

## **7000Acres Response to Environmental Statement**

Volume 6 Environmental Statement Appendix 17-2 Glint and Glare Assessment  
Document Reference: EN010142/APP/6.2

Deadline 2 Submission – November 2024

## **Executive Summary**

The Applicant is required to demonstrate that the impact of glint and glare is minimal.

The Applicant has only considered receptors within 1km from the scheme, despite many receptors having an elevated view of the scheme only metres beyond the arbitrary 1km boundary.

The US Federal Aviation Authority's (FAA) quantitative assessment methodology selected by the Applicant has been misapplied. This results in an underestimation of the actual impact of glare.

The Applicant has not taken account of actual observer heights, such as the upstairs window of a residence, so underestimating the impact of glare.

The Applicant has not taken account of the cumulative effect of glare, in accordance with Advice Notice Seventeen.

The Applicant has not taken account of receptors with common eyesight conditions.

The Applicant takes no account of the impact on livestock and equestrian activities, which are a feature of this area.

Recommendations are made on how to correct this narrow and deficient assessment.

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## **1. Introduction**

Glare can be created by solar panels. The Applicant is required to assess the impact of glint and glare by National Policy Statement EN-3, although the policy does not provide an assessment methodology.

The Applicant has chosen to assess a limited range of cases, not representative of all the relevant receptors. In particular, it has only assessed the potential for glare within 1km of the development site despite the development being visible from a greater distance, especially from higher ground. The figures in Appendix A show the 1 km boundary (dotted black line) very conveniently ending just metres before the boundary of local villages which are likely to be affected.

Furthermore, the Applicant has chosen not to take account of the cumulative effect of the glare produced by this development and the adjacent West Burton, Cottam, and Gate Burton solar NSIPs, especially when viewed from higher ground. By ignoring the other solar NSIPs, the Applicant has not taken account of Advice Notice Seventeen. For example, all four solar NSIPs are visible from The Cliff Area and have potential to impact receptors living in that location, and drivers using the roads overlooking the area. By adopting their methodology, the Applicant has underestimated the true impact of glare.

The Applicant has applied aviation assessment criteria, although neither author of the Applicant's report appears to have any aviation expertise. In particular, the Applicant has chosen to apply US Federal Aviation Authority (FAA) criteria without a clear understanding of the difference between the quantitative criteria applied to pilots (short term viewing) and air traffic control staff (medium to longer term viewing).

## 2. Applicant's Assessment Methodology

The Applicant has chosen to use the Sandia Laboratories Solar Glare Hazard Analysis Tool (SGHAT), which is noted in FAA guidance material<sup>1</sup>. The FAA guidance requires mitigation for green glare when affecting an Air Traffic Control (ATC) Tower staff, but not for when affecting pilots. Although the FAA relates exposure criteria to work roles, these are in fact criteria based on the exposure time to glare. The guidance states:

*"The FAA has learned that glint and glare from solar energy systems could result in an ocular impact to airport traffic control tower (ATCT) personnel working in the tower cab and compromise the safety of the air transportation system."*

The criteria for pilots takes account of the short-term nature of their exposure due to the speed of passing through an area susceptible to glare. In particular, the guidance requires a pilot assessment for the final approach path, defined as being:

*"two (2) miles from fifty (50) feet above the landing threshold using a standard three (3) degree glidepath".*

At a standard approach speed of 120 miles per hour, two miles would take 1 minute to fly through. Although the FAA refers to professional roles, the actual differentiation between pilots and Air Traffic Control (ATC) staff is based on the period of exposure, with the pilot case being up to 1 minute, with longer than 1 minute for ATC staff. The Applicant has not considered the period of exposure to glare. The Applicant's report paragraph 4.14 states:

*"As per FAA guidelines, mitigation is only required for green glare when affecting an Air Traffic Control Tower, but not for when affecting pilots. Therefore, it can be assumed that green glare is acceptable for ground-based receptors."*

