

# **SUBMISSION**

## **Yanco Solar Farm (SSD 9515) EIS Exhibition**

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Submitted by:  
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# SSD 9515 Objections

## Introduction

As active local Murrumbidgee Irrigation Area (MIA) irrigators we welcome the opportunity provided by the NSW DPE to provide the following submission on the currently exhibited Yanco Solar Farm (SSD 9515). For the following reasons we oppose this proposed solar farm development.

## Loss of Irrigated Agricultural Production and Economic Multiplier Benefits

The MIA located in South Western NSW encompasses 130,000 ha of irrigated land. Water is diverted from the Murrumbidgee River into the MIA and is used to supply the major towns of Griffith and Leeton as well as over 3,300 surrounding irrigated agricultural landholdings. Irrigated agriculture is the primary industry in the MIA supporting a diverse array of local agricultural businesses including:

- Apiarists (Crop pollination services);
- Engineering (Agricultural manufacturing);
- Irrigation Suppliers (Pumps, Water Stops, Headwalls);
- Aerial Operators (Crop protection application);
- Chemical Suppliers (Crop protection inputs);
- Fertiliser Suppliers (Crop input);
- Irrigation Automation (Irrigation Water Efficiency);
- Water Monitoring (Irrigation Water Efficiency);
- Water Traders (Water Market Transactions);
- Agribusinesses (Livestock, Farming & Agricultural Products);
- Banks (Agricultural Financing); and
- Machinery Dealers (New & Used Machinery, Parts & Service).

In addition, the MIA's irrigated agricultural sector is also strongly supported by a number of research organisations including Deakin University (Griffith Centre for Regional and Rural Futures), Charles Sturt University and NSW DPI (Research). All of these research partner organisations working full time, with a local research facility presence, to support irrigated agriculture in the MIA and underpin irrigated agricultural investment, their research leveraging significant economic multiple benefits back to our irrigated agricultural sector and local agricultural businesses as listed above.

In a Technical Report by the CRC for Irrigation Futures<sup>1</sup> irrigation in the Murray Darling basin has an economic multiplier of 3.5, indicating that for every \$1,000 of farm gate revenue generated there is an additional \$3,500 of dependent economic activity.

Because of the significant investment required in purchasing irrigated agricultural land and irrigation water it is expected that an astute agricultural producer will expend these valuable resource inputs into growing agricultural commodities with the highest Gross Margin Return. For example, if the proposed Yanco Solar Farm site was alternatively used for Cotton production, the following economic assessment of the Annual Economic Return to the grower could be realistically expected and achieved.

<b>Cotton Production (Based on 100ha's of Production over 30Years)</b>	<b>\$</b>
Individual Cotton Farm, Farm Net Profit, Furrow Irrigated Cotton (\$/ha)	2,676
Economic Multiplier of 3.5	9,366
\$9,366 multiplied by 100Ha's	936,600
\$936,600 multiplied by 30Yrs (Life Expectancy of Solar Farm)	<b>28,098,000</b>

*NB: Yanco Solar Farm approximately 205ha of irrigated productive farmland.*

The potential economic loss to the local Leeton economy from building the proposed Yanco Solar Farm, based on the simple economic analysis above, over the 30 year life expectancy of the Yanco Solar Farm amounts to **\$28,098,000**. If this basic economic analysis was to be undertaken through a Discounted Cash Flow analysis using a Discount Rate 7%, the resultant number in today's dollars, would be substantially higher. In addition, Cottons contribution to the regional Australian workforce, based on 100ha's of Cotton, provides direct jobs for 2.2 people annually (eg Farm Managers, Agronomists, Agricultural Pilots, Picker Operators, Ginning Staff, Cotton Classers, Cotton Brokers).

Further, if the above simple economic analysis was also run for Almond plantation production, the economic productivity would be in a similar range of potential economic productivity to the local Leeton economy.

Importantly, the statements within the Yanco Solar Farm EIS relating to Socio Economic and Community comments and within the EIS Appendix G – Economic Impact Statement in particular 3.7, Impact of Agricultural Land, are essentially economically unsubstantiated claims lacking in any sound economic evaluation or analysis. This is a particular weakness of this Yanco Solar Farm EIS and yet it is the key issue of conjecture in relation to the potential above demonstrated substantial losses which would be incurred to the local Leeton economy should the Yanco Solar Farm proceed.

A full, thorough and comprehensive independent Socio-Economic study should now be directed to be undertaken which represents accurately the true economic capacity and potential of this prime irrigated agricultural land on which the Yanco Solar Farm is currently proposed.

