# SOLAR POWERED STATES

Tokelau, an island nation in the Pacific, is the world's first territory to become wholly solar powered, thus future-proofing its energy needs. Christiana Figueres, Executive Secretary of the UN's Convention on Climate Change, has praised the "climate leadership" of Tokelau – a Pacific microstate of just 1,500 inhabitants, and only three cars.

Former ulu (leader) Foua Toloa pledged to make the shift from fossil fuel dependency at the last UN climate conference, announcing that Tokelau would send “a message to the world”.

Rising just two metres above sea level, Tokelau is extremely vulnerable to rising oceans and other effects of global warming. As Toloa says: “We will be among the first to go under water. Already, we are suffering extreme weather, storm surges, droughts, coral-bleaching, inundation of land, and groundwater salinisation.”

Sound economics, as well as environmental concerns, inspired the switch. Tokelau’s generators previously burned 200 litres of diesel a day, at an annual cost of more than £500,000. With no airport, barrels were transported thousands of kilometres by boat in relatively small amounts, and steep, ongoing price rises were anticipated.

Anne Wheldon, Knowledge and Research Manager at Ashden, says: “This is a significant achievement and Tokelau should be congratulated. Small island states around the world are in grave threat from climate change, aside from being extremely vulnerable to oil price shocks. Reducing dependence on importing fossil fuels will generate employment and free financial resources to invest in initiatives to mitigate the worst effects of climate change.”

A soft loan of NZ$7 million from the New Zealand Aid Programme paid for the erection of the largest off-grid solar power project in the world, with an array of 4,032 PV modules, 392 inverters and 1,344 batteries. Designed by specialists PowerSmart, the initial hope was that 93% of Tokelau's energy needs would be met. Now, it appears that the system will supply 150%. The total capacity of the network is more than 1,400MWh, with a reduction of more than 950 tonnes a year in carbon dioxide emissions.

Crucial to the project's success was the involvement of local people, who were employed to build the system and trained to maintain it. The array will pay for itself within seven years, and the money saved will be diverted to healthcare and education.

“Photovoltaics are a mature, reliable off-the-shelf technology that has been proven for years”, asserts Joseph Mayhew, Development Manager for energy at the New Zealand Aid Programme. “Renewable energy should not be seen as an ‘alternative’ source of energy, but rather an essential key to unlocking the Pacific’s potential.”

Jonathan Kings, administrator of Tokelau, agreed that “this example should be replicated across the Pacific islands”. The UN Development Programme reports that the islands are among the world’s most petroleum-dependent territories; in many cases, the cost of importing fuel is many times higher than all export earnings.

The region now seems ready for an energy revolution: a 1MW PV plant is under construction on Tonga, while Samoa, Tuvalu and the Cook Islands all plan to shift exclusively to solar power by 2020.

Source: http://thisbigcity.net/solar-powered-states/