

Point	Response															
<p>Industrial scale batteries are inherently dangerous.</p> <p>There have been almost 100 BESS fires since 2011</p>	<p>BESS are not inherently unsafe and are strictly regulated and have to follow very stringent safety standards.</p> <p>There are approx. 117 operational BESS sites in the UK (as of Oct 2024) and there has been only one operational BESS fire (Orsted BESS, Liverpool, 2020). This incident involved outdated safety technology and predated current safety regulations and guidance (see row below) The following points have been deduced from The Department for Energy Security and Net Zero's (DESNZ) data:</p> <ol style="list-style-type: none"> <li>1. Since 2006, BESS have accumulated ~741 years of operation (~6.5 million hours).</li> <li>2. There has been one operational BESS fire in the UK during their 6.5 million hours of operation. This extrapolates to ~ 0.0000003 failures (3 failures per every 10 million hours) per hour which is multiples times better than the Health and Safety Executive's R2P2 Guidance for the 'societally acceptable' safety rate for the public of 1 failure per million hours of operation.</li> </ol>															
<p>Reference to Orsted BESS (Liverpool) and Moss Landing (California) incidents</p>	<p>Both projects were commissioned over five years ago and predate current safety regulations and guidance, including the National Fire Prevention Agency 855 Standard for the Installation of Stationary Energy Storage Systems (2023), as such they were not certified to UL9540A standards.</p> <p>Notable differences between the Orsted and Moss Landing BESS and the proposed East End BESS include:</p> <table border="1" data-bbox="508 935 2190 1369"> <thead> <tr> <th data-bbox="508 935 663 995">Point</th> <th data-bbox="669 935 1021 995">Liverpool BESS Fire</th> <th data-bbox="1028 935 1361 995">Moss Landing Fire</th> <th data-bbox="1368 935 2190 995">East End BESS</th> </tr> </thead> <tbody> <tr> <td data-bbox="508 1000 663 1169">Battery Chemistry</td> <td data-bbox="669 1000 1021 1169"> <ul style="list-style-type: none"> <li>• Nickel Manganese Cobalt Oxide (NMC) batteries.</li> </ul> </td> <td data-bbox="1028 1000 1361 1169"> <ul style="list-style-type: none"> <li>• Nickel Manganese Cobalt Oxide (NMC) batteries.</li> </ul> </td> <td data-bbox="1368 1000 2190 1169"> <ul style="list-style-type: none"> <li>• Lithium Iron Phosphate (LFP) batteries, which provide increased safety and are less prone to thermal runaway (when compared to NMC batteries).</li> <li>• All utility scale BESS projects now use LFP chemistry as they are much safer and less prone to thermal runaway.</li> </ul> </td> </tr> <tr> <td data-bbox="508 1174 663 1369">Battery Design</td> <td data-bbox="669 1174 1021 1369"> <ul style="list-style-type: none"> <li>• Commissioned in 2019, it involved a 'Shipping container' style technology.</li> <li>• In case of thermal runaway, fire spreads</li> </ul> </td> <td data-bbox="1028 1174 1361 1369"> <ul style="list-style-type: none"> <li>• Commissioned in 2020, involved a 'shipping container' style technology inside a former turbine hall.</li> </ul> </td> <td data-bbox="1368 1174 2190 1369"> <ul style="list-style-type: none"> <li>• The proposed BESS is a smaller 'cabinet design', rather than a 'shipping container' design. In case of thermal runaway, it is possible to isolate the cabinet and contain the fire, rather than it spreading through a container</li> <li>• There are liquid cooling systems in each cabinet and additional fire-resistant walls. Fire is contained within the cabinet and does not spread to adjacent cabinets.</li> </ul> </td> </tr> </tbody> </table>				Point	Liverpool BESS Fire	Moss Landing Fire	East End BESS	Battery Chemistry	<ul style="list-style-type: none"> <li>• Nickel Manganese Cobalt Oxide (NMC) batteries.</li> </ul>	<ul style="list-style-type: none"> <li>• Nickel Manganese Cobalt Oxide (NMC) batteries.</li> </ul>	<ul style="list-style-type: none"> <li>• Lithium Iron Phosphate (LFP) batteries, which provide increased safety and are less prone to thermal runaway (when compared to NMC batteries).</li> <li>• All utility scale BESS projects now use LFP chemistry as they are much safer and less prone to thermal runaway.</li> </ul>	Battery Design	<ul style="list-style-type: none"> <li>• Commissioned in 2019, it involved a 'Shipping container' style technology.</li> <li>• In case of thermal runaway, fire spreads</li> </ul>	<ul style="list-style-type: none"> <li>• Commissioned in 2020, involved a 'shipping container' style technology inside a former turbine hall.</li> </ul>	<ul style="list-style-type: none"> <li>• The proposed BESS is a smaller 'cabinet design', rather than a 'shipping container' design. In case of thermal runaway, it is possible to isolate the cabinet and contain the fire, rather than it spreading through a container</li> <li>• There are liquid cooling systems in each cabinet and additional fire-resistant walls. Fire is contained within the cabinet and does not spread to adjacent cabinets.</li> </ul>
