



Australian Government
National Capital Authority

CONSULTATION REPORT

**WORKS APPROVAL 18643 – BLOCKS 707 AND 708 MAJURA 314
MAJURA ROAD MAJURA, CONSTRUCTION OF A SOLAR FARM**

AUGUST 2013

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PART 1 - INTRODUCTION

Under the *Australian Capital Territory (Planning and Land Management) Act 1988*, the National Capital Authority (NCA) prepares and administers the National Capital Plan (the Plan) to ensure that Canberra and the Territory are planned and developed in accordance with their national significance.

The Plan sets out the broad planning framework for the Australian Capital Territory (ACT). Areas designated as having special characteristics of the National Capital are subject to detailed planning policies and guidelines.

Any building or structure, demolition, landscaping or excavation works in Designated Areas require the approval of the NCA. The NCA considers such proposals in the context of the relevant provisions of the Plan.

On 23 October 2012, the NCA received an application from Solar Choice for the construction of a solar farm adjacent to Mount Majura Winery. The application comprises the installation of a 4 mega watt (MW) solar photovoltaic (PV) array along with supporting infrastructure (inverters, grid connection, electrical connections, storage facilities, internal roads and landscaping) on approximately 13.8 hectares of land. The project would utilise the existing onsite 11,000V distribution network operated by ActweAGL Distribution for connection to the distribution network and national electricity market.

Between 2 and 26 November 2012, the NCA sought further information to accompany the Works Approval application.

It should be noted that the current application provides the broad concept for the solar farms' layout. A further Works Approval application will be required prior to construction commencing which will provide design detail for all elements of the proposal.

PART 2 - PUBLIC CONSULTATION REQUIREMENTS

2.1 National Capital Plan

Under the Plan, the requirements for public consultation apply, but are not limited to, certain residential developments, telecommunications facilities (that are not considered low impact) and amending or issuing an instrument under the Plan (including Development Control Plans).

2.2 Commitment to Community Engagement

The NCA's 'Commitment to Community Engagement (August 2011)' details how the NCA conducts consultation. The purpose is to achieve a greater level of consistency and transparency in the NCA's decision making process.

The Commitment to Community Engagement describes:

- the minimum requirements for consultation
- the timeframes for amendments to the Plan
- what is involved in preparing a new Development Control Plan
- the process for amending or issuing an instrument under the Plan
- the process which will assess Works Approval applications for possible release for public consultation.

Part 2 (Consultation Protocol) of the NCA's Commitment to Community Engagement (August 2011) describes the consultation process for Works Approval applications. The consultation protocol includes

criteria which an application will be assessed, in order to determine whether the application should be released for public notification or full public consultation.

For development applications, the NCA undertakes a risk assessment of each proposal against the assessment criteria set out in the Consultation Protocol. The public notification process will include information about the NCA's risk assessment of the proposal against the assessment criteria below.

1. What is the likelihood that the proposal will adversely affect existing public space and / or community amenity?
2. What is the likelihood that the proposal will adversely affect existing environmental, heritage or landscape values?
3. What is the likelihood that the proposal is discordant with the general development and amenity of the locality in terms of materials, finishes, scale, massing, design and quality?
4. What is the likelihood that the proposal is inconsistent with an existing Heritage Management Plan (HMP)? (If there is no HMP, this question is not applicable).

The combination of the likelihood and consequence from the criteria above categorises an overall perceived risk into five ratings being 'negligible', 'low', 'significant', 'high' or 'extreme'. Works assessed as having an 'extreme' risk will be rejected.

Full public consultation for Works Approvals will be required where the NCA's perceived risk rating is 'significant' or 'high', and also for any development where consultation is a mandatory requirement under the Plan.

When a Works Approval application is lodged and consultation is required, the applicant is required to consult with the community and stakeholders. The NCA may stipulate specific requirements for consultation and, for higher perceived risk proposals, may undertake the consultation process itself.

The NCA may set aside the requirement to undertake full public consultation where:

- (a) previous consultation has been undertaken
- (b) for minor amendments to previously approved works
- (c) proposals are exempt, as demonstrated in the 'Commitment to Community Engagement (August 2011)'
- (d) the NCA determines it unnecessary and no stakeholders will be affected.

The Plan has specific requirements in relation to consultation for telecommunications facility, in relation to any new towers, masts or monopoles.

As the application for the construction of a solar farm on Blocks 707 and 708 was assessed at a level of risk greater than 'low', the application was subject to full public consultation.

PART 3 – SUMMARY OF PUBLIC CONSULTATION

3.1 The public consultation process

Between 20 March and 16 April 2013, public consultation on the application was undertaken.

The consultation took the form of:

- On 20 March 2013, publishing a public notice in *The Canberra Times* detailing the proposed works and inviting submissions to be made to the NCA in relation to the proposal ([Attachment A](#)).

- Between 20 March and 16 April 2013, publishing details of the proposal, including the applicant's plans and planning report on the NCA's website.
- Between 20 March and 16 April 2013 signs were installed on site, fronting Majura Road.
- On 21 March 2013, the NCA hand delivered notification letters to properties surrounding the site (including properties at least 10km to the north and south of the site) inviting comments.
- At conclusion of the public consultation period on 16 April 2013, fourteen submissions were received.
- On 10 May 2013, following public comments and requests from Civil Aviation Safety Authority (CASA) and Air Services Australia for a risk assessment, the NCA sought additional information from the applicant.
- On 12 July 2013, the applicant submitted two glare analysis reports, 'The Mount Majura Solar Farm – Glare Analysis', prepared by CBRE and 'Solar Glare Aviation Hazard Evaluation Engineering Report' prepared by Canadian Solar – based in Canada. The NCA referred these reports to CASA (as the independent statutory authority with responsibility for the safety of civil aviation in Australia) and Air Services Australia for comment.
- CASA reviewed the glare impact reports and on 5 August 2013, advised the NCA that the development does not appear to present a hazard to aviation. On 29 August 2013, the Canberra Airport requested CASA review its advice to the NCA.
- On 10 September 2013, Air Services Australia advised the NCA that the proposed solar farm would not affect the approach or departure procedure at Canberra Airport.
- On 20 September 2013, CASA provided advice to both the NCA and Canberra Airport regarding the requested review of previous advice. It was confirmed there was a 'low potential' for glare impacting on approaching aircraft and as such does not appear to be a hazard to aviation.
- On 23 September 2013, CASA confirmed its earlier advice that the development does not appear to provide a hazard to aviation.
- On 1 October 2013, the NCA received a late submission from Qantas Airways Limited.

