**COMMENTS ON RESPONSES TO EXQ1 DEADLINE 2**

**BY ANNE HEARD (Interested Party Reference 20054475)**

**Q1.4.6 Use of Large-Scale Solar farms by birds and insects**

**Numerous IPs (too may to mention) have raised concerns regarding various species mistaking areas of solar panels for large expanses of water. For example, Metheringham Parish Council (RR-264) raised concern that the panels can kill insects and other small creatures as a result of solar radiation and that migrating wading birds have been known to crash into the panels. An IP(RR-417) also raised concerns that populations of bats, owls, red kites and other raptors would be deterred from using the land to hunt, that aquatic insects would lay their eggs on the panels rather than in the local watercourses. a) Provide a response to the specific concerns raised by IPs b) what research and evidence is available on the use of large-scale solar farms by the species that are present within the Order limits c) provide extracts of relevant evidence for consideration in the examination.**

1. With regard to the impact of bats the Applicant has referred to its response to Q1.4.5 (REP1-071). The Applicant states that "there is limited research with robust empirical long-term data available on the impact of solar farms on bats". The study by Tinsley *et al* (2023) is referred to by the Applicant as the most recent research (which cites the work of Szabadi *et al* 2023). The Applicant states that this study found that different bat species were affected differently by solar farms. However, this understates the findings that "solar PV sites had a significant, negative effect on six out of the eight bat species and species groups analysed". The conclusion was that:-

> "the implication of these findings for bat conservation are considerable and understanding why solar PV sites are negatively affecting bat species is crucial as has been done for other renewable energies (Frick *et al* 2020). Bats are known to be affected by anthropogenic noise (Jones 2008; Luo *et al* 2014, 2015; Schuab *et al* 2008), development associated with urbanised environments (Jung &Threlfall 2016), the presence of smooth surfaces (Greif & Siemers 2010; Greif *et al* 2017; Ingeme *et al* 2018) and habitat fragmentation (Meyer *et al* 2016) all of which can be associated with ground-mounted PV sites".

2. One of the authors of that report, [redacted], Professor of Biological Sciences at Bristol University has published a further paper in The Conversation 9 August 2023 in which he says that rethinking the siting of these solar sites so that most are placed on buildings or in areas that are rarely visited by bats, could limit their impact on bat populations.

3. Appendix 7.5 of the Environmental Statement Vol 3 (REP1-034) is the Bat Activity Survey carried out by the Applicant which recorded 20,239 call registrations for at least 10 species of bat. The survey concludes at paragraph 5.3.4 that the assemblage of species could be considered of national importance.

4.Given that:-

a) there is recent research that bats are negatively affected by ground-mounted PV sites

b) the bat surveys carried out by the Applicant indicate the presence of an assemblage of species of national importance

c) the Applicant concludes in its response to ExQ1- Q1.4.5 (REP1-071) that “there is insufficient empirical research data to inform specific guidance or actions”

allowing the proposed development to proceed on a best guess approach to mitigating it’s impact on bats may potentially cause an ecological disaster. The Applicant’s suggestion to monitor bat species activity for the first 10 years post construction (paragraph 7.11.1 of Environmental Statement Vol 1 Chapter 7 Biodiversity REP1-024) will be a case of “shutting the stable door after the horse has bolted”.

**Q1.6.5 National Grid and the Order Limits**

**National Grid (NGET) has set out (RR-289) that the inclusion of the entirety of the field in which the proposed Navenby Substation would be located contradicts previous discussions NGET had with the Applicant in relation to the Project, where NGET’s position is that only the cable route should be shown. NGET also note that it is important that no rights are granted over this area that would restrict the delivery of Navenby substation which is required by the Applicant for delivery of the Project. Provide an update of these discussions.**

5. In response the Applicant says that rights are being sought via the CPO over the whole of the plot 11/1 (shown on the Land Plans APP-006) pending 1) future land agreements between the landowner and NGET 2) an approved NGET Navenby substation planning application and 3) a detailed design of the point of connection aligned with both the land and the planning secured.

