

FACT SHEET

Solar farms in NSW

June 2016

NSW is leading Australia in the development of large-scale solar projects. These projects support jobs and investment in regional NSW, diversify the State's energy mix and drive down costs for future large-scale solar developments.



Moree Solar Farm (photo: Fotowatio Renewable Ventures)



53 MW solar farm Broken Hill. Photo AGL

Why solar energy?

The NSW Government is committed to providing a diverse, affordable and clean energy mix for NSW. Solar energy is a key part of that mix and is supported under the government's cornerstone renewable energy policy, the Renewable Energy Action Plan. Increasing solar energy in NSW will help the government meet its commitment to support the national Renewable Energy Target of 33,000 gigawatt hours (GWh) by 2020.

According to the International Energy Agency (IEA), solar energy is the most abundant energy resource on earth, with about 885 million terawatt hours (TWh) reaching the surface of the planet every year.

Australia has the highest average solar radiation per square metre of any continent in the world. NSW has an abundance of excellent solar resources and established electricity infrastructure that makes it attractive to solar farm developers.

More than 340,000 NSW households have installed rooftop solar photovoltaic (PV) systems, representing over 1,000 megawatts (MW) of installed capacity. Solar farms use the same technology as rooftop solar systems, but on a larger scale.

Large-scale solar farms in NSW

There are currently three operational large-scale solar PV projects in NSW, with an installed capacity over 200 MW: the Nyngan Solar Plant (102 MW), which is the largest solar farm in Australia, the Broken Hill Solar Plant (53 MW) and the Moree Solar Farm (56 MW). These solar farms generate enough electricity to power 75,000 NSW homes each year.

NSW solar farm projects with around another 1,000 MW of capacity either have planning approval or are seeking approval. These projects are located across NSW in regional areas including Manildra, Temora, Gunnedah, Parkes, Griffith, Dubbo and Glen Innes.

Planning and approvals

Large-scale solar projects in NSW are subject to the relevant planning controls and assessment criteria. Both the total capital value and the electrical power output of the project determines which consent authority assesses and determines the development application. In general:

- projects with a capital value of less than \$5 million are assessed and determined by the host council(s)
- projects with a capital value of \$5-30 million are assessed by the host council(s) but determined by the Joint Regional Planning Panel
- projects with a capital value of more than \$30 million (or \$10 million in an environmentally sensitive area) are classified as state significant developments (SSD) and assessed by the NSW Department of Planning and Environment (DPE).

As part of the planning process, project proponents are required to prepare Environmental Impact Statements (EIS), detailing any impacts and proposed management and mitigation measures. For solar farms, the main impacts occur during the construction phase and are not ongoing.

Community engagement

Project proponents are required to undertake detailed consultation with affected landowners surrounding the development, the local community and local council. The EIS must describe the consultation that was carried out, identify the issues raised during this consultation, and explain how these issues have been addressed.

The NSW Office of Environment and Heritage 2015 Community Attitudes to Renewable Energy survey found overwhelming support for the use of renewable energy across the state with 89% of respondents supporting the construction of solar farms in NSW.

The Australian Renewable Energy Agency (ARENA) commissioned independent research in 2015 which also showed strong support for solar farms and recommended best practice community consultation guidelines for proposed solar farms.

Key community benefits

Solar farms provide a range of social and economic benefits to the wider community while helping to meet NSW energy needs.

They drive investment and growth in regional NSW. Communities that host solar farms benefit from increased business during construction and operation.

Other benefits may include:

- employment opportunities during construction, including engagement of local contractors and materials and service providers
- long term local employment opportunities over the life of the project
- contributions to local infrastructure improvements
- education and training of contractors and local residents
- reduced greenhouse gas emissions
- increased energy security through a more diverse energy mix
- rent received by local landowners from the developer.

