

Appendix 13.1 Legislation, Policy and Guidance

Legislative Framework

The applicable legislation includes:

- National Planning Policy Framework (September 2023)
- Planning Practice Guidance

[National Planning Policy Framework \(September 2023\)](#)

Due to the scale of this application, this Proposed Development is considered to be a Nationally Significant Infrastructure Project, and hence will be determined by the Secretary of State through the Development Consent Order process. Nevertheless, it is relevant to consider guidance for renewable energy projects contained in the National Planning Policy Framework, which is intended for applications under the Town and Country Planning Regulations.

Specific guidance is limited but Paragraph 158 states:

“When determining planning applications for renewable and low carbon development, local planning authorities should:

- a) not require applicants to demonstrate the overall need for renewable or low carbon energy, and recognise that even small-scale projects provide a valuable contribution to cutting greenhouse gas emissions;*
- b) approve the application if its impacts are (or can be made) acceptable. Once suitable areas for renewable and low carbon energy have been identified in plans, local planning authorities should expect subsequent applications for commercial scale projects outside these areas to demonstrate that the proposed location meets the criteria used in identifying suitable areas, and*
- c) in the case of applications for the repowering and life-extension of existing renewable sites, give significant weight to the benefits of utilising an established site, and approve the proposal if its impacts are or can be made acceptable.”*

[National Planning Policy Framework \(August 2023\) - Planning Practice Guidance](#)

The National Planning Policy Framework (NPPF) planning practice guidance sets out guidance for large ground mount solar farms under the section entitled ‘Renewable and Low Carbon Energy’.

Paragraph 013 states:

“What are the particular planning considerations that relate to large scale ground-mounted solar photovoltaic Farms?”

The deployment of large-scale solar farms can have a negative impact on the rural environment, particularly in undulating landscapes. However, the visual impact of a well-planned and well-screened solar farm can be properly addressed within the landscape if planned sensitively.

Particular factors a local planning authority will need to consider include [inter alia]:

- *the proposal's visual impact, the effect on landscape of glint and glare (see guidance on landscape assessment) and on neighbouring uses and aircraft safety;*
- *the extent to which there may be additional impacts if solar arrays follow the daily movement of the sun;*
- *the potential to mitigate landscape and visual impacts through, for example, screening with native hedges;*

The approach to assessing cumulative landscape and visual impact of large scale solar farms is likely to be the same as assessing the impact of wind turbines. However, in the case of ground-mounted solar panels it should be noted that with effective screening and appropriate land topography the area of a zone of visual influence could be zero.”

Planning Policy

[Draft \(Emerging\) Overarching National Policy Statement for Energy \(NPS EN-1\) – November 2023](#)

EN-1 recognises that there is significant need to increase the penetration of renewables in the UK generation mix. Paragraph 3.3.1 states:

“Electricity meets a significant proportion of our overall energy needs and our reliance on it will increase as we transition our energy system to deliver our net zero target. We need to ensure that there is sufficient electricity to always meet demand; with a margin to accommodate unexpectedly high demand and to mitigate risks such as unexpected plant closures and extreme weather events.”

It continues in paragraph 3.3.13, under the heading ‘Delivering affordable decarbonisation’:

“The Net Zero Strategy sets out the government’s ambition for increasing the deployment of low carbon energy infrastructure consistent with delivering our carbon budgets and the 2050 net zero target. This made clear the commitment that the cost of the transition to net zero should be fair and affordable.”

In Paragraph 3.3.20 it says:

“Wind and solar are the lowest cost ways of generating electricity, helping reduce costs and providing a clean and secure source of electricity supply (as they are not reliant on fuel for generation). Our analysis shows that a secure, reliable, affordable, net zero consistent system in 2050 is likely to be composed predominantly of wind and solar.”

Under the heading ‘The need for electricity generating capacity’, Paragraphs 3.3.57 - 3.3.58 state:

“Government has committed to reduce GHG emissions by 78 per cent by 2035 under carbon budget 6. According to the Net Zero Strategy this means that by 2035, all our electricity will need to come from low carbon sources, subject to security of supply, whilst meeting a 40-60 per cent increase in demand.

