

## Solar Energy South Africa

# Cook Islands electricity from solar energy



## Overview

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Solar PV: Solar resource potential has been divided into seven classes, each representing a range of annual PV output per unit of capacity (kWh/kWp/yr). The bar chart shows the proportion of a country's land area in each of these classes and the global distribution of land area across the classes (for comparison).

Te Aponga Uira generates and distributes electricity to Rarotonga in accordance with its mandate under the Te Aponga Uira O Tumu-te-Varovaro Act (1991). TAU is a critical key infrastructure asset for Rarotonga and the wider Cook Islands.

To support this ambitious plan the Asian Development Bank and the European Union fund the Cook Islands Renewable Energy Sector Project, which will construct up to six solar photovoltaic (PV) power plants with a total installed capacity of about 3 megawatts-peak coupled with battery to store electricity from solar energy.

Over the last five years the Cook Islands have made huge strides to reach its national electricity target of 50% of islands converted to renewable energy

sources by 2015, with the remaining 50% to be achieved by 2020. Does the Cook Islands have solar power?

The Cook Islands Electricity Sector historically been powered by diesel generators. Since around 2011, increasing solar PV generation on Rarotonga has changed this situation. And in 2014- 15, installation of 95-100% renewable solar hybrid systems on the Northern Group Islands further altered the mix.

Will the Cook Islands use renewable electricity?

The Cook Islands will be careful in its selection of renewable electricity options and will not entertain unproven or non-commercial technologies. The attached Summary Table provides some indicative and preliminary information on the types and costs of the renewable electricity technologies we are considering.

How will new energy technologies affect the Cook Islands?

In future, new energy technologies such as marine energy may offer new opportunities for the Cook Islands to generate electricity from other renewable sources. Developments in energy storage or in energy efficiency may also further reduce the Cook Islands' reliance on diesel. The Cook Islands prefers to use proven and economic energy technologies.

What is a Cook Islands renewable electricity chart (road map)?

This document is called the Cook Islands Renewable Electricity "Chart". Other countries have called similar documents a "Road map" - and these are countries that are either landlocked or have many kilometres of road between settlements. Our environment is different. We have many kilometres of sea between islands.

Where are solar panels installed in the Cook Islands?

The Cook Islands is a recipient of the Fund and has committed to installing Solar (PV) systems for the islands of Rakahanga, Pukapuka, Nassau, Suwarrow and part of Manihiki.

Why is energy important in the Cook Islands?

Energy is a fundamental prerequisite to the sustainable socio-economic development of a nation. As such, the Cook Islands Government considers that environmental protection, energy security and economic growth are inseparable key pillars of our country's development.

## Cook Islands electricity from solar energy

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### [Island Energy Transitions](#)

Energy use in islands Power generation in islands in islands solar and wind require energy storage earlier than in large interconnected power systems to Bahamas, Barbados, Belize, British Virgin Islands, Cabo Verde, Comoros, Cook Islands, Cuba, Dominican Republic, Federated States of Micronesia, Fiji, Grenada,

### Home

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### **An improved typical meteorological year for solar energy ...**

In the case of the Cook Islands, 2016 estimates had fossil-fuel (diesel) generators providing over 75% of the nation's electricity (~32 GWh p.a.) (Central Intelligence Agency 2021) despite their ambition to have '50 percent of the Cook Island's electricity ... provided by renewable energy in 2015' (Government of the Cook Islands 2011).

### [ENERGY PROFILE Cook Islands](#)

Avoided emissions based on fossil fuel mix used for power Calculated by dividing power sector emissions by elec. + heat gen. ENERGY AND EMISSIONS Avoided emissions from renewable elec. & heat CO 2 emission factor for elec. & heat generation LATEST POLICIES, PROGRAMMES AND LEGISLATION Electricity generation trend ELECTRICITY ...



## The Cook Islands Renewable Electricity Chart (CIREC) 2011

Other Energy Technologies The Cook Islands has abundant solar radiation, which makes solar electricity PV an attractive option. On average, about 80 percent of households already use solar water heating, and we are committed to increasing the use of photovoltaics for electricity generation and to reduce reliance on diesel.

## Projects

Following the 2013 feasibility study investigating the development of a 1MW grid-connected solar power station, UAE and NZ government cofounded the development of a 1MW solar farm project at Fighter 1, Henderson. These projects are funded under the World Bank Solomon Islands Sustainable Energy Project. The scope includes relocation of



## [Pacific Lighthouses: Cook Islands](#)

Renewable Energy Opportunities and Challenges in the Pacific Islands Region: Cook Islands 1 1. Country context Physical description. The Cook Islands consist of 15 islands totalling 240 km<sup>2</sup> of land, located in the South Pacific Ocean half-way between Tonga and Tahiti. Ap-proximately 90% of the land and population are in the



## A Renewable Energy Journey in the Pacific

Image: The author in a solar field on one of the Cook Islands. Credit: Entura. Stage 5: Finishing the journey - The 'last renewable mile' is usually the most expensive one, so this last stage means identifying enabling technologies and techniques that can bridge the gap between 70-80 percent and 100 percent renewable contribution, without significant increases in ...

