



19th June 2015

Mr Neville Osborne
NSW Department of Planning
Sydney NSW 2000

Reference A: MP 10_0121, Capital Solar Farm

Request to Modify Conditions of Consent – Permit fixed and / or tracking solar PV arrays

Dear Mr Osborne,

Project Background

Capital Solar Farm is a proposed fixed array photovoltaic solar farm development located north of Bungendore, NSW. Infigen Energy (the Proponent) received Project Approval from the NSW Planning and Assessment Commission for the construction and operation of Capital Solar Farm on 21 December 2011. Approval was granted for a 50 MW solar farm and associated electrical and civil infrastructure.

The Project Approval related to a fixed photovoltaic (PV) array solar farm. The Proponent now seeks approval for the following modifications to the Project Approval:

- a. Inclusion of tracking PV arrays. The Proponent requests that all references to "fixed" be changed to "fixed and / or tracking".
- b. Height of tracking PV arrays. The maximum height of any fixed PV arrays would remain at 3.5m. However, approval is sought to impose a maximum height for any tracking PV array at 3.8m. This maximum height would only be reached during sunrise, sunset and potentially during occasional servicing. The apex of the tracking PV array will be lower than the currently approved fixed array height of 3.5m throughout the majority of the day, during normal operation.

In accordance with the Conditions of Consent, the Proponent must still submit all required assessments and plans. No amendments are sought to the Conditions of Consent in Reference A. The project remains consistent with all other criteria approved in Reference A, including environmental impact and noise requirements.

Landowner Consent

The Proponent has consulted with the landowner upon whose land the PV arrays will be installed and received landowner consent for the proposed modification (refer to Attachment 1).

Justification

Significant improvements in both tracking and fixed array technology have occurred since the original Project Approval was received in 2011. The relative commercial

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merits between a fixed array and tracking array are highly dynamic (changing on a monthly basis). In order to balance the objective of maximising electricity production against management of capital and operational costs (to achieve the lowest levelised cost of energy), it is important that the Proponent has the flexibility to consider the inclusion of fixed and tracking arrays. In so doing, the Proponent will also be assisting the NSW Government to meet the objectives of the NSW Renewable Energy Action Plan, 2013 and the NSW 2021 plan of reaching a renewable energy target of 20% by 2020.

Further Information

Physical Components

No physical changes are sought to the fixed PV arrays proposed.

Should a tracking array design be included, it would be based on the technology available at the time of selection. Tracking array blocks are generally installed as smaller units (comprising circa 5-20 modules), compared to fixed array blocks that may consist of hundreds or thousands of modules. A SunPower design for the C1 Solar Tracker System is provided below. This system works in blocks of 18 x 1 modules mounted horizontally in portrait, on rails parallel to the north-south axis of the site. The modules are mounted on single rows of posts, shown in Figure 1 below. Other systems use two or three posts and may mount modules in multiple rows in landscape. The module rows track the movement of the sun as it moves across the sky from east to west, controlled by a solar powered rotor along the North-South plane of the block, as shown in Figures 1 and 2 below.

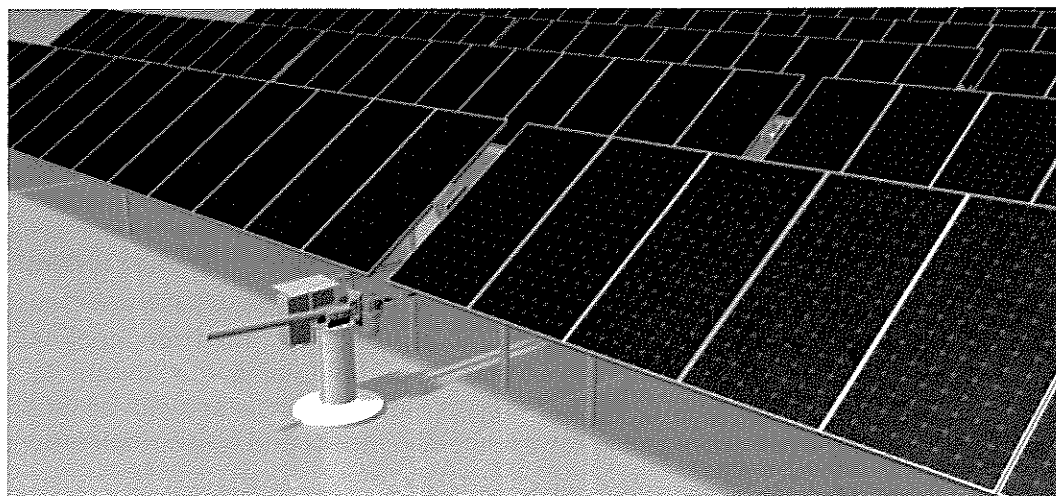


Figure 1. Sunpower C1 Solar Tracker System – Position at Morning or Evening.



