

## Solar Energy South Africa

# Tokelau ths energy



## Overview

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Can Tokelau support itself with solar energy?

Tokelau, an island nation in the South Pacific, is now completely able to support itself with solar energy. Elly Earls met Joseph Mayhew of the New Zealand Aid Programme to find out how this tiny collection of atolls has become almost 100% self-sufficient in less than 12 months.

Where does Tokelau get its electricity from?

Except for that part of the electricity supply provided by Solar Photovoltaic (PV) to TeleTok facilities on all three atolls and the University of the South Pacific (USP) facility on Atafu, essentially all energy in Tokelau currently is from imported petroleum.

What is the Tokelau PV project?

The Government of Tokelau sees the PV Project as the first step and therefore trial towards the long-term goal of energy independence based on renewable energy. The project is implemented by the Government of Tokelau and funded jointly by Government of New Zealand, Government of France, UNESCO Apia and UNDP Samoa.

Could Tokelau be the world's first renewable nation?

Solar power plants and coconut biofuel-powered generators switched on in Tokelau has made the islands the world's first truly renewable nation.' Imagine a place where the only energy to be found is clean, reliable solar power. Solar Array's seen on the three tiny islands of Tokelau to completely produce solar power energy.

How much electricity does a solar system provide in Tokelau?

Each system alone is among the largest off-grid solar power systems in the world, and together they are capable of providing 150% of current electricity demand in Tokelau, a much higher amount than the 90% that was originally

planned for.

How many people live in Tokelau?

Tokelau is made up of three small atolls, Atafu, Nukunonu and Fakaofu, has an area of around 10km<sup>2</sup> and is populated by 1,411 New Zealand citizens, all of whom now have their energy needs met by solar electricity systems. "Each system alone is among the largest off-grid solar power systems in the world."

## Tokelau ths energy

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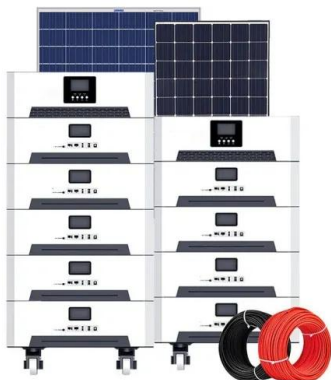


### Renewable energy opportunities and challenges in the ...

Renewable Energy Opportunities and Challenges in the Pacific Islands Region: Tokelau 3 2. Energy landscape Energy supply and demand. Petroleum. Until 2012, all power generation was by diesel engines which consumed around 160 000 litres of the 162 000 litres of imported diesel, with the remainder used for transport (Figure 2).

### Tokelau

Tokelau (/ ' t o? k ? l a? /; lit. ' north-northeast ' or ' north wind '; [7] known previously as the Union Islands, and, until 1976, known officially as the Tokelau Islands [8]) is a dependent territory of New Zealand in the southern Pacific Ocean consists of three tropical coral atolls: Atafu, Nukunonu, and Fakaofu. They have a combined land area of 10 km<sup>2</sup> (4 sq mi).



### [Tokelau's Approach to Renewable Energy](#)

The Tokelau Renewable Energy Project (TREP) was made possible through funding from New Zealand, Tokelau's administrative authority, and the United Nations Development Programme (UNDP). This financial backing was crucial ...

### Tokelau , Critical Materials

## Monitor - Columbia University Center ...

The Critical Materials Monitor aims to improve understanding of supply chains essential for the energy transition, the transition to more sustainable energy. It offers insights into the critical minerals required, outlines the components of key technologies, and provides in-depth reserve, production, and trade analysis. Tokelau. Tokelau



## Tokelau highlights Energy and Climate Change programme

In 2012, under the Tokelau Renewable Energy Project (TREP), a total of almost 1 MW of PhotoVoltaic (PV) was installed in hybrid mini-grid systems "We are fully committed to the transition because our existence depends on it. We have developed our strategies; we are committed to the goals set in those strategies, and we have enacted the

## INDICATOR Renewable Energy OUTCOME

INDICATOR Renewable Energy DEFINITION PURPOSE DESIRED OUTCOME Trend in percentage production of energy from renewable sources Energy generation is a major source of GHG emissions. (Table 27.1). In 2012, Tokelau was the first country in the world to achieve 100% of its electricity generation from solar systems, with 45 kW solar plants on all



## Tokelau Renewable Energy Project Review

The Tokelau Renewable Energy Project (TREP) saw the installation of solar diesel hybrid power



systems on Fakaofu, Nukunono and Atafu, the three atolls of Tokelau. There is a clear need across the community to better understand the reasoning behind tariffs and what different tariffs mean for the community.

## 100% Renewable Energy Targets in the Pacific Islands

by 2020, and Fiji, Vanuatu and Solomon Islands for 100% renewable energy by 2030. Tokelau already achieved the target by 2012/2013. The process of transition to renewable energy generation is deeply rooted in the existing national and regional policies, plans and priorities of the PICs, as reflected in their

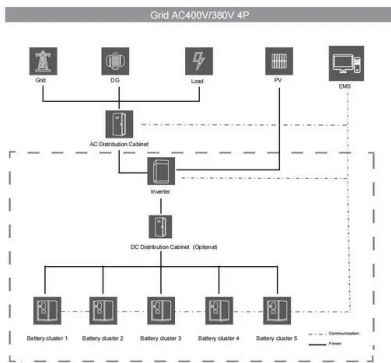


## Zoom

Tokelau is the first country in the world to produce all its electricity needs from renewable energy. This small Pacific nation with three atolls and 1160 people has switched off its noisy, polluting diesel generators and is now totally powered by the sun. People in Tokelau began talking about a solar-powered future more than a decade ago. At that time, they relied on ...