“Given the urgent need for new electricity infrastructure and the time it takes for electricity NSIPs to move from design conception to operation, there is an urgent need for new (and particularly low carbon) electricity NSIPs to be brought forward as soon as possible, given the crucial role of electricity as the UK decarbonises its economy.”

Paragraph 3.3.59, under the heading ‘The need for electricity generating capacity’ goes on to state:

“All the generating technologies mentioned above are urgently needed to meet the government’s energy objectives by:

- *providing security of supply (by reducing reliance on imported oil and gas, avoiding concentration risk and not relying on one fuel or generation type)*
- *providing an affordable, reliable system (through the deployment of technologies with complementary characteristics)*
- *ensuring the system is net zero consistent (by remaining in line with our carbon budgets and maintaining the options required to deliver for a wide range of demand, decarbonisation and technology scenarios, including where there are difficulties with delivering any technology)”*

In respect of civil and military aerodromes, EN-1 comments at paragraphs 5.5.5 and 5.5.7:

“UK airspace is important for both civilian and military aviation interests. It is essential that new energy infrastructure is developed collaboratively alongside aerodromes, aircraft, air systems and

airspace so that safety, operations and capabilities are not adversely affected by new energy infrastructure.

“...The approaches and flight patterns to aerodromes can be irregular owing to a variety of factors including the performance characteristics of the aircraft concerned and the prevailing meteorological conditions. It may be possible to adapt flight patterns to work alongside new energy infrastructure without impacting on aviation safety.”

The subsection ‘Safeguarding’ continues from Paragraph 5.5.8:

“Certain civil aerodromes, and aviation technical sites, selected on the basis of their importance to the national air transport system, are officially safeguarded in order to ensure that their safety and operation are not compromised by new development.

“A similar official safeguarding system applies to all military aerodromes, defence surveillance sites, and other defence assets.

“Areas of airspace around aerodromes used by aircraft, including taking off or on approach and landing are described as “obstacle limitation surfaces” (OLS). All civil aerodromes licensed by the Civil Aviation Authority (CAA) and all military aerodromes must comply with the OLS. These are defined according to criteria set out in relevant CAA guidance for licensed civil aerodromes and according to MOD criteria, as set by the Military Aviation Authority, which is part of the Defence Safety Authority (DSA), for military aerodromes.

“Aerodromes that are officially safeguarded will have officially produced plans that show the OLS. Care must be taken to ensure that new developments do not infringe these protected OLS, as these encompass the critical airspace within which key air traffic associated with the aerodrome operates.

“The CAA’s CAP 738 sets out that all licensed aerodromes are required to ensure they have a system in place to safeguard their aerodrome against the growth of obstacles or activities that may present a hazard to aircraft operations.

“It is considered best practice for the LPA to include the safeguarded area and explanatory notes on its planning ‘constraints’ plan so that potential applicants can be aware of the presence of the aerodrome and the extent and nature of the safeguarding relevant to a particular aerodrome. DfT/ODPM Circular 01/2003 provides advice to planning authorities on the official safeguarding of aerodromes and includes a list of the civil aerodromes which are officially safeguarded.

“The DfT/ODPM Circular 01/2003 and CAA guidance also recommends that the operators of aerodromes which are not officially safeguarded should take steps to protect their aerodrome from the

possible effects of development by establishing an agreed consultation procedure between themselves and the LPAs.

“The certified Safeguarding maps for all aerodromes (both licensed and unlicensed) depicting the OLS and other criteria (for example to minimise “birdstrike” hazards) are deposited with the relevant LPAs.

“The CAA makes clear that the responsibility for the safeguarding of General Aviation aerodromes lies with the aerodrome operator.”

Whilst not specifically glint related, in talking about ‘artificial light’, paragraphs 5.7.12 to 5.7.15 state:

“The Secretary of State should satisfy itself that:

- an assessment of the potential for artificial light, dust, odour, smoke, steam and insect infestation to have a detrimental impact on amenity has been carried out*
- that all reasonable steps have been taken, and will be taken, to minimise any such detrimental impacts*

“If development consent is granted for a project, the Secretary of State should consider whether there is a justification for all of the authorised project (including any associated development) to be covered by a defence of statutory authority against nuisance claims. If the Secretary of State cannot conclude that this is justified, the Secretary of State should disapply in whole or in part the defence through a provision in the development consent order.

