Outline Fire Strategy – Battery Energy Storage System (BESS)

Project: Horton Solar Site

Location: Horton Landfill Site, Henfield

Prepared for: Horsham District Council

Date: July 2025

Introduction

This Outline Fire Strategy has been prepared in support of the proposed Battery Energy Storage System (BESS) to be installed at the above-referenced solar farm. The strategy outlines fire safety design considerations and response measures, based on current best practice, to ensure the protection of life, property, and the environment. It is intended to inform planning and will be further developed into a detailed Fire Safety Management Plan post-consent.

Applicable Standards and Guidance

This fire strategy has been developed with reference to the following key guidance:

- National Fire Chiefs Council (NFCC) – "Grid-Scale Battery Energy Storage Systems – Guidance for Fire and Rescue Services" (2022)
- NFPA 855 – Standard for the Installation of Stationary Energy Storage Systems
- IEC 62933 – Safety Requirements for Grid-Integrated EESS
- BS 7671:2018 + A2:2022 – IET Wiring Regulations
- BS 5839-1:2017 – Fire Detection and Alarm Systems for Buildings
- Environment Agency guidance and CIRIA C736 on surface water pollution control

Battery System Specification

- Battery Type: Lithium Iron Phosphate ($LiFePO_4$) – chosen for improved thermal stability and reduced fire risk.
- Container Design: Modular, containerised enclosures with fire-resistant cladding and internal compartmentation.
- Thermal Management: Active cooling and Battery Management System (BMS).
- Fire Detection: Smoke, heat, and gas detectors.
- Suppression: Gaseous suppression (e.g. Novec 1230), passive deflagration vents.
- Spacing: 6–10 m between containers; fire-resisting partitions.

Firefighter Access and Site Layout

- Primary Access: current entrance to landfill.
- Secondary Access: Rear route to avoid plume exposure. Access further along Henfield Road adjacent to Mackley Industrial Estate with access around the norther perimeter of the landfill site
- Site Signage: Includes battery type, isolation, suppression systems.
- Fire Crew Interface: Isolation switch, suppression controls, contact info.

Water Supply and Suppression Water Management

- Design in consultation with Fire and Rescue Service during detailed design
- On-site firewater storage (typically 30,000-60,000 litres).
- Flow: Minimum 1,500 L/min at 1.7 bar pressure.
- On-site hydrant connected to dedicated tank or water main
- Containment: Bunded area with isolation sump.
- No discharge to swales, landfill drainage, or leachate systems.
- Post-event sampling and safe removal of any hazardous water by licensed contractor.

Vegetation and Wildfire Prevention

- 5 m vegetation exclusion zone around all BESS units.
- No trees or scrub within 10 m.

- Surface treatment: gravel or rock to prevent spread.

Surface Water and Pollution Prevention

- BESS is hydrologically isolated from the site.
- No connection to swales or leachate infrastructure.
- Firewater is retained in impermeable lined bund.
- Shut-off valves and containment barriers installed.
- Swale routes will be reviewed to ensure zero risk of interaction with leachate system

Conclusion and Commitments

This strategy demonstrates that the proposed BESS will be developed with full regard for fire safety, pollution control, and firefighter welfare. A detailed Fire Safety Plan will be submitted prior to construction, incorporating system design, suppression, detection, drainage, and consultation outcomes.

A pre-commencement planning condition will be agreed to secure final approval prior to commissioning. Wording of the condition:

Pre-commencement condition: No development shall commence until a detailed Fire Strategy / Safety Report has been submitted to and been approved in writing by the Local Planning Authority. The Fire Strategy / Safety Report shall have regard to the latest guidance and shall be subject to periodical review as necessary. The approved Fire Strategy / Safety report shall be fully implemented prior to first operation of the site, and the measures within the Report shall be operated, maintained and retained as such thereafter.

Reason: To accord with fire and safety regulations in accordance with Policy 33 of the Horsham District Planning Framework (2015).