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		through the whole container.		<ul style="list-style-type: none"> <li>Large fire testing is been undertaken to validate that fire in a BESS enclosure does not propagate to adjacent enclosures. This is a key safety validation, especially in cases where BESS systems are used in close proximity</li> </ul>
	Control Systems	<ul style="list-style-type: none"> <li>The control system measured temperature at the module level and was not capable of monitoring thermal runaway at cell level.</li> </ul>	<ul style="list-style-type: none"> <li>Information not available</li> </ul>	<ul style="list-style-type: none"> <li>Advanced control system is capable of 24-hour monitoring at the individual cell level (rather than at module level) resulting in faster system shutdown when a cell thermal runaway incident occurs</li> </ul>
Applicant failed to provide vital pieces of information – details of the batteries that are to be installed	<p>This has been recognised by the Secretary of State in a planning decision in March 2023 for a solar and BESS scheme at a site in Telford, Shropshire. They stated that battery fire risk had been a concern some years ago, however technology has moved on and battery storage is recognised in national policy and guidance (Ref. APP/C3240/W/22/3293667).</p> <p>The East End BESS proposes LFP batteries and the Outline Battery Safety Management Plan (OBSMP) submitted with the planning application confirms that the BESS will include:</p> <ul style="list-style-type: none"> <li>- Cell module level control</li> <li>- 24/7 Remote Monitoring and Control and automated shut-down</li> <li>- Fire detection and suppression systems (FDSS) fitted to containers.</li> <li>- A certified UL9540A Battery Management System design .</li> </ul> <p>A Detailed Battery Safety Management Plan will be developed in consultation with the Hertfordshire Fire and Rescue Service (HFRS) and submitted to and approved by the LPA prior to operation. This approach has been verified by the Secretary of State and Planning Inspectorate in appeal decisions and will ensure the Council retains control over the final safety design and can consult the HFRS and local residents before agreeing the details.</p>			
There is no confirmation available from the (HFRS) to the effect that the risks of fire	<ul style="list-style-type: none"> <li>Two meetings were held with HFRS in March and July 2024, prior to submission of the planning application</li> <li>The scheme was amended in response to HFRS’ requirements, resulting in the addition of a second water tank.</li> </ul>			

<p>and explosions have been appropriately mitigated</p>	<ul style="list-style-type: none"> <li>• HFRS submitted a response to the planning application in December 2024 and raised no objection to the scheme. They requested the development complies with building regulations. The scheme complies with all relevant building regulations.</li> <li>• Consultation with HFRS will continue throughout the development's construction and operational phases as secured through planning condition.</li> </ul>
<p>EHDC has a legal duty not to actively create or permit a hazardous development.</p> <p>The existence of this duty derives from the Court of Appeal's judgement in the 2021 case of Kane v New Forest District Council.</p>	<p>The Kane v New Forest District Council appeal was determined in 2001 (not 2021) and related to a planning permission granted in 1985.</p> <p>BESS installations are essential infrastructure and not a hazardous development. As per the Government's Clean Power Action Plan 2030, 27GW of BESS is required as compared to the current 5GW operational.</p>
<p>Batteries are dangerous and unregulated</p>	<p>As set out within the OBSMP submitted with the application, BESS are strictly regulated and fall under the remit of the Supply of Machinery (Safety) Regulations SI 2008/1597, which cascades out to the following relevant legislation, regulations and guidance:</p> <p><u>Legislation</u></p> <ul style="list-style-type: none"> <li>- Construction Design and Management (CDM) Regulations 2015</li> <li>- Control of Substances Hazardous to Health Regulations 2002 – UKSI 2002/2677</li> <li>- Electrical Equipment (Safety) Regulations SI 1994/3260</li> <li>- Electro-magnetic Compatibility Regulations SI 2006/3418</li> <li>- Fire Safety (Employees' Capabilities) (England) Regulations SI 2010/471.</li> <li>- Fire Safety Order 2023</li> <li>- Fire Safety Act 2021</li> <li>- Health and Safety (Safety Signs and Signals Regulations 1996)</li> <li>- Waste Batteries and Accumulators Regulations 2009.</li> </ul> <p><u>Regulation</u></p> <ul style="list-style-type: none"> <li>- National Fire Protection Association 855 – Standard for the Installation of Stationary Energy Storage Systems (2023)</li> </ul>

