



CARE Suffolk

Community Alliance for a Rural Environment

www.caresuffolk.org

Dear Ms. Curtis,

Ref: DC/21/05468 Full Planning Application - Construction and operation of a 100MW Battery Energy Storage System, and related infrastructure with associated access, landscaping and drainage. Land to the South of Bullen Lane Bramford, Suffolk, IP8 4JD.

I am writing to you on behalf of CARE Suffolk regarding the above Planning Application in response to the re-consultation phase.

I wish firstly to express my recognition and thanks to Cambridge Power for their continued effort to visit the Bramford Parish Council meetings to address concerns. This is refreshing to see and hope their dedication to reassure the public regarding safety will now extend into dedication to protect the public and our emergency services.

We are pleased to see some updates to the safety features of the site, however we wish to submit our continued **OBJECTION** to the above application as we believe, especially considering the recent publication of the Significant Incident Report and Internal Investigation Report by Merseyside Fire and Rescue Services (MFRS), that the safety features are insufficient.

We ask Mid Suffolk District Council **REFUSE** application DC/21/05468.

Yours Sincerely,



Samantha Main
Chair

CARE Suffolk Report for DC/21/05468

Full Planning Application - Construction and operation of a 100MW Battery Energy Storage System, and related infrastructure with associated access, landscaping and drainage.

Land To The South Of Bullen Lane Bramford Suffolk IP8 4JD

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1. EIA Development

1.1 We recognise that since our previous response the applicant has submitted the development for EIA Screening as it fell under a Schedule 2 development, and that the LPA concluded that it was not an EIA development.

2. Noise

2.1 We have reviewed the updated Noise Impact Assessment and note the updated measurements used for the BESS.

2.2 However, our previous concern regarding the measured noise levels being unreliable remains.

2.3 Under regulations BS4142:2014+A1:2019, the measured noise levels must be reliable. This is where the noise report remains fundamentally flawed, as follows:

- a) Another BESS (DC/19/03008 and yellow area on Image 1 below) was granted planning permission for the field immediately west of the site, but it is not yet built. Because it is not yet built the noise levels from this development are not in the measured recordings. But they have also not been taken into account when forecasting the new noise levels.
- b) A gas generation system (DC/19/00046 and green area on Image 1 below) is also approved for a field opposite Bullen Lane, but is only partially constructed and as such not yet operating. Because it is not yet operating the noise levels from this development are not in the measured recordings. But they have also not been taken into account when forecasting the new noise levels.

Image 1



2.4 The measured readings used as the basis for the noise report are therefore not reliable as a baseline.

2.5 Based on the unreliability of the measured readings it would seem that the noise report is not fit for purpose and the conclusion that noise levels would meet the guidelines cannot be accurately arrived at.

3. Agricultural Land

3.1 Our previous objections on this point remain.

4. Transport

4.1 Our previous concerns remain unanswered. The site access provides a tight entry for 12m rigid vehicles, yet no information is forthcoming regarding the delivery of containers that are 12m long before being added to the back of transport, nor the size and weight of the cranes needed.

5. Heritage

5.1 Our previous concerns regarding heritage remain.

6. Grid Connection Rights

6.1 We have recently seen evidence of a secured grid connection and so our concern on this has been resolved.

7. Battery Risk

- 7.1 Battery Safety, or more aptly lack of, remains a significant concern of CARE Suffolk. The recent publications of the Significant Incident Report by Merseryside Fire and Rescue Services (MFRS) only serves to reinforce the concerns we wrote about in our previous response to this application.
- 7.2 At the Bramford Parish Council meeting on 21st March 2022 Cambridge Power representatives stated that there is much more emphasis on safety measures nowadays in relation to fires at BESS sites.
- 7.3 However, there remains no standard UK safety regulations on large-scale BESS such as this proposal. In the absence of this, it would be pertinent to refer to the experience and recommendations of those who have dealt with an incident on such a site, like that by MFRS.
- 7.4 Paragraph 97(a) of the NPPF 2021 supports this by stating *“Planning policies and decisions should promote public safety and take into account wider security and defence requirements by: (a) anticipating and addressing possible malicious threats and natural hazards, especially in locations where large numbers of people are expected to congregate. Policies for relevant areas (such as town centre and regeneration frameworks), and the layout and design of developments, should be informed by the most up-to-date information available from the police and other agencies about the nature of potential threats and their implications. This includes appropriate and proportionate steps that can be taken to reduce vulnerability, increase resilience and ensure public safety and security;”* (our emphasis).
- 7.5 In September 2020 a BESS fire and explosion occurred in Merseyside, and MFRS were first responders on site. Whilst we understand an initial report of findings was distributed to other Fire Departments around the country, the report for that significant incident was only published to the public in March 2022. At the time of the Bramford Parish Council meeting neither of the Cambridge Power representatives had read that report. The report highlights a number of recommendations and lessons learned.
- 7.6 Many of the measures recommended would be appropriate to be included in a Risk Management Strategy, developed with the Suffolk Fire and Rescue Service (SFRS) that could be secured as part of any condition, and those do not need mention here.
- 7.7 However, there are four aspects of the significant incident report that stand out in particular. These are: the need and recognition of hazardous materials on site; the recommendation to install blast walls; upwind access; and on site or nearby mains water and hydrant provision.

