



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 a number of requests and concerns from local residents and members of our community group.

We wish to submit our **OBJECTION** to the above application for the reasons of:

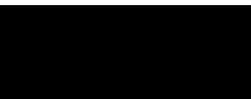
- Presence of significant likely effects should make it an EIA Development
- Poor battery safety, and subsequent risk to public health
- Significant noise impact
- Use of BMV agricultural land

The attached report explains in more detail the reasoning and conclusions of the above objections (Chapters 1 – 4).

The report also details a few other concerns that were raised and some areas of common ground (Chapter 5). These concerns could reasonably be overcome if additional information were supplied by the applicant.

However, we do not feel the objections in Chapters 1 - 4 can be overcome, and that the Council should **REFUSE** the application.

Yours Sincerely,



Samantha Main
Chair, CARE Suffolk

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 are concerned that the development was not submitted to the LPA for EIA Screening, and that this is because the clients assessment determined there would no significant adverse impacts from the development. They do not appear to have sought the opinion of the Council who would be more aware of local issues and impacts, and therefore the significance of them.
- 1.2 Whilst we are aware that other BESS approved in the area in recent years (DC/19/01601, DC/19/03008) were not considered as EIA development, the proposed development is not being assessed in 2019. So any claims of 'precedent' can not overrule the duty to properly assess the proposed development in today's circumstances.
- 1.3 Under p 8.3 of the Design and Access Statement:
"Consideration of Likely Effects
Characteristics of the Proposed Development
The Regulations require that the characteristics of the Proposed Development must be considered with particular regard to:
 - b) cumulation with other existing development and/or approved development;*
 - e) pollution and nuisances;*
 - f) the risk of major accidents and/or disasters relevant to the development concerned, including those caused by climate change, in accordance with scientific knowledge; and*
 - g) the risks to human health (for example, due to water contamination or air pollution)"*
- 1.4 There are a significant number of existing, approved, and proposed industrial developments in what is supposed to be a rural agricultural area. The applicant has made no attempt to assess the cumulative effect of their development in combination with these developments, and so cannot rule out a significant cumulative impact.
- 1.5 The applicant's noise assessment is flawed and as such we believe there is potential for significant noise pollution, as discussed in the Noise chapter of this report.
- 1.6 There are significant concerns regarding the safety of lithium-ion type batteries, based on real world events and scientific knowledge, and the devastating impact this would have on pollution and human health. This is explained in the Battery Risk chapter of this report, and we do not agree with the applicant's methodology to dismiss this and arrive at their conclusion of no significant impact.
- 1.7 Other recent proposals for energy generation in the area, which include battery storage, have been screened by the Council to be EIA Development (DC/20/05895, DC/21/00060, DC/21/04711, and DC/21/02958).
- 1.8 We do not agree with the applicant's conclusion that there are no potential significant impacts to exclude it from EIA Screening, and as such this should be reviewed by the Council.

2. Battery Risk

2.1 There are many concerns relating to the safety of battery storage systems, such as:

- a) Risk of fire & explosion
- b) Risk of toxic gas production from lithium-ion batteries
- c) Risk of contaminated water run-off into the environment and the local drinking water supply
- d) Risk to operations at nearby Bramford Substation

2.2 In terms of safety, the applicant appears to rely on an entirely irrelevant assessment. The Battery Safety Note states:

"It should also be noted that the issue of safety risks associated with BESS facilities was examined extensively as part of the Cleve Hill Solar Park DCO Examination in 2019 with the Examiners concluding that: "Overall, we are confident that risk will be managed and mitigated through the safeguards and checks during final design, installation and thereafter in operation."

"Having thoroughly examined public concerns about the safety of the battery energy storage system, we are satisfied that, by the close of the Examination, the Applicant has provided sound and enforceable basis of managing and mitigating safety risks and there is no compelling evidence to the contrary." These conclusions were subsequently endorsed by the Secretary of State for Business, Energy and Industrial Strategy (BEIS) in issuing the DCO in May 2020."