“Where the Secretary of State believes it appropriate, the Secretary of State may consider attaching requirements to the development consent, to secure certain mitigation measures.

“In particular, the Secretary of State should consider whether to require the applicant to abide by a scheme of management and mitigation concerning insect infestation and emissions of odour, dust, steam, smoke, and artificial light from the development. The Secretary of State should consider the need for such a scheme to reduce any loss to amenity which might arise during the construction, operation and decommissioning of the development. A construction management plan may help codify mitigation at that stage.”

Section 5.10 deals with Landscape and Visual effects, and paragraphs 5.10.21 and 5.10.22 state:

“The assessment should include the visibility and conspicuousness of the project during construction and of the presence and operation of the project and potential impacts on views and visual amenity. This should include light pollution effects, including on dark skies, local amenity, and nature conservation.

The assessment should also address the landscape and visual effects of noise and light pollution, and other emissions (see Section 5.2 and Section 5.7), from construction and operational activities on residential amenity and on sensitive locations, receptors and views, how these will be minimised.”

Paragraph 5.10.26 continues:

“Reducing the scale of a project can help to mitigate the visual and landscape effects of a proposed project. However, reducing the scale or otherwise amending the design of a proposed energy infrastructure project may result in a significant operational constraint and reduction in function - for example, the electricity generation output. There may, however, be exceptional circumstances, where mitigation could have a very significant benefit and warrant a small reduction in function. In these circumstances, the Secretary of State may decide that the benefits of the mitigation to reduce the landscape and/or visual effects outweigh the marginal loss of function.”

Paragraph 5.10.28 goes on:

“Depending on the topography of the surrounding terrain and areas of population it may be appropriate to undertake landscaping off site. For example, filling in gaps in existing tree and hedge lines would mitigate the impact when viewed from a more distant vista.”

At paragraphs 5.14.5 and 5.14.6 EN-1 discusses transport impacts:

“If a project is likely to have significant transport implications, the applicant’s ES (see Section 4.3) should include a transport appraisal. The DfT’s Transport Analysis Guidance (TAG) and Welsh Governments WelTAG provides guidance on modelling and assessing the impacts of transport schemes.”

“National Highways and Highways Authorities are statutory consultees on NSIP applications including energy infrastructure where it is expected to affect the strategic road network and / or have an impact on the local road network, and applicants should consult with National Highways and Highways Authorities as appropriate on the assessment and mitigation to inform the application to be submitted.”

[National Policy Statement for Renewable Energy \(NPS EN-3\) – November 2023](#)

Unlike the 2011 version of EN-3, this updated edition of EN-3 includes specific guidance in relation to the deployment of solar PV generation.

Section 2.10 is entitled ‘Solar Photovoltaic Generation’. Paragraph 2.10.9 states:

“The government has committed to sustained growth in solar capacity to ensure that we are on a pathway that allows us to meet net zero emissions. As such solar is a key part of the government’s strategy for low-cost decarbonisation of the energy sector.

“Solar also has an important role in delivering the government’s goals for greater energy independence and the British Energy Security Strategy states that government expects a five-fold increase in solar deployment by 2035 (up to 70GW). It sets out that government is supportive of solar that is co-located with other functions (for example, agriculture, onshore wind generation, or storage) to maximise the efficiency of land use.”

Under the heading ‘Proximity of a site to dwellings’, Paragraph 2.10.27 states:

“Utility-scale solar farms are large sites that may have a significant zone of visual influence. The two main impact issues that determine distances to sensitive receptors are therefore likely to be visual amenity and glint and glare...”

Paragraphs 2.10.94 and 2.10.95 relate to landscape, visual and residential amenity, and continue:

“...Solar farms are likely to be in low lying areas of good exposure and as such may have a wider zone of visual influence than other types of onshore energy infrastructure.

“However, whilst it may be the case that the development covers a significant surface area, in the case of ground-mounted solar panels it should be noted that with effective screening and appropriate land topography, the area of a zone of visual influence could be appropriately minimised.”