3.1 Submissions received

The NCA received 14 submissions during the consultation period. In addition, a submission was received from Qantas on 1 October 2013. Seven submissions were from the following government agencies which were invited to provide comment on the proposal: CASA, Air Services Australia, Department of Defence, Australian Federal Police (AFP), ACT Heritage Council, Environment and Sustainable Development Directorate (ESDD) (Conservator) and ACT Roads.

The remaining submissions were from the community as well as a submission from Canberra International Airport and the submission from Qantas.

Letters or emails of acknowledgment were sent to all the submitters advising them that their submissions will be taken into consideration before a decision is made on the application. The key issues raised in the submissions are summarised below:

PART 4 – RESPONSE TO KEY ISSUES

A summary of the key issues raised in the submissions and the NCA response is provided below. Summaries of the submissions and the NCA response are at [Attachment D](#).

1. Potential for habitat of the Striped Legless Lizard being on the site. Concern about the solar farm compromising fauna connectivity between Mt Majura and the ADF facilities.

NCA comment

The NCA requested the applicant engage the services of a suitably qualified professional to investigate the potential for Striped Legless Lizard habitat and investigate measures to ensure that fauna connectivity was not compromised.

A study was prepared by NGH Environmental and provided to the NCA. It found:

- no Striped Legless Lizards were found at the time of the site survey
- the site is dominated by very low quality Striped Legless Lizard habitat
- an area on Block 708 contains some Striped Legless Lizard habitat with high to moderate value. Recommendations for construction in this area include; minimise ground disturbance, rehabilitate any disturbed patches of potential habitat with native grasses within one month of installation, slashing or grazing is to maintain a minimum grass height of 15cm, allowing tussock like structure to persist and ensure Striped Legless Lizards sheltering within the tussocks remain unharmed.

The recommendations for construction contained within the SSL study will be conditions of Works Approval, if issued.

The matter of fauna connectivity was addressed by the applicant who stated that the proposed future landscaping for the site, as well as the fauna underpasses proposed to be built as part of the Majura Parkway construction, would ensure fauna connectivity is not compromised. *(Note: The term 'Connectivity' refers to the trees on the site. Birds need to have trees every 100m or so to enable them to 'hop' through the landscape. Any further than this and the birds would need to find an alternative route.*

2. Concern about potential glare and reflectivity to aircraft, motorists on Majura Parkway, and users of nearby mountain bike tracks.

NCA comment

Nearly all of the submissions raised concern about potential glare and reflectivity of the solar farm on aircraft, motorists and nearby recreational areas. Based on this the NCA requested the applicant engage the services of a suitably qualified professional to prepare an air safety study which would assess the glare and reflectivity of the proposal.

On 12 July 2013, the applicant submitted two glare analysis reports (referred to as 'glare reports' for the remainder of this report). The reports were 'The Mount Majura Solar Farm – Glare Analysis', prepared by CBRE and 'Solar Glare Aviation Hazard Evaluation Engineering Report' prepared by Canadian Solar – based in Canada.

Both reports assessed the potential glare and reflectivity expected to be generated from the solar farm using an extensive range of variables such as height of sun and angle of the sun in the sky, vantage points and height of the viewer. Both reports concluded that whilst some level of glare is to be expected from the solar arrays, the impact of this glare to surrounding land uses, vehicles or aircraft is 'low potential' and not likely to be hazardous.

In summary; the CBRE - Glare Analysis report provided the following concluding comments:

'The modeling used [to determine glare risk] tends to overstate the likelihood of reflective glare because it does not take into consideration the prospect that the view of the panels from many locations will be obstructed by landscape features or other panels within the array...

This modeling does not take into account the actual reflectivity of the panels which in most cases is quite low, nor does it take into account the significant decrease in reflectivity that tends to occur as the angle of incidence increases.

As the sun is continually moving through the sky the period of potential glare [on surrounding aircraft or on passing motorists] is relatively short.

The Canadian Solar report, 'Solar Glare Aviation Hazard Evaluation Engineering Report' - which specifically addressed glare hazards on incoming aircraft concluded:

Limited glare was found on the flight path on Runway 35, but NO glare safety hazards expected for pilots.

There is some, limited glare found, but without safety hazards. Expected glare carries low potential of after-image for pilots. As per SANDIA metrics, situation is safe enough to accept the array configuration without further actions.

Both reports were referred to CASA, Air Services Australia, the Department of Defence (DoD) and ACT Roads. CASA reviewed the reports and advised that:

Based on the information presented the development does not appear to present a hazard to aviation. However CASA recommends that any approval is conditional on the resultant level of after image glare from the solar farm not exceeding 'low potential' as measured by the Sandia Laboratories tool.

Air Services Australia advised:

With respect to procedures promulgated by Airservices in accordance with ICAO PANS-OPS and Document 9905, at a height of 644m (2113ft) AHD, the proposed solar farm will not affect any sector or circling altitude, nor any instrument approach or departure procedure at Canberra Airport.

This Solar Farm to a maximum height of 644m (2113ft) AHD will not adversely impact the performance of Airservices Precision/Non-Precision Nav Aids, HF/VHF Comms, A-SMGCS, Radar, PRM, ADS-B, WAM or Satellite/Links.

Please note that although copies of the Solar Glare Aviation Hazard Evaluation Engineering Report and the Glare Analysis Report were provided to Airservices and CASA, the assessment of a potential glare hazard to pilots is undertaken by CASA.

The DoD also advised that:

The primary concern of Defence on the proposed Majura solar farm is any potential reduction in the safety of military air traffic using Canberra Airport. In our response of April 2013 Defence requested that the development should comply with the requirements of the Civil Aviation Safety Authority (CASA) Manual of Standards Part 139 Aerodromes . If the requirements of Part 139 have been met then Defence does not object to the development proposal..

CASA have confirmed that in this instance that the 'Manual of Standards Part 139 Aerodromes' is silent on solar farms and does not apply in this situation.

The NCA is satisfied that concerns regarding the impact from glare and reflectivity have been adequately addressed.

3. Concern about the impact of the solar farm on the radar installation at Majura as well as potential impacts on the operation of nearby Defence and AFP sites.

The matter of locations of aeronautical infrastructure is a matter for Air Services Australia.

The application was referred to Air Services Australia who advised that the proposed solar farm will not adversely impact upon aircraft and navigational technologies (see point 2 above).

