

Response to:
Applicants Written Summary of the Applicant's Oral Submissions – ISH 2

2. Health and Safety including BESS

2.1 Proximity of Apparatus to Dwellings

- Under 2.1.4 The Applicant did not know why the NFCC requires a distance of 25metres from an occupied building to a BESS. The answer is to ensure that radiant heat does not cause a hazard to residents. Far more serious of course is the toxic plume that can endanger local residents at a much greater distance. E.g. The Moorabool fire in Victoria Australia in 2021 resulted in residents being advised to shelter in place over 12 square miles.
- The Applicant restates the questions I asked in 2.1.7, 2.1.8 and 2.1.9 but without any response.
Q Please can the Applicant provide responses for each question raised

2.2 Battery Safety Plan

Fire Risk

- Under 2.2.5 the ExA asked the Applicant the extent to which the Carnegie Road fire in Liverpool, referred to in the Applicant's BSMP [REP4-013], was a fair comparison.
May I suggest that it is not. The Carnegie Road fire was only a small 20 MWh capacity, housed in four shipping containers. The Helios project is proposing 76 large shipping container sized BESSs, potentially having a capacity of between 300 – 400 MWh depending upon the chosen supplier, significantly larger and potentially a lot more dangerous.
- Under 2.2.7 The Applicant sought to dismiss the important learning points from the research undertaken by Dr John Fannon, explaining that his research did not include any of the fires in the UK, just examples from USA, Australia and Asia and that in the UK context, the report from the fire in Liverpool found no heavy metals after the fire.
 - Firstly the two recent fires in the UK occurred this year, after the report was published in 2024.
 - More importantly, Dr Fannon **did include** the Liverpool fire in his research but details of it were edited out as the examples of the two fires in Moorabool and Moor Landing were considered sufficient for the purposes of the article.

The content of the original document read:

"Liverpool 2020 - In 2020 a 20MW Battery Energy Storage System in Liverpool developed a short circuit and caught fire. It took 11 hours to put out the fire with copious amounts of water. The picture below is taken from the Fordham-Allison-Melville paper. A further account of this is given in a report to the Faversham Society by Professor Sir David Melville who concludes

'It transpires that even for the Liverpool incident in a relatively small BESS, the fire suppression measures were ineffective, the Fire and Rescue Service were inadequately informed and prepared, and a serious fire and large explosion took place which could have resulted in serious injury or death'.

Sir David Melville also points out that water and Hydrogen Fluoride gas combined together to form Hydrofluoric acid which is extremely corrosive and can dissolve concrete".

The Faversham Society in its article <https://favershamsociety.org/battery-explosion-and-fire-in-liverpool/> also noted the following major lessons:

1. MFRS concluded that the manufacturers' operational risk information available for responding crews and the hazards associated with BESS was inadequate, highlighting a gap in 'Site Specific Risk Information' and a broader gap on the awareness and understanding of BESS sites and their inherent fire risks.
2. The Carnegie Road site is remotely managed and operated by Orsted who are based in Denmark, leading to delays in instigating switch off and electrical safety measures via Scottish Power.
3. The Li-Ion cells of the BESS are susceptible to "thermal runaway" - the condition when an electro-chemical cell increases its temperature through self-heating in an uncontrollable fashion and progresses when the cell's heat generation is at a higher rate than it can dissipate, potentially leading to off-gassing, fire, or explosion
4. Although an automatic fire alarm system was present and actuated due to the ignition of flammable gases inside the BESS unit. It did not prevent the fire or the 'significant blast event' (explosion).
 - The result is evidently a Vapour Cloud Explosion caused by the use of a conventional inert "clean-agent" fire suppression system which blankets the thermal runaway event and prevents combustion whilst allowing major quantities of flammables to build up. When finally mixed with air and ignited this creates a major explosion. This is exactly what happened at McMicken Arizona (according to a major forensic report) and Drogenbos, Belgium. The "fire suppression" systems widely advocated help to CAUSE these explosions
 - This explosion occurred prior to the arrival of responding fire crews. This was fortuitous since the explosion potential is a significant risk to emergency responders that has caused life-altering injury to firefighters at fire incidents on international BESS sites, such as Arizona and Beijing.
 - The presence of residential premises adjacent to the Carnegie Road BESS site raises concerns regarding the 'off-site potential' from fire incident risks at BESS sites to the local community.
 - Once water was applied, the resulting run-off contained Hydrofluoric Acid (HF) – a highly toxic substance which can dissolve concrete and whose fumes can be fatal to life.
 - Further investigation is underway to fully understand the regulatory regime that applies to BESS sites and this incident was brought to the attention of the NFCC (National Fire Chief's Council) Ops Committee, the Health and Safety Executive (HSE) and Home Office (HO). National Operational Guidance (NOG) were also informed to determine current UKFRS risk assessment standards when responding to similar incidents. An automatic fire suppression system was present and during the course of the incident had activated however, actuation was most likely due to the deflagration, which either activated the alarm or, the pressure activated the break glass media

This also reinforces the Faversham view that the explosion potential and the lack of engineering standards to prevent thermal runaway may put control of 'battery fires' **beyond the knowledge, experience and capabilities of local Fire and Rescue Services and new approaches to fire suppression and firefighter safety are needed.**

Conclusion

I therefore contest that the Applicant cannot seek to disregard the findings of Dr John Fannon's research <https://search.app/bWQFf85ab5zEjthQ6> and, in addition to the points raised by the Faversham Society, it confirms our utter dismay that the Applicant is intending to site 76 BESSs so close to human habitation. This real fear is intensified by the fact that a fire is likely for every BESS during its lifetime, that a fire can occur without warning at any time due to internal short circuiting (as no test to identify this has yet been developed) and that the Applicant has failed to properly engage with NYF&RS at the earliest opportunity and failed to develop a close working arrangement throughout the process (2.2.19).

Q How do we know that the NFCC requirements will be met until it is too late or that NYF&R service is able to effectively and competently handle a fire or explosion - even if they can, is it acceptable to allow a fire to burn for over 11 hours in such close proximity to residents?

Engagement with NYF&RS

Under 2.2.19 The Applicant noted that BESS have been designed in accordance with the NFCC

Q If this is the case, please can the Application confirm:

- That the recommended distance of 6 metres between each BESS would be adhered to?
- There would be at least 2 points of access to the BESS site so that firefighters can enter the site whatever way the wind is blowing?