To reiterate, this is high productivity prime irrigated agricultural land, land of this capability is a limit resource, as quoted by the NSW Irrigators Council<sup>2</sup> less than 1% of land in NSW and it should not be allowed to go to a dramatically lower value use at the direct expense of the local Leeton economy and community longer term. This should not be development at any price. The MIA and its irrigation communities contribute over \$5 Billion annually to the national economy through high value food and fibre production.

### **Land Capability**

The land on which the Yanco Solar Farm is proposed is on Land and Soil Capability Class 3 under the Land and Soil Capability Assessment Scheme (OEH 2012) and as such Class 3 classification is defined as High Capability Land, in this instance land of high agronomic potential and capacity to produce a very diverse range of high value agricultural crops, with the distinct added advantage, in this instance of being on irrigated land equipped with all the necessary high efficiency irrigation water delivery infrastructure.

Irrigated soils of the MIA are an important and valuable agricultural resource capable of sustaining long term agronomic production. Irrigated land, as mentioned, is less than 1% of all agricultural land in NSW, a limited and valuable resource unable to be replaced elsewhere. Realistically, establishment of new irrigation land in NSW will not occur again, factors including lack of suitable high quality high productivity soil types, land of suitable relief for gravity fed irrigation flows, no further irrigation flow allocations and the massive cost and investment required for 'green field' development of such irrigated lands.

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<sup>1</sup> Source: Meyer, WS (2005). The Irrigation Industry in the Murray and Murrumbidgee Basins. CRC For Irrigation Futures Technical Report No. 03/05.

<sup>2</sup> New South Wales Irrigators Council, Available at: <http://www.nswic.org.au/factsheets/>

As identified in the NSW Government's, Large Scale Solar Energy Guideline<sup>3</sup> for State Significant Development, Dec. 2018, Page 9, the heading titled Key Site Constraints states that irrigated cropping land and soil capability classes 1, 2 and 3 should be given consideration of any significant fragmentation or displacement of agricultural industries. Fragmentation and displacement which would clearly occur through the construction of the proposed Yanco Solar Farm. As such this land should be retained for ongoing irrigated agricultural production and this proposed Yanco Solar Farm development located elsewhere on appropriately matched higher Land and Soil Suitability classes 4, 5 and 6 of lower agronomic potential, potentially on surrounding dryland areas.

Historically, soil surveys and soil core assessments were an integral part of the original soils assessment process for delineation of these lands for irrigated agriculture, effectively 'ear marking' what was originally semi-arid landscapes for development into irrigation agricultural land. Only land with the certain pre-determined chemical and physical soil characteristics was apportioned off for irrigated agricultural development. Only fertile soils of pre-defined agronomic quality and attributes were mapped for inclusion into the MIA irrigation lands, land which is limited in its extent and is widely acknowledged as a highly valuable agricultural resource within NSW.

### **'Stranded' Irrigation Investment and Assets**

In 2015, Murrumbidgee Irrigation (MI) through the Private Irrigation Infrastructure Operators Program (PIIOP-NSW)<sup>4</sup> received funding from the Department of Agriculture and Water Resources of \$297 million to improve the efficiency of off-farm irrigation systems and on-farm water use. This investment comprising:

- Private Irrigation Infrastructure Operators Program (PIIOP Round 2) to upgrade on-farm irrigation infrastructure in exchange for the transfer of water savings back to the Commonwealth (eg storages, recycling systems) \$175 million
- PIIOP Round 3 to upgrade off-farm infrastructure in exchange for water savings (eg Channel lining and automation & On-farm delivery automation), \$122 million

The proposed Yanco Solar Farm site, would have been a beneficiary of the above stated investment. Now with the proposed Yanco Solar Farm development, this Commonwealth investment in existing on site irrigation assets could become effectively 'Stranded' irrigation investment and assets, unable to realise economic return on either recent or longer term irrigation infrastructure investment.

In addition, the question of who pays for the ongoing Murrumbidgee Irrigation (MI) Fixed Access and Network Charges which will still need to be paid? No or very limited water usage under the proposed Yanco Solar Farm will occur therefore incurring a loss of Usage Charge income to MI. Who covers the cost of this lost water usage income which is ultimately used by MI in the longer term maintenance the remaining irrigation system?

'Stranded' irrigation investment and assets will have a further detrimental economic impact on the MIA, the surrounding irrigation industry and the local Leeton economy.