3. Need for more detailed and effective landscaping plan to provide more screening surrounding the site to minimise glare and visual impacts.

NCA comment

The draft landscaping plan proposes a range of plant species (both shrubs and trees) that will, in time, provide screening to the property. The proposed plan is indicative only and a more detailed plan will be submitted in the future for works approval prior to construction commencing.

The applicant has declared a commitment to ongoing plantings to occur throughout the operating life of the project to ensure effective long term visual screening. This will be a condition placed on the Works Approval for the site, if issued.

5. Potential to impact on future high speed rail alignments.

NCA comment

The final alignment of the high speed rail network is not known. Any future investigation for the railway will assess all relevant environmental constraints and a decision on its alignment will be informed by the outcome of these studies. The presence of the solar farm does not preclude it from consideration as a possible railway alignment.

On 11 April 2013, the Commonwealth Government released the 'High speed rail study phase 2 report' which presented a refined alignment which is located to the south of the solar farm and does not incorporate any of the solar farm property.

6. Concern regarding potential for unidentified Aboriginal sites to be present and disturbed by the proposed solar farm installation.

NCA comment

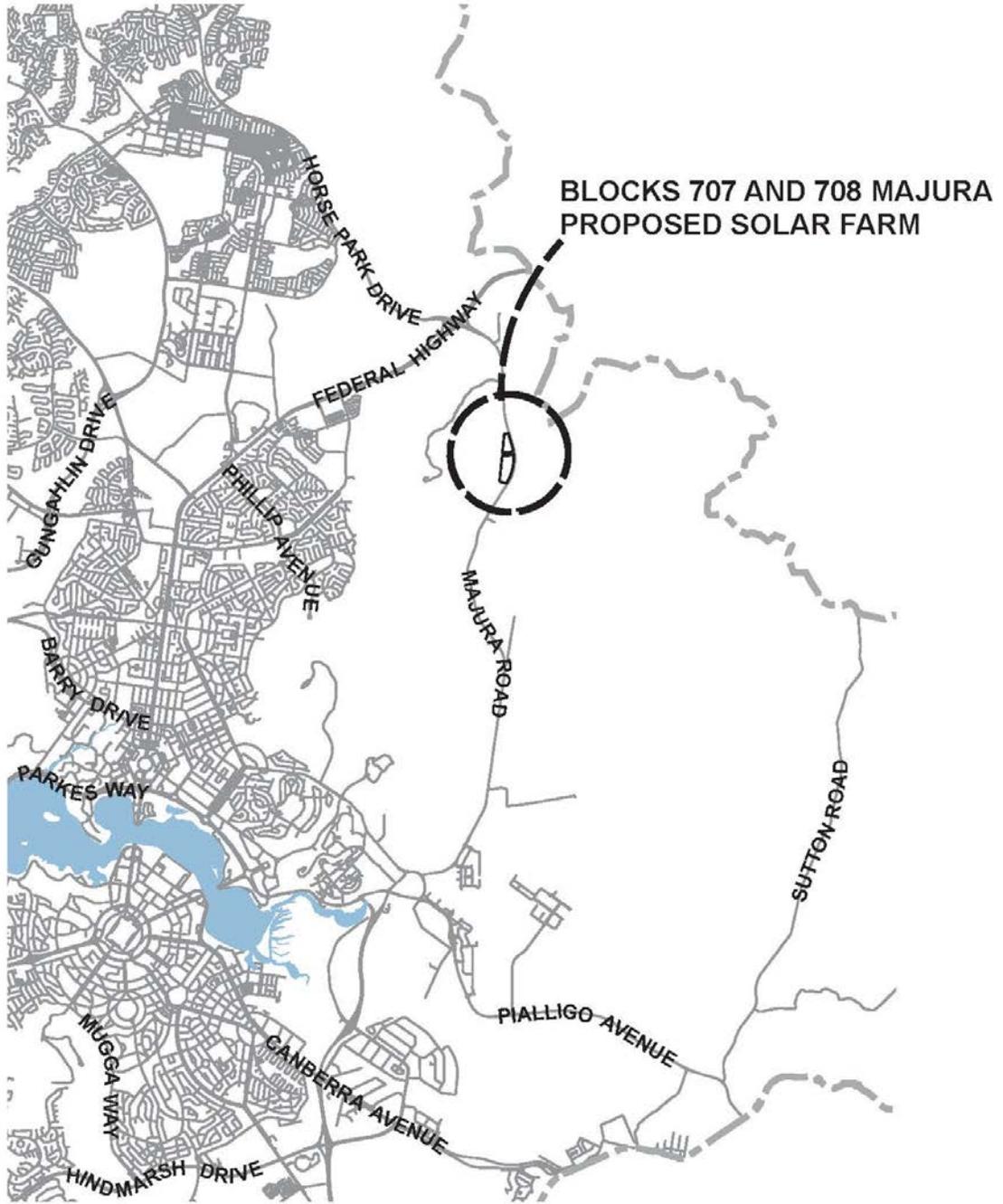
The requirement for a Cultural Heritage Assessment will be a condition of works approval, if issued. The assessment will be required to be prepared prior to development commencing and referred to the ACT Heritage Council and the NCA for approval.

Conclusion

The NCA's consultation process was carried out in accordance with the Plan and the NCA's 'Commitment to Community Engagement (August 2011)'.

Fourteen written submissions were received during the consultation period, in addition a formal submission received from Qantas after the formal consultation period. The NCA has sought further clarification from the applicant on a number of the matters raised during the consultation process. The applicant has provided two supplementary information reports as well as the two glare reports which extensively address the concerns raised by the community. The NCA is satisfied that the major concerns of the community have been addressed. The proposal is consistent with the provisions of the National Capital Plan.

Attachment A - Location plan



Attachment B - Canberra Times – public notice

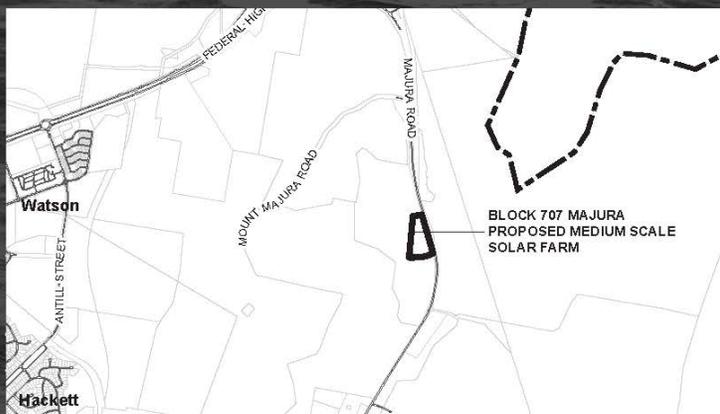


Australian Government
National Capital Authority

WORKS APPROVAL

Block 707 Majura – Construction of solar farm between Majura Road and Majura Parkway (within Majura Winery).