2.3 The batteries being used here are lithium-ion based, the same as the Cleve Hill Solar Park. However, this is where the similarities end. The specific chemistry, supplier, on-site setup, and suppression systems used are not the same. And so reliance on the DCO decision that determined the batteries at Cleve Hill are safe to an acceptable level, cannot be automatically transferred to the batteries in this development. This is like teaching a child that a domestic tabby is a cat and is safe, and then saying that a tiger is a cat and is therefore also safe.

Over Reliance on Fire Suppression

2.4 The applicant appears to rely on a fire suppression system within the container, including a video showing suppression of a fire in 3 single cell batteries.

2.5 The onsite fire suppression system in the Arizona BESS fire and explosion in 2019 *"worked as designed, but it was inadequate to prevent or stop the cascading thermal runaway."*¹

2.6 The investigator for the fire and explosion event at a Liverpool BESS fire in September 2020 stated *"Although there was a fire suppression system in the container, the speed of propagation indicated that this hadn't activated. It was thought that activation would have had little or no effect on the resultant fire/explosion."*²

2.7 Further, a study by Diaz et al (2020)³ noted that the majority of fire safety research has considered only single cells, and there is much less safety information relating to larger scale fires involving pack, modules, or large numbers of cells. The applicant themselves notes that this test does not consider a full battery cabinet.⁴

Risk of Toxic Gases

2.8 It is well established from catastrophic battery fire events that fire and explosion are a usual feature and that large quantities of toxic smoke and gas (namely hydrogen fluoride) are emitted into the air. Breathing this gas can damage lung tissue and cause swelling and fluid accumulation in the lungs

¹ Hazard Assessment of Battery Energy Storage Systems By Ian Lines, Atkins Ltd, which was commissioned by HSENI

² <https://committees.parliament.uk/writtenevidence/23583/html/>

³ Diaz, L.B., He, X., Hu, Z., Restuccia, F., Marinescu, M., Barreras, J.V., Patel, Y., Offer, G. and Rein, G., 'Review – Meta-Review of Fire Safety of Lithium-Ion Batteries: Industry Challenges and Research Contributions', Journal of The Electrochemical Society, Vol. 167, 2020. <https://iopscience.iop.org/article/10.1149/1945-7111/aba8b9/pdf>

