ITP Development Pty Ltd
ABN 38 633 420 309

Level 1, 19 Moore St
Turner ACT 2612

itpd.com.au

SOLAR FARM FACT SHEET & FAQS

1. Who is ITP Development?

ITP Development (ITPD) is Australian-owned company primarily focused on the development of "town-scale" solar farms, typically in the 5MW to 20MW range. We have a portfolio of approved renewable developments across regional Australia and are excited to be involved in projects that contribute to Australia's renewables energy future.

2. How are sites chosen? Why are you developing here?

Numerous factors are taken into account in determining the suitability of a site for the solar farms including, but not limited to, the quality of solar resources available (e.g. irradiance), topography, environmental impact considerations and peripheral location to towns where there is existing electricity distribution network infrastructure with suitable voltage and capacity for the connection of power lines/poles. ITPD undertakes a range of specialist studies as part of our site selection and planning due diligence processes to ensure the various considerations and requirements are addressed.

3. Why solar and what benefits do solar farms provide?

Fossil fuels such as oil, natural gas and coal are examples of non-renewable energy resources that take billions of years to form naturally and cannot be replaced as quickly as they are being used. With non-renewable energy, and the greenhouse gas emissions caused by them, being of increasing concern, Australia has committed to achieve net zero emissions by 2050. Investing more into wind, solar and hydro-electric power solutions can help to achieve these decarbonisation objectives and minimise our environmental footprint to benefit future generations. Consequently, renewable energy plants such as solar farms over time can offer lower-priced generation into the market than non-renewable energy sources.

For these reasons, private and community-based solar projects continue to gain momentum with individuals and groups able to benefit from the opportunities afforded by solar. The Orange Community Renewable Energy Park is one such community-based project in Australia that ITPD is proud to be involved in. The OCREP is the largest crowd-funded PV project incorporating batteries that offer the local community investment and renewable benefits. Learn more at: *https://energydemocracy.net*.

4. How do solar farms benefit the local community?

The benefits for farmers and local farming communities include a diversified, substantial and reliable income for the landowners hosting solar farms during the lifetime of the solar farm. These funds can serve to protect farming families from loss of income during times of poor harvest or drought. Conversely, more and more solar farms are providing outstanding opportunities for agricultural activities (such as grazing and cropping) to co-exist with energy production resulting in more effective land use – a term known as agrivoltaics. Such projects enable sheep to continue to graze under and around the panels. Additionally, the panels can provide valuable shelter for livestock and shading for suitable forage/vegetation.

ITPD is committed to supporting local communities through our projects as much as possible. In addition to hiring machinery locally, we aim to engage local consultants/contractors in the establishment of projects and ongoing maintenance of sites. This may include local surveyors, earthmoving contractors, electricians, plumbers, landscapers, cleaners, waste contractors and other available labour hire. This generates employment opportunities in the area, helping to support the development of local expertise and skills. In addition, during construction, specialist crews will live, eat and spend locally. Both the boost in incomes and the new sources of growth created by the development – such as from new project-associated patrons and developer fees payable to the local Council – lead to increased economic activity for local businesses. These ultimately contribute to economic and social benefits for the local community. Research by the *Clean Energy Council* suggests that for every direct construction and maintenance job created, two additional indirect jobs are created.

5. How much power does a 5MW solar farm produce? Will there be unstable power on cloudy or wet days?

A solar farm of this size has the capacity to supply 13,300MWh of electricity per year into the local network, enough to power approximately 2,150 homes. Electricity from the solar farm enters the distribution network, which is connected to the national grid and will be used to meet demand by electricity consumers in the national electricity market.

While solar panels generate electricity best when the sky is clear, they still do so even on cloudy or rainy days, just to a lesser extent. As a backup measure, our solar farms are equipped with Battery Energy Storage Systems (BESS). This battery component allows the clean energy to be stored for times when it is most needed and provides stability to the grid when required.

6. Will the development consume local resources?

As the developers, ITPD pays for all associated costs for connection to the grid. This means we pay for any upgrades and ongoing maintenance of the local infrastructure to connect the development to the electricity network, which the local community can benefit from. The local community will not be out of pocket. The solar farm is not expected to consume water nor affect the water table in the ground.

7. How will construction affect the local community?

The construction of a typical 5MW solar farm takes approximately three months. During the construction of a typical 5MW solar farm, approximately up to 50 personnel will be involved in the project with the site operating from 7am to 4pm, Monday to Friday. It is estimated that approximately 45 heavy trucks will access the site throughout the whole construction phase to deliver materials and equipment. A traffic management plan, developed in consultation with the Council, will ensure traffic impacts from the solar farm are minimised to the local community.

Noise assessments are carried out to quantify potential noise emissions associated with the construction and operation of the project. These studies assist us to mitigate and manage noise levels where impacts are identified. Mitigation measures, where applicable, include management of the hours of operation, the use of noise barriers, diligent operation of equipment, to name a couple. There is the potential for air quality to be temporarily impacted by construction activities, such as the generation of dust (from minor earthworks, construction vehicles driving on unsealed access roads) and wind blowing over stockpiles and exposed surfaces. Standard construction management practices include mitigation measures to suppress dust for each phase of development to minimise any impacts.

