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Kent Fire & Rescue Service | together

To
Cllr David Wimble
Cabinet Member for the Environment
Kent County Council

Contact
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Date
17 July 2025

Dear Cllr David Wimble,

RE: Grid-Scale BESS Developments in Kent and Medway

Thank you for visiting Kent Fire and Rescue Service (KFRS) on 4th July 2025 to discuss the grid-scale Battery Energy Storage System (BESS) sites being developed across Kent and Medway. It was a pleasure to meet with you.

We appreciate the opportunity to explain KFRS' role in ensuring the safety of these sites throughout pre-planning, development, and operational phases. We also valued the chance to clarify our powers under the Regulatory Reform (Fire Safety) Order 2005, and their limitations, while also giving you the opportunity to share residents' concerns.

Our primary focus remains on protecting both residents and our operational crews. This includes preparing effective Site-Specific Risk Information (SSRI) for grid-scale BESS sites, which is a key part of our pre-planning in accordance with Section 7(2)(d) of the Fire and Rescue Services Act 2004. This work forms a key part of our Community Risk Management Planning (CRMP) and Risk-Based Intervention Programme (RBIP), which guide our protection activities within the built environment.

We've included our responses to your questions below. Thank you again for raising them, they have been very helpful. We plan to use these questions and our answers to enhance the BESS frequently asked questions section of our public-facing website, which will be going live soon.

Yours sincerely

Ann Millington

Chief Executive

Question	Response
Response Time and Accessibility Does KFRS have specific guidance or thresholds regarding maximum response time tolerances to BESS-related fire incidents, especially in rural areas where access is limited and infrastructure may be substandard?	Yes, although not specifically for BESS alone. KFRS applies clear response time targets to all incidents, including those involving BESS. We aim to reach emergencies within 9 minutes in urban areas and within 15 minutes in rural areas, achieving these targets at least 75% of the time. Non-emergency incidents have a 30-minute target regardless of location. Due to the complex nature of BESS-related fires, especially the risk of thermal runaway, these incidents are always treated as emergencies. In rural areas, challenges like narrow roads or weight-restricted bridges highlight why we advocate for early engagement during the planning process. We also strongly recommend on-site fire suppression and easily accessible infrastructure to help us respond effectively. This approach aligns with national guidance for BESS safety from the National Fire Chiefs Council (NFCC).

Question	Response
Response Time and Accessibility What is your assessment of the potential risks posed by BESS installations located in areas with narrow lanes, weight-restricted bridges, and poor access for high-capacity appliances?	KFRS recognises the safety issues linked to lithium-ion batteries, including BESS, as a risk within our Community Risk Management Plan. We've dedicated considerable time to understand these challenges and applying that knowledge to proposed BESS developments. Every site is different and comes with its own risks and challenges. We conduct our own risk assessment for each one, taking into account a variety of factors, including access arrangements. If we identify that access may be an issue, then we will work with the developer to ensure suitable arrangements are put in place. Our plans will take account of those arrangements. As sites are developed, our Risk Information Team creates Site Specific Risk Information (SSRI) documents. SSRI documents provide detailed information about unique hazards, access points, utilities, and other relevant features of a site. They are designed to equip our operational crews with immediate, practical information to support tactical planning and emergency response. SSRIs play a vital role in enhancing preparedness and ensuring the safety of both the public and our personnel. For grid-scale BESS, developing an SSRI is a key part of our proactive planning in line with Section 7(2)(d) of the Fire and Rescue Services Act 2004.

Question	Response
Fire Suppression, Capabilities, and Water Supply Are KFRS appliances currently equipped to deal with large-scale lithium-ion battery fires, particularly in isolated areas with limited or no mains water supply?	Yes, KFRS has invested in a comprehensive range of specialised equipment and developed advanced firefighting tactics specifically for lithium-ion battery fires. This includes modern techniques like compressed air foam systems, wetting agents, and advanced tools like fog spikes and Cobra technology. This allows us to implement effective firefighting tactics, even when water supplies are limited. When it comes to BESS incidents, our preferred response will be to conduct a 'controlled burn' and allow the affected BESS unit to burn out under control, whilst using our water to prevent fire spread. We do this to reduce the impact on the environment from fire water runoff, and because lithium-ion batteries are extremely difficult to extinguish. These tactics are not unique to BESS, they are part of our normal operating procedures and are proven to work well.

Question	Response
Fire Suppression, Capabilities, and Water Supply Would KFRS support a policy requiring on-site firefighting water storage or suppression systems as a minimum standard for BESS approvals?	KFRS support the requirement for on-site firefighting water (either via storage or hydrants) in line with the NFCC guidance. In terms of suppression systems, this depends on the type of suppression system and how it effects the firefighting strategy. There are some designs where a suppression system may not be necessary and, equally, occasions where one may be integral to the safety of the site. We take a risk-based approach to these systems. The NFCC guidance emphasises the importance of appropriate fire safety measures, including water supplies or fixed suppression systems, when site-specific risk assessments identify them as necessary. While it doesn't universally mandate these, it encourages early engagement with fire and rescue services to ensure suitable strategies are in place, particularly in remote locations. Therefore, KFRS considers such requirements to be appropriate where justified by the risk. We support their inclusion as minimum standards in policy, provided they are applied proportionately and reflect each BESS site's unique characteristics. The NFCC currently recommends that hydrant supplies for boundary cooling should be located close to BESS containers (while ensuring safe access during a fire) and be capable of delivering at least 1,900 litres per minute for a minimum of 2 hours..