6. The inclusion of the whole of plot 11/3 is also shown on the Land Plans over which rights are sought to lay cables to connect into the proposed NGET Navenby substation.

7. Paragraph 11 of the Planning Act 2008 “Guidance related to procedures for the compulsory acquisition of land” dated September 2013 sets out that one of the conditions which must be met to the satisfaction of the Secretary of State before compulsory acquisition can be authorised is that the land is required for the development and that the Secretary of State will need to be satisfied that the land to be acquired is no more than is reasonably required for the purposes of the development.

8.The Applicant has failed to meet this test in relation to both plots 11/1 and 11/3 as all that is reasonably required for the proposed development is a right to lay cables over a specified route (presumably no wider than the proposed cable route in plot 11/4) over plot 11/1 to connect into a point on plot 11/3. It does not need the whole of plot 11/3 or plot 11/1 to lay these cables. The Applicant is not in a position to identify the route of the proposed cable because the site of the Navenby substation (and connection point for the Springwell project) is not yet known.

9.Both Fosse Green and Leoda solar farm projects have included plot 11/3 within the application site of their proposed developments. If DCO are granted for their developments will the result be that three solar projects will have secured CPO rights over the same area of land?

10.As the Applicant has failed to meet the test set out in paragraph 11 of the planning guidance then compulsory acquisition should not be authorised.

**Q1.6.9 Funding**

**The Funding Statement (APP-016) notes that the current cost estimate of the proposed development is approximately £650m-£750m and this estimate has been arrived at by including construction costs, preparation costs, supervision costs, land acquisition costs (including compensation payable in respect of any compulsory acquisition), equipment purchase, installation, commissioning and power export. Confirm if decommissioning costs have also been considered.**

11. In response the Applicant confirms that the decommissioning costs are not included in the Funding Statement as this is published pursuant to Regulation 5(2)(h) of the Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 whose purpose the Applicant says is to "demonstrate how compulsory acquisition would be funded". This statement is incorrect. Paragraph 17 of the "Guidance related to procedures for the compulsory acquisition of land" DCLG Sept 2013 says that the funding statement "should provide as much information as possible about the resource implications of both acquiring the land and implementing the project for which the land is required". The funding statement should therefore show that the project is viable. As the project includes decommissioning (as defined in paragraph 1.2.2 of the Funding Statement (REP1-011)), the Funding Statement should identify how those costs will be met. For example paragraph 2.2.1 of the Funding Statement for Tillbridge Solar states that decommissioning costs will be covered by an agreement with the landowner to create a form of security to ensure that there are funds available for decommissioning.

**Q1.9.4 Best and Most Versatile Agricultural Land and Fixed Solar Equipment**

**NKDC has set out that the amount of land given over to fixed solar equipment (satellite collector compounds, BESS and Springwell Substation and main collector compound) would be 21 ha which is described in the ES as a temporary loss of BMV land. NKDC go on to note that IEMA Guidelines say that the permanent sealing of land above 20ha (including temporary development where there would be a reduction in soil quality) is a major adverse environmental impact and it notes that ExAs on other solar projects have taken the view that such a loss of land is a permanent impact as it is virtually impossible to mitigate. What is the Applicant's reply?**

12.The Applicant's response is that this is a temporary development where there would not be a reduction in soil quality as the above-ground infrastructure would be removed and the land will be restored back to its prior ALC grade following decommissioning at the end of the 40 year operational period. The Applicant refers to the Outline Soil Management Plan (oSMP) (REP1-042) which sets out how the impact on soil quality will be minimised.

13.It is not only the 21 ha of BMV land on which the infrastructure will be sited but also the 210.7 ha of BMV land on which the Solar PV development will be sited (Table 11.12 of Chapter 11 Environmental Statement (REP1-014) refers) whose soils have the potential to be permanently damaged by the proposed development.