Under the subsection ‘Glint and Glare’, specific guidance is given from Paragraph 2.10.102:

“Solar panels are specifically designed to absorb, not reflect, irradiation¹. However, solar panels may reflect the sun’s rays at certain angles, causing glint and glare. Glint is defined as a momentary flash of light that may be produced as a direct reflection of the sun in the solar panel. Glare is a continuous source of excessive brightness experienced by a stationary observer located in the path of reflected sunlight from the face of the panel. The effect occurs when the solar panel is stationed between or at an angle of the sun and the receptor.

¹ Most commercially available solar panels are designed with anti-reflective glass or are produced with anti-reflective coating and have a reflective capacity that is generally equal to or less hazardous than other objects typically found in the outdoor environment, such as bodies of water or glass buildings.

“Applicants should map receptors to qualitatively identify potential glint and glare issues and determine if a glint and glare assessment is necessary as part of the application.

“When a quantitative glint and glare assessment is necessary, applicants are expected to consider the geometric possibility of glint and glare affecting nearby receptors and provide an assessment of potential impact and impairment based on the angle and duration of incidence and the intensity of the reflection.

“The extent of reflectivity analysis required to assess potential impacts will depend on the specific project site and design. This may need to account for ‘tracking’ panels if they are proposed as these may cause differential diurnal and/or seasonal impacts.

“When a glint and glare assessment is undertaken, the potential for solar PV panels, frames and supports to have a combined reflective quality may need to be assessed, although the glint and glare of the frames and supports is likely to be significantly less than the panels.”

In relation to mitigation, Paragraphs 2.10.134-2.10.136 state:

“Applicants should consider using, and in some cases the Secretary of State may require, solar panels to comprise of (or be covered with) anti-glare/anti-reflective coating with a specified angle of maximum reflection attenuation for the lifetime of the permission.

“Applicants may consider using screening between potentially affected receptors and the reflecting panels to mitigate the effects.

“Applicants may consider adjusting the azimuth alignment of or changing the elevation tilt angle of a solar panel, within the economically viable range, to alter the angle of incidence. In practice this is unlikely to remove the potential impact altogether but in marginal cases may contribute to a mitigation strategy.”

Concerning the Impacts of Solar PV, Paragraphs 2.10.158-2.10.159 continue:

“Solar PV panels are designed to absorb, not reflect, irradiation. However, the Secretary of State should assess the potential impact of glint and glare on nearby homes, motorists, public rights of way, and aviation infrastructure (including aircraft departure and arrival flight paths).

Whilst there is some evidence that glint and glare from solar farms can be experienced by pilots and air traffic controllers in certain conditions, there is no evidence that glint and glare from solar farms results in significant impairment on aircraft safety. Therefore, unless a significant impairment can be demonstrated, the Secretary of State is unlikely to

give any more than limited weight to claims of aviation interference because of glint and glare from solar farms.”

Local Plans

Central Lincolnshire Local Plan²

The Central Lincolnshire Local Plan makes no direct reference to glint from solar panels but Policy S53: Design and Amenity notes that glare from homes and buildings should be considered to ensure that there is no harm to people's amenity.

Policy S14: Renewable Energy states that in respect of renewable energy schemes:

"To determine whether it is acceptable, the following tests will have to be met:

- i. The impacts are acceptable having considered the scale, siting and design, and the consequent impacts on landscape character; visual amenity; biodiversity; geodiversity; flood risk; townscape; heritage assets, their settings and the historic landscape; and highway safety and rail safety; and*
- ii. The impacts are acceptable on aviation and defence navigation system/communications; and*
- iii. The impacts are acceptable on the amenity of sensitive neighbouring uses (including local residents) by virtue of matters such as noise, dust, odour, shadow flicker, air quality and traffic;*

Testing compliance with part (i) above will be via applicable policies elsewhere in a development plan document for the area (i.e. this Local Plan; a Neighbourhood Plan, if one exists; any applicable policies in a Minerals or Waste Local Plan); and any further guidance set out in a Supplementary Planning Document.

In order to test compliance with part (ii) above will require, for relevant proposals, the submission by the applicant of robust evidence of the potential impact on any aviation and defence navigation system/communication, and within such evidence must be documented areas of agreement or disagreement reached with appropriate bodies and organisations responsible for such infrastructure.

In order to test compliance with part (iii) above will require, for relevant proposals, the submission by the applicant of a robust assessment of the potential impact on such users, and the mitigation measures proposed to minimise any identified harm.