Hazardous Materials on Site

- 7.8 The current application form declares that there are no hazardous materials proposed on site. However, evidence from the MFRS IIT report suggests otherwise.
- 7.9 *“After an external examination of the container and reviewing data from CCTV footage, there is evidence of a deflagration due to the ignition of gases that had been given off from the lithium battery cells. This would have been a mix of toxic and explosive fumes. When LiBs (Lithium ion Batteries) go into thermal runaway they generate a dense, white vapour containing hydrogen, hydrogen cyanide, hydrogen chloride, a large range of flammable/explosive hydrocarbons, carbon monoxide, carbon dioxide and droplets of the organic solvents used in the cells”¹*
- 7.10 *“The explosion was a result of a failure within Battery Zone 3-Rack 7 Module 6 (BZ3-R7M6) which led to a thermal runaway, which, in turn produced gases within the container culminating in a deflagration.”²*

¹ MFRS Significant Incident Report page 25

² IIT Report Final p 1.2

- 7.11 The consistent expansion of the affected container at Merseyside clearly suggests that the chemical reactions as part of the battery failure caused the container to fill with gases. A mix of toxic and flammable gases. The ignition of these gases caused the explosion and subsequent fire.
- 7.12 The Planning (Hazardous Substances) Regulations 2015 Schedule 1 Part 3 includes the listing *"Where it is reasonable to foresee that a substance falling within Part 1 or Part 2 ("HS") may be generated during loss of control of the processes, including storage activities in any installation within an establishment, any substance which is used in that process ("S")."* Referring back to Part 1 of the same Schedule, it lists *"P2 FLAMMABLE GASES Flammable gases, Category 1 or 2"*.
- 7.13 The MFRS IIT Report paragraph 8.6.3 states *"Based on my investigations, the evidence is consistent with the initial cell having suffered an exothermic reaction which then lead to a thermal runaway which resulted in flammable and toxic vapours being produced."*
- 7.14 The same paragraph states *"The internal CCTV shows the vapours (vented gases-droplets of organic solvent from the cells building up at low level filling the container as to started to reach their flammable limits, before coming into contact with an ignition source, the exact ignition source within the container is not known. The vapours ignited causing a deflagration which blew off both doors and caused the HVACs to come detached from the roof as well as deforming the container."*
- 7.15 It is widely understood that battery failure is a loss of control of the normal process. Sadly a subsequent product of that failure is a mix of gases including flammable gases as evidenced at the Merseyside incident, where *"Due to the nature of the contents, the incident was declared as a fire containing hazardous materials and a Hazardous Materials Environmental Protection Officer (HMEPO) was requested."*³
- 7.16 We therefore contend that there would be hazardous substances on site as defined under Schedule 3 of The Planning (Hazardous Substances) Regulations 2015 and this must be taken into consideration by the relevant bodies for consulting on this application.

Blast Walls

- 7.17 A blast wall is simply a wall of concrete between containers or racks to absorb heat and explosive force in order to protect adjacent units. An example is included in the MFRS Significant Incident Report which is included as part of this submission as an Appendix.
- 7.18 We understand the difference of the Merseyside site being containerised compared to this proposal of battery cabinets, and how that difference potentially contributed to the "significant blast event."⁴
- 7.19 One of the heavy duty doors have been blown off its hinges and thrown 23m away.
- 7.20 However, instead of blast walls in between each rack, we ask that a blast wall be placed around three of the battery racks (see Image 2 below). If the Council were minded to approve the application, the inclusion of this feature would act as an extra safety barrier to users of the adjacent PRow.
- 7.21 The PRow is approximately 30m away from the nearest proposed battery rack and the lighter components of this have the potential to be thrown further than the door was in Merseyside.
- 7.22 The proposed trees would likely fill this role in time, but they will take many years to grow before they can.

³ MFRS Significant Incident Report page 6

⁴ MFRS Significant Incident Report page 3

Image 2 – proposed blast wall shown in purple to protect users of PRow.