The National Capital Authority has received a works approval application from Solar Choice for the construction of a solar farm within the Majura Winery property, between Majura Road and Majura Parkway.



Information and plans for this application can be found at www.nationalcapital.gov.au/haveyoursay

For any questions please contact Edwina Nelson on (02) 6271 2871. Comments on the proposal are invited and should be sent to: worksapproval@natcap.gov.au or GPO Box 373 Canberra ACT 2601 by COB Tuesday 16 April 2013.

All submissions, including names and addresses will be made publicly available at the NCA office and on the website, subject to approval in writing by the submitter, in accordance with the NCA's Commitment to Community Engagement.

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WWW.NATIONALCAPITAL.GOV.AU

WA200313

Attachment C – Letter to residents



Australian Government
National Capital Authority

File No: 12/542 Job No: WA18643; Trim No. 140614

The Property Owner

Dear Sir/Madam

Blocks 707 and 708 (currently part of Block 666) Majura– Construction of a solar farm adjacent to Mount Majura Winery

I am writing to advise you that the National Capital Authority (NCA) has received a works approval application for a solar farm at Blocks 707 and 708 (currently part of Block 666) Majura, adjacent to the Mount Majura Winery.

The plans and supporting documentation on the proposal can be viewed on the NCA's website at www.nationalcapital.gov.au/haveyoursay

Please provide any written comments you may have on the proposal by close of business on Tuesday 16 April 2013.

If you require any further information or would like a briefing, please contact Edwina Nelson on edwina.nelson@natcap.gov.au or phone 6271 2871.

Yours sincerely

A handwritten signature in black ink that reads "N. Broughton" followed by a horizontal line.

Natalie Broughton
Director Development Assessment and Heritage

18 March 2013

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Attachment D – Summary of submissions

Note: The National Capital Authority (NCA) undertakes an open and transparent works application process. As part of this process the NCA prepares a Consultation Report for publication on the NCA website, which includes a summary of each submission, along with the name of each person making the submission. Names of submitters have been omitted where a submitter requested confidentiality.

Issue	NCA response
Submission 1 – ACT ESDD – Conservation Planning and Research section	
<p>1. Unknown if there are Striped Legless Lizards on the site. They are known to exist nearby >1km. The site represents habitat suitable to the Striped Legless Lizard and as per the NGH study accompanying the application, suggests a further study be undertaken to determine the presence or otherwise of Striped Legless Lizard.</p>	<p>Based on the ESDD submission the NCA requested that the applicant prepare a more detailed study addressing the site’s potential for Striped Legless Lizard habitat. The report, prepared by NGH, concluded:</p> <ul style="list-style-type: none"> • No Striped Legless Lizard were found at the time of the site survey • The site is dominated by very low quality Striped Legless Lizard habitat • An area on Block 708 contains some Striped Legless Lizard habitat with high to moderate value. Recommendations for construction in this area include; minimise ground disturbance, rehabilitate any disturbed patches of potential habitat with native grasses within one month of installation, slashing or grazing is to maintain a minimum grass height of 15cm, allowing tussock like structure to persist and ensure Striped Legless Lizards sheltering within the tussocks to remain unharmed <p>The above recommendations will be conditions of Works Approval, if issued.</p>
<p>2. The site location provides wildlife connectivity between Mt Majura and the Defence Force facilities. The solar farm should not compromise this connectivity. Suggested that landscaping on the site should complement the existing and future connectivity of the area.</p> <p><i>(note: ‘Connectivity’ refers to the trees on the site. Birds need to have trees every 100m or so to enable them to ‘hop’ through the landscape. Any further than this and the birds would need to find an alternative route. The solar farm’s landscaping can contribute to this by ensuring that there are tree replacements planted with this in mind. The connectivity that is really important in this location is east to west.</i></p>	<p>The applicant has provided a response to the issue of wildlife connectivity, summarised below:</p> <ul style="list-style-type: none"> • There is an opportunity for the solar farm to contribute to maintaining connectivity for woodland birds across the site, particularly in the east-west direction, through the implementation of appropriate landscaping. Appropriate landscaping will be further developed at design detail stage. • The Majura Parkway is required to install 4 underpasses to maintain east-west kangaroo movement corridors in the general vicinity of the project. The proponent will consult with Majura Parkway to confirm the final location of these kangaroo underpasses and ensure that the final design of the project is compatible with the objectives of these underpasses to maintain the east-west movement corridors. <p>The NCA supports this response</p>
<p>Note: The NGH report was referred to the Conservator for further review and comment. The following comments were received on 5 August 2013 <i>The geographic location of the proposed solar farm means that it is possible,</i></p>	<p>See point 2 above.</p>

Issue	NCA response
<p><i>but unlikely, that striped legless lizard <i>Delma impar</i>, occurs on the site. The habitat assessment by NGH, which records that most of the site does not support tussock grassland and is or has in the past been grazed to a grass cover height of less than 10 cm, makes it less likely that striped legless lizard occurs on the site. The lack of the likelihood that the lizard occurs on the land, together with measures to protect the most suitable potential habitat, mean that the development proposal is unlikely to have a significant impact on the striped legless lizard.</i></p> <p><i>CPR would like to re-iterate the earlier advice that the proposed solar farm location lies within an area of connectivity importance, which is the major linkage point between large woodland forest complexes on Mt Majura/Mt Ainslie and the Majura Army Field Training Area and woodland beyond in NSW. CPR strongly urges that connectivity within the general solar farm area be improved by linking existing remnant paddock trees and the future plantings associated with the Majura Parkway. This could be done by clumped plantings of local trees and shrubs, and should be able to be achieved without impacting on the functioning of the solar farm or existing vine plantings.</i></p>	
Submission 2 – Civil Aviation Safety Authority (CASA)	
<p>3. Due to the close alignment of the proposed solar farm with the main runway at Canberra Airport, CASA recommends the applicant provide additional information by way of a safety study to confirm pilots flying into Canberra Airport from the north will not be exposed the significant glare.</p>	<p>The NCA requested that the applicant prepare a safety study. The applicant engaged the services of CBRE which prepared ‘<i>Glare Analysis</i>’ report. A second study was prepared by Canadian Solar – ‘<i>Solar Glare Aviation Hazard Evaluation</i>’. The reports’ findings are summarised below:</p> <p>CBRE – <i>Glare Analysis</i></p> <p>Methodology: the methodology used assumes that the panels are reflective, calculates the three-dimensional vector from the viewer to the panel and then projects the reflection of the viewing vector into the sky. If the area of reflection coincides with the position of the sun at any time of the day or year, then there is potential for sun glare to reach the viewer of that date and that time. Eight ground based view points were assessed and 13 air craft view points were assessed (various points of 1000 – 5000 feet heights).</p> <p>The report concludes that at only during very limited times of the year and day angles of possible reflection are such that passing motorists or air craft could experience glare from particular vantage points. In addition, the low reflectivity characteristics of the solar PV modules further mitigates the low residual risk of reflectivity or glare at the relevant</p>