Project considerations

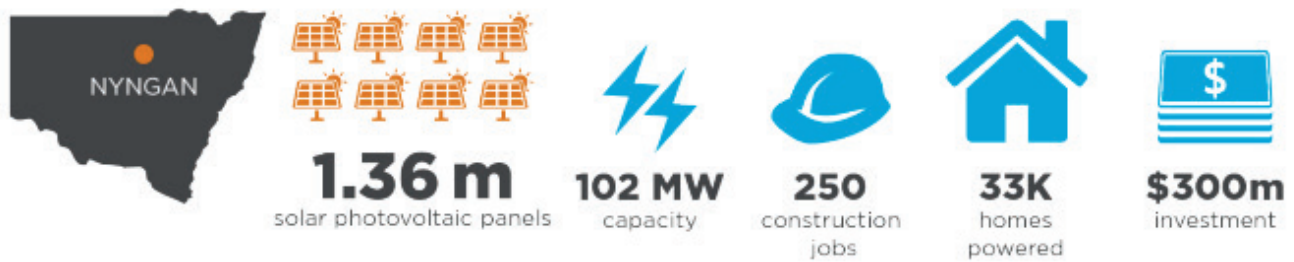
Traffic and road safety

Traffic and transport impacts are primarily limited to the construction of solar farms and may result from haulage of components, contractor movements and transport of employees to and from the site. Increased vehicle numbers may result in localised impacts on the road network during construction. However, traffic movements are confined to standard hours of construction and proponents must repair any damage to the roads. Traffic and haulage impacts are managed in consultation with the Roads and Maritime Services, local councils and landholders. They also form part of any EIS and measures are implemented to reduce risks and maximise safety.

Visual

Solar farms are not considered to be reflective. Photovoltaic panels are designed to reflect as little light as possible (generally around 2% of the light received) to maximise their efficiency, absorb sunlight and convert it to electricity. Minimising the light reflected from solar panels is a goal of panel design, manufacture and installation. The glare from panels is significantly less than that from bodies of water. Where appropriate, vegetation buffers are included as part of the planning approval of a solar farm to minimise visual impacts.

NSW IS HOME TO AUSTRALIA'S LARGEST SOLAR PLANT AT NYNGAN



Nyngan Solar Plant (Photo: AGL)

Biodiversity

Generally, OEH recommends that, where possible, solar farms should be located in areas where vegetation clearing is not required. If clearing is unavoidable, offsets may be required. Any EIS must consider measures to minimise, avoid and/or offset biodiversity impacts in accordance with the relevant Commonwealth, NSW and local guidelines.

Aboriginal cultural heritage

Potential impacts associated on Aboriginal cultural heritage items or sites must be assessed, mitigated and/or managed in consultation with the local Aboriginal community and OEH. This assessment is provided in the solar farm EIS, which is considered by the relevant determining authority.

Noise

The only noise emitted from an operational solar farm is minimal mechanical noise from the inverter and transformers with cooling fans for temperature regulation. They are contained within enclosed buildings in the centre of the development to minimise impacts beyond the boundary of the site. Any noise is

generated during daylight hours only and is generally below ambient levels.

Greenhouse gas emissions

During plant operation, photovoltaic modules emit no pollution, produce no greenhouse gases and use no finite fossil-fuel resources. For large scale solar projects which typically have a life of around 25 years, the energy payback would be between two and three years, depending on the solar panel type chosen. The Nyngan Solar Plant, for example, will supply approximately 231,000 MWh of electricity per year, avoiding some 203,300 tonnes of greenhouse gas emissions (CO₂ equivalent) per annum.

Decommissioning

The typical project life of a solar farm is 25 to 30 years and includes the requirement to decommission and rehabilitate the site, with the aim of returning the site to its pre-existing condition. All infrastructure (above and below ground) is removed, allowing agricultural land use activities or other land uses in the area, to resume.

Further reading:

www.resourcesandenergy.nsw.gov.au

www.planning.nsw.gov.au

www.environment.nsw.gov.au

www.environment.nsw.gov.au/communities/community-attitudes.htm

www.arena.gov.au

www.iea.com

www.irena.org

www.cleanenergycouncil.org.au