

## Appendix 4.7 - Major Accidents and Disasters

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# Appendix 4.7 - Major Accidents and Disasters

## **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 no earthquake impacting the site area of the Proposed Development on record (Earthquake Track, 2020). The nearest recorded earthquake occurred near Shieldaig 14 years ago and had a magnitude of 2.9. 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 130 and 140 m AOD and is approximately 34.5 km from the nearest coast. In the very unlikely event of a tsunami, the sensitivity of the site is considered to be very low due to its significant distance from the coast. 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 9.1 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) indicates that areas of fluvial flood risk (flooding from rivers) are directly adjacent to the Feith Osdail burn. The fluvial flood risk areas are limited to the immediate vicinities of the river, within abandoned channels and meanders.

Due to the lack of permanent surface water within the site, as well as the predominant fluvial flood risk being limited to the banks of the Feith Osdail burn.

Considering the extremely localised nature of flood risk around the Feith Osdail burn, the sensitivity of the site with respect to flooding is considered to be low (refer to Chapter 9 for further details).

### **Wild Fire**

Due to the weather and habitat of the Highland, 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**

Any biological epidemic is unlikely to result in a major accident or disaster given that construction can be halted or postponed during any affected period. In the event of a biological epidemic the relevant Government guidelines would be adhered to at all times. No significant effects are anticipated, and as such biological epidemics are scoped out of further assessment.

## **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 9 (Geology, Peat, Hydrology and Hydrogeology). Good practice mitigation to prevent chemical incidences will be implemented through the Construction Environmental Management Plan (CEMP) and the Operational Management Plan (OEMP).

## **Battery Fire**

The main risk associated with Energy Storage Systems (ESS) is the risk of Li-ion batteries catching fire. Battery fires are known to be intense and difficult to control. There are however a number of good practice measures which can be implemented to minimise fire risk:

- Locate the ESS away from any critical building or equipment;
- Provide separation, passive thermal barrier and active fire protection (e.g. drenchers);
- Provide fire-rated compartment and required separation between each unit;
- Provide fire doors with automatic closure mechanisms;
- Seal cable/service penetrations;
- Ensure that the batteries and management systems/electrical switch gear are in separate rooms/buildings;
- Install an automatic fire detection system;
- Undertake regular visual inspections;
- Repeat factory test at commissioning stage;
- Implement regular maintenance and inspection checks; and
- Invite local fire service to undertake a full review of the installation.

The Applicant is volunteering to produce a Battery Safety Management Plan (BSMP) which will list all good practice measures to be implemented as well as provide details regarding the actions to be implemented in case of fire. The BSMP will be prepared in accordance with relevant legislation and will be prepared with/submitted to the local fire service for review.

## **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.

## **Telecommunication and Utilities Failure**

A telecommunication search has been undertaken of the Proposed Development site and the relevant consultees have been consulted (Refer to Chapter 15 for full details on telecommunication).

A single telecommunication link located in the north-eastern corner of the site operated by Airwave Solutions who provides telecommunication links for emergency services was identified.

The link is located approximately 120 m and 160 m east of Turbine 1 and Turbine 4 respectively (refer to Figure 15.1).

Airwave Solutions ran an interference analysis and confirmed that the Proposed Development will not present interference to the identified Airwave Solutions link and therefore there will be no impacts or effects upon the link by the Proposed Development during construction, operation or decommissioning and no mitigation is required.

An overhead line runs parallel to the southern boundary of the site. Following consent, the Applicant will liaise with the service provider to ensure the protection of the overhead line throughout construction. Any other above and underground services close to the site boundary, including water, electrical and gas infrastructure, will be identified through a standard pre-construction utilities survey to avoid disruption.

Further assessment of effects on telecommunication and utilities has therefore been scoped out of the EIA.

## References

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