Issue	NCA response
	<p>vantage points</p> <p>Canadian Solar - <i>Solar Glare Aviation Hazard Evaluation</i></p> <p>This report concluded that while there is some limited glare found it presents no safety hazard to pilots.</p> <p>This report utilised the Sandia Laboratories software tool. This tool is currently recommended by the United States Federal Aviation Administration (FAA). The assessment found there is 'low potential; for after –image glare for pilots on approach from the north to runway 17 at Canberra Airport. 'Low potential' is the lowest level of glare using the Sandia assessment tool.</p> <p>Both reports state that glare and reflection from the solar array will produce some glare but not to an extent that will impact upon passing motorists or aircraft.</p> <p>The reports were both referred to CASA, Air Services Australia, Roads ACT and Department of Defence. Each agency advised (DoD deferred to CASA's advice) that they accepted the findings of the reports.</p>
<p>CASA reviewed the glare reports and provided the following response on 5 August 2013:</p> <p><i>After reviewing the attached documents and having discussions with the developer and Air Services Australia on the proposal, the farm as proposed does not appear to be a hazard to aircraft.</i></p> <p><i>In summary:</i></p> <ul style="list-style-type: none"> • <i>The farm will be located 6.2km north of the threshold of the main runway</i> • <i>Panels will be set at 30 degrees (two options being considered are panels that track the sun and one that is stationary)</i> • <i>Aircraft transiting the area will only be exposed to any potential glare (determined as being low glare) momentarily</i> <p><i>Solar panels are designed to absorb light, not to reflect light. (The more light reflected, the less efficient they are.)</i></p> <ul style="list-style-type: none"> • <i>Panels have a reflective value of less than 8% which is much less than glass and similar to that of a forest or crop or grasslands (ref p 55 of Mt Majura Solar Farm doc)</i> • <i>The aviation specific safety assessment has indicated there is low</i> 	<p>The NCA notes the CASA advice.</p>

Issue	NCA response
<p><i>potential for after image reflection (an optical illusion that refers to an image continuing to appear in one's vision after the exposure to the original image has ceased)</i></p> <ul style="list-style-type: none"> <i>Airservices have advised CASA that they have no concerns regarding the development</i> <p><i>Therefore, based on the information presented to CASA on the proposed Mt Majura Solar Farm, the development does not appear to present a hazard to aviation, however the planning authority that assesses the development will need to ensure that their concerns are met before approving the development.</i></p>	
<p>Note: Canberra Airport requested CASA review their original advice (5 August 2013) due to continued concerns regarding the potential glare impacts. On 23 September, CASA provided the following additional advice:</p> <p><i>Based on the information presented the development does not appear to present a hazard to aviation. However CASA recommends that any approval is conditional on the resultant level of after image glare from the solar farm not exceeding 'low potential' as measured by the Sandia Laboratories tool.</i></p>	<p>The NCA notes the CASA advice.</p>
Submission 3 – Adam McLaughlin	
<p>4. Aircraft safety: Unclear if the panels will be fixed or tracking panels.</p>	<p>This type of detail will be subject to a subsequent works approval application. The glare analysis assessed glare impact from both a fixed and tracking perspective.</p>
<p>5. Application information is insufficient and doesn't adequately address the impact of glare. The works should not be given approval until advice is provided from CASA.</p>	<p>Refer to point 3 above.</p>
<p>6. Road user safety. Potential for impacts on road users. Majura Parkway will look onto the solar farm.</p>	<p>The glare reports were referred to ACT Roads - see submission 11.</p> <p>The proposed landscaping will aid in screening the development from Majura Parkway.</p> <p>Refer to point 3 above.</p>

Issue	NCA response
7. Landscaping is not sufficient as only small shrubs are proposed.	The current landscape plan is indicative only. This plan will be further developed prior to construction commencing and submitted to the NCA for Works Approval. The applicant confirms that the plan will include commitments to ongoing planting to occur throughout the operating life of the project to ensure effective long term visual screening.
8. High speed rail network - railway to be close to or through the solar farm facility. The alignment may be detoured - losing high value recreational land near the Majura Pines.	<p>The exact alignment of the high speed rail network is not known. Any future investigation for the railway will assess all relevant environmental constraints and a decision on its alignment will be informed by the outcome of these studies. The presence of the solar farm does not preclude it from consideration as a possible railway alignment.</p> <p>It should be noted that on April 11, 2013 the Commonwealth Government released the <i>High speed rail study phase 2 report</i> which presented a refined alignment which does not include the site of the solar farm. The proposed alignment is located to the east of the solar farm.</p>
Submission 4 - Stephen Byron – Canberra Airport	
9. Concern that Canberra Airport was not given appropriate opportunity to provide comment and were made aware of the proposal by a Canberra Times article on 18 March, prior to the NCA ad appearing in the Canberra Times on 20 March 2013.	<p>The Canberra Airport was sent a letter inviting comment dated 18 March 2013. The advertisement regarding the application appeared in the <i>Canberra Times</i> on 20 March 2013. The Canberra Airport received the full consultation period to provide comment.</p> <p>The NCA has no control over separate media stories regarding the proposed development.</p>
10. Proposal appears to be a danger to aircraft safety	Refer to point 3 above .
11. Proposal should be withdrawn from public consultation until the danger to aircraft safety is fully investigated and consulted	The application was required to be publicly notified as per the NCA Commitment to Community Engagement. It was determined that no decision be made on the proposal prior to the findings of the glare analysis being received and support received from CASA.
12. The examples of solar farms given by applicant are not adequately comparable to inform a decision.	The applicant has provided numerous examples of solar farms in close proximity to airports.
13. Canberra airport has suggested other areas could be used with a benign impact to aircraft operations.	The NCA is considering the current application as submitted to the NCA.
14. Suggests the precautionary principle should be applied where there is a risk to the health and safety and adequate scientific investigation has not supported the decision	Refer to point 3 above.
15. The proposal represents a danger to aircraft on arrival from the north into the airport's main runway 17.	Refer to point 3 above.
16. Disappointed that the proposal has proceeded to Works Approval stage without	The NCA Consultation Protocol requires public consultation

