Rosefield Solar Farm Examination

Claydons Solar Action Group (CSAG) response to design changes confirmed at Deadline 5.

1. Purpose of this note

1.1 This note responds to the confirmation from the applicant via submissions at Deadline 5 (e.g. REP5-004, REP5-075) of late design changes comprising the removal of solar PV modules from the entirety of Fields B6 and B8, the western and southern parts of Field B7 and an increase in the southern buffer alongside Sheephouse Wood and Shrubs Wood from 30 to 50m. It outlines CSAG's position on the potential residual displacement effects of the solar farm on bats, in the wake of these design changes.

1.2 In contemplating whether these changes alleviate the concern regarding loss of foraging habitat for Bechstein's bat and other bat species, CSAG considers that it is important for the Examination to be reminded and reappraised of the balance of evidence in current peer-reviewed studies on how solar farms affect bat activity and behaviour, in order that the ExA can assess the robustness of the applicant's claims that negative impacts on bat species will be avoided by the scheme design, and indeed that net positive impacts can be anticipated[1].

1.3 CSAG had hoped that a study led by The Bat Conservation Trust, which aims to synthesise available evidence on solar farm impacts on bats in a UK context, would have been published by this point in the Examination and available to inform the ExA. CSAG understands that report is imminent, but may not be available before the close of the Examination. As the Examination has now reached Deadline 6 and is near to completion, CSAG have therefore produced their own distillation of the latest peer reviewed literature on the subject in advance of that report becoming available, and in order to assist the ExA in considering the residual implications of the scheme proposals for bats now that they have been further modified.

2 Key studies

2.1 Table 1 below lists the key studies relevant to the avoidance question. A full reference list with links to the full papers and/or their abstracts is provided at the end of this note. Given the importance of this issue, the ExA is naturally encouraged to read these papers and abstracts in full, albeit a summary of the research is provided in the 'key findings' column.

Study	Location	Experimental Design	Species implicated	Key findings
Tinsley et al. (2023)	SW England (19 sites)	Paired solar/control fields; detectors at centre and edge	Barbastelle, serotine, Myotis spp., Nyctalus spp., Nathusius' pipistrelle, common pipistrelle, soprano pipistrelle, Plecotus spp., greater horseshoe, lesser horseshoe.	Activity down ~66% at solar farm field centres, ~48% at edge, across most species; effect present at boundaries, not just interior.
Szabadi et al. (2023)	Hungary (190 sites)	Bioacoustic survey across solar farms and neighbouring habitats	Full local assemblage, incl. Savi's & Kuhl's pipistrelle, noctule, Myotis spp., barbastelle	Myotis spp. and barbastelle notably reduced on solar sites.

[1] See e.g. ES para 7.10.54 and section 4 of this note.

Study	Location	Experimental Design	Species implicated	Key findings
Barré et al. (2024)	France	3D flight-path reconstruction from echolocation calls	Common, Kuhl's, Nathusius' & soprano pipistrelle, Leisler's bat, grey long-eared bat, Myotis spp.	Faster (+10–44%), straighter (+33%) flight and 18–39% fewer feeding attempts at solar farms vs controls.
Baudouin et al. (2025)	French Mediterranean (15 sites)	Standardised comparative acoustic survey with 70 recorders positioned within solar farms and 47 situated outside (i.e. surrounding habitats).	Mediterranean bat assemblage (species/guilds not itemised in the abstract)	Bat activity reduced, greatest toward core of arrays; fixed-tilt panels retain more bat activity than single-axis panel arrangements.
Szoldatits et al. (2025)	US Midwest (12 sites and 12 paired reference sites)	"Ecovoltaic" sites (co-prioritizing electricity generation and ecosystem function) vs reference sites (agricultural fields)	North American bat assemblage. Big brown bat, silver-haired bat, hoary bat, eastern red bat, little brown bat.	Species-specific differences in bat responses to ecovoltaic sites. Some species showed higher activity at solar sites especially in early season. Suggests that sympathetically designed and managed solar farms in prairie landscapes can benefit some North American species.
Tavernier et al. (2026)	Netherlands (6 sites)	Solar fields vs intensive grassland and extensive meadow controls, full season	Common, soprano & Nathusius' pipistrelle, serotine, noctule, Myotis spp., long-eared bat spp.	All 7 species had reduced activity/occurrence in solar fields, consistently across spring, summer and autumn and even intensive grassland performed better than solar fields.