⁴ Battery Safety Note p.5

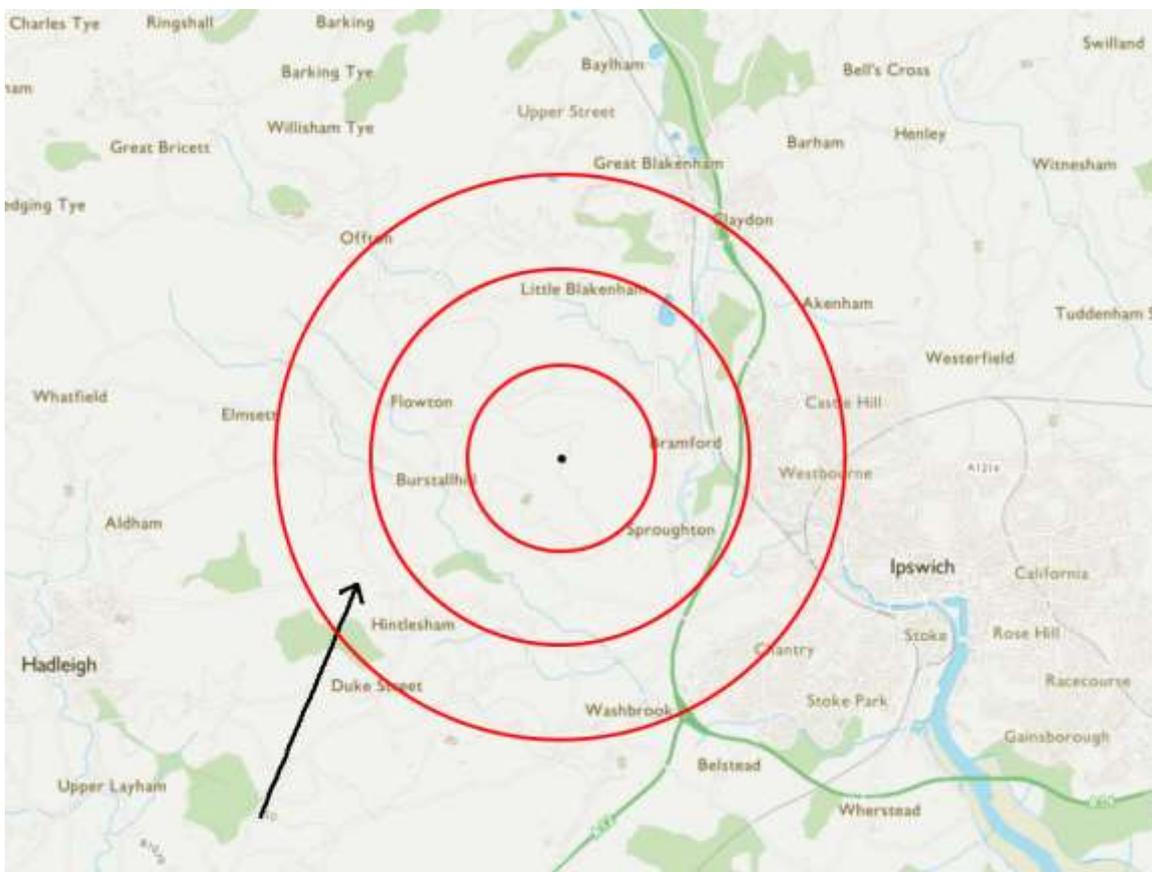
(pulmonary oedema). Skin contact with hydrogen fluoride may cause severe burns that develop after several hours and form skin ulcers.⁵

2.9 A published paper by Larsson, Andersson, Blomqvist and Mellander (2017)⁶ provides a useful study of toxic fluoride emissions from lithium-ion battery fires, concluding that *“the emission of toxic gases can be a larger threat than the heat”* and *“the release of hydrogen fluoride from a Li-ion battery fire can therefore be a severe risk”*.

2.10 This was reinforced more recently on 30th July 2021 by Fire Officers in Australia when a fire broke out in a new battery storage unit that was still being built.⁷

2.11 A potential dispersal zone of these gases is shown in Diagram 1 below. Red circles represent the area based on 10mph, 20mph, and 30mph winds. The arrow shows the prevailing wind direction. The final dispersion zone and direction would further be affected by relative humidity, temperature, atmospheric stability, and the mixing height.

Diagram 1: Potential Dispersal Zone



Risk of Groundwater Contamination

2.12 Thermal runaway, which is the primary concern for failure in a BESS, needs huge amounts of water to suppress it, but there is no water supply on, nearby, or proposed to be connected to the site.

2.13 An additional point to note from the Liverpool BESS report was that the fire water was collected in tanks on site.⁸ This allowed the contaminated water to be disposed of correctly. No such tanks have been included in this application.

⁵ <https://emergency.cdc.gov/agent/hydrofluoricacid/basics/facts.asp>

⁶ Larsson, F., Andersson, P., Blomqvist P. and Mellander, B, 'Toxic Fluoride Emissions from Lithium-Ion Battery Fires', Nature, Scientific Reports, Volume 7, Article 10018, 20 August 2017. <https://www.nature.com/articles/s41598-017-09784-z.pdf>

⁷ <https://www.abc.net.au/news/2021-07-30/tesla-battery-fire-moorabool-geelong/100337488>

⁸ <https://committees.parliament.uk/writtenevidence/23583/html/>

2.14 The large quantities of fire-water, which will be contaminated with heavy metals and other chemical residues, need to be prevented from release into the environment by collection on site followed by licensed removal. They should not be allowed into the proposed detention basin for discharge into the local ditch system, which supplies a local drinking water aquifer. NPPF paragraphs 174a & e and 185 are relevant here.