Issue	NCA response
prior consultation with major aviation stakeholders (CASA, Airservices and Canberra Airport)	be undertaken at Works Approval stage.
Submission 5 – Name withheld	
17. Question of impact from reflection on recreational and mountain bike users of the area? An alternative site should be investigated.	<p>There is unlikely to be impact from reflection on recreational and bike users of the area due to the location of the Majura Pines to the south of the site. The applicant has provided the following response regarding the potential to impact upon the Majura Pines:</p> <p style="text-align: center;"><i>There is zero risk of reflectivity from the proposed works impacting users of Majura Pines due to the location of this area to the south of the site. Notwithstanding the low reflectivity characteristics of the solar PV modules in the first case, given the geometry of the sun's path and the configuration of the array oriented to the north, it is physically impossible for any potential reflectivity to impact on areas to the south of the proposed works.</i></p> <p>The NCA supports this response. Refer to point 3 above.</p>
Submission 6 – Name withheld	
18. Inappropriate to place such a large power facility so close to residential areas, recreational (Majura Pines) and tourist attractions (Majura Winery). Need to ensure that reflectivity won't affect these areas.	<p>The solar farm is considered appropriately placed in terms of orientation, and proximity to electricity infrastructure. The use of screen planting and landscaping will assist to minimise the visual impact of the site on surrounding areas.</p> <p>Refer to point 3 above.</p>
19. Very Fast Train corridor should remain open otherwise realignment may require loss of Majura Pines	Refer to point 8 above.
Submission 7 – Julie Bailie	
20. Has the Civil Aviation Safety Authority been informed and asked to provide a submission to this proposal?	<p>Yes – The glare reports were referred to CASA for comment.</p> <p>Refer to point 5 above.</p>
21. Has the Canberra Airport been made aware of the solar farms placement under the radar installation at Majura?	<p>The matter of locations of aeronautical infrastructure is a matter for Air Services Australia.</p> <p>Refer to point 53 below.</p>
22. Has the Department of Defence been made aware of the possible impacts due to glare and navaid interference from this installation on future training exercises?	<p>The Department of Defence were sent the glare reports and have been informed of CASA's response. Defence has no further concerns regarding the proposal.</p>
23. Has the relevant divisions of the AFP been made aware of the possible impacts due to glare and navaid interference from this installation on future training exercises?	<p>Yes – The AFP were invited to comment and raised "no comments from a property perspective" (see point 51 below)</p>
24. Are you aware of the Federal Aviation Administration recalling their guidelines for	Refer to point 3 above.

Issue	NCA response
reflectivity due to a number of issues of reflectivity affecting aviation safety?	
25. Are you aware of the possible impact of this facility on the radar installation at Majura?	Refer to point 21 above and point 53 below.
26. Will a fund be set up to contribute to negating the visual effects on neighbours and the local travelling public for the duration of the development?	Landscape screening is proposed and will provide screening of the development from surrounding areas. Refer to point 7 above.
27. Will you guarantee that the proponent will be made to conduct ongoing plantings in an attempt to reduce the visual disturbance, both on-site and on neighbours properties to minimise glare and associated visual distractions for the entire period of its operation?	Landscape screening is proposed. Refer to point 7 above.
28. Will the bridge linking the old Majura Rd and the winery be affected by glare from this facility. Panels will be facing across this bridge that will also include a shared path for pedestrians and bicycles as well as a combination of vehicle types heading north from complexes along the northern end of the Majura Road?	Refer to point 3 above.
29. Will bike riders be affected by glare and glint when using the Mt Majura mountain bike circuits or when enjoying the new cycle paths and shared use path included in the current Majura Parkway construction?	It is unlikely that mountain bike riders will be affected by glare from the solar farm. Refer to point 17 above.
30. Will all firefighting authorities be included in fire prevention and fire fighting planning?	The applicant has consulted with the ACT Fire and Rescue who have provided advice regarding the location of isolation switches and hazardous voltage signs. The applicant will consult further at construction stage.
31. Will the electrical components and connection methods be approved and inspected by local electrical authorities?	The connection of the facility to the Actew AGL grid will be in accordance with ActewAGL controls.
Submission 8 – Warwick and Julie Bailie	
32. Significant concerns regarding reflectivity and glare on air craft.	Refer to point 3 above.
33. Inconstency with the NCOSS, and Hills Ridges and Buffer Spaces, Rural Areas and rural setting. Solar farm will detract from the need to preserve Majura Valley as the rural gateway to Canberra.	The solar farm is a permissible use within the NCOSS – Hill Ridges and Buffers. The site does not fall within the Rural Areas Land Use policy
34. Applicant states they have undertaken preliminary consultation with neighbours - submission states that no prelim consultation has occurred with the applicant.	Noted. The NCA undertook independent consultation providing the opportunity for submissions.