14.The report by ADAS dated March 2023 "The impact of solar photovoltaic (PV) sites on agricultural soils and land" notes that a key residual impact on land is soil compaction, that at the point of decommissioning there is likely to be residual compaction within the soil. Various timescales for recovery are given in published papers with 30 years (Batey 2009 "Soil compaction and soil management- A Review" In Soil Use and Management December 2009 25,335-345) and that compaction can be persistent and permanent (Hakansson *et al* 1988 Vehicle and Wheel Factors influencing soil compaction and crop responses in different traffic regimes In Soil and Tillage Research 11, 239-282).

15.There are other issues that may impact on the physical reversibility to agriculture for example pile pull out may cause the piles to fracture, there may be pile corrosion, and potential loss of zinc from the galvanising coating on piles that will contaminate the soil. An IP (REP1-146) has also argued that there will be contamination of the soil from the degradation of XLPE cabling.

16. Soil erosion is known to occur under solar panels where channels are quickly formed by runoff from the panels because the energy of the water draining from the solar panels could be as much as

ten times greater than that of rainfall (L Cook *et al* "Hydrologic Response of Solar Farms" In Journal of Hydrologic Engineering May 2013).

17. The Agricultural Land Classification of England and Wales (MAFF 1988) states that structural problems with soil occur particularly on disturbed soils. "On land which has been restored, soil structure is often weakened and can be significantly damaged by soil movement and storage. The return of a restored soil to a stable and more natural structural condition is normally a gradual process which needs to be encouraged over a period of years by maintaining an appropriate cropping and soil management regime. Some soils can be rendered very unstable by such disturbance and therefore respond very slowly to remedial measures, even in the topsoil.

18.In its response to Q1.9.4 the Applicant suggest that there is a potential for soil improvement during the operation phase of the proposed development through activities such as sheep grazing. The ADAS report referred to above concludes that there is limited evidence specifically relating to solar sites that confirm the benefits to soil health. Factors such as the disturbance of soil at the construction phase may impinge on the development of benefits through the operational phase. Any improvements are likely to be temporary and decrease with disruption at decommissioning and again at the return to arable cropping.

19. Despite the measures proposed to minimise the impact on soil quality set out in the oSMP (REP1-042), research suggests that there are a number of issues such as compaction of the soil, contamination, erosion, soil movement and storage that may well result in permanent damage to the soil resulting in a major adverse environmental impact (IEMA guidelines).

20. In the draft statement of Common Ground Natural England (REP1-0979) paragraph 2.15 of Table 2 sets out Natural England's comments that "it is currently unknown what the overall impact of a temporary solar development will have on soil health. In the absence of this information, NE suggests that there is an opportunity for the developer to commit to a programme of soil health monitoring for the lifetime of the project to support development of the evidence base around long term impacts to soil health for solar development". Whilst the Applicant has agreed to undertake soil health assessments, I question why 231 ha of BMV agricultural land (let alone the vast area of other good quality agricultural land which will be taken by the proposed development) should be used as an experiment to assess the potential harm this development might cause to soil health.

**Q1.9.9 Effects of Firewater on Groundwater**

**Numerous concerns (too many to list) have been raised about the potential for contaminants from a BESS accident to affect groundwater. Further, the EA (RR-130) consider the BESS emergency response plan should consider the potential effect of the release of firewater from the BESS compound on groundwater quality. The ExA note that the oOEMP and oBSMP contain some details in this regard. a) Applicant, what is your reply? b) EA, what further information do you require?**

21. The Applicant in response states that the LFR are expected to employ a defensive strategy ie boundary cooling of adjacent BESS to ensure that the incident does not spread to adjacent BESS enclosures. The Applicant goes on to say that the NFCC guidance states that "If it can be confirmed that the recommended firefighting tactic for the BESS is to defensively fire fight and boundary cool whilst allowing the BESS to consume itself, this will reduce the water requirements and thus the drainage /environmental protection requirements accordingly".