² Central Lincolnshire Local Plan. 2023. Available at: [Local Plan for adoption Approved by Committee.pdf \(n-kesteven.gov.uk\)](https://www.n-kesteven.gov.uk/committees/central-lincolnshire-local-plan-2023/)

For all matters in (i)-(iii), the applicable local planning authority may commission its own independent assessment of the proposals, to ensure it is satisfied what the degree of harm may be and whether reasonable mitigation opportunities are being taken.

Where significant adverse effects are concluded by the local planning authority following consideration of the above assessment(s), such effects will be weighed against the wider environmental, economic, social and community benefits provided by the proposal. In this regard, and as part of the planning balance, significant additional weight in favour of the proposal will arise for any proposal which is community-led for the benefit of that community.

In areas that have been designated for their national importance, as identified in the National Planning Policy Framework, renewable energy infrastructure will only be permitted where it can be demonstrated that it would be appropriate in scale, located in areas that do not contribute positively to the objectives of the designation, is sympathetically designed and includes any necessary mitigation measures.”

Whilst these tests do not explicitly mention glint and glare, it is considered that the policy makes it incumbent on the Developer of a solar PV development to apply similar tests to the effects that such a scheme would potentially present to nearby receptors.

[South East Lincolnshire Local Plan³](#)

Similarly, there are no direct references to glint and glare in the South East Lincolnshire Local Plan but Policy 31: Climate Change and Renewable Energy and Low Carbon Energy, B: Renewable Energy mentions the assessment of 'sunlight reflection' and assessing impacts on "residential amenity, highway safety, aviation and radar safety and heritage assets".

Guidance

[BRE: Site Layout Planning for Daylight and Sunlight: A guide to good practice](#)

In the UK at the domestic level the closest guidelines regarding glint are the BRE guidelines on 'Site layout planning for Daylight and Sunlight'⁴

³ [South East Lincolnshire Local Plan. March 2019. Available at: Local-Plan-text-March-2019.pdf \(southeastlincslocalplan.org\)](#)

⁴ Site Layout Planning for Daylight and Sunlight: A guide to good practice. (2nd Edition) Paul Littlefair, BRE Trust, First published 2011.

With regard to solar dazzle these state that:

“Glare or dazzle can occur when sunlight is reflected from a glazed façade or an area of metal cladding. This can affect road users outside and the occupants of adjoining buildings. The problem can occur where there are large areas of reflective glass or cladding on the façade, or where there are areas of glass or cladding slope back so that high altitude sunlight can be reflected along the ground. Thus solar dazzle is only a long-term problem for some heavily glazed (or mirror clad) buildings. Photovoltaic panels tend to cause less dazzle because they are designed to absorb light.

If it is likely that a building may cause solar dazzle the exact scale of the problem should be evaluated. This is done by identifying key locations such as road junctions and windows of nearby buildings, and working out the numbers of hours of the year that sunlight can be reflected to these points. BRE information paper IP 3/87 gives details.

Glare to motorists approaching the building can be an issue. The worst problems occur when drivers are travelling directly towards the building and sunlight can reflect off surfaces in the drivers direct line of sight (usually this will be off the lower parts of the building).”

After setting out a methodology for calculating solar reflections from sloping glazed facades, BRE information paper IP 3/872 summarises effects as follows:

“Initial experience suggests that, in Europe and the USA at least, the greatest problems occur with facades facing within 90° of due south, sloping back at angles between 5° and 30° to the vertical. Where the façade slopes at more than 40° to the vertical (less than 50° to the horizontal) solar reflections are likely to be less of a problem, unless nearby buildings are very high; and facades which slope forward, so that the top of the building forms an effective overhang, should also cause few problems in this respect. In the northern hemisphere, north facing facades should only cause reflected solar glare on a few occasions during the year, if at all.”

In the domestic setting the guidelines therefore suggest that glare and dazzle are only likely to be issues if the facade (or panel in this case) is within 40 degrees of the vertical or 50 degrees of the horizontal. Beyond this angle, incident light will be reflected primarily skywards. This is because the angle of reflection of light from a point source will always be the same as the angle of incidence.

