

Appendix E Biodiversity Assessment



Biodiversity Assessment

NYNGAN SOLAR FARM



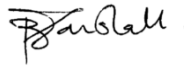
OCTOBER 2010



Document Verification



Job title: Nyngan Solar Farm Biodiversity Assessment

Project Name	File	\\10.0.11.1\Active\Projects\2010\Infigen Energy\Nyngan BA - 1337\Report\Draft\Nyngan BA Draft v2.0.docx					
Revision	Date	Prepared by		Checked by		Approved by	
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Acronyms and terminology used in this report

Acronyms

DECCW	Department of Climate Change and Water (NSW)
DEWHA	Department of Environment, Water, Heritage and the Arts (Commonwealth)
TSC Act	<i>Threatened Species Conservation Act 1995</i> (NSW)
EPBC Act	<i>Environmental Protection and Biodiversity Conservation Act 1999</i> (Commonwealth)
NPWS	National Parks and Wildlife Service (NSW)
EEC	Endangered Ecological Community
CEEC	Critically Endangered Ecological Community
ROTAP	Rare or Threatened Australian Plants register (CSIRO)
JANIS	Joint ANZECC/MCFFA National Forest Policy Statement Implementation Sub-committee

Terminology

PV array	Refers to a photovoltaic array, a string of photovoltaic modules which are made up of interconnected solar cells.
Threatened entity	Refers to all units listed as threatened under the EPBC Act and/ or TSC Act including species, populations and ecological communities
Key species or key taxa	‘Key species’ or ‘key taxa’ refers to taxa listed under any category of conservation status by relevant legislation (i.e. migratory through to endangered under EPBC Act or TSC Act) and taxa naturally occurring at low densities (such as raptors).
Subject site	The area directly affected by the Proposal.
Development Envelope	The development envelope refers to an assessment approach. All parts of the site which have the potential to carry infrastructure are referred to as the development envelope. In practice infrastructure would rarely occupy the entire development envelope and hence the final layout of the development, or subject site, is a subset of the development envelope. The development envelope differs from the subject site in that it provides a site-specific study area within which the most appropriate areas for direct impact on biodiversity values are identified.

1 INTRODUCTION

1.1 PURPOSE OF THE REPORT

Infigen Suntech Australia Pty Ltd ('Infigen') proposes to construct a 100 megawatt capacity photovoltaic solar farm at Nyngan in central western New South Wales (the 'subject site'). This Biodiversity Assessment examines biodiversity values and likely impacts associated with the proposed solar farm.

The Biodiversity Assessment:

- Provides a summary description of the proposed works
- Outlines the environmental and legislative context of the Proposal
- Identifies, describes and maps the biodiversity values at the 'subject site', including threatened species and communities
- Classifies and maps the biodiversity constraints associated with the Proposal
- Identifies and assesses the significance of the potential impacts to biodiversity values
- Provides a series of recommended measures designed to avoid and mitigate impacts to biodiversity values, where possible
- Recommends measures to achieve a 'improve or maintain biodiversity outcome' for the Proposal, where residual impacts cannot be avoided.

The Biodiversity Assessment is intended to meet the assessment requirements under Part 3A of the *Environmental Planning and Assessment Act 1979*, the *Threatened Species Conservation Act 1995* and the Commonwealth *Environmental Protection Biodiversity Conservation Act 1999*, the Director-General's Requirements for the project issued by the Department of Planning and the Draft Guidelines for Threatened Species Assessment (DEC, 2005).

1.2 THE PROPOSAL

1.2.1 Location

The proposed solar farm would be located on a 450 hectare site beside the Mitchell Highway, Nyngan. The location of the proposed works is shown on Figure 1-1.