22. This quote is not from the current NFCC guidance, it is taken from the draft new guidance. LFR have confirmed that they are presently working to the extant current guidance. The current NFCC

guidance similarly states “in the majority of cases, initial firefighting will focus on defensive firefighting measures to prevent fire spread to adjacent containers” and sets out that there should be a **minimum** water supply of 1900 litres per minute over 2 hours. As I have concluded in my Written Representations for Deadline 1 (REP1-115):-

(a) the oBSMP (REP1-048) does not appear to conform to the NFCC Guidance (3m separation is provided between battery containers instead of the minimum 6 m as advised) so the risk of fire spreading to adjacent battery containers is increased.

(b) the Applicant acknowledges that the risk of a BESS fire/explosion is real (paragraph 4.1.1 of the BESS Plume Assessment REP1-052)

(b) the Applicant’s statement that a grid scale battery enclosure would take around 12 hours “for the combustibles to be consumed” (paragraph 3.6.14 of the BESS Plume Assessment REP1-052) is understated in the light of evidence of actual BESS fires.

(c) the Applicant has understated the amount of water that may be required to bring a BESS fire under control. The Applicant’s proposal to provide 4 water tanks each with approximately 113,000 litres of water which would provide 1,900 litres of water for 4 hours (paragraph 5.5.1 of the oBSMP (REP1-048)) is inadequate in the light of the advice of West Yorkshire FRS to Leeds City Council in relation to a planning application for a 50 MW BESS at Westfield Road Leeds (Ref 23/00450/FU).

(d) potentially millions of litres of firewater runoff could not be contained in “an underground attenuation tank or bunded holding lagoon” as proposed by the Applicant (paragraph 3.11.13 Outline Drainage Strategy App A to Flood Risk Assessment REP1-050)

(e) the Environment Agency acknowledges the potential risk to groundwater quality from the release of firewater from the proposed BESS (RR-130).

(f) the proposed Springwell BESS does not therefore comply with Policy S21 of the Central Lincolnshire Local Plan as it is proposed to be constructed in a location where in the event of a BESS fire there will be a risk of contamination to groundwater in breach of the Water Framework Directive.

23. The recent debate in the House of Commons on Battery Energy Storage Systems: Safety Regulations (Hansard 5 June 2025 vol 768) highlighted the lack of current regulation for BESS and the potential catastrophic consequences of a BESS fire, not only in terms of loss of life but also the pollution of the air and water. A number of MPs called for a pause on the roll-out of BESS until enforceable national regulations for their design and construction are in place:-

Sir Alec Shelbrooke- “ I recommend a pause on approving planning applications until we fully understand what mitigation could be put in place for disasters, which unfortunately do happen”.

Jamie Stone “We should not simply forge ahead with this stuff until we know exactly what we are doing”.

Sarah Bool “ I ask that the Government immediately pause the roll-out of these sites until a proper regulatory framework is in place”.

Nick Timothy “Building these sites and trying to deal with the safety questions later is reckless , expensive and dangerous”.

Bradley Thomas “If I had 3 asks of the Government, they would be 1) that they pause the granting of BESS applications in the first instance”.

Given the lack of enforceable regulations on the layout and design of BESS and the potentially devastating consequences of a BESS fire, it is submitted that the application for a DCO should be refused.

