

A photograph of an offshore wind farm at sunset. The sky is a mix of orange, yellow, and light blue, with a few wispy clouds. The sun is low on the horizon, creating a strong glow. In the foreground, dark, choppy waves are breaking, with white foam visible. Several wind turbines are visible in the mid-ground, their silhouettes dark against the bright sky. The overall mood is serene and powerful.

# Salamander Offshore Wind Farm

Onshore EIA Report

Volume ER.B.6 Plan P.4: Outline EBI Safety Management  
Plan



Powered by Ørsted and  
Simply Blue Group

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## Glossary

Term	Definition
Active Risk Management (ARM)	A software tool used to record and share risk profiles of equipment or project packages
Battery Management System (BMS)	Any electronic system that manages a rechargeable battery, such as by protecting the battery from operating outside its safe operating area, monitoring its state, calculating secondary data, reporting that data, controlling its environment, authenticating it and / or balancing it
Energy Balancing Infrastructure / EBI	Energy Balancing Infrastructure which will provide services to the electrical grid, such as storing energy to meet periods of peak demand and improving overall reliability, as well as additional services such as system monitoring and computing. EBI will be housed within buildings and / or containers which will be co-located with the Onshore Substation (OnSS).
Hazard Identification (HAZiD)	A qualitative technique for the early identification of potential hazards and threats
Hazard and Operability Analysis (HAZOP)	A structured and systematic technique for system examination and risk management. In particular, HAZOP is often used as a technique for identifying potential hazards in a system and identifying operability problems
Mitigation by Design	A means by which designers can demonstrate that their designs can be built, used, maintained and eventually demolished without negatively affecting the safety, health and wellbeing of those involved in the construction process or those who may be impacted by the structure
Onshore Development	The entire Onshore Development, including Construction Compounds at the Landfall, temporary working areas, Onshore Export Cables, Transition Joint Bay, Joint Bays, Onshore Substation and Energy Balancing Infrastructure, Construction Compounds, any associated landscaping (if required) and access (and all other associated infrastructure) across all Project phases of the Onshore Development from construction to decommissioning, for which the Applicant is seeking consent.
Supervisory Control and Data Acquisition (SCADA)	A computerized system that is capable of gathering and processing data and applying operational controls over long distances

## Acronyms

Term	Definition
BMS	Battery Management Systems
CEMP	Construction Environmental Management Plan
EBI	Energy Balancing Infrastructure
EIAR	Environmental Impact Assessment Report
EMP	Environmental Management Plan
EPC	Engineering, Procurement and Construction
HAZOP	Hazard and Operability Study
HAZiD	Hazard Identification
HSE	Health and Safety Environment
JV	Joint Venture
km	Kilometre
LPA	Local Planning Authority
MLWS	Mean Low Water Spring
MW	Megawatt
OnSS	Onshore Substation
RIDDOR	Reporting of Injuries, Diseases and Dangerous Occurrences Regulations
SCADA	Supervisory Control and Data Acquisition
SFRS	Scottish Fire and Rescue Service
SMP	Safety Management Plan
SWPC	Salamander Wind Project Company Limited (formerly called SBES)
TJB	Transition Joint Bay

## 1 Introduction

1.1.1.1 This Outline Energy Balancing Infrastructure (EBI) Safety Management Plan (SMP) has been produced along with the Onshore Environmental Impact Assessment Report (EIAR) to support the application under Section 36 of the Electricity Act 1989. It aims to ensure that legislation, guidance and safety risks related to the proposed EBI are understood and that general best practice measures are adhered to throughout construction and operation. This outline plan will be developed further in consultation with the relevant stakeholders, including the local fire service and the Local Planning Authority (LPA) prior to the commencement of construction.

### 1.2 Project Background

1.2.1.1 Salamander Wind Project Company Limited (SWPC) ('the Developer), a joint venture (JV) partnership between Ørsted, Simply Blue Group and Subsea7, is proposing the development of the Salamander Offshore Wind Farm (hereafter 'Salamander Project'). It will consist of both offshore and onshore infrastructure, including an offshore generating station (wind farm), export cables to landfall, and connection to the onshore substation. The Onshore Development of the Salamander Project includes the onshore components on the landward side of Mean Low Water Spring (MLWS) that are required across all of the Salamander Project phases from Construction, Operation and Maintenance to Decommissioning, including Transition Joint Bays (TJBs) to join the offshore and onshore cables; onshore export cables buried in up to two trenches; an onshore substation (OnSS) compound and associated infrastructure; Energy Balancing Infrastructure (EBI) including battery storage; grid connection works; and an access road to the OnSS and EBI.

1.2.1.2 This document relates to the EBI for which the Salamander Project is applying for Section 36 Consent under the Electricity Act 1989 for the  $\geq 50$  MW EBI with battery storage.

1.2.1.3 The earliest possible date that onshore construction could commence is January 2027.

### 1.3 Purpose of the Outline EBI Safety Management Plan

1.3.1.1 This Outline EBI SMP has been prepared to accompany the consent application for the proposed EBI to ensure that legislation, guidance and safety risks related to the proposed EBI are understood, accounted for, and mitigated as far as is practically possible, in agreement with the relevant stakeholders where appropriate.