Issue	NCA response
35. Should application go ahead the proponent should provide additional on and off site screening, a fund be established to lessen visual impact on surrounding areas.	Screen landscaping is proposed on site. Refer to point 7 above.
36. External fencing should be set back from road and dense screen vegetation planted to minimise visual impact.	Noted – a revised landscaping plan will be submitted prior to construction which will address the issue of visual impact.
37. There are other suitable areas within the ACT that could accommodate the solar farm	The NCA is considering the current proposal on the current site.
38. Impact on Department of Defence and AFP facilities - are they aware of the proposal? (low level helicopter flying, glint or glare to navigational aids).	AFP are aware of the proposal and have not raised any issues. Refer to point 3 above.
39. Impact on Mountain bikers, fire risk, ongoing maintenance issues.	Mountain bikers are not likely to be impacted upon from glare. Refer to point 17 above. Fire hazard reduction measures will be implemented at construction stage in consultation with the ACT Fire and Rescue.
40. The application contains poor detail and inaccurate information about the proposal.	The applicant has provided two subsequent submissions addressing relevant issues raised by the NCA. The NCA is satisfied with the detail contained within the submissions.
41. Concerns regarding the fire risk.	The applicant has liaised with ACT Fire and Rescue and will continue to do so during the planning stages of the proposal.
Submission 9 – Jeremy Allen	
42. No objection to the proposal solar farm. Made general request regarding a Mountain Bike track in the area.	This is a separate issue to this application and is a matter for the ACT Government.
Submission 10 – Department of Defence	
43. DoD stated that the solar farm is to the west of the Defence Majura Training Area (MTA) and 6kms from Canberra Airport. Concern that its operations are not constrained by 'incompatible development' on surrounding land. Defence also requested that the development " <i>should comply with the requirements of the 'CASA Manual of Standards Part 139 Aerodromes' . If the requirements of Part 139 have been met then Defence does not object to the development proposal.</i> 44. Raised issue of reflectivity for approaching or departing from the airport.	The Department of Defence were provided with copies of the glare reports and with CASA's response and have not raised any further concerns. CASA have also confirmed that in this instance that the 'Manual of Standards Part 139 Aerodromes' is silent on solar farms and does not apply in this situation. Refer to point 3 above.
Submission 11 – Roads ACT.	
45. The concern of the farm being located in such close proximity to the Parkway would be glare that may result from reflection of the	The NCA requested that the analysis of potential impacts of glare and reflection on aircraft also include an assessment of

Issue	NCA response
panels.	<p>glare impact on road users.</p> <p>The CBRE report - <i>Glare Analysis</i> included assessment of vantage points surrounding the site, including the area proposed for the Majura Parkway to the west of the site.</p> <p>It was concluded that:</p> <ul style="list-style-type: none"> only during very limited times of the year and day angles of possible reflection are such that passing motorists could experience glare from particular vantage points. The low reflectivity characteristics of the solar PV modules further mitigates the low residual risk of reflectivity or glare at the relevant vantage points. <p>Refer to point 3 above.</p>
<p>46. From the Parkway perspective any landscaping and/or screening proposed would need to be considered in the context of the landscaping proposed for the Parkway to ensure tree / plant species are consistent. Landscape Plan in the document does not provide details on species etc.</p>	<p>The applicant will submit a more detailed landscape plan for Works Approval which will be undertaken in consultation with Roads ACT to ensure compatibility with Majura Parkway.</p>
<p>47. The proposed farm will be bisected by an access road connecting the Majura Road to BR09 on the Parkway. It is proposed that some access arrangements be provided connecting these two sections of the Farm. Any access arrangements will need to be presented and approved by Roads ACT.</p>	<p>Roads Asset Acceptance will be required prior to construction commencing and will be a requirement of the detailed design Works Approval.</p>
<p>48. Timing of these works may impact on current construction works for the Parkway. Works on the access road is unlikely to be complete and construction traffic for the solar farm will be required to access the solar farm site from Majura Road. Fulton Hogan has been provided possession of site at this location and it is likely there could be conflict with Fulton Hogans applicable TTM's, monitoring and control of construction traffic etc, which may result in delay costs.</p>	<p>The applicant has advised that once the construction schedule for the solar farm is known they will consult with ACT Roads and Fulton Hogan to co-ordinate access requirements and minimise impact to road users.</p>
<p>49. Utilities: Solar Farm trenching could impact on utilities (Telstra, Jemena) and approvals from these would be required.</p>	<p>There is a gas and telecommunications easement located on the site. The applicant will liaise at detail design stage to ensure that the solar arrays do not impact on any underground infrastructure.</p>
<p>50. Flood Impacts: Have not been sufficiently articulated in the report.</p>	<p>A flooding study has not been prepared for the site. Flooding has been addressed in the applicant's Works Approval documentation. The site is located to the north of Wool Shed Creek. A flooding study conducted as part of the Majura Parkway feasibility study states that in the case of 1 in 100 year flood flooding would be contained within 200m of the creek line. The creek diverts east to the south of the site at a</p>

Issue	NCA response
	distance greater than 200m. NCA supports this comment.
<p>Note – Roads ACT were sent copies of the glare reports for review. The following comment was provided on 1/8/13. <i>As discussed we would like to see the final design of the farm to ensure our concerns raised have been sufficiently addressed including timing of any proposed works to ensure impacts on the Parkway construction and road users have been considered.</i></p>	<p>The detailed design Works Approval for the solar farm; will be issued to Roads ACT for further comment once received by the NCA.</p>
Submission 12 – AFP	
<p>51. The proposal was forwarded to the AFP for comment on 19 March and no comment was received. A follow up email was sent to AFP on 6 June and AFP stated ‘No comments from a property perspective’.</p>	<p>Noted.</p>
Submission 13 – ACT Heritage	
<p>52. The Heritage Impact Statement referred to in the Solar Fields Works Approval submission (prepared for the Majura Parkway investigations) was not exhaustive in the context of the proposed solar farm development. The development footprint specific to the Majura Parkway was surveyed, however the areas outside the road corridor were not comprehensively investigated. Any areas of archaeological sensitivity outside the road corridor were identified based on predictive modelling, not ground testing.</p> <p>There is potential for Aboriginal sites to be present on the site and subsequently disturbed by the installation of the solar panel mounts.</p> <p>A cultural heritage assessment specific to the development is recommended to inform the development works.</p> <p>The assessment must consider previously identified sites within the locality.</p>	<p>The NCA will place the requirement for the cultural heritage assessment on any Works Approval if issued. Works on the site will not be permitted to commence until the assessment has been undertaken and mitigating works carried out on site if necessary.</p>
Submission 14 – Air Services Australia	
<p>53. Airservices Australia was sent copies of the glare reports and have provided the following advice:</p> <p><i>With respect to procedures promulgated by Airservices in accordance with ICAO PANS-OPS and Document 9905, at a height of 644m (2113ft) AHD, the proposed solar farm will not affect any sector or circling altitude, nor any instrument approach or departure procedure</i></p>	<p>The NCA notes this advice.</p>