Figure 2. C1 Solar Tracking System – Position in Middle of Day (flat with respect to horizon)

The maximum height of a single axis tracker will be 3.8m, only occurring at times adjacent to sunrise and sunset or potentially during servicing.

Area of the PV arrays would not exceed the area of the approved project

The area that any tracking PV arrays are installed on will not exceed the area already approved. Tracking means that the PV array blocks will perform at their optimal output for longer throughout the day. To provide an understanding of the difference between tracking and fixed tilt solar farms, Figure 3 shows Uterne Solar Power Station, a 1 MW Solar Farm in Alice Springs, compared with Figure 4, a 1 MW solar farm in North Carolina.



Figure 3. View of 1 MW Uterne Solar Farm, a tracking solar farm installed in Alice Springs



Figure 4. View of 1 MW Solar Farm in North Carolina, a fixed solar farm.

Visual comparison of the approved 'fixed' array to 'fixed and/or tracking' array

As per Condition of Consent No.C17(c), a Landscape Plan has been approved for the Project. This addresses visual and environmental impact. As per Condition of Consent No.F5, a Visual Impact Verification Report will be prepared and submitted for the approval of the Secretary. This will identify all reasonable and feasible screening and landscaping planting options available in consultation with affected receptors and relevant road authorities. These will be implemented within 18 months of the Secretary's approval of the report or as agreed to by the Secretary. There are no new receptors resulting from the use of a tracking array.

Below is a comparison of the approved 'fixed' array compared with an example tracking array. Tracking array blocks are generally installed as smaller units (comprising circa 5-20 modules) compared to fixed array blocks that may consist of hundreds or thousands of modules.

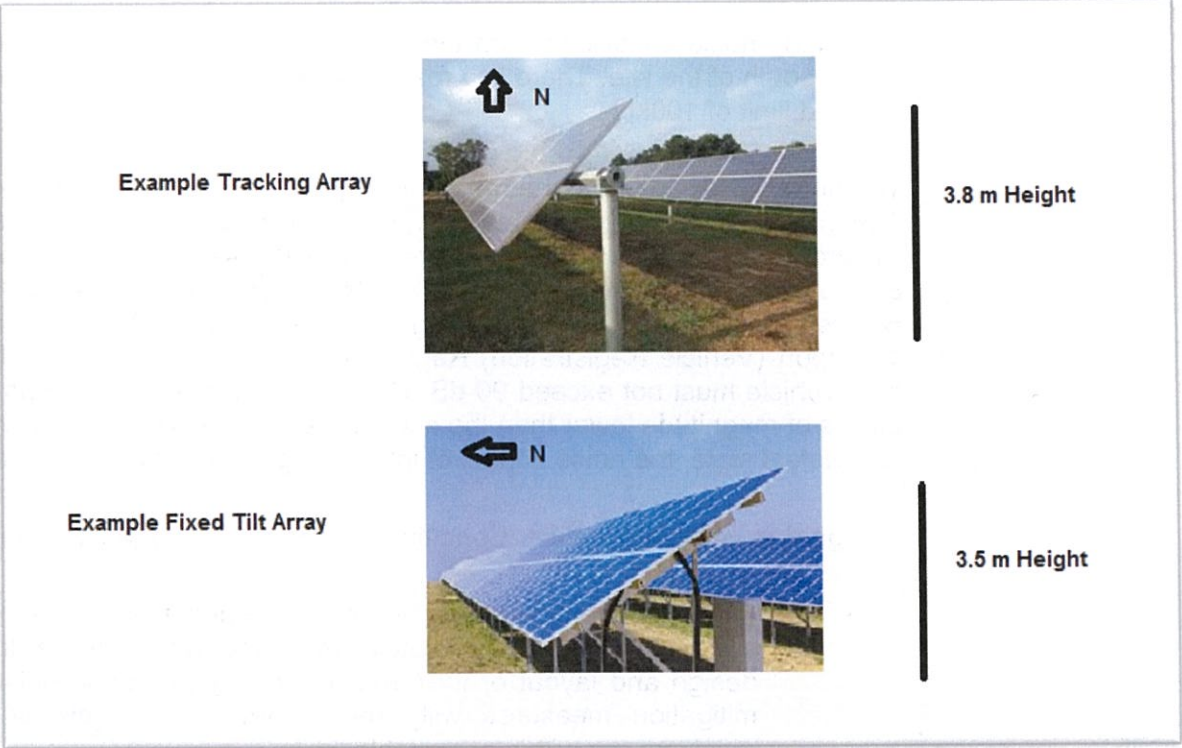


Figure 5. Visual comparison of "fixed" and "tracking" arrays



Figure 6 provides an example view of tracking array blocks in operation.



