Tokelau sistemas off grid

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.

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.

Why did Tokelau switch to solar?
Yet despite the challenges involved in installing comprehensive solar systems in such a remote location,switching to solar was absolutely crucial for the tiny collection of islands. "Tokelau's atolls are low-lying and especially susceptible to the adverse effects of climate change," Mayhew stressed.

How many people live in Tokelau?
Tokelau is made up of three small atolls,Atafu,Nukunonu and Fakaofo,has an area of around 10km² and is populated by 1,411New 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."

Why is electricity so expensive in Tokelau?
Before the PowerSmart systems were installed on the nation's three atolls, Tokelau was highly dependent on imported fossil fuels to meet its energy needs and therefore vulnerable to international price fluctuations and increasing fuel costs, making electricity extremely expensive for both households and businesses.

How much does a diesel generator cost in Tokelau?
Indeed, until recently, diesel generators were burning around 200 litres of fuel daily on each atoll, meaning more than 2,000 barrels of diesel were used to generate electricity in Tokelau each year, costing more than $1m NZD.

Thanks to joint funding by the government of Tokelau and New Zealand, the Tokelau Renewable Energy Expansion Project (TREEP) is now underway; set to return Tokelau to approximately 100% renewable energy with installation set to commence in early 2020.

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RES: 1MW off-grid solar energy system across three main atolls of Tokelau. The project includes : 4032 solar modules, 196 string inverters, 112 DC charge controllers, 84 battery inverters and 1344 batteries in 48V banks.

The South Pacific nation of Tokelau became the first country in the world to have all of its electricity needs met by solar power. Designed by Powersmart Solar in partnership with ITP Renewables, construction of the combined 1 MW of stand-alone PV spread across the three atolls was completed in October 2012.

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Since October 2012, a plant of 4,023 PV modules combined with 298 inverters and 1,344 battery banks has provided reliable power day in and day out. At one megawatt of power, the entire facility is the largest off-grid system in the world. Achieving 100% of Climate Commitments . Tokelau is particularly vulnerable to the threat of rising sea levels.

The Tokelau Renewable Energy Project was launched in 2010 and culminated in the installation of a photovoltaic-diesel hybrid system with battery storage on each of Tokelau"s three atolls; Fakaofo, Nukunonu and Atafu. The new solar power systems replaced the existing diesel systems and were designed to provide at least 90% of

This report presents the findings of post installation reviews for three solar-hybrid power systems installed on the atolls of Tokelau. The report is presented in two parts: Part 1 -Financial Review and Part 2 - Technical Review.

These systems are part of the Tokelau Renewable Energy Project that has been funded by the New Zealand government and represents one of the largest off-grid renewable energy projects in the world. With this project, the islands will make the transition from being completely dependent on imported fuels to being completely energy independent.

The Tokelau Renewable Energy Project, launched in 2010 and due to be completed in 2013, has seen the construction of a PV/diesel hybrid system on each atoll in the Pacific island nation of Tokelau. Previously, the

atolls used diesel generator sets to provide electricity on a centralized distribution network.

But Tokelau couldn"t afford to get itself off its expensive diesel habit by installing solar arrays to capture its near constant sunshine and use that to generate electricity instead. Until that is, the government of New Zealand, which administers the territory, found a budget somewhere to fund the $7.2m ((£4.3m) project.