**Outdoor Cabinet BESS**  
 50 kWh/500 kWh Battery Storage System  
 Industrial and Commercial Energy Storage

- All In One**  
Integrating battery packs
- High-capacity**  
50 - 500kWh
- Degree of Protection**  
IP54
- Operating Temperature Range**  
-20 - 60°C (Derating above 50 °C)
- Intelligent Integration**  
Integrated photovoltaic storage cabinet
- Rated AC Power**  
50 - 100kW
- Altitude**  
3000m (>3000m derating)



## Cook Islands: 100% Renewable Energy by 2020 , Pacific ...

5 July 2011, Rarotonga Cook Islands - The Cook Islands has an electricity target of 50% renewable energy by 2015 and 100% by 2020. While this may seem like an extreme target, according to the Prime Minister of the Cook Islands Hon. Henry Puna - "it is ambitious but it is not impossible." Plans are already underway to bring this to fruition.

### [ENERGY PROFILE Cook Islands](#)

Energy self-sufficiency (%) 2 7 Cook Islands  
 COUNTRY INDICATORS AND SDGS TOTAL  
 ENERGY SUPPLY (TES) ELECTRICITY GENERATION  
 ENERGY AND EMISSIONS CO 2 emissions by

sector Elec. & heat generation CO Solar resource potential has ...



## Cook Islands: Renewable Energy Sector Project (Additional ...)

The Cook Islands is heavily reliant on imported fossil fuels for electricity generation. The Government of the Cook Islands is implementing The Cook Islands Renewable Electricity Chart (CIREC) which aims to supply 100% of the Cook Islands electricity generation from renewable sources by 2020. The Asian Development Bank (ADB) is

## Cook Islands Renewable Energy Chart Implementation Plan

achieving, by Renewable Energy means, the electricity demand of the country by 2020. Government, in its endeavour to achieve its Goal, has produced the "Cook Islands Renewable Electricity Chart" the "Cook Islands Renewable Energy Chart Implementation Plan" as its guiding papers to which the Island Specific Implementation Plan is developed.



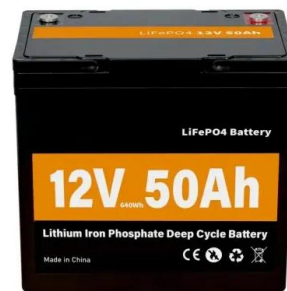
## [Appendix 2: Flora and Fauna Assessments](#)



install solar photovoltaic power stations on Rarotonga, Aitutaki, Atiu, Mitiaro, Mangaia and Mauke. Construction of the solar photovoltaic power station at Mangaia will include the clearing  
 Cook Islands Renewable Energy Sector Project  
 Flora and Fauna Assessment - Mangaia 17  
 August 2015 7 Species Common name  
 Traditional name Cook Islands

## Electricity Generation of Cook Islands (the)

In 2021, Cook Islands (the) produced 0.00017975350042979% of the world's total energy generation. Total Electricity Generation of Cook Islands (the) (2000-2021) Between the year 2000 and 2021, Cook Islands (the)'s electricity generation has increased from 0.02 TWh to 0.05 TWh, a 150.0% increase in produced Terawatt hours during a 21 year time



## Te Aponga Uira o Tumu-te-Varovaro (TAU) , Cook ...

Te Aponga Uira generates and distributes electricity to Rarotonga in accordance with its mandate under the Te Aponga Uira O Tumu-te-Varovaro Act (1991). TAU is a critical key infrastructure asset for Rarotonga ...

## COOK ISLANDS RENEWABLE ENERGY SECTOR ...

COOK ISLANDS RENEWABLE ENERGY SECTOR PROJECT - Rarotonga Battery Energy Storage System Revision No: 0 E304965-TR-4 8 April 2016 v ontents 1. Introduction 1 4.4 Electricity load 29 4.5 Solar resource 32 4.6 Sizing and selection of the BESS, and additional solar PV

capacity 35 4.6.1 Future interventions 37

**Commercial and Industrial ESS**

Air Cooling / Liquid Cooling

- Budget Friendly Solution
- Renewable Energy Integration
- Modular Design for Flexible Expansion



**Cook Islands - 100% Renewable Energy Atlas**

Although nearly all households in the Cook Islands are connected to grid electricity, only 5.5% of households have additional solar photovoltaic systems installed, and 1% use small diesel generators. Several ...

**A Renewable Energy Journey in the Pacific**

Image: The author in a solar field on one of the Cook Islands. Credit: Entura. Stage 5: Finishing the journey - The 'last renewable mile' is usually the most expensive one, so this last stage means identifying enabling ...



[The Cook Islands go solar](#)

COOK ISLANDS RENEWABLE ENERGY SECTOR PROJECT, Rarotonga Battery Energy Storage System, E304965-TR-4, 8 April 2016, Prepared by Hydro-Electric Corporation. ABN48 072 377 158? They were asked to come up with a solution rather than ask if it were feasible.

## Understand low-carbon energy in Cook Islands through Data

Greenhouse gas emissions in Cook Islands - Energy Sector. 13%. ? ?. Greenhouse gas emissions in Cook Islands - Electricity Sector. Japan Brazil Canada South Korea France Sub-Saharan Africa Germany Saudi Arabia Iran About Media ? Nuclear ? Wind ? Solar ? Hydropower ? Geothermal ? Biofuels.



## Cook Islands to be fully powered by solar plus battery power by ...

New solar plus battery projects in the Cook Islands demonstrate how off-grid regions can escape reliance on diesel generators.. Six of the twelve inhabited Cook Islands are the target of hybrid renewable energy projects comprising solar and solar battery technology. The first of these, on Mitiaro Island, is now complete and should be able to supply all the power ...

## [Renewable energy in the Cook Islands](#)

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## Cook Islands Renewable Electricity Chart



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