



25 May 2018

Natasha Homsey
Planner
Department of Planning & Environment
Sydney, NSW, 2000

Gunnedah Solar Farm EIS Submission

Orange Grove Sun Farm Pty Ltd (OGSF) hereby provides a submission to DPE in relation to the Gunnedah Solar Farm (Application No. 8658) EIS currently under public exhibition.

The submission raises OGSF's concerns relating to the Gunnedah Solar Farm Environmental Impact Statement (EIS) Appendix J Flood Report and Appendix I Traffic Impact Assessment.

A. Flood Impact Assessment

OGSF is concerned with the accuracy of the Gunnedah Solar Farm EIS *Appendix J Gunnedah Solar Farm – Flood Impact Assessment*, as it negatively misrepresents the potential for flood across the OGSF development footprint.

OGSF undertook a comprehensive topographic survey to a resolution of 0.1m and a cadastral site survey of the development footprint (*Attachment 1*). In addition, a cross section survey was undertaken from the northern boundary of the property "Manaree" for a distance of approximately 6.8 km to the southern side of the Namoi River. All of this data was then used in conjunction with floodplain modelling based on an aerial laser survey to ensure an accurate flood water evaluation for the OGSF was developed.

Section, 6.7 *Surface Water, Hydrology and Groundwater* of the Gunnedah Solar Farm EIS, outlines the topographic resolution utilised for the flood modelling conducted by Pitt & Sherry:

"....the accuracy and quality of the flood modelling results depends chiefly on the quality of the terrain data. The current model uses the SRTM-H digital elevation model (DEM), which comprises a grid of about 30m with a vertical accuracy of about +/- 9.8m."

As a result of Pitt & Sherry's use of coarse data in the flood modelling for the Gunnedah Solar Farm, when the OGSF contour survey is compared to the Pitt & Sherry 1% AEP and 5% AEP *Flood Depth Existing Scenario* maps (*Attachment 2*) a misrepresentation of topographic elevations across the OGSF are present. For instance, there is a water course with flood depths in the order of 1.5 m depicted across the western side of the northern portion of the OGSF development footprint. The OGSF surveyed contours clearly show there is no channel present within that specific area, which actually has a relatively flat east to west gradient.

Further, Pitt & Sherry state in the EIS that information from the Gunnedah and Carroll Floodplain Management Plan 1999, SMEC study, updated 2014, was used in their flood modelling. The information includes inundation maps produced by SMEC for the town of Gunnedah and village of Carroll at 1% AEP and 5% AEP (*Attachment 3*). When the respective AEP inundation maps of both Pitt & Sherry and SMEC's are overlayed, there is variance of both the vertical and horizontal flood horizons within Gunnedah and Carroll.



In response to Pitt & Sherry's *Gunnedah Solar Farm – Flood Impact Assessment*, OGSF commissioned a suitably qualified hydrologist to review their report (*Attachment 4*).

In summary, by way of a reference to the conclusion of the report:

"In conclusion, the most significant issue in the modelling reported relates to the use of the 30 m grid of SRTM data used to define topography. The grid spacing is insufficient to simulate flows in the Namoi River itself (and any other defined waterways). The reported accuracy of the data is also low in the context of flood modelling. Underestimating or overestimating the flow rate that passes along defined waterways has an effect on the relative flow rate that passes through floodplain areas – i.e. the proposed project site. For this and other reasons given in the table above, the reported model results may be unreliable in terms of predicting absolute flood levels at the project site and for predicting the impacts of the project on flood levels."

B. Traffic Impact Assessment

For the Traffic Impact Assessment (TIA) undertaken on behalf of OGSF in preparation of the OGSF EIS, traffic data from NSW RMS was obtained for the Oxley and Kamilaroi Highways. Further, the Gunnedah Shire Council (GSC) provided data for Kelvin Road (north and south of Orange Grove Road), Orange Grove Road (both sealed and unsealed), and Blue Vale Road. This allowed for detailed analysis of vehicle movements, especially with regard to cumulative impacts.

While it is reported that Gunnedah Solar Farm has consulted with governing bodies for the TIA, the EIS has not utilised all available traffic data from NSW RMS and the Gunnedah Shire Council (GSC), as would be required for determining accurate potential cumulative impacts of project related traffic.

C. Closing

OGSF is concerned with the misrepresentation of flood water across the OGSF project area as a result of Gunnedah Solar Farm utilising inadequate digital data that has a potential for horizontal and vertical resolutions errors (30m and +/-9.8 respectively) which cannot adequately model and assess flows within the Namoi River and the associated potential flood water movements across the broader landscape, including flows within the vicinity of the proposed OGSF.

It is recommended that Gunnedah Solar Farm undertake a reassessment of the modelling and flood assessment utilising topographical and spatial data of appropriate resolution, and that references the use of various hydrological and flood data in the modelling and assessment process.

OGSF also recommends that Gunnedah Solar Farm undertakes a reassessment of the TIA using all available traffic data from NSW RMS and the Gunnedah Shire Council (GSC).

Regards

Sten Fraser

On behalf of Orange Grove Sun Farm Pty Ltd