Risk to Major Infrastructure

- 2.15 We are also surprised that the security and safety of Bramford Substation is not of greater concern.
- 2.16 When there were some previous threats several years ago, the compound for the UKPN control centre in Ipswich was fortified to the extent that incoming vehicles were locked into an entrance system while they were checked. This procedure is still in place. Yet at Bramford Substation you can get surprisingly close to switchgear on the south side.
- 2.17 On 15th September 2021⁹ a fire broke out near a major interconnector between the UK and France, that supplies up to 2GW of electricity to the UK. Bramford Substation transfers up to 20% of the entire UK's electricity consumption¹⁰, making it a major infrastructure feature in the ability of the UK to basically function. If a fire were to break out near to the Bramford Substation this could have catastrophic consequences for the sustainability of the UK's electricity supply. NPPF paragraph 97 is relevant here.

Conclusion

- 2.18 We highlight for you the industry's Energy Storage Summit 2021 held 2nd March 2021 which reports on fire safety issues at BESS, including a call to retrofit newly constructed BESSs:
"Re-examining and retrofitting older, potentially hazardous battery storage systems should be an "essential" part of preventing harm, according to a panel of industry leaders."
- 2.19 At this conference, the Deputy Fire Safety Commissioner of the London Fire Brigade, Charlie Pugsley, asked why battery storage owners would "not want to apply a retrospective look" to their sites if they believe the older technology could carry a safety risk. He was very clear when he stated:
"If you've got foreseeable events or got systems with the potential to either harm people or harm the environment, why would you not want to apply a retrospective look to it, to actually see that it's safe, or anything can be done."
- 2.20 Energy Storage News reported that he went on to state that the London Fire Brigade has spent the past few years "reflecting on what was foreseeable" since the tragic Grenfell Tower fire at a high-rise housing unit in 2017, which was exacerbated by the building's flammable cladding:
"If we know some things could fail catastrophically or it could have those effects," he said, "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
- 2.21 While aimed at buildings, the principle behind the new Building Safety Bill, is that there was a flaw in the old system, with appalling results. We acknowledge that there is little in the planning system specifically regarding large-scale BESS safety, and the applicant states several times that planning legislation for BESS is far behind the technology and implementation of it. A flaw in the planning system, which could have appalling results.
- 2.22 The applicant must demonstrate that the particular technology used in the proposed development is safe to an acceptable level. They have not done so, and based on the evidence available any incident at this location would be appalling.

⁹ <https://www.bbc.co.uk/news/uk-england-kent-58570893>

¹⁰ Equinor OTNR Virtual Information Session Recording <https://vimeo.com/593280649>

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

3. Noise

- 3.1 The noise from the development was assessed using BS4142:2014+A1:2019 guidelines, and uses measured readings taken between 13:00 Thursday 18th February to 08:00 Tuesday 23rd February 2021 (p.3.1.1). The predicted or specific noise levels from the development (red area on Image 1 below) were then calculated and compared with the typical background noise level at Bullen Hall Farmhouse (the nearest residential receptor and blue area on Image 1 below).
- 3.2 At paragraph 2.2.10 the applicant states “this Assessment will ensure that the predicted rating level (specific sound level including any character corrections) does not exceed 30dB in bedrooms.”
- 3.3 Under regulations BS4142:2014+A1:2019, the measured noise levels must be reliable. This is where the noise report is 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



- 3.4 The measured readings used as the basis for the noise report are therefore not reliable as a baseline.
- 3.5 Furthermore, the settings used to calculate the specific sound levels are not in alignment with the proposed design:
- a) It seems that no noise level data has been supplied for the 28 x battery racks on site. It is not clear if these racks do or do not produce sound. This needs to be clarified, and if so, need to be considered in the assessment.

b) P 4.1.3 states the:

- *"132kv Transformer has been inputted as a point source at 6m above ground level with provided power level of 78dB Lw,A , this assumes that the sound source is omitting from the top of the transformer"* however the transformer elevations show a height of 6.5m.
- *"fourteen 33kv transformers have been inputted as point sources at a height of 2.5m above ground level to account for a worst-case scenario whereby the main noise source is generated from the top of the plant with a power level of 48dB Lw,A"* however the transformer elevations show a height of 6.5m.

