

Maama Mai Solar Facility after one year in operation

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Maama Mai solar facility, 'Anana, Tongatapu

The Maama Mai solar facility at 'Anana, Tongatapu has now been operating for twelve months, since its opening in July 2012 by his Majesty King Tupou VI, in a dedication ceremony. A recent performance review of the solar farm has shown the solar facility produced approximately 2,050 MWh of electricity over the year, which is almost 10% better than the forecast 1,880 MWh.

Harvesting the energy of the sun through the 5,760 photovoltaic solar panels on site aims to save 481,000 litres of diesel fuel each year, which helps reduce the environmental effects associated with the burning of diesel for the generation of electricity in Tonga.

Tonga Power Generation Manager, Michael Lani 'Ahokava says, "The improvements in distribution HV networks have reduced unnecessary outages resulting in a high availability ratio for Popua power station. This in turn allowed the solar facility to generate to its full potential. The efficiency of the solar plant originally came into question, however we are glad to note that the solar facility exceeded the expected figures".

The solar power generated over the year is equal to 3.1% of total Tonga Power generation (including the other island grids). At today's diesel costs of T\$1.82 per litre, the saving of 540,000 litres per year which amounts to T\$875,000 pa'anga (or NZ\$610,000) of fuel imports saved. Maama Mai offsets 3.1% of total generation equating to a tariff reduction of 2 seniti per kWh.

In the year ending June 2012 our diesel usage was 13,100,000 litres. The savings in diesel that we have achieved over the last year from reduced distribution losses, Maama Mai and other small scale generation is as follows:

Initiatives	Diesel saved litres
Reduced losses	270,000 litres per year
Maama Mai	540,000 litres per year
Small scale generation	12,000 litres per year
Total saved	822,000 litres per year

Without these initiatives of which Maama Mai is the major contributor, the electricity tariff would be higher than the current tariff of \$92.74. Reduced losses include the benefits from the Tonga Village Network Upgrade Project, which has also been funded by the New Zealand Government.

Tonga Power Chief Executive, John van Brink says, "Maama Mai has more than proven its worth over the last year, operating without fault. It is a shame that the savings that have been made are hidden in the midst of the large increases we have seen this year in the cost of diesel, given that 96% of our generation is still by means of diesel."

The New Zealand Government offered full funding for the Maama Mai project in 2011. The solar facility comprises 5,760 photovoltaic solar panels, manufactured by Solar World. Meridian Energy Limited was lead developer for this successful project and continues to provide asset management and operational support to Tonga Power until 2017.

Tonga Power continues to work on other major renewable projects and strives to be as efficient as possible with diesel consumption, all with the aim of reducing the electricity tariff.

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