

Balancepower
106 Mere Grange
Leaside
St Helens
WA9 5GG

FAO: Mr Ryan Macindoe

**Fire Protection
Regulatory Services
Hertfordshire County Council
2nd Floor Farnham House
Postal Point CH0331
Six Hills Way, Stevenage
Hertfordshire SG1 2ST
www.hertfordshire.gov.uk**

Tel: 01707 292310

Email: administration.cfs@hertfordshire.gov.uk

My ref: 33464

Date: 28 June 2024

Dear Sir,

Proposed battery energy storage system, Newnham Road, Baldock

Whilst Hertfordshire Fire and Rescue Service (HFRS) are not a statutory consultee in relation to this project we will work and engage with the developer as this project develops to ensure it complies with the statutory responsibilities that we enforce.

The developer should produce a risk reduction strategy as the responsible person for the scheme as stated in the Regulatory Reform (Fire Safety) Order 2005. We would also expect that safety measures and risk mitigation is developed in collaboration with the HFRS. The strategy should cover the construction, operational and decommissioning phases of the project.

During the construction phase the number of daily vehicle movements in the local area will significantly increase. HFRS will want to view the transport strategy to minimise this impact and prevent an increase in the number of road traffic incidents. Any development should not negatively impact on the Service's ability to respond to an incident in the local area.

HFRS recognises the use of batteries (including lithium-ion) as Energy Storage Systems (ESS) is a new and emerging practice in the global renewable energy sector. As with all new and emerging practices within UK industry, HFRS would like to work with the developers to better understand any risks that may be posed and develop strategies and procedures to mitigate these risks.

The developer must ensure the risk of fire is minimised, this may be by way of any, or all, of the following measures:

- Procuring components and using construction techniques which comply with all relevant legislation.
- Including automatic fire detection systems in the development design.
- Including automatic fire suppression systems in the development design.
- Various types of suppression systems are available, but the HFRS's preferred system would be a water drenching system, as fires involving Lithium-ion batteries have the potential for thermal runaway. Other systems would be less effective in preventing reignition.
- Including redundancy in the design to provide multiple layers of protection.
- Designing the development to contain and restrict the spread of fire through the use of fire-resistant materials, and adequate separation between elements of the BESS.
- Developing an emergency response plan with HFRS to minimise the impact of an incident during construction, operation and decommissioning of the facility.
- Ensuring the BESS is located away from residential areas. Prevailing wind directions should be factored into the location of the BESS to minimise the impact of a fire involving lithium-ion batteries due to the toxic fumes produced.
It should be noted that, given its proximity, a serious incident may necessitate closure of the A1M.

The emergency response plan should include details of the hazards associated with lithium-ion batteries, isolation of electrical sources to enable firefighting activities, measures to extinguish or cool batteries involved in fire, management of toxic or flammable gases, minimise the environmental impact of an incident, containment of fire water run-off, handling, and responsibility for disposal of damaged batteries, and establishment of regular onsite training exercises.

The emergency response plan should be maintained and regularly reviewed by the occupier and any material changes notified to HFRS. Environmental impact should include the prevention of ground contamination, water course pollution, and the release of toxic gases.

BESS facilities should be designed to provide:

- Adequate separation between containers. It is noted from the plans that the indicated spacing between containers appears to be approximately 3m. **A standard minimum spacing between units of 6 metres is recommended unless suitable design features can be introduced to reduce that spacing. If reducing distances, a clear, evidence-based case for the reduction should be shown. *Separation distance is important in the mitigation of fire spread, but also provides vital access for firefighting intervention.***
- Provide adequate thermal barriers between switch gear and batteries.
- Provide suitable systems to detect thermal runaway and prevent the occurrence of an explosive atmosphere.
- Install adequate ventilation or an air conditioning system to control the temperature. Ventilation is important since batteries will continue to generate flammable gas while they are hot. Also, carbon monoxide will be generated until the batteries are completely cooled through to their core.
- Install a very early warning fire detection system, such as aspirating smoke detection.
- Install carbon monoxide (CO) detection within the BESS containers.
- Install fire suppression within BESS containers. Sprinkler systems should be designed to adequately contain and extinguish a fire.
- It is noted that provision is made for personnel to work on site. Consideration should be given to a suitable access / egress route which facilitates escape without entering the risk area.

NB The Building Regulations B5

Ensure that sufficient water is available for manual firefighting. An external fire hydrant should be located in close proximity of the BESS containers. – The water supply should be able to provide a minimum of 1,900 l/min for at least 2 hours.

Given the potential need for copious amounts of water, the Fire Authority would seek the provision of suitable fire hydrants rather than an emergency water supply.

Further hydrants should be strategically located across the development. These should be tested and regularly serviced by the operator.

NB The Building Regulations B5

The site design should include a safe access route for fire appliances to manoeuvre within the site (including turning circles). An alternative access point and approach route should be provided and maintained to enable appliances to approach from an up-wind direction.

The plans provided detail a number of dead-end access road which exceed the maximum distance detailed in Approved Document B, V2, 15.10.

Dead-end access routes longer than 20m require turning facilities (per ADB V2, diagram 15.3). Turning circles should comply with the guidance provided in the table below:

Appliance Type	Min. width of road between kerbs (m)	Min. width of gateways (m)	Min. turning circle between kerbs (m)	Min. turning circle between walls (m)	Min. clearance height (m)	Min. carrying capacity (tonnes)
Pump	3.7	3.1	16.8	19.2	3.7	19
ALP	3.7	3.1	26	29	4	26

However, it is strongly recommended that perimeter roadways are provided which negate the need for turning. This reduces the risk of vehicles manoeuvring within a risk area.

Should you require any further information, please feel free to make contact via administration.cfs@hertfordshire.gov.uk

Yours faithfully,



Stuart Joiner
Fire Safety Inspector