1.3.1.2 The aim is to be able to identify safety risks and address them through design but also define processes in case hazards should occur.

1.3.1.3 Prior to the commencement of construction this outline plan will be developed further in consultation with the relevant stakeholders, including the Scottish Fire and Rescue Service (SFRS) and the LPA.

### 1.4 Legislation and Guidance

1.4.1.1 In relation to the EBI, the Developer would investigate three main areas:

- Technical documentation;
- Standards documentation (Health and Safety Executive (HSE) Design); and
- Legal documentation (UK and EU [ADR Orange Book] HSE).

1.4.1.2 The following list comprises the key UK Statutory Instruments that must be complied with for EBI:

- Health and Safety at Work etc. Act 1974;

- Management of Health and Safety at Work Regulations 1999 Regulation 3;
- Electricity Safety, Quality and Continuity Regulations 2002;
- Construction (Design and Management) Regulations 2015;
- The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) Regs. 2013; and
- The Workplace (Health, Safety and Welfare) Regulations 1992;

1.4.1.3 In addition, there may be relevant consent conditions which will be outlined in the final EBI SMP as well as national fire safety guidance.

1.4.1.4 The legislative requirements, current standards and best practice measures which define the standards of construction practice adhered to by the Contractors shall be outlined within the Construction Environmental Management Plan (CEMP). However, adhering to the CEMP does not absolve the Developer, Contractors, or Subcontractors from complying with legislation and bylaws relevant to their construction activities.

## 1.5 Approach to the Outline EBI Safety Management Plan and Document Updates

1.5.1.1 The Developer's approach to safety management considers the existing and emerging requirements of operating the EBI and includes processes and protocols, lessons learnt from other similar projects, industry-wide as well as those operated by members of the joint venture partnership at other locations, and covers the sections below. Prior to the handover of the Salamander Project Onshore Development to the Operational Phase, the Outline EBI SMP will be updated.

## 1.6 Mitigation by design

1.6.1.1 The Developer will consider Mitigation by Design as part of the initial site design and will be fully implemented once a supplier is selected, therefore providing a robust platform for eliminating risk by utilising key principles of 'good design', where these opportunities may be possible.

1.6.1.2 Throughout the detailed design process, the Developer will engage with the SFRS and other relevant stakeholders to identify relevant mitigation measures to be considered as part of the Mitigation by Design process.

1.6.1.3 Use of Hazard Identification (HAZID) and Hazard and Operability Analysis (HAZOP) analysis ensures subject matter experts and relevant stakeholders in the construction and operation of the proposed development, including in relation to emergency situations are engaged with at the appropriate time.

1.6.1.4 Decisions made during detailed design will be recorded and used within an Active Risk Management (ARM) system to form a common risk register, which will be developed from concept to implementation.

## 1.7 Quality control and quality of assurance of components

1.7.1.1 The Developer will ensure that all the above-mentioned safety measures, testing and best practice standards, legislation and guidelines are implemented as part of the design, construction, operation and maintenance of the EBI.

1.7.1.2 Manufacturing, post-manufacturing handling, testing and commissioning phases will be a major focus for the EBI SMP, with the aim of managing the risk of fire at source by eliminating faulty cells from the design and at all stages of the development and construction process, including in transportation and installation.

1.7.1.3 Following the installation of the energy storage system, the installation will only be accepted via Site Acceptance Testing. The purpose of this testing is to ensure that the system is installed properly, and that

the battery management and protection systems are working fully. This testing will be carried out in cooperation between The Developer and the supplier.

## **1.8 Monitoring**

- 1.8.1.1 Containers in which the battery modules will be housed will be designed in order to minimise potential risks and hazards. This includes consideration of adequate separation and segregation in accordance with manufacturer's requirements, to minimise the spread of fire. Cooling, ventilation and monitoring systems will be incorporated to ensure operational safety by maintaining the batteries at a stable operating temperature and removing excess heat in the event of overheating.
- 1.8.1.2 During the operational phase of the proposed development, the whole battery storage facility will be monitored and controlled by a SCADA (Supervisory Control and Data Acquisition) safety system.
- 1.8.1.3 Similarly, every individual cell will be constantly monitored by automated systems known as Battery Management Systems (BMS) that track current, voltage, temperature and other critical information.
- 1.8.1.4 BMS are designed to ensure that the batteries are continually monitored and protected to prevent hazards occurring and to maintain the reliability of the batteries.

## **1.9 Crisis Management**

- 1.9.1.1 Lessons learned from recent fires involving battery storage highlight the need to ensure emergency services can have vision of what is taking place inside the battery storage units without entering those units. This comprises of practices such as the remote monitoring of battery rooms and avoiding key risks such as flame blow back and chemical risk.
- 1.9.1.2 SFRS is the statutory body responsible for fire related prevention and control in Aberdeenshire and is expected to be a consultee on the proposed development's consent application.
- 1.9.1.3 It is envisaged that the Developer will engage with SFRS on aspects relating to mitigation by design as well as crisis management as the Salamander Project progresses.



## 2 References

Legislation.gov.uk. (2022). Health and Safety at Work etc. Act 1974. Available at: <https://www.legislation.gov.uk/ukpga/1974/37/section/7> (Accessed: 7 January 2022).

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