Issue	NCA response
<p><i>at Canberra Airport.</i></p> <p><i>This Solar Farm to a maximum height of 644m (2113ft) AHD will not adversely impact the performance of Airservices Precision/Non-Precision Nav Aids, HF/VHF Comms, A-SMGCS, Radar, PRM, ADS-B, WAM or Satellite/Links.</i></p> <p><i>Please note that although copies of the Solar Glare Aviation Hazard Evaluation Engineering Report and the Glare Analysis Report were provided to Airservices and CASA, the assessment of a potential glare hazard to pilots is undertaken by CASA.</i></p>	
Submission 15 – QANTAS	
54. Object on the basis the proposal poses a potential safety hazard to Qantas aircraft, crew and passengers operating into Canberra Airport	Refer to point 3 above.
55. Concern about location of solar farm which lies 270-300 metres below the approach to Runway 17 for aircraft arriving into Canberra Airport	The solar farm’s location has been assessed as part of the glare reports and found not to cause an impact due to glare and reflectivity. Refer to point 3 above.
56. Imprudent not to preserve existing green field areas around airports to allow unimpeded airport operations day or night	The proposed solar farm is a permissible use within the area and is considered an acceptable development within the area.
57. Qantas have reviewed both reports and note that both reports acknowledge that aircraft will be potentially subjected to glare.	Refer to point 3 above.
58. Qantas have identified potential flaws in the glare reports being:	
a) CBRE report makes incorrect reference to runway 35 not runway 17 which is the runway aircraft arrive on.	A review of the Canberra Airport runways refers to runways 17/35 which is the north-south runway. The intent of the study is not affected by the inconsistency in runway number.
b) Potential for the altitudes to not be exactly on profile and may be 100 feet or so feet out. It is uncertain what impact this may have on the accuracy of the assessment	The reports have been reviewed by CASA with no inaccuracies identified. Refer to point 3 above.
c) The Required Navigation Performance (RNP)-AR approach waypoint ‘CB560’ is just to the east of the array, which may or may not be more susceptible to glare, but would likely produce different results to the analysis in the assessment by Canadian Solar at certain times of the day as the Canadian Solar analysis focusses more	The reports have been reviewed by CASA and Air Services Australia with no inaccuracies identified. Refer to points 3 and 53 above.

Issue	NCA response
<p>on the VHF Omnidirectional Range (VOR) Distance Measuring Equipment (DME) Runway 17 approach.</p> <p>For VOR DME Runway 17 approach, the array is situated 0.4NM ahead of the Missed Approach Point where navigation needs to be visual. The missed approach point on this approach is probably one of the most distant from the threshold in Australia, with a long visual segment and it would be hazardous for a pilot to experience temporary blindness from glare at this point.</p> <p>It should be noted that, even in visual meteorological conditions (VMC), an aircraft would be required to track to a VOR approach profile to ensure appropriate terrain separation.</p>	

Attachment E – Correspondence from CASA

UNCLASSIFIED 05/08/2013

Hi,

After reviewing the attached documents and having discussions with the developer and Air Services Australia on the proposal, the farm as proposed does not appear to be a hazard to aircraft.

In summary:

- The farm will be located 6.2km north of the threshold of the main runway
- Panels will be set at 30 degrees (two options being considered are panels that track the sun and one that is stationary)
- Aircraft transiting the area will only be exposed to any potential glare (determined as being low glare) momentarily

Solar panels are designed to absorb light, not to reflect light. (The more light reflected, the less efficient they are.)

- Panels have a reflective value of less than 8% which is much less than glass and similar to that of a forest or crop or grasslands (ref p 55 of Mt Majura Solar Farm doc)
- The aviation specific safety assessment has indicated there is low potential for after image reflection (an optical illusion that refers to an image continuing to appear in one's vision after the exposure to the original image has ceased)
- Airservices have advised CASA that they have no concerns regarding the development

Therefore, based on the information presented to CASA on the proposed Mt Majura Solar Farm, the development does not appear to present a hazard to aviation, however the planning authority that assesses the development will need to ensure that their concerns are met before approving the development.

Regards

Airspace and Aerodrome Regulation



Australian Government
Civil Aviation Safety Authority

OFFICE OF THE DIRECTOR OF AVIATION SAFETY

Trim Ref: G113/1091

20 September 2013

Mr Stephen Byron
Managing Director
Canberra Airport Pty Ltd
2 Brindabella Circuit
BRINDABELLA BUSINESS PARK ACT 2609

Dear Mr Byron

Majura Valley Solar Farm Proposal

I refer to your letter dated 29 August 2013 in which you expressed concerns about the proposed Majura solar farm project.

CASA conducted two separate reviews of the proposal provided by the National Capital Authority (NCA) – one in relation to compliance with aerodrome standards and the other in relation to potential safety impact on flying operations.

With regard to aerodrome standards, CASA does not believe the establishment of the proposed solar farm will breach civil aviation safety regulations.

In relation to potential safety impact on flying operations, CASA noted that the proposal included a solar glare assessment using the Sandia Laboratories software tool. This tool is currently recommended by the United States Federal Aviation Administration (FAA). The assessment found there is a 'low potential' for after-image glare for pilots on approach from the north to runway 17 at Canberra Airport. 'Low potential' is the lowest level of glare using the Sandia assessment tool. The FAA will only approve solar farms on approaches to an airport if: "the proponent/airport sponsor can demonstrate there will be no glint or glare in the control towers on the airport, and only minor (low potential for after-image) on all approaches at the airport."

Based on the information presented to CASA, the development does not appear to present a hazard to aviation. However CASA will recommend to the NCA that any approval is conditional on the resultant level of after-image glare from the solar farm not exceeding 'low potential' as measured by the Sandia Laboratories tool.

The NCA will also be informed of CASA's expectation that if the solar farm at any point in the future presents an aviation hazard, the proponent will mitigate that hazard.

Yours sincerely

John F. McCormick
Director of Aviation Safety



Australian Government
Civil Aviation Safety Authority

AIRSPACE AND AERODROME REGULATION DIVISION

File Ref F13/8028



T157290

23 September 2013

National Capital Authority
GPO Box 373
CANBERRA ACT 2601

Dear

Re: Majura Solar Farm

I refer to your email dated 15 July 2013 to Matthew Windbank in which the National Capital Authority (NCA) sought CASA advice about the aircraft safety impact arising from the proposed Majura Solar Farm.

CASA has reviewed the evidence provided by the NCA, including a solar glare assessment which found there is a 'low potential' for after image glare for pilots on approach from the north to runway 17 at Canberra Airport.

Based on the information presented to CASA, the development does not appear to present a hazard to aviation. However CASA recommends that any approval is conditional on the resultant level of after image glare from the solar farm not exceeding 'low potential' as measured by the Sandia Laboratories tool.

CASA's expectation is that if the solar farm at any point in the future presents an aviation hazard, the proponent will mitigate that hazard.

Yours sincerely

Jan Goosen
Acting Manager
Airways and Aerodromes Branch