[Aviation Guidance \(CAA\)](#)

The UK Civil Aviation Authority (CAA) issued interim guidance in relation to solar farms in December 2010⁵. The formal policy was cancelled in September 2012, however in

⁵ Civil Aviation Authority, 2010. “Interim CAA Guidance - Solar Photovoltaic Systems”

the absence of formal policy, the guidance is still relevant. It refers to solar farms as Solar Photovoltaic Systems (SPV).

CAA Interim Guidance

This interim guidance makes the following recommendations (p.2-3):

“8. It is recommended that, as part of a planning application, the SPV developer provide safety assurance documentation (including risk assessment) regarding the full potential impact of the SPV installation on aviation interests.

9. Guidance on safeguarding procedures at CAA licensed aerodromes is published within CAP 738 Safeguarding of Aerodromes and advice for unlicensed aerodromes is contained within CAP 793 Safe Operating Practices at Unlicensed Aerodromes.

10. Where proposed developments in the vicinity of aerodromes require an application for planning permission the relevant LPA normally consults aerodrome operators or NATS when aeronautical interests might be affected. This consultation procedure is a statutory obligation in the case of certain major airports, and may include military establishments and certain air traffic surveillance technical sites. These arrangements are explained in Department for Transport Circular 1/2003 and for Scotland, Scottish Government Circular 2/2003.

11. In the event of SPV developments proposed under the Electricity Act, the relevant government department should routinely consult with the CAA. There is therefore no requirement for the CAA to be separately consulted for such proposed SPV installations or developments.

12. If an installation of SPV systems is planned on-aerodrome (i.e. within its licensed boundary) then it is recommended that data on the reflectivity of the solar panel material should be included in any assessment before installation approval can be granted. Although approval for installation is the responsibility of the ALH10, as part of a condition of a CAA Aerodrome Licence, the ALH is required to obtain prior consent from CAA Aerodrome Standards Department before any work is begun or approval to the developer or LPA is granted, in accordance with the procedures set out in CAP 791 Procedures for Changes to Aerodrome Infrastructure.

13. During the installation and associated construction of SPV systems there may also be a need to liaise with nearby aerodromes if cranes are to be used; CAA notification and permission is not required.

14. The CAA aims to replace this informal guidance with formal policy in due course and reserves the right to cancel, amend or alter the

guidance provided in this document at its discretion upon receipt of new information.

15. Further guidance may be obtained from CAA's Aerodrome Standards Department via aerodromes@caa.co.uk."

The CAA Civil Aviation Publication (CAP) 738 document⁶ notes:

"In 2010 the CAA published interim guidance on Solar Photovoltaic Cells (SPCs). At that time, it was agreed that we would review our policy based on research carried out by the Federal Aviation Authorities (FAA) in the United States, in addition to reviewing guidance issued by other National Aviation Authorities. New information and field experience, particularly with respect to compatibility and glare, has resulted in the FAA reviewing its original document 'Technical Guidance for Evaluating Selected Solar Technologies on Airports', which is likely to be subject to change, see link;

<https://www.federalregister.gov/documents/2013/10/23/2013-24729/interimpolicy-faa-review-of-solar-energy-system-projects-on-federally-obligated-airports>

In the United Kingdom there has been a further increase in SPV cells, including some located close to aerodrome boundaries; to date the CAA has not received any detrimental comments or issues of glare at these established sites. Whilst this early indication is encouraging, those responsible for safeguarding should remain vigilant to the possibility."

[Renewable energy developments: solar photovoltaic developments CAST Aerodrome Safeguarding Guidance Note⁷](#)

As of July 2023, Industry body, The Combined Aerodrome Safeguarding Team (CAST), has released its guidance document titled 'Renewable energy developments: solar photovoltaic developments CAST Aerodrome Safeguarding Guidance Note'.

With regard to glint, it suggests that the developer should supply:

"... a glint and glare survey when a development is within a distance specified by the aerodrome from an Aerodrome Reference Point (ARP) (5km in most cases)".

⁶ Civil Aviation Authority - Safety and Airspace Regulation Group, 2020, CAP 738, "Safeguarding of Aerodromes".

⁷ Combined Aerodrome Safeguarding Team (CAST), 2023, "Renewable energy developments: solar photovoltaic developments CAST Aerodrome Safeguarding Guidance Note" Available at: [cast-renewable-energy-developments-solar-july-2023.pdf \(caa.co.uk\)](#)

The document also states that:

“For many aerodromes, 5km is the distance of choice but it could be considered out to 10km. In exceptional circumstances, assessments may be required beyond 10km.”