3 Possible causal factors in displacement of bats from solar farms

3.1 The ExA is asked to note the consistent theme of displacement from solar fields experienced in all the European studies. Collectively, the studies offer various possible explanations for the avoidance effects observed:

- Reduced prey availability — lower abundance of ground-emerging Diptera and Coleoptera has been recorded under panels compared with control sites, both of which are important bat prey groups (e.g. Kocsis et al. (2025, J. Appl. Ecol.), cited within Tavernier et al. (2026)).
- Physical clutter and collision risk — panel rows and mounting structures may deter commuting/foraging flight, consistent with the faster, straighter flight paths and reduced feeding attempts over solar arrays recorded by Barré et al. (2024).
- Habitat loss and altered microclimate — loss of ground vegetation quality beneath panels (e.g. Tavernier et al. (2026))

- Panel type — single-axis tracking arrays associated with lower bat activity than fixed-tilt arrays, possibly linked to movement and increased glare/reflectivity.
- The so-called 'lake effect' — the flat, smooth glass surface of panels may reflect echolocation calls in a way similar to open water, potentially confusing bats' sonar or reading as unsuitable foraging habitat (albeit some bats such as Daubenton's actively seek out open water). This is a concept derived from the findings of earlier studies (e.g. Greif & Siemers (2010, Nature Communications) that demonstrated such an effect on bats in experimental conditions.

3.2 Overall, the balance of evidence weighs clearly towards a net displacement effect, the precise causes of which remain uncertain and are the subject of further and ongoing study. What is certain is the general and consistent trend of the conclusions of the studies to date towards a net displacement effect.

4 Implications for Rosefield scheme, the validity of its EIA conclusions and the DCO decision

4.1 While the applicant's submitted ES does pass comment on certain of the above papers – e.g. Tinsley et al. (2023) and Szabadi et al. (2023) – and suggests that these have informed mitigation design (REP5-040 paras 7.8.109 et seq, including Table 7.9), it fails to respond to the common conclusions of those and other studies and their general implications for the bat populations in and around the Order Limits[2]. **In fact, the ES makes claims that clearly contradict the evidential findings of the scientific research**.

4.2 Firstly, the ES mischaracterises the weight of evidence in the scientific literature, for example in suggesting (para 7.8.110) that "*currently available findings indicate a variable effect of solar farms on Myotis depending both on the baseline habitat and potentially the composition of Myotis recorded by each study. This underlines the importance of not making broad generalisations from small scale studies*". This is to seek to muddy the waters around the general displacement/avoidance trend that has been observed by focussing on the difficulty of disaggregating Bechstein's bat calls from those of other *Myotis* bat species. It also makes a demonstrably incorrect claim that the Tinsley et al and Szabadi et al studies, at 19 sites and 190 sites respectively, are 'small-scale studies'.

4.3 Further, ES para 7.10.54 states that "*grassland under and between the Solar PV modules will be seeded with a species-rich grassland mix... considered likely to offer increase foraging opportunities for Bechstein's bat throughout the Site and consequently result in a beneficial impact*." ES para 7.10.71 makes an equivalent claim for "other bat species" ("*improvement of areas underneath and between Solar PV modules... considered likely to ensure the availability of habitats of greatest value*"). The evidence base relied upon for these assertions (e.g. Martin (2022) cited as Ref 7-62 in the ES) comprises three general vegetation/pollinator studies none of which are studies on bats. The applicant thus seeks to make a leap of faith (that invertebrate populations benefiting from conversion of arable to grassland will benefit foraging bats) in complete disregard of the counterbalancing and more direct evidence from the papers listed at Table 1 above that bats may actually be deterred from exploiting any such food resource (i.e. discouraged from entering and foraging within solar PV fields) by other factors.