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<sup>3</sup> NSW Government, Large Scale Solar Energy Guideline for State Significant Development December 2018, Available at: [www.planning.nsw.gov.au/Policy-and-Legislation/Renewable-Energy/Large-scale-Solar-Energy-Guideline](http://www.planning.nsw.gov.au/Policy-and-Legislation/Renewable-Energy/Large-scale-Solar-Energy-Guideline)

<sup>4</sup> Murrumbidgee Irrigation, Modernisation Projects- Infrastructure Projects, Available at: [www.mirrigration.com.au/Modernisation/Modernisation-Projects](http://www.mirrigration.com.au/Modernisation/Modernisation-Projects)

## **Returning Site to Productive Irrigated Agricultural Landuse (Existing Capability)**

As stated, the land on which the Yanco Solar Farm is proposed is on Land and Soil Capability Class 3, these soils comprising both the chemical and physical attributes to grow a broad range of high value irrigated agricultural crops eg. Cotton, Nuts (Almonds, Walnuts), Vegetables, (Carrots, Pumpkin, Broccoli). Land suitable for future food production is key to sustaining our future growing population, these populations now demanding high standards for food production, food safety and traceability.

The Hazard Analysis and Critical Control Points (HACCP)<sup>5</sup> management system is now a fundamental requirements to food production from irrigated agriculture. The HACCP Certification combines the Codex Alimentarius principles for HACCP; good manufacturing practice, relevant standards and key management systems to ensure the food safety system is in line with international practices. HACCP ensures that the food production system is working to its full potential and gives independent assurance to the customer that the food safety system is sound.

Solar Farms, inherent in their build, are highly intrusive and impact significantly on the land on which they are build. Solar farms require extensive trenching, laying of cabling, installation of foundations (including areas of mass concrete), above ground wiring to solar tracing systems and inverter stations. The 'End of Life' removal of this embedded solar farm infrastructure, in its entirety, is not practical or plausible, the cost of which would be very significant in assuring verified and complete removal of the all site contamination, and that is, this site could not be remediated to a standard to meet the stringent requirements of HACCP accreditation. Shattered panels, cabling, wiring or any plastics contamination would immediately render this site unusable for future food or fibre production.

## **Proposal to graze the site**

The Yanco Solar Farm EIS discusses, post solar installation, using the land to graze livestock to generate some agricultural activity. This by its very nature is an impractical proposal. Livestock, in this instance sheep, require a significant number of livestock management inputs as the basis of successful livestock production, that is, a reliable, sustained and balance feed regime (improved pasture, pasture renovation, supplementary feeding), pest control regime (Lice, Fly Strick, Intestinal Worm control) and standard husbandry requirements (Lambing, Crutching, Shearing). All of these livestock management inputs require considerable skill and expertise to ensure a commercially viable enterprise on non-solar farm land. On land established with solar panels this would not be operationally or financially a viable pursuit.

For example, in respect to providing a reliable, sustained and balanced feed regime, solar farms have been identified for their ability to block Ultraviolet light and consequently disrupt soil microbiology, the issue being that when carbon is stripped from soil aggregates by soil biology the aggregates become compressed and the soil becomes hard and compacted. When sheep graze nutritionally poor plants they do not receive the adequate levels of minerals to meet their daily requirements therefore they have to graze more plants per square meter. This leads to the land being less productive because it can only sustain a smaller number of stock per hectare due to the lack of nutrition in plants.

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<sup>5</sup> NSW Food Authority, Food Safety Programs HACCP. Available at: <http://www.foodauthority.nsw.gov.au/ip/food-safety-programs-haccp>

Further, solar farms at the commencement of construction are usually on substantially cleared land that is absent of ground cover, particularly if on previously farmed agricultural land. It is the case that if cleared agricultural land is left without re-establishment of a crop or pasture, the land will quickly revegetate itself with a broad range of weeds (in this area, likely Silver Leaf Nightshade (*Solanum elaeagnifolium*), Roy poly (*Salsola australis* R.Br.). Silver Leaf Nightshade is very difficult to control requiring repeated applications of herbicide while Roly poly is a potential fire hazard when allowed to build-up.

It is difficult for these persistent weeds to be controlled with herbicide due to the impossibility of a tractor and boom spray to gain access beneath installed solar panels. Again, establishment of a reliable, sustained and balanced feed regime long term under solar panels is unlikely to be operationally or financially viable for sheep production. Further, any non-controlled weed is a harbour for several productive crop diseases eg Fusarium which can arise as disease in surrounding productive crops having a potential economic impact to producers. Agricultural biosecurity is taken very seriously in this region.

## **Conclusion**

In conclusion, we fundamentally support the endeavour of the NSW Government to develop renewable energy infrastructure, be it solar, wind or hydro in NSW. However we do not support, in this instance the development of the Yanco Solar Farm, or any other solar farm on MIA high economic productivity prime irrigated agricultural land. Land currently mapped, in draft, under the Riverina Murray Important Agricultural Land mapping program of the NSW Department of Primary Industries.

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22<sup>nd</sup> May 2019