A new 600 kW solar farm is to be commissioned early in 2017.

The solar farm consists of 8,000 photovoltaic modules mounted on a fixed array which feeds electricity into the Island grid utilising an underground distribution system.

Rottnest Island has a fantastic solar resource, with many sunny and clear days. Combined with a consistent and complementary wind resource, known as ‘the Fremantle doctor,’ the solar farm and wind turbine, when commissioned, will work together to meet up to an average 45% of the Island’s electricity needs, from renewable sources.

The solar farm, wind turbine, diesel power station and desalination plant will be controlled by an advanced system to maximise the use of renewable energy by creating water at times of surplus renewable energy. This will greatly increase the amount of renewable energy available on the Island and reduce the Island’s reliance on diesel fuel.

The construction of the solar farm has been complemented by:
- Advanced control system.
- Demand side management of the desalination plant.
- Powerhouse upgrade including a dynamic resistor to manage fluctuating renewable energy, by rapidly absorbing excess renewable energy to maintain system stability.

The innovative part of the project is the ‘nexus’ between renewable energy and water production. By timing the large energy demands of the Island’s water desalination plant to make the best use of abundant or excess renewable energy.

- The project will not include energy storage in the form of batteries, but will make the most effective use of renewable energy when it is abundant by using it to produce clean water from the Island’s desalination plant.
- The stored water will act as a kind of ‘energy sink’.
- Connecting effective use of excess renewable energy with the production of potable water from desalination is why it is called the ‘water energy nexus’.

This project is an initiative of Hydro Tasmania, and is being delivered in partnership with the Rottnest Island Authority. The total project cost of approximately $6.5m and was funded by both the Australian Renewable Energy Authority (ARENA) and the RIA.