Cook Islands hybrid wind energy system

Will the Cook Islands have a wind energy project?
The proposed wind energy project in the Cook Islands,assuming the wind resource proves to be viable and the project performs as expected,will have a high international profile and,as indicated in the UNDP/UNESCO report,will be designed for ease of replication by other island countries in the Pacific and elsewhere.

What is the energy sector like in the Cook Islands?
The Cook Islands energy sector relies 100 % on imported fuels for transport,electricity generation and household use. In the year 2005 the world has experienced a period of price volatility for petroleum that saw petroleum prices increase from US$40/bbl in mid March to US$70bbl in September.

Is a grid-connected wind energy project feasible for Rarotonga?
A grid-connected wind energy project for Rarotonga in the 2 MW class is technically feasibleand financially and economically sound at current fuel price levels. A conservative base case calculation of the projects Economic Internal rate of return shows a value of 4.4 %.

Is the wind resource in Rarotonga overestimated?
Gross wind energy available (col 3) and gross wind surplus energy (col 4) and thus the net wind supply to load (col 5) have been reduced to from the UNDP/UNESCO report estimates in recognition that there is a significant risk,pending further monitoring,that the wind resource in Rarotonga has been overestimated.

What fuels are used in the Cook Islands?
The Cook Islands energy sector relies 100 % on imported fuels for transport, electricity generation and household use. Imports were 23 million litres in 2004 of which diesel accounted for the lions share of 12 million litres, gasoline 5 million and multipurpose kerosene 7 million.

How much wind energy does Rarotonga wind farm produce a year?
In other words for the purpose of this study we assume a gross average annual wind supply from the Rarotonga wind farm to be 2,000 MWh per MWinstalled corresponding with a plant factor of 23%. (The wind energy project in Butoni,Fiji assumes a plant factor of only 13%). It should be noted that this figure would vary from year to year.

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In its approach to delivering a 100% renewable energy target across 12 islands by 2020, the Cook Islands presents a rare insight into how planning requirements of high penetration renewable island systems vary with scale.

This study presents the method for reaching 100% sustainable energy systems in cooks islands. It covers the possibility of fulfilling this objective from technical, commercial and environmental aspects.

Renewable energy in the Cook Islands is primarily provided by solar energy and biomass. Since 2011 the Cook Islands has embarked on a programme of renewable energy development to ...

achieving the Cook Islands targets of 50% of islands powered by renewable energy by 2015 and 100% coverage by 2020. The Chart and Plan were updated in 2016 considering the increase solar PV generation on Rarotonga and the installation of solar-hybrid systems on the northern Cook Islands. Projects completed in the north include over 850kW of ...

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40/bbl in mid March to US$ 70bbl in September. At present wind energy is considered to be the most attractive renewable energy source for grid connected electricity supply in the Cook Islands. For the Rarotonga system, wind energy penetration up to a maximum of 30% seems to be manageable without jeopardizing system stability and security.

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Renewable energy in the Cook Islands is primarily provided by solar energy and biomass. Since 2011 the Cook Islands has embarked on a programme of renewable energy development to improve its energy security and reduce greenhouse gas emissions, [1] with an initial goal of reaching 50% renewable electricity by 2015, and 100% by 2020. [2]

Government of The Cook Islands has taken an audacious step towards transforming its country from dependency to fossil fuel as an energy source to a future of Renewable Energy means as its source of electrical power generation. To guide it in its progress towards achieving this target, it ...

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connected wind turbine is installed in the Cook Islands, although most of the above-mentioned reports agreed on the good potential for wind energy harvesting in the country.

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Web: https://www.containerserviceforu1.co.za/contact-us/
Email: energystorage2000@gmail.com
WhatsApp: 8613816583346