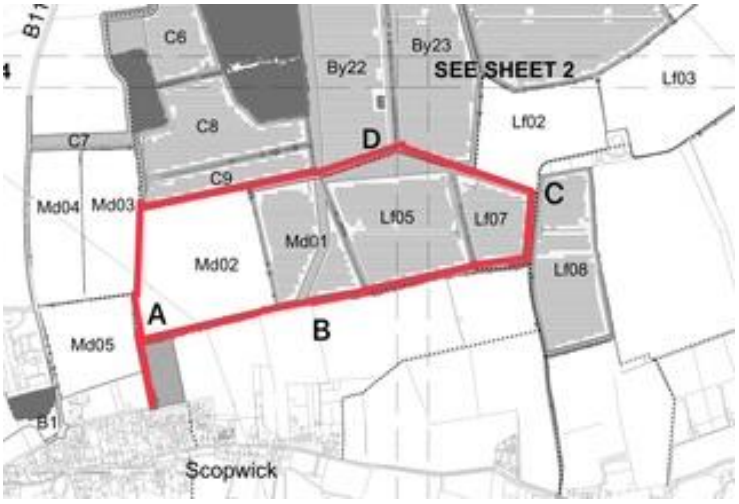
**Q1.11.4 Public Rights of Way**

**Due to the transient and temporary nature of users along the Public Rights of Way (PRoW) through the Proposed Development, and the proposed distance between PRoW and equipment, noise impacts along these area have not been assessed. However, an IP (RR-031) raised concern that the users of this network of ProW should not be classed as temporary and whilst the users are “transient” in that they are passing along the PRoW, their whole experience of the use and enjoyment of the PRoW would be destroyed by noise and disturbance. a) Is there any guidance available as to the noise level that would constitute a significant effect for recreational users of PRoW b) provide a description of the character of the noise and the maximum noise level experienced by recreational users of PRoW.**

24. In response to a) the Applicant says that there is no specific guidance because the exposure to noise is temporary. To clarify, the reason that there is no specific guidance is not because the noise is temporary but because it is not possible to have a single objective noise-based measure that defines SOAEL (Significant Observed Adverse Effect Level) that is applicable to all sources of noise in all situations (Paragraph 2.22 Noise Policy Statement for England March 2010).

25. In response to b) the Applicant has failed as requested to provide a maximum noise level experienced by recreational users of PRoW. The Applicant has described the noise experienced by recreational users of ProW during construction by firstly setting out the types of equipment that might be a source of noise namely static generators, and mobile equipment such as loading shovels and dumpers. This fails to paint a picture of the totality of the construction activities that will generate noise. App 12.2 Environmental Statement Vol 3 Construction Noise Plant Tables and Results (APP-121) sets out the plant required for various tasks eg for site clearance there will be a Timberwolf Wood Chipper, a tracked excavator, 2 dumpers, a bulldozer and two chain saws. There will also be the noise from delivery lorries, construction workers and their vehicles. During operation of the proposed development there will be noise from the inverters and transformer stations (Table 12.9 Environmental Statement Vol 2 Chapter 12 Noise and Vibration (APP-052)).

26. The Applicant then goes on to suggest that users of the PRoW would be likely to experience noise levels above the ambient “for a matter of minutes”. In an attempt to demonstrate that the Applicant has understated the magnitude of the likely effect of noise on PRoW users, I set out below details of a walk I took along the public footpaths around Scopwick on a rainy cold February day this year. The route of the walk is shown with a red line on the plan below:-




27. I walked north along Scop/10/1, then turned east along Scop/10/2, then north along Scop/11/4, then west along Scop/1135/3 and Scop/1135/3 and finally south along Scop/737/1, a walk of approximately 2.5 km which took me an hour as I stopped to take photographs. The points marked A,B, C and D on the plan are points from where I took photos as follows:-

Point A -Photograph looking north along the Steeples and Spires footpath (on the left side of the photo)

Point B- Looking east along Scop/10/2

Point C - The Junction of Scop 11/4 and Scop1135/4 looking west

Point D - On Scop/1135/3 looking north west across open fields

28. This route is well used, the track is worn (Photo at Point B) with evidence of use by people and horse riders. Whilst I was there during an early afternoon on a weekday in winter I met two groups of dog walkers. The fact of frequent use is borne out by the footfall evidence of the Stepping Out walks submitted by NKDC in their response to EXQ1 (REP1-103-Q1.12.3). This shows that during 2024/5 4903 people walked the Scopwick footpaths and 7205 walked the Blankney footpaths.

29. There are no built features which would attenuate any noise from plant and machinery along these footpaths, so any noise emitted from construction or operational activities would be heard over long distances and for longer than the “few minutes” described by the Applicant.