercourse of Fardens Glen. These areas of surface water flood risk are essentially confined to the width of the watercourses themselves.

The map demonstrates that there is no risk of coastal flooding to the site, primarily due to the elevation of the site which lies above the 31 m AOD contour.

Considering the extremely localised nature of flood risk around watercourses, around which proposed infrastructure has been avoided through the iterative design process (refer to Chapter 2), the sensitivity of the site with respect to flooding is considered to be low (refer to Chapter 10 for further details).

Wild Fire

Due to the weather and habitat of North Ayrshire, wild fires are rare and most, if not all, are of anthropogenic origin (either due to arson or escaped management burns) (Davies and Legg, 2016). There will be no managed burning of the Proposed Development site during construction, operation or decommissioning. Vehicular access to the Proposed Development site during construction, operation and decommissioning will be controlled by the Applicant and landowner, and therefore the likelihood of a wild fire occurring on the site is low and no significant effect is anticipated. Therefore, wild fire is scoped out of further assessment in the EIA Report.

Major Accidents

Biological Epidemic

Due to the short construction periods the likelihood of a biological epidemic affecting the Proposed Development is very low. No significant effects are anticipated, and biological epidemics are scoped out of further assessment in the EIA Report.

Chemical Incidence

Construction of the Proposed Development has the potential to cause chemical pollution events through the spillage of fuel, paints, oils, etc. on the ground. An assessment of potential impacts from pollution events has therefore been undertaken and is presented in Chapter 10 of this EIA Report, and after mitigation measures is deemed to be of negligible significance. Good practice mitigation to prevent chemical incidences will be implemented through the Construction and Decommissioning Environmental Management Plans (CEMP and DEMP).

Terrorist Incidence

Due to the remoteness of the Proposed Development site and nature of the Proposed Development the likelihood of a terrorist incidence occurring at the Proposed Development is considered to be very low. No significant effects are anticipated, and terrorist incidence are scoped out of further assessment in the EIA Report.

Utilities Failure

A utilities search has been undertaken of the Proposed Development site and the relevant consultees have been consulted. There are no utilities which have been found within the Proposed Development site boundary or within a pertinent vicinity for impacts to be felt. Therefore, impacts upon utilities are scoped out of further assessment in the EIA Report.

References

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