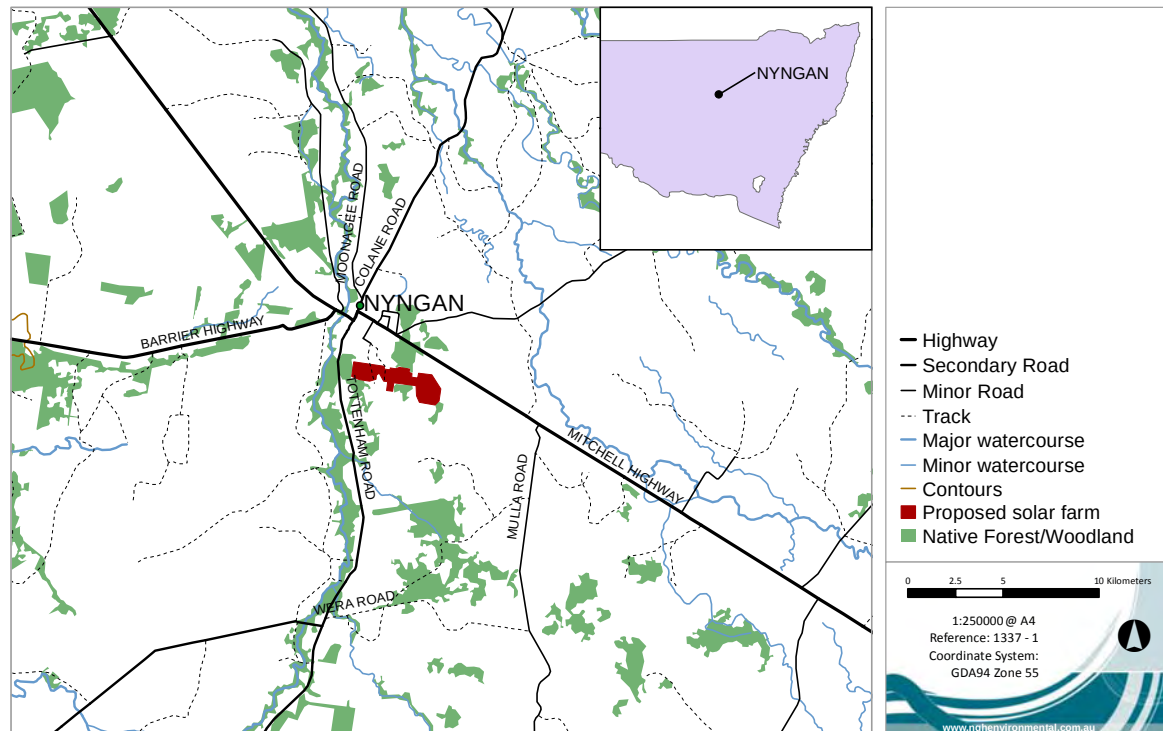


Figure 1-1 Location of the proposed Nyngan Solar Farm

1.2.2 Proposal description

The 100 megawatt solar farm would comprise a series of photovoltaic modules (PV arrays) mounted on fixed frames, and would occupy approximately 200 hectares. The development envelope and indicative layout for the solar farm and transmission line is shown on Figure 1-2 and Figure 1-3. Preliminary structural plans for the proposal are provided in Appendix G.

The Nyngan Solar Farm would connect to the existing Nyngan 132kV substation which is immediately adjacent to the solar farm. The solar farm would have an expected operating life of up to 50 years. The decommissioning phase would remove all above ground infrastructure from the site to a depth of 300mm. Project infrastructure for the proposed solar farm would include:

- A fixed photovoltaic array (PV array), arranged in a series of rows between three and four metres above the ground, angled for maximum efficiency and supported by steel framing on steel posts driven into the ground to a depth of 2 metres.
- Electrical connections between PV array and central inverters via underground or frame secured cabling
- A series of central inverters and kiosk transformers distributed throughout the PV array
- Electrical connection into the existing 132kV Nyngan substation via an overhead or underground transmission line, including any required switchyard and substation augmentation
- Internal access tracks and upgrades to existing roads, where required
- Fencing and landscaping around the solar farm
- Site office and operations and maintenance building

- Additional temporary construction infrastructure, such as a site compound and equipment laydown area.

Construction works would be confined to standard construction hours (Monday-Friday 7am-6pm, Saturday 8am-1pm). It is not expected that night work would be required.

Cabling would be attached to the panel rows and then installed in a trench to the inverter. The solar farm would connect to the substation via a 2-3 kilometre long overhead cable supported by timber poles. The internal voltage between the solar farm and the substation would be 22kV or 33kV. Approximately 62 inverters and 31 kiosk transformers would be required at the solar farm (refer Appendix G).

Inverters weigh round 10 tonnes and would be transported to the site using standard articulated trucks. Approximately 200,000 solar panels would be required, transported in 167 shipping containers. Around 500 truck movements are expected during the construction phase. Rail would be used to transport the solar farm materials as close as possible to the site. Access tracks would be constructed to each inverter and around the perimeter of the farm.

Site security during the operational phase will involve a 6-8 ft cyclone mesh fence, possibly with security lighting. Security personnel will attend the site at least during the night, possibly on a 24 hour basis. Restricted access, safety signage and possibly security cameras would also be used.

An average of 50 staff would be required to construct the solar farm and five staff would be required during the operational phase.