8. What is the profile of the solar farms and the arrays?

A typical 5MW solar farm requires approximately 12-15 ha of land. The solar photovoltaic (PV) arrays are relatively low in profile along the landscape with the ground-mounted panels typically installed to a height of 2.75 to 3 metres (with a maximum height of approximately 4.1 metres when fully tilted). The mounting systems are constructed on piles following the existing natural terrain profile (with similarities to fencing/light posts) that are driven into the ground, eliminating or reducing the requirement for earthworks, footings or extensive use of concreting, as well as minimising noise during construction. For safety purposes, a 1.8m high chain-link fence will be installed around the boundaries of the solar farm.

9. How much noise or glare do solar farms produce during operation?

Solar farms are near silent during operation. The tracking solar PV rows move at an unobtrusive and slow rate, producing minimal noise. The most noticeable noise emitted from an operational solar farm typically come from the substation and inverters that generate a low hum, which are generally inaudible beyond the solar farm boundaries and more so when appropriate buffer distances are in place. The solar farm produces even less noise at night.

In terms of glint or glare, the solar photovoltaic panels are specifically designed to absorb as much sunlight as possible (to convert it into electricity) rather than reflect it. The panels use anti-reflective coating and materials to allow the transmission of light through the glass and 'roughened' glass surfaces. In a solar array, the rows of panels are aligned on a north/south axis and track the sun's path across the sky from east to west to optimize sunlight absorption. This design feature also ensures that when the sun is low in the sky any reflections are directed upwards and not towards the horizon, which minimises reflection impacts.

10. What about impact on views, wildlife and vegetation in surrounding land?

The visual impact (VI) of solar PV farms varies with each project depending on the size, location, and the surrounding landscape. A specialist VI assessment (a requirement of the development application (DA) process) is conducted at each site to gain an understanding of the considerations and, if applicable, mitigation measures that can be taken to reduce visual impacts. Some of the

ways visual impact can be mitigated include effective site selection and layout design (such as incorporating suitable setback distances from adjoining property boundaries) and vegetation screening – the planting of suitable trees/shrubs around the development boundary, as appropriate. While there are no standard setback distances for solar farms in Australia, suitable distances are typically determined according to local planning requirements and established through the DA process.

The protection of valuable wildlife and vegetation is of high priority from the developer's and planning point of views. ITPD carries out biodiversity assessments at each site, which provide an understanding of the ecology within and around the project area and potential impacts of the development on flora and fauna. This helps to guide the design of our developments ensuring impacts, especially on threatened species, are minimised or avoided.

11. What about the impact on property values?

There are no known national or international studies which reliably indicate that proximity to a solar farm impact negatively on the value of host properties or neighbouring properties. In fact, some research suggests that solar farms may even have a positive effect on property values, as they are associated with environmental sustainability and renewable energy production, which can be attractive to prospective buyers.

Research in relation to *wind farms* (undertaken by NSW Valuer-General in 2009 and by NSW Office of Environment and Heritage in 2016) have found no evident reductions in sale price for rural properties or residential properties located in nearby townships. General desktop research on sentiments comparing wind farms and solar farms suggests solar farms (where solar arrays stand at around 2.75 to 3 metres) are more desirable and create less visual impact on the landscape than wind turbines, which can stand anywhere from 50 to 150 metres high. Moreover, state planning policies and regulations provide guidelines that encompass community interests, which help ensure such considerations are taken into account during the establishment and assessment of these developments.

12. Are solar farms safe? What happens in an emergency such as a fire?

While no system can be completely foolproof, the solar farms are equipped with comprehensive 24x7 remote monitoring and control/trip capabilities from the solar farm owner and Essential Energy control rooms. The solar farms have their own board fault detection and alarms that can trigger automated fail-safes immediately upon a fault being detected and notification to relevant parties.

13. Do solar farms emit radiation or create air/water pollution? Can they leach toxins into the ground?

Electricity from solar panels and transmission to the power grid emits extremely low-level, weak electromagnetic fields (EMF). Exposure to low-level electromagnetic fields has been studied extensively, and there is no evidence that it is harmful to human health, according to the World Health Organization (WHO).

The solar panels used are comparable to those found in residential rooftop solar panels across Australia. The panels are made almost entirely with abundant, earth-friendly materials like glass, aluminium, copper, and silicon. Our solar farms do not produce air or water pollution or greenhouse gases in operation.

14. How will the farm be accessed and maintained?

Once operational, the site will be unmanned. Routine maintenance is typically scheduled quarterly/bi-annually and carried out by a crew of two to three people. The owner of the solar farm will be responsible for maintaining the site, managing weed control and keep the pastures at manageable levels. This could involve sheep grazing as a control measure.

15. What happens at the end of the life of the project? Who is responsible for site remediation?

The solar farm developer/owner is responsible for undertaking the decommissioning of the solar farm at the end of the project life, which is expected to be at least in 35 years time. While the solar farm is expected to still output ~80% of its original capacity towards to end of its project life, portions of the components may be overhauled and upgraded which can extend the project life. A substantial amount of the solar farm is made of recyclable materials and specialised industries currently already exist to undertake this work. It is expected these industries are expected to boom in the future and the processes streamlined as more solar farms are decommissioned. Rehabilitation of the land will be to the pre-construction condition, following dismantling of the solar farm.