	<ul style="list-style-type: none"> <li>- UL9540A – BESS Test Methods</li> <li>- UL1973 – Standard for Batteries for Use in Stationary, Vehicle Auxiliary Power, and Light Electric Rail Applications</li> <li>- FM Global Property Loss Datasheet 5-33 – Lithium-Ion BESS (Jan 2024)</li> <li>- International Electrotechnical Commission (IEC) 61508 - Functional Safety of Electrical/Electronic/Programmable Electronic Safety-related Systems</li> </ul> <p><u>Guidance</u></p> <ul style="list-style-type: none"> <li>- National Fire Chiefs Council (NFCC) Grid Scale Battery Energy Storage System planning – Guidance for FRS (Nov 2022) and emerging guidance.</li> <li>- Department for Energy Security and Net Zero Health - Safety Guidance for Grid Scale Electrical Energy Storage Systems (2024)</li> </ul>
<p>There is no clear guidance on appropriate safety distances from occupied buildings</p>	<p>The NFCC Guidance states there should be a minimum of 25m between BESS units and occupied buildings.</p> <p>There are no occupied buildings within 250m of the proposed BESS units.</p>
<p>There are no regulations on how to deal with BESS fires.</p>	<p>The modus operandi in place across the UK is to boundary cool, contain and let the BESS burn-out rather than apply water directly to a battery fire. This has been confirmed by various local fire and rescue services, including Hertfordshire. This is also reflected in the emerging NFCC Guidance.</p> <p>Response to any incident will be tailored to the requirements of HFRS.</p>
<p>Regarding the Orsted BESS in Liverpool, ‘once water was applied, the resulting runoff contained hydrofluoric acid (HF). Scientific advisers identified the potential for the smoke plume to contain Hydrofluoric Acid and Hydrochloric Acids (HCl) as a product of burning lithium cells.’</p>	<p>The Significant Incident Report from the Orsted BESS states :</p> <ul style="list-style-type: none"> <li>- Run-off was periodically checked for contamination, which was low and run-off was mainly contained to the site.</li> <li>- Bureau Veritas (BV) scientific advisers identified the potential for the smoke plume to contain HF and Hydrochloric Acids (HCl), however, the dilution rate within the plume deemed the concentration as negligible.</li> </ul>
<p>West Byrehill Industrial Estate incident</p>	<p>The West Byrehill site is a battery recycling plant and was recycling mobile phone and laptop batteries. It was not a BESS installation and did not recycle utility scale batteries.</p>

<p>Refused planning appeal by Enso Green Holdings, whereby the Inspector noted whether sufficient information on fire safety had been provided was a key matter. The Inspector stated 'not only would the tanker drivers be at risk from the fire and heat, but also the fire would also be likely to contain a range of toxic fumes.'</p>	<p>This quote is out of context. This element of the Appeal focusses on an assumed requirement that firefighting water runoff would need to be tankered off site, whilst the fire was still in force. This was because that particular site had very limited space and attenuation capacity and it was assumed water would be applied directly to a battery fire.</p> <p>The East End BESS site includes two significant sized attenuation basins lined with an impermeable layer to prevent infiltration. A series of pumps and valves are proposed to isolate the basins from the rest of the drainage network and wider environment, which would allow for any water to be safely stored, tested and if necessary disposed.</p> <p>Additionally, as above, fire and rescue services would not apply water directly to a battery fire and as such water runoff would not be contaminated.</p>
<p>Planning Appeals</p>	<p>Recent planning appeals have considered fire safety in the context of BESS development. All the appeals referenced below have been allowed. The following points are noted:</p> <ul style="list-style-type: none"> <li>i. The Secretary of State has acknowledged that robust fire risk measures have to be put in place and that these can be secured by planning condition. They noted that battery fire risk had been a concern some years ago, however technology has moved on and battery storage is recognised in national policy and guidance (Ref. APP/C3240/W/22/3293667);</li> <li>ii. The Inspector noted the local fire and rescue service did not object to the proposed development and that the provision of an updated Fire Safety Strategy could be dealt with by condition (Ref. APP/V4630/W/24/3347424); and</li> <li>iii. An Inspector has noted that whilst there was significant local concern regarding topics including fire safety, they had not been presented with compelling evidence to substantiate this claim. This appeal was allowed and the BESS was approved (Ref. APP/Q4625/W/24/3343977).</li> </ul>