Question	Response
Containment and Public Safety In the event of thermal runaway or explosion, what is the typical exclusion zone KFRS recommends around a BESS facility?	In line with NFCC Guidance, the recommended minimum distance between BESS units and occupied buildings or site boundaries is 25 metres. This applies before any mitigation measures, like blast walls, are considered. This initial safety distance is a precaution to address risks from thermal runaway, fire, or explosion, including heat, toxic gas release, and projectiles. In terms of an exclusion zone around a facility, this will depend on the extent of the fire, weather conditions such as wind direction, and the level of risk to communities (e.g. higher vulnerability locations such as hospitals or care homes). KFRS considers such risks as part of its input under planning and will highlight any concerns. As the size of an exclusion zone may vary depending on the nature of the incident, KFRS does not define a standard exclusion zone but instead we use our specially trained hazardous materials advisors to make an assessment on a case-by-case basis.

Question	Response
Containment and Public Safety Have you undertaken risk assessments for the potential toxicity of smoke or runoff from battery fires in environmentally sensitive areas?	Yes, as per NFCC guidance, during the planning consultation stage, the FRS and the Environment Agency review proposals to assess the risks of toxic smoke and contaminated runoff from battery fires, especially in environmentally sensitive areas. Since each BESS site is unique, these assessments are done case-by-case. We consider factors like battery chemistry, site location, system configuration, and proximity to watercourses or protected land. Our main focus is identifying potential impacts on air quality, surface and groundwater, and soil, while ensuring effective safety, containment, and mitigation measures are in place. Developers are also required to provide appropriate environmental protection systems, including containment infrastructure to manage fire water runoff. The design and capacity of these systems should account for the expected volume of water used during an incident, including from any fixed suppression systems. Additionally, site operators must prepare a comprehensive Risk Management Plan and Emergency Response Plan, that thoroughly address environmental hazards and demonstrate appropriate control measures for a coordinated multi-agency response.

Question	Response
Interagency Training and Planning Has KFRS provided any formal advice to planning authorities regarding the siting of BESS in Kent?	As a non-statutory consultee on BESS developments, KFRS has not issued any formal, standalone advice specific to siting BESS in Kent and Medway. Instead, we use the NFCC Grid-Scale Battery Energy Storage System (BESS) Guidance to inform our responses during the planning consultation process. This nationally recognised guidance provides a risk-based framework for assessing the fire safety, environmental, and operational considerations. It helps us make consistent, evidence-based decisions for all proposed sites in our area.
Interagency Training and Planning Are your crews receiving specialist training in battery fire response, and do you believe the current national guidance is adequate?	Yes, our crews are receiving specialist training in battery fire response as part of our ongoing preparedness for emerging risks like energy storage systems. KFRS has been actively involved in shaping national best practices in this area. For example, our Director of Response and Resilience, Matt Deadman, supported the development of the NFCC Grid-Scale Battery Energy Storage System Guidance in his role as the Alternative Fuels and Energy Lead Officer for the NFCC. We believe the current national guidance is both robust and fit for purpose, offering a comprehensive, risk-based framework for planning, operational response, and multi-agency coordination. It continues to evolve with industry developments, and we remain committed to ensuring our crews are trained and equipped according to this guidance.

Question	Response
Strategic View Would KFRS support a precautionary policy that resists siting BESS developments in remote or rural areas until faster response capabilities, water supply, and containment measures are guaranteed?	KFRS supports a risk-based approach to siting BESS developments. We would not take a position of resistance to siting BESS in rural areas as a standard approach, as it is possible to safely site BESS in the right rural locations. Our approach is focused on the unique nature of each site, and we will provide comments under planning with those unique factors in mind. If we feel that arrangements for minimising risk and facilitating an effective response are not suitable, then we will raise such concerns and request suitable mitigations are put in place or advise that the site location is unsuitable.
Strategic View What further legislative or regulatory changes would you like to see to ensure public and responder safety around these installations?	In addition to the current arrangements under planning, we would also like to see: The creation of an overarching framework and UK standard for the safe deployment and operation of BESS. This should be supported by technical standards and include clear guidance on the design and suitable locations for BESS, taking into account potential impacts of BESS on Critical National Infrastructure, any sensitive environmental receptors, local communities, and the need to ensure effective FRS preplanning and operational response in the event of a fire. BESS included in the Environmental Permitting Regulations 2016 at the earliest opportunity. FRS concerns and advice taken into account and responded to when they are engaged about fire safety risks in BESS planning applications. There is currently no statutory requirement for developers to demonstrate how they have addressed FRS comments. We would like to see this addressed.