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<sup>1</sup> [federalregister.gov/documents/2021/05/11/2021-09862/federal-aviation-administration-policy-review-of-solar-energy-system-projects-on-federally-obligated](https://www.federalregister.gov/documents/2021/05/11/2021-09862/federal-aviation-administration-policy-review-of-solar-energy-system-projects-on-federally-obligated)

No logic is given for applying pilot (short term) criteria to residential receptors. Applying pilot criteria (exposure time circa 1 minute) is clearly incorrect, as residential receptors are static viewers, like ATC staff. Static viewers should be protected from green glare, or worse, as their exposure will be for longer than 1 minute. Therefore, the Applicant has not applied the correct assessment criteria to residential receptors. In a similar way, slow moving receptors, such as pedestrians, cyclists and equestrians should be assessed using the ATC criteria, as their exposure may be longer than 1 minute. It is also necessary to apply ATC criteria to driving along roads where the receptor will be exposed to glare for more than 1 minute.

By adopting their tactic of applying only pilot criteria from the FAA guidance to local receptors, the Applicant has not taken account of the period of exposure to glare and so has underestimated the true impact of glare.

## **2.1 Observation Height**

The Applicant has only considered a limited number of observer heights. For example paragraph 4.22 applies a 2m observer height for residential receptors, stating it was a typical height for a ground floor window. The Applicant must take account of residents viewing the development from an upstairs window, so additional points up to 10m must be assessed. Some residents work from home, where typically upstairs bedrooms are used as home offices. Glare affecting an upstairs viewing point would limit the period of time a resident could look out of their upstairs window before their eyesight was affected.

In a similar manner, the Applicant has only considered a road user's viewing point of 1.5m, despite a large number of agricultural vehicles using the area, where observation heights will be greater (up to 4m). In a similar way, the observer height of an equestrian will be greater than 1.5m. By limiting the observer heights assessed to as low as possible, the Applicant has not adequately assessed the potential for glare affecting typical local receptors. In addition, by only assessing receptors within 1km, the Applicant has not taken any account of the impact on elevated receptors in the

area, such as The Cliff. By adopting their methodology, the Applicant has underestimated the true impact of glare.

When the true observer height of receptors is taken into account, the glare identified in Tables 6-1, 6-2 and 6-3 will increase.

### **2.3 Health**

The FAA guidelines implicitly take account of receptors having healthy eyesight, as pilots and ATC staff are subject to annual medical assessments, including an eye test. The Applicant has not taken account of the effect of glare on receptors with sub-optimal eyesight, such as those suffering from glaucoma, cataracts and other ocular disabilities. By not taking account of the additional requirements of those with eyesight deficiencies, the Applicant is discriminating against that population group, who are frequently elderly.

### **2.4 Non-Human Receptors**

The Applicant takes no account of non-human receptors, such as livestock, horses and birds. The safety impact of glare on equestrian activities has not been assessed. Relevant Representations include reference to equestrian activity in the region. The combined impact of this and other local NSIPs may render the whole region unsafe for equestrian activities, such as hacking along minor roads and in the countryside. In a similar manner, some local fields may be rendered unusable by livestock as glint and sustained glare could result in distress.

### **3. Recommendations**

Due to the Applicant's narrow and deficient assessment of the effects of glare, the following courses of action are strongly recommended. The Applicant should:

1. Take account of the impact of glare on viewers beyond 1km from the development, especially those with an elevated view.
2. Modify their assessment to apply the ATC staff (green glare) requirement on all static or slow-moving receptors, such as residents, pedestrians, cyclists and equestrians.
3. Broaden their assessment to take account of actual observer heights. These should include the upstairs windows for residential receptors (up to 10m), tractors (4m), and equestrians (2.5m).
4. Comply with Advice Notice Seventeen and assess the combined glare effects of all solar farms in the region.
5. Take account of the effects of glare of all receptors with eyesight diseases or deficiencies.
6. Take account of the effect on livestock and equestrian activities, using an equestrian expert.