Figure 6. View of tracking array blocks in operation

Noise

Regarding noise emissions from the tracker, the nearest sensitive receiver is located 550 m south of the site. There is a road between the sensitive receiver and the site with a speed limit of 100kph.

The noise emissions from the motor of a typical tracker are between 44 - 65 dB at 1 m. The tracker motor only operates during daytime hours. At 550 metres, this sound level will drop to between 0 - 10 dB. The background noise level determined for the original Environmental Assessment in Table 6-7: Rating Background Levels Relative to Capital Site is 33 dB at daytime. According to Schedule 2 Vehicle Standards of the Road Transport (Vehicle Registration) Regulation 2007, the noise level of a stationary car-type vehicle must not exceed 90 dB. Given that the noise emissions of the tracker are orders of magnitude lower than the acceptable noise emissions of a vehicle operated in its quietest state, the noise impact of introducing a tracker are negligible.

In regard to noise verification, Conditions of Consent C5 and F1 require the following:

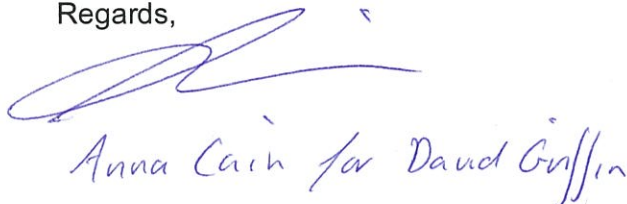
- The Proponent will submit for the approval of the Director General an operational noise verification report to demonstrate that the proposed design and layout of the project and any proposed noise management or mitigation measures will ensure that noise levels at nearby sensitive receivers are within acceptable limits.
- The Proponent shall take all reasonable measures to minimise noise emissions and vibration from all plant and equipment operated on the site such that they do not exceed noise and vibration criteria derived by application of the NSW Industrial Noise Policy (DECC, 2000) and Assessing Vibration: A Technical Guideline (DECC, 2006).

The noise emissions from trackers are well understood and have no risk of approaching the limits of the Industrial Noise Policy.

Political Donations Statement

A political donations statement is at Attachment 2.

Regards,

A handwritten signature in blue ink, appearing to read "Anna Cain for David Griffin". The signature is fluid and cursive, with a large, sweeping initial 'A'.

David Griffin

General Manager – Development

Attachments: 1. Land Owner Letter of Consent
2. Political Donations Declaration

Currandooley Rd
Bungendore, NSW 2622

4th June 2015

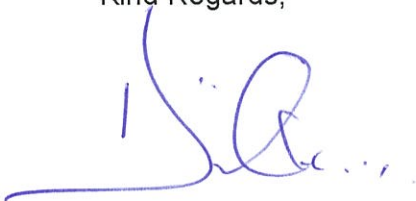
Mr Neville Osborne
Department of Planning & Environment
23-33 Bridge Street
Sydney, NSW 2000

Application MP 10_0121 Capital Solar Farm - Modification 2 (Fixed and /or Tracking Array)

Dear Mr Osborne,

I am the owner of the land upon which all the solar arrays are approved to be placed for the proposed Capital Solar Farm near Bungendore. I support the Proponent's Modification 2 application to use fixed and / or tracking photovoltaic arrays.

Kind Regards,

A handwritten signature in blue ink, appearing to read 'Dominic Osborne', with a long horizontal line extending to the left.

Dominic Osborne

Political Donations Disclosure Statement to Minister or the Director-General

If you are required under section 147(3) of the Environmental Planning and Assessment Act 1979 to disclose any political donations (see Page 1 for details), please fill in this form and sign below.

Disclosure statement details

Name of person making this disclosure

Miles George

Planning application reference (e.g. DA number, planning application title or reference, property address or other description)

MP 10-0121

Your interest in the planning application (circle relevant option below)

You are the APPLICANT ☒ YES / NO

OR

You are a PERSON MAKING A SUBMISSION IN RELATION TO AN APPLICATION YES / NO

Reportable political donations made by person making this declaration or by other relevant persons

* State below any reportable political donations you have made over the 'relevant period' (see glossary on page 2). If the donation was made by an entity (and not by you as an individual) include the Australian Business Number (ABN).

* If you are the applicant of a relevant planning application state below any reportable political donations that you know, or ought reasonably to know, were made by any persons with a financial interest in the planning application, OR

* If you are a person making a submission in relation to an application, state below any reportable political donations that you know, or ought reasonably to know, were made by an associate.

Name of donor (or ABN if an entity)	Donor's residential address or entity's registered address or other official office of the donor	Name of party or person for whose benefit the donation was made	Date donation made	Amount/ value of donation
Nil				

Please list all reportable political donations—additional space is provided overleaf if required.

By signing below, I/we hereby declare that all information contained within this statement is accurate at the time of signing.

Signature(s) and Date

Name(s)

Miles George 10/6/15