The document provides some considerations on safety and states:

“Safety considerations must be assessed for the design of the planned solar photovoltaic development for Air Traffic Services (ATS) personnel, pilots and for CNS equipment:

- *ATS personnel – The control tower (if applicable) is the most important location for visual surveillance across an aerodrome for monitoring operations on the ground as well as in the air. It is therefore of critical importance that the development of solar photovoltaic developments does not significantly hinder the view from a control tower’s visual control room (VCR). This may be from redesigning the layout and design of the proposed solar development to avoid glare from the solar panels or by avoiding the physical blocking of key viewpoints.*
- *Pilot – A pilot’s ability to safely navigate the airspace around an aerodrome is paramount. A pilot is required to look for other aircraft and obstructions on the ground, as well as navigate towards a runway or reference points. This applies to both pilots of fixed wing aircraft and helicopters in the air, and sometimes on the ground. The standard operations that should be considered are:*
 - *pilots on approach*
 - *pilots in a visual circuit*
 - *pilots on the ground (departing and taxiing aircraft).”*

The document also makes note of other available guidance:

“The UK CAA and US FAA have produced guidance with respect to glint and glare however neither of them mandates a specific methodology for assessing the effects of glint and glare. The effects of glare may mean that some solar PV developments are unacceptable, however layout modifications (such as changes to panel tilt and elevation angle) can often alleviate these concerns and overcome objections. The benefit of early consultation with the aerodrome authority cannot be understated.”

The document comments on the Aerodrome Operator's Safety Assurance stating:

“The aerodrome operator in conjunction with any ATS personnel should, as part of the change management process in their safety management system, consider all the potential hazards posed by solar photovoltaic developments... The developer should provide the aerodrome with a safety survey which should include:

- *a glint and glare survey when a development is within a distance specified by the aerodrome from an Aerodrome Reference Point (ARP) (5km in most cases)*

The aerodrome operator should also ensure both impact and safety assessments are undertaken to provide assurance that any on- or off-aerodrome planned development does not introduce unacceptable hazards to aircrew, ATS personnel, RFFS and aerodrome vehicle operators undertaking their tasks.

As part of the aerodrome and or ATS change management process, safety assurances should take into account any potential adverse effect to critical ATS infrastructure and equipment.

The assessment must also consider any impacts to aircraft utilising instrument flight procedures and aircraft in the visual circuit.

Developers should apply the same principals for safety assurance for unlicensed aerodromes and airfields as required by this policy that are not officially safeguarded.

The developer in conjunction with the aerodrome operator, ATS personnel, RFFS and aerodrome operations should develop adequate mitigation to mitigate any risks identified.

Should risk mitigation or agreement not be possible, the aerodrome operator should follow Local Planning Authority procedures and lodge an objection regarding the development under their statutory obligations.”

[Aviation Guidance \(FAA\)](#)

The most comprehensive guidance setting out a methodology for assessing solar farm developments near aerodromes was produced November 2010 by the US Federal Aviation Administration (FAA) in a document entitled ‘*Technical Guidance for Evaluating Selected Solar Technologies on Airports*’. This was updated in Oct 2013 in the ‘*Interim Policy, FAA Review of Solar Energy System Projects on Federally Obligated Airports*’. In April 2018 the FAA released a new version (Version 1.1) of the ‘*Technical Guidance for Evaluating Selected Solar Technologies on Airports*’, and in May 2021 it provided a further set of guidance entitled ‘*14CRF Part 77 - FAA Policy: Review of Solar Energy System Projects on Federally Obligated Airports*’.

In this last review the FAA concluded, contrary to its initial beliefs, that:

“...in most cases, the glint and glare from solar energy systems to pilots on final approach is similar to glint and glare pilots routinely experience from water bodies, glass façade buildings, parking lots, and similar features. However, FAA has continued to receive reports of potential glint and glare from on-airport solar energy systems on personnel working in ATCT cabs. Therefore, FAA has determined the scope of agency policy should be focused on the impact of on airport solar energy systems to federally obligated towered airports, specifically the airport’s ATCT cab.”