Upwind Access

- 7.23 Another measure that was of importance to the Merseyside incident was access upwind of the development, not only because of the smoke plume, but also due to the presence of toxic chemicals which are unique to lithium-ion battery storage such as this proposal.
- 7.24 The concern of these chemicals to the public has been mentioned by numerous residents in their representations, but the hazard to the firefighters and other potential first responders must also not be ignored.
- 7.25 We understand SFRS have requested upwind access, but the applicant states this is not possible.⁵
- 7.26 In the proposed location the prevailing wind is from a southerly direction, with occasional winds from the north. The only access proposed is from the north, which is downwind and thus has the potential to harm the very people trying to deal with any significant incident, and subsequently protect nearby residents from the same chemicals.
- 7.27 The applicant comments that other sites in the area, such as National Grid and Scottish Power, are here without this requirement. However, it must be stated that this application is not being considered for determination at the same time as those were. So any claims of “precedent” cannot overrule the duty to properly assess the proposed development with today’s known safety risks and recommendations.
- 7.28 How can a significant incident be dealt with if our emergency responders are unable to safely gain access to the site?

Mains Water Provision

- 7.29 The applicant continues to heavily rely on preventative measures only. Our previous concerns regarding the reliance on the proposed gas suppression have not been ameliorated by the new documentation.

⁵ Applicant response to SFRS

- 7.30 In the Merseyside incident all preventative measures failed. The early warning alarms failed. The operational cooling system failed. And the aerosol fire suppression system failed (at least until it was too late to be of any use). The pace at which the incident progressed was very rapid.
- 7.31 Reliance on preventative measures is what led to the significant incident in Merseyside. Defensive safety measures can no longer be overlooked.
- 7.32 It is abundantly clear from the MFRS reports that the pivotal measure used in dealing with the significant incident was the nearby access to mains water and water hydrants. The MFRS started with 2 pumps as per standard protocol, however a request to “make pumps 5”⁶ was made early on.
- 7.33 However, even this was insufficient. *“As near-by hydrant fed water supplies were inadequate to meet the needs of the ongoing firefighting, a High Volume Pump (HVP) was requested via National Resilience Fire Control for the purposes of augmenting water supplies, this was mobilised at 02:19 hours.”*⁷
- 7.34 *“Defensive firefighting continued on site for a total of 59 hours...”*⁸
- 7.35 *“The fire was brought under control by 06:30 hours; however, the energy dissipated by the fire and continual recycling of heat from the Li-Ion store was to prove an issue during the latter stages of the incident as it continued to burn. This incident type required a continual and prolonged cycle of cooling and temperature monitoring.”*⁹
- 7.36 Whilst we do not know if the nearby access to mains water and water hydrants was a determining factor in the choice of location for the Merseyside BESS, it is clear from the reports that this access was fundamental to a positive outcome to the incident. *“The tactic of applying water is correct and necessary to resolve the incident type.”*¹⁰
- 7.37 There are no mains water connections or water hydrants on or near the proposed site here. Nor any proposed as part of the development.
- 7.38 We wish to reiterate the words of the Deputy Fire Safety Commissioner of the London Fire Brigade on 2nd March 2021 and the Energy Storage Summit 2021:

*“If we know some things could fail catastrophically or it could have those effects, it’s going to be a difficult day if one of us is standing there in court saying we knew about it but we didn’t do anything.”*¹¹

Conclusion

- 7.39 How long would it take to deal with an incident like the Merseyside event at the proposed location with zero water provision and a single likely downwind access route?
- 7.40 We know about the potential. We have the opportunity to prevent it AND put in defensive measures to reduce the catastrophic potential should the worst happen.
- 7.41 At the Bramford Parish Council meeting on 21st March 2022 the representatives of Cambridge Power admitted that they had not yet read either of the reports from MFRS. Though we recognise they had not long been published.
- 7.42 We hope that they will have made reading them their priority from that meeting, and that upon review if upwind access and onsite mains water provision is not possible, as well as containment for the contaminated water since the site lies atop a drinking water protection zone and feeds the River Gipping, the applicant realise that perhaps this is an unsuitable location choice for a BESS after all.
- 7.43 Should the applicant not realise this, we ask Mid Suffolk District Council to **REFUSE** planning permission.

⁶ MFRS Significant Incident Report page 5

⁷ MFRS Significant Incident Report page 7

⁸ MFRS Significant Incident Report page 8

⁹ MFRS Significant Incident Report page 14

¹⁰ MFRS Significant Incident Report page 15

¹¹ <https://www.energy-storage.news/news/retrofitting-could-be-essential-for-battery-storage-system-safety>