## [Energy in Tokelau](#)

More about energy in Tokelau. Energy consumption per capita; Total emissions: 391.592 million metric tonnes of CO<sub>2</sub> (2022 est.) From coal and metallurgical coke: 149.781 million metric tonnes of CO<sub>2</sub> (2022 est.) From petroleum and other liquids: 139.954 million metric tonnes of ...



## Renewable energy opportunities and challenges in the Pacific ...

Renewable Energy Opportunities and Challenges in the Pacific Islands Region: Tokelau 3 2. Energy landscape Energy supply and demand. Petroleum. Until 2012, all power generation was by diesel engines which consumed around 160 000 litres of the 162 000 litres of imported diesel, with the remainder used for transport (Figure 2).

### Download the case study: Tokelau, Renewable Case Study, March

description of the supply-side of the Tokelau energy system before and after the renewable energy project. The PV systems on each atoll were sized to provide 90% of the atolls' electricity needs over the course of a year through solar electricity production. During the sunny season (April-October) the systems are expected to provide over 100%

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- Top 3 World Single Phase PV Inverter Supplier

## Tokelau becomes the world's first 100% solar powered country



Tokelau is one of the world's most remote countries - and the first to be powered fully by PV. SMA Solar Technology AG (SMA) delivered 93 Sunny Island inverters to control the standalone systems on the three coral islands and 205 Sunny Boy inverters to convert the direct current produced by the photovoltaic panels into the alternating current necessary ...

## [Tokelau - 100% Renewable Energy Atlas](#)

An off-grid solar energy system is currently in operation, and was design and constructed, in collaboration with the local Tokelau community, by private companies and development organisations. Population: 1,499 ...



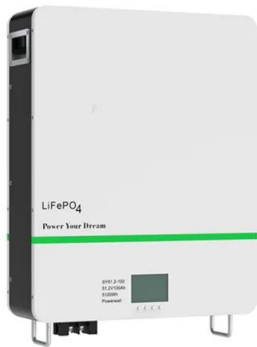
## About

Tokelau boasts the smallest economy of any nation, yet it's a trailblazer in renewable energy, proudly being the first 100% solar-powered nation globally. Governance and Status ? Officially recognized as a nation by both the New Zealand and Tokelauan governments, Tokelau operates as a free and democratic nation with elections held every

## [VAKA -- thecoconet.tv](#)

VAKA is a short documentary about the energy and resilience of the Tokelauan people as they weave their customary-wisdom regarding the environment with modern eco-technologies to respond to climate change. Tokelau was the first nation to aim for 100% of its electricity to be generated from solar as a result of the New Zealand funded Tokelau Renewable Energy ...





**tl**

Tokelau's small size (three villages), isolation, and lack of resources greatly restrain economic development and confine agriculture to the subsistence level. Energy Crude oil - proved reserves: 0 bbl (1 January 2010 est.) country comparison to the world: 205 Communications Telephones - fixed lines: total subscriptions: 300. subscriptions

## Tokelau Renewable Energy Project Review , Global Network of ...

The Tokelau Renewable Energy Project (TREP) saw the installation of solar diesel hybrid power systems on Fakaofu, Nukunono and Atafu, the three atolls of Tokelau. There is a clear need across the community to better understand the reasoning behind tariffs and what different tariffs mean for the community. Documents.



## Tokelau - the First Country with 100 % Solar Energy

Tokelau - located just south of the equator, with nearly constant solar irradiation year-round - is an ideal candidate for photovoltaics. The three atolls of Fakaofu, Nukunono and Atafu now operate their own hybrid systems. With 1 megawatt of total power, the plants generate more energy than the 1,411 inhabitants of Tokelau need.

**Did you know that Tokelau is powered completely by solar energy...**

In today's edition of Reel Talk, Stephanie Bandi reviewed Tokelau: The Solar Powered Island of the Future a documentary that showcases how the island nation harnesses the energy of the sun to

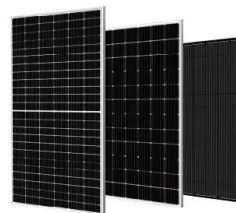


## Transforming Tokelau's Energy: A Case Study in Renewable Energy

CASE STUDY 1 3 A hybrid energy system including solar photovoltaic (PV) panels, battery storage, and diesel backup was introduced by the TREP. With the help of the new system, Tokelau's dependency on diesel was to be greatly reduced since 90% of its electricity needs would be met by solar energy (Tokelau Renewable Energy Project, 2013). A ...

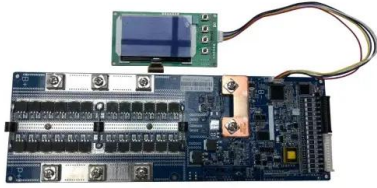
## [Tokelau's Approach to Renewable Energy](#)

The Tokelau Renewable Energy Project (TREP) was made possible through funding from New Zealand, Tokelau's administrative authority, and the United Nations Development Programme (UNDP). This financial backing was crucial in transitioning Tokelau from diesel generators to solar power, setting a global example for renewable energy adoption .



## Empower Consultants Hybrid Photovoltaic/Coconut based ...

(National Energy Policy and Strategic Action



Plan) is also completely in line with the low carbon, pro renewable energy aspirations of the New Zealand Government. This study including its recommendations will be fully in line with the intentions of NESAP. To this end, the Tokelau Government, with support from the United Nations Development

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