

Clean Energy in Island Settings:

**IRNEA's Initiative for Promoting the Enabling Environment
for Renewable Energy Deployment in Small Island
Developing States**