3.6 Also it is confusing that at paragraph 4.1.4 the applicant states *"Figures 1 and 2 in Appendix 4 details the grid noise map during the daytime and night-time periods respectively. Analysis of the grid noise map indicates that the specific noise level at the receptor is as follows: R1 – Bullen Farm: 30.0dB LAeq,1hr (Daytime) and 35.7dB LAeq,15mins (Night-time);"* but these are not the figures they carry forward to Table 6 which suddenly becomes 25.7 and 27.1 respectively.

3.7 Based on the unreliability of the measured readings, the flaws in the noise sources outlined above, and the unexplained change in readings described above, it would seem that the noise report is not fit for purpose and does not confirm that the noise levels meet the guidelines.

3.8 Considering the cumulative impact of noise and development in the area still to be added, it seems likely that this new proposal would cause night time noise levels at Bullen Hall Farmhouse (blue area on Image 1 above) to exceed the 30dB threshold for night time bedroom noise.

3.9 Furthermore, we note that the noise maps demonstrate a significant adverse impact of noise levels of the PRow footpath Bramford 43 to the east of the site, as well as nearby PRow footpaths Bramford 44 and Bramford 47, and Bramford Bridleway 1. Footpaths are well-used in the area, and it is commonly held that a network of enjoyable footpaths in the countryside are beneficial to the health and wellbeing of residents and visitors alike. A pleasant and enjoyable PRow network is supported by many policies in the NPPF. Turning the footpath into a significantly noisy area is likely to deter users, and would be in conflict with several policies in the NPPF that typically serve to 'protect and enhance', and the NPPF overarching social objective – *"to support strong, vibrant and healthy communities,.. and by fostering well-designed, beautiful and safe places, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being;"*¹².

4. Agricultural Land

- 4.1 The land is currently in agricultural use, and is listed by Natural England as grade 2 land. Grade 2 land is also known as Best and Most Versatile Land, and is typically afforded greater protection from development compared to lower grades of 3b, 4, and 5, such as within policy CL11 of the Local Plan 1998 to encourage the conservation of the best and most versatile agricultural land, namely Grades 1, 2 and 3a.
- 4.2 Based entirely on the Natural England ALC map for East Anglia the applicant concludes that all land in the vicinity of the substation is grade 2 land and that *“There is therefore no land of a lower grade in the vicinity of the sub-station.”*
- 4.3 Based on other recent applications in the area (DC/20/05895, DC/21/00060, DC/21/04711, and DC/21/02958) we know this is not accurate. Whilst the majority of it is indeed BMV land, it is not all BMV land.
- 4.4 As such, the proposed development does not comply with the aims of policy CL11.

5. Additional Concerns and Common Ground

5.1. Transport

- 5.1.1 We note there is no easy turning area for the emergency services, particularly in the event of an incident.
- 5.1.2 We note that the swept path analysis shows access for a 12m rigid vehicle. And this looks tight. The client storage room is 12m in length by itself, so will need a larger articulated HGV. These are around 16.5m. How will the client storage rooms arrive safely on site? Policy T10 of the Local Plan 1998 sets out that the Council will give consideration to the provision of **safe access** [our emphasis]; the suitability of existing roads; the amount and type of traffic generated by the development; and the provision of parking and turning areas. We do not contend that Bullen Lane road is unsuitable for HGV traffic nor the amount proposed for the development, but the angle of the proposed site access does not appear to be safe for **all** the traffic that will need to use it and this needs to be reassessed prior to any decision being made.
- 5.1.3 There is nothing to state the size or weight of the three cranes needed, nor the vehicles that will deliver them. Confirmation should be sought that these will not be exceptional loads, and that there is safe access to the site for the vehicles delivering them in line with our concern above about HGVs.

