**TO THE PLANNING INSPECTORATE**

**EN010170 GREENHILL SOLAR FARM**

**APPLICATION BY GREEN HILL SOLAR LTD for an Order Granting Development consent for the Green Hill Solar Project pursuant to The Planning Act 2008.**

**To the Examining Authority (ExA)**

**FIRST WRITTEN REPRESENTATION OF**

**PROFESSOR PETER JAMES DOBSON OBE, BSc, PhD, MA,**

**EMERITUS PROFESSOR OF OXFORD UNIVERSITY**

**[Lodged on behalf of Stop Green Hill Solar]**

1. I am Professor Peter James Dobson, OBE, BSc, PhD S'ton, MA Ox, Emeritus Professor of Oxford University. I have spent my whole adult life in the study and research into Physics and Engineering. I was appointed Professor in the Department of Engineering Science in the University of Oxford in 1996 and retired from that post in 2013. I have continued my interest in Engineering Sciences since then and continue to work in the field.

2. In 2024 my interest, experience and researches led me to prepare, jointly with a colleague [redacted], a paper/article entitled ***'Remarks on the Safety of Lithium-Ion Batteries for Large-Scale Battery Energy Storage Systems (BESS) in the UK'*** which was first published online on 21 December 2024 in the journal **Fire Technology** (Springer). (DOI: 10.1007/s10694-024-01682-x). This article was followed in February 2025 by a ***'Briefing Note: LITHIUM-ION BATTERY ENERGY STORAGE SYSTEMS (LiBS)'*** prepared by me with support from Professor (Emeritus) Peter Edwards, Professor (Emeritus) Allison Wade and Professor Sir David Melville CBE.

3. I draw attention to the first article because it was then, and still remains, the substance of my opinion on the present level of risk to the public "from fire, explosion and toxicity and the attendant clear dangers to employees at these facilities, to First-Responders, Firefighters and the local population as well as to their impact on the environment"; and this remains in my view fundamentally true to this day.

4. In the article I pointed out that “All the current generation of lithium-ion batteries always carry an inherent risk of so-called ‘thermal runaway’ which can result in fires, explosions and off/out gassing and toxic gases.” So far as I am aware, that too remains the position with Lithium-Ion batteries today. The thermal runaway and its consequences may occur from overcharging of a battery or a defect arising during the manufacture, transport or handling of the battery.

5. “Such fires and explosions cannot be handled like a ‘normal’ fire – they cannot be extinguished by smothering, for example, as they do not require oxygen to sustain them. As such these incidents often last for extended periods of time (days or weeks) and re-ignition is not uncommon.” [see ‘Briefing Note’].

6. And it was true then and remains true now that “Currently in the UK, …., there are no established standards and regulations concerning the safety standards of these large BESS installations …”. There is ‘guidance’ but no statutory obligations on the Applicant. DEFRA amongst others is currently calling for a consultation on this issue. The dangers are very clear and any granting of permission without such Standards and Regulations in place is irresponsible and will make the applicants and the bodies that grant approval open to litigation. Do the developers have Insurance for the eventuality of a BESS failure?

7. Against this background it is somewhat extraordinary that the Applicant’s overall proposal is shrouded in such vague terms and uncertainty in almost every aspect. The location of the BESS appears to be either in Grendon BESS or in Site C, Mears Ashby, …. or even in both. In neither case does it appear that the number of batteries on each site is identified: there is no description of the batteries or of their composition, there are no details of the container size or spacing. The specification of the actual energy to be stored is vague and seems to be “open”. It is puzzling and would be extraordinary if the details are not known to the Applicant: they would need to be known to any investor before it was prepared to invest (what appears to be up to one billion pounds) into an enterprise such as this. From an investment point of view there has to be attention to the energy storage capacity, defined in MWh, so that the viability of the whole project can be assessed. This is essential information. It is the amount of energy stored that is key – the more stored energy, the worse a potential lithium- ion battery failure could be. The absence of any discussion in the Application on this point is of concern, especially since the details must be known: why then, is there no detail in the OBSSMP?

8. The other reason why the MWh of the battery cells needs to be known is that the level of energy stored in the battery cells will determine whether Hazardous

Substances Consent [HSC] will be required: Hazardous Substance Consents for batteries of the scale implied in this application are most likely required for the transportation of LiBESS units and for large scale LiBESS installations. It is absolutely clear that Li-ion BESS of capacity 50 MWh, regardless of cell type, will almost inevitably carry an obligation to secure a Hazardous Substances Certificate [HSC] obligation: see the paper by Eur Ing Dr Edmund Fordham and Professor Sir David Melville entitled '***Hazardous Substances potentially generated in "loss of control" accidents in Li-ion Battery Energy Storage Systems (BESS)'***. Unless HSC has been applied for and granted, it would appear that an offence under s. 23 of the Planning (Hazardous Substances) Act 1990 has occurred. In this case, given the likely size and energy capacity of the LiBESS, the Applicant needs to apply for Hazardous Substances Consent (HSC) before transporting the Batteries to site and/or putting them into a BESS installation. NPS section 4.12 states that the developer should consult with the relevant authorities on this during the consenting stage, NOT post consent. There has, thus far, been no such consultation.

9. On the positive side, the Applicant has included details about such things as smoke plume modelling which many Applicants omit. They even identify the fact that little is known about the particulates in the smoke. This is a serious health issue. I would be worried if I lived in Wellingborough (population circa 80,000), because it looks like prevailing winds would affect that area. I refer also to an article by [redacted] ***'Gridscale Batteries and Fire Risk'*** which refers to various historic fires and evidence of the distances travelled by the smoke plume. The distances travelled in real life exceed the distances in the Applicant's model and lead to the real possibility that the population of Grendon would be gravely affected if an adverse event occurred to the BESS nearby.

10. However, of greater concern is that the BESS is close to the River Nene and to wetlands and SSSI, the Ramsar site and SPA sites downstream and noxious fumes could contaminate the surrounding farmlands and nesting sites of passing flocks. This is a very environmentally sensitive area and in the event of a fire, the firewater must be contained properly and disposed of safely after removal of contaminants. "Fluorinated compounds in the fumes and the firewater are toxic – even in small amounts – and have a long lifetime in the environment, which could last for decades." [See ***Briefing Note 2025 ibid***.] The Applicant does not seem to appreciate the gravity of such issues and the planning authority and the Government need to be aware of this.

11. The conclusion to which I came in 2024 and again in my Briefing Note in 2025 was that "there must now be a clear pause in allowing any BESS construction in the UK until the necessary, complete Health and Safety dangers, protocols and procedures

have been established by law. These requirements are indisputable if catastrophic, safety to life event in BESS facilities are to be minimised or ideally eliminated".

12. The point is that if there is not a clear pause, applicants will continue to allow themselves the luxury of choosing whatever batteries they wish to provide for any BESS and MWh of their choosing. Although I accept that there is always the chance that technological advance may occur to eliminate the 'defect' in BESS batteries in the years ahead, there is no guarantee that it will arrive in time to be installed in this or any other BESS and, even if it does, there is no requirement that the Applicant will install it in BESS Grendon or BESS C while there is no compulsory obligation upon it to do so.

Professor Peter Dobson
1 November 2025