[2] The Examination heard an oral assertion from Ms Reason for the Applicant at ISH2 that the studies that showed displacement effects on bats were generally of poorly managed solar farms. No evidence in support of that exceptionalist assertion was provided then, or since, and one wonders whether the operators of the implicated solar farms would take the same view and support Ms Reason's position on that point. It is also noted that the factors that might make Rosefield an exception to the general rule of how solar farms are managed – in particular secured grazing – are in fact not fully committed to by the applicant, but merely stated as an 'aspiration'.

4.4 In fact, all of the applicant's submission material, and all of its oral submissions to the examination, rest on this 'leap of faith' assumption that the losses of habitats due to displacement from the solar arrays are either non-significant because of the low-quality of arable land as a foraging resource, or compensated and outweighed in any event by conversion of such land to permanent grassland. As the majority of this new grassland will of course be between panel arrays or around the edges of PV fields, and as the applicant is evidently aware of the relevant peer reviewed studies, **it is striking that there is no consideration in the ES or anywhere in the applicant's submissions of the spatial envelope of disturbance and displacement effects and its effect on such assumptions**. CSAG notes that Natural England at Deadline 5 [REP5-106] have commented upon this matter indirectly in the context of the likely efficacy of the proposed buffers, noting that the distance of displacement effects on bats from panel arrays remains an unknown, and that this is one reason why the applicant's approach to measuring buffers from the centreline of hedgerows remains nonsensical[3].

4.5 Even if the displacement effect on bats were significant only over a much shorter distance – say a mere 10m from the edges of a solar array – applying this distance to the Rosefield scheme would have the effect of cancelling out the majority or entirety of any compensatory or ameliorative effect of creating grassland underneath, between and around the edges of panels and arrays, and would further impact on the effectiveness of adjoining field edge buffers. This means that applying even a conservative 10m displacement envelope would mean that a substantially greater proportion of the core sustenance zones and home ranges of the rare Bechstein's and barbastelle bats would actually be impacted via displacement effects than the low % figures relied upon by the applicant.

4.6 Full and proper account of the current thrust of scientific evidence for a displacement effect on bats therefore undermines the central premise of the applicant's case of a low risk to the two rare Annex II species Bechstein's and barbastelle, and to bats generally. The slight adjustments to the scheme design proffered at Deadline 5 do very little to lessen that concern and CSAG is concerned that the ES conclusions on displacement and compensation as regards bat foraging habitat are not supported by the available evidence and therefore intrinsically unreliable.

References

Barré, K. et al. (2024) Insectivorous bats alter their flight and feeding behaviour at ground-mounted solar farms. Journal of Applied Ecology.[redacted].

Baudouin, A., Hette-Tronquart, N., Brun, C., Gay, N., Chartendrault, V. & Kerbiriou, C. (2025) Balancing renewable energy and biodiversity: Assessing solar farm effects on bat activity. Biological Conservation. [redacted]

Bat Conservation Trust (2025) Call for evidence: impacts of solar farms on bats. Available at: [redacted]

Szabadi, K.L., Kurali, A., Rahman, N.A.A., Froidevaux, J.S.P., Tinsley, E., Jones, G., Görföl, T., Estók, P. & Zsebok, S. (2023) The use of solar farms by bats in mosaic landscapes: Implications for conservation. Global Ecology and Conservation, 44, e02481. [redacted]

Szoldatits, K., Walston, L., Hartmann, H., Fox, L., Stanger, M.E., Steele, S.E., Hogstrom, I. & Macknick, J. (2025) Bat activity at ecovoltaic solar energy developments in the Midwestern United States. Global Ecology and Conservation, 63, e03864. [redacted]

[3] See in particular NE's comment on the size of buffer zones at row three of its table at Annex 2 of its Deadline 5 submission – e.g. *"There is, currently, no way of knowing what is adequate in terms of buffer size, as we don't know over what distance an avoidance effect is elicited. We advise the additional area of land retained additional to the feature of interest is maximised, so that the value of that feature is being maintained not eroded."*

Tavernier, C., Nuijten, R., Buij, R. & van Langevelde, F. (2026) Solar fields in farmlands, their impact on bat presence and activity. PLOS ONE, 21(6), [redacted]

Tinsley, E. et al. (2023) Renewable energies and biodiversity: Impact of ground-mounted solar photovoltaic sites on bat activity. Journal of Applied Ecology. [redacted]