5.2. Heritage

- 5.2.1 With the landscaping mitigation proposed, we do not consider the site would have a significant adverse impact on any nearby listed heritage assets or their settings, namely the Grade 2 listed Bullen Hall Farmhouse.
- 5.2.2 However, there are concerns regarding archaeological impact and the findings of significant archaeological potential on the site. Without conducting an archaeological investigation prior to a decision, the Council cannot determine if the development would have a significant impact on archaeology. In such cases there is a risk that if planning permission is granted for a proposal lacking in detail, significant adverse environmental impacts may only be identified at the discharge of conditions stage when the authority is powerless to go back on the principle of the development already approved, and so cannot prevent it from taking place. A decision to defer the evaluation of a significant adverse effect and any mitigation thereof to a later stage may therefore be unlawful (*R v Rochdale Metropolitan Borough Council ex parte Tew* [2000] Env. L.R. 1, 28-31).
- 5.2.3 In the case of the permission for the neighbouring site (DC/19/03008) this does not preclude the Council from its duty to properly assess the impacts from the proposed development.

5.3. Landscape Character and Visual Impact

- 5.3.1 The site proposed will be industrial in nature, and therefore in conflict with the Ancient Plateau Claylands LCT of the area. In the first few years this would have an adverse impact on the landscape character and visual impact. However, with the landscaping mitigation proposed and the proximity to already wooded areas, we do not consider this would be significant, and this would reduce in time as the planting matures.
- 5.3.2 The addition of hedging and trees along the PRow Bramford Footpath 43 does reduce the visual amenity appreciated by users in that the openness of the countryside would be lost. Views are currently available in both directions along part of this footpath. However, as the hedging is only on one side of the footpath and does not create a sense of enclosure on both sides, and the wider views to the south east will remain open, we do not consider this to be a significant impact.

5.4. Ecology

- 5.4.1 In general we have no concerns relating to the ecology plan of the site, and despite the lack of a Biodiversity Net Gain Matrix to demonstrate a measurable net gain, we agree that there is likely to be a net gain in habitat due to the planting proposed. If the Council were minded to approve the application, we ask that a condition be imposed that secures the planting proposed with management for the entire duration of the scheme.
- 5.4.2 However, we do not believe the enhancement in 6.12 to *“Provide connectivity around the scheme boundary where currently there is open arable farmland”* is relevant since the planting around the boundary does not connect to anything.
- 5.4.3 We do have two concerns which we believe the Council should seek clarification on prior to determination if they were minded to approve the application:
- a) The applicant states the planting would be retained at the end of the 40 year period. If this were to happen the land would not be able to return to agricultural use as there would be scrub, hedges, and trees in the way. If it is not removed, then surely the applicant should also be seeking a change of land use.
 - b) The high noise levels from equipment proposed is likely to deter wildlife from using the new habitat. Policy CL08 of the Local Plan 1998 which protects habitats and biodiversity from development which might give rise to its loss or harm may apply here. The Council should seek further information from the applicant as to how this noise is to likely cause an adverse impact for wildlife in the area.

5.5. Grid Connection Rights

- 5.5.1 We ask that the Council obtain evidence to satisfy itself that the applicant has indeed secured a grid connection and the date of connection, since there appears to be no public way of confirming this claim and no evidence has been provided in the application.

5.6. Miscellaneous

- 5.6.1 The Industrial Land Use Map indicates that there are no underground electricity cables nor gas pipelines in the area. This is incorrect and should be updated accordingly. There are underground electricity cables for the EA1 and EA3 developments, and there are at least two high pressure gas mains with Cadent, both within the scope of the map displayed.