

7000 Acres

Summary of Oral Submissions – ISH 3 5 December 2023

Cottam Solar Project

Deadline 3, 19th December 2023

Battery Energy Storage System (BESS) Safety Concerns

7000Acres has major concerns over siting a 500MWh (uncapped) BESS in a rural location that is without access to substantial volumes of cooling water. Evidence from previous accidents, including to a BESS in Liverpool, shows that a BESS thermal runaway is a sustained event, usually lasting for many hours, and requires substantial volumes of water to cool the facility. The dDCO Work No 2 B and 3 B show modules closely spaced or joined. The National Fire Chief Council recommends a distance of 6m between battery modules <https://nfcc.org.uk/wp-content/uploads/2023/10/Grid-Scale-Battery-Energy-Storage-System-planning-Guidance-for-FRS.pdf> :

“Access between BESS units and unit spacing

*In the event of a fire involving a BESS unit, one of the primary tactics employed will be to prevent further unit to unit fire spread. Suitable access for firefighters to operate unimpeded between units will therefore be required. This should allow for the laying and movement of hose lines and, as such, access should be free of restrictions and obstacles. The presence of High Voltage DC Electrical Systems is a risk and their location should be identified. Exclusion zones should be identified. A standard minimum spacing between units of 6 metres is suggested 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.”***

As the Applicant has not provided any evidence, and is applying a Rochdale Envelope to the scheme, a reasonable worst case assessment (Advice Notice Nine) should be applied, and so the spacing distance of 6m must be applied.

At time 01:42:24:16 the Applicants battery specialist (Mr Gregory) conceded that he had not been involved in the design of the BESS (shown in Work No 2B and 3B) and that it was an indicative plan.

7000Acres believes the Applicant has not addressed adequately the hazards from the release of poisonous and explosive gasses during a BESS thermal runaway. The Applicant’s Environmental

Statement Addendum: Air Quality Impact Assessment of Battery Energy Storage System (BESS) Fire Revision A, November 2023, Doc Ref EX2/C8.4.17.2_A paragraph 6.4 applies a “worse case” of a BESS fire lasting for 2 hours. The 7000Acres Deadline 1 submission, Battery Energy Storage System Safety Concerns, identified numerous incidents where thermal runaways continued for many hours and sometimes days. A recent example is the 20MWh BESS thermal runaway in Liverpool. The Applicant’s “worse case” assessment of 2 hours is not supported by real world evidence.

Mr Gregory referenced various testing standards, including UL9540A. In the 7000Acres deadline 1 submission, page 6, we discuss testing standards. The report into the Victoria Big battery thermal runaway in 2021 identified that the UL9540A test standard was insufficient for real-world cases:

“An investigation conducted by Fisher Engineering, Inc. confirmed that untested wind speeds were a key contributing factor, reaching up to 36 miles per hour during the event compared to a maximum of 12 miles per hour under the UL 9540A testing environment. In an interview, ESV characterized this situation as a “near miss” when considering an event like this in the context of other times of the year with higher temperatures and stronger winds.”

The current BESS design does not appear to contain sufficient bunding and storage capacity for large volumes of polluted fire water. This requirement should be secured in the dDCO.

7000Acres retains its serious concerns over BESS safety. The Applicant has relied on future improvements in technology to mitigate safety but not provided any evidence. Therefore, in accordance with a Rochdale Envelope (Advice Notice Nine) the design should be based on a reasonable worse case, which is currently available technology. Furthermore, the Applicant has not considered adequately the impact of poisonous and explosive gasses on nearby residents.