

10 RISK OF MAJOR ACCIDENTS

10.1 INTRODUCTION

10.1.1 This chapter of the ES assesses the potential risk of major accidents as a result of the proposed development.

10.1.2 Schedule 4 of The Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 confirms that the environmental impact assessment should include an assessment of any expected effects deriving from the vulnerability of the proposed development to risks of major accidents and disasters which are relevant to the proposed development. Additionally, the EIA Scoping Direction from the Planning Inspectorate confirms that the risk of major accidents should be scoped into the ES.

10.1.3 This chapter focusses on the potential fire risk associated with the battery storage element of the proposed site.

10.2 FIRE RISKS ASSOCIATED WITH THE STORAGE OF ELECTRICITY

10.2.1 The proposed development would have the ability to generate and store electricity, as a battery energy storage facility is proposed towards the southern boundary of the site.

10.2.2 An Energy Storage Safety Management Plan (**Appendix 10.1**) has been prepared to accompany this application. The Energy Storage Safety Management plan sets out the mitigation measures which will be put in place to address any concerns regarding the Energy Storage System.

10.2.3 The accompanying Management Plan identifies and assesses the potential hazards and sets out how the likelihood and the severity of potential issues can be minimized during the operation of the proposed development.

10.2.4 A series of potential risks from the storage of electricity on site are set out in the Management Plan and appropriate mitigation measures are outlined to ensure any potential risks of major accidents are appropriately mitigated. The Management Plan confirms the safety processes which will be implemented to ensure that the potential fire risk at the site would not lead to a major incident.

10.3 MITIGATION MEASURES

10.3.1 The following mitigation measures have been proposed in the Energy Storage Safety Management Plan to address the identified risks:

- The temperature and humidity within the battery containers will be regulated by suitably sized heating and cooling equipment.
- The heating and cooling system status will be monitored by the Energy Management System (EMS). In the event of a heating/cooling failure being detected, the enclosure will be automatically switched into standby mode, preventing the battery modules from charging or discharging, and sending a notification to the operations and maintenance (O&M) team.
- The heating/cooling system will be subject to quarterly routine maintenance inspections to ensure the risk of failure is minimised.

- The battery enclosures will be suitably insulated and specified for the relative ambient conditions (IP 55), to prevent external agents to enter the enclosures.
- Periodic maintenance plan will include the cleaning of the container, changing of filters i.e. heating/cooling system, and a detailed inspection of the equipment to ensure all equipment and connections are in good state.
- The Energy Management System (EMS) will continuously monitor the state of every module rack (voltage, state of charge etc) and thanks to in-built safety limits, it will not allow the battery, or any individual component, to reach a dangerous state that could lead to safety issues.
- If a fault arises, an alarm is triggered, and the O&M team is made aware of the issue. The O&M team will be able to act remotely, initiate a remote shutdown if required, or send a technician to site to investigate the issue and perhaps replace damaged/faulty components.
- If rack voltage or state of charge drops below or rises above safe levels, the battery DC contactors are automatically opened, isolating each rack individually preventing current continuing to flow between racks, essentially isolating and significantly reducing the risk of thermal runaway.
- Thermal runaway will be mitigated by procuring a Lithium Iron Phosphate (LFP) Energy Storage System (ESS). In the event of runaway occurring it has proven that whilst it is possible for the battery to catch fire it does not pose any risk of explosion.
- Every battery enclosure is equipped with two different types of fire detection systems, smoke and heat detectors. Multiple sensors of each type are installed to increase redundancy in the event one or more are faulty. This enables early fire detection and the activation of a fire suppression system if installed.
- If the fire detection system is triggered, an alarm is sent to the local fire brigade that will promptly intervene to further contain the fire if necessary.
- The fire detection system will be subject to quarterly routine maintenance and testing.
- The enclosures will be made of non-combustible equipment to minimise the spread of the fire outside the enclosure.
- The site will also be at a minimum distance of 20m from buildings and areas with public access. This will minimise the likelihood of fire spreading from one container to others and potentially becoming a hazard for the public.
- All containers and other equipment will be placed on concrete slabs and raised off the ground to provide protection from flooding.

10.4 SUMMARY

10.4.1 The Energy Storage Safety Management Plan confirms the safety processes which will be implemented to ensure that the potential fire risk at the site would not lead to a major incident. The Energy Storage Safety Management

Plan will be reviewed and updated at a more detailed stage of the ESS design in consultation with North Wales Fire and Rescue Service, incorporating ESS supplier recommendations and in accordance with current and future UK regulations, guidelines and industry recommendations.