Darwin International Airport Solar Project

Darwin International Airport lighting the way towards a more sustainable future

Northern Territory Airports has made a long-term commitment to using renewable energy across its three airports in Darwin, Alice Springs and Tennant Creek. The organisation is mindful of the contribution the aviation industry makes to greenhouse gas emissions, and is keen to lead the way for other airports – both national and international – by reducing its carbon footprint.

Northern Territory Airports pioneering investment in solar energy is unparalleled for an airport operator in the southern hemisphere. As a joint-user airport with active military users and a strategic facility as part of Australia’s Defence Infrastructure, Darwin International Airport required a level of stakeholder engagement unparalleled by other civilian airport solar projects.

The project was developed in two stages resulting in an impressive 5.5 megawatt facility. Darwin Airport consumes all the solar power generated for its own use.

An environmental plan was developed identifying, managing and mitigating the challenges of the project. This included managing environmental waste, repurposing discarded runway millings for the project, and maintaining the conservation buffer zone around Marrara Swamp reserve.

Sophisticated glare and glint monitoring tools developed specifically for the project’s unique requirements were used; extensive consultation and planning throughout the project, and technical elevation of the design was required.

Highlights of the results and benefits of the project

- The Darwin Airport Solar Project is the largest airside PV (photovoltaic) solar system in the world.
- It is Australia’s most northern multi-MW PV array system.
- The banks of arrays will support Q Cell photovoltaic panels, a product selected for its suitability to the Top End’s cyclonic conditions.
- The solar farm is on 8.5 hectares of airport land not needed for other aviation activities and has an expected minimum life span of at least 25 years and should be operating at 80% of its rated capacity at that time.
- The project produces energy equivalent to the consumption of 1,000 average Australian households.
• Stage 1 and Stage 2 of the 5.5MW solar project is valued at $13 million and is entirely privately funded and is expected to reduce bills by $2 million per annum based on current peak tariff rates.
• This project optimizes the use of airside land unparalleled by other projects nationwide.
• It is the largest ‘behind the meter’ PV system designed and built for a single building/facility in Australia.
• The facility generates 25 per cent of the airport’s overall energy needs and meets 100% of the daily peak demand.
• The environmental benefits manifest with a 25% reduction in carbon emissions from stationary energy.

Darwin Airport was awarded the Airport Innovation and Excellence Award for Environmental Management for the solar project, at the prestigious Australia Airports Association National Awards Night. Darwin Airport was also recognised by its peers in the international airport community winning the Airports Council International (ACI) Asia-Pacific Green Airports Platinum Award (for airports with less than 25 million passengers) in April this year.
Darwin Airport Solar Project Stage 1

Darwin Airport Solar Project Stage 1, before and after

Feature in Territory Q magazine

Top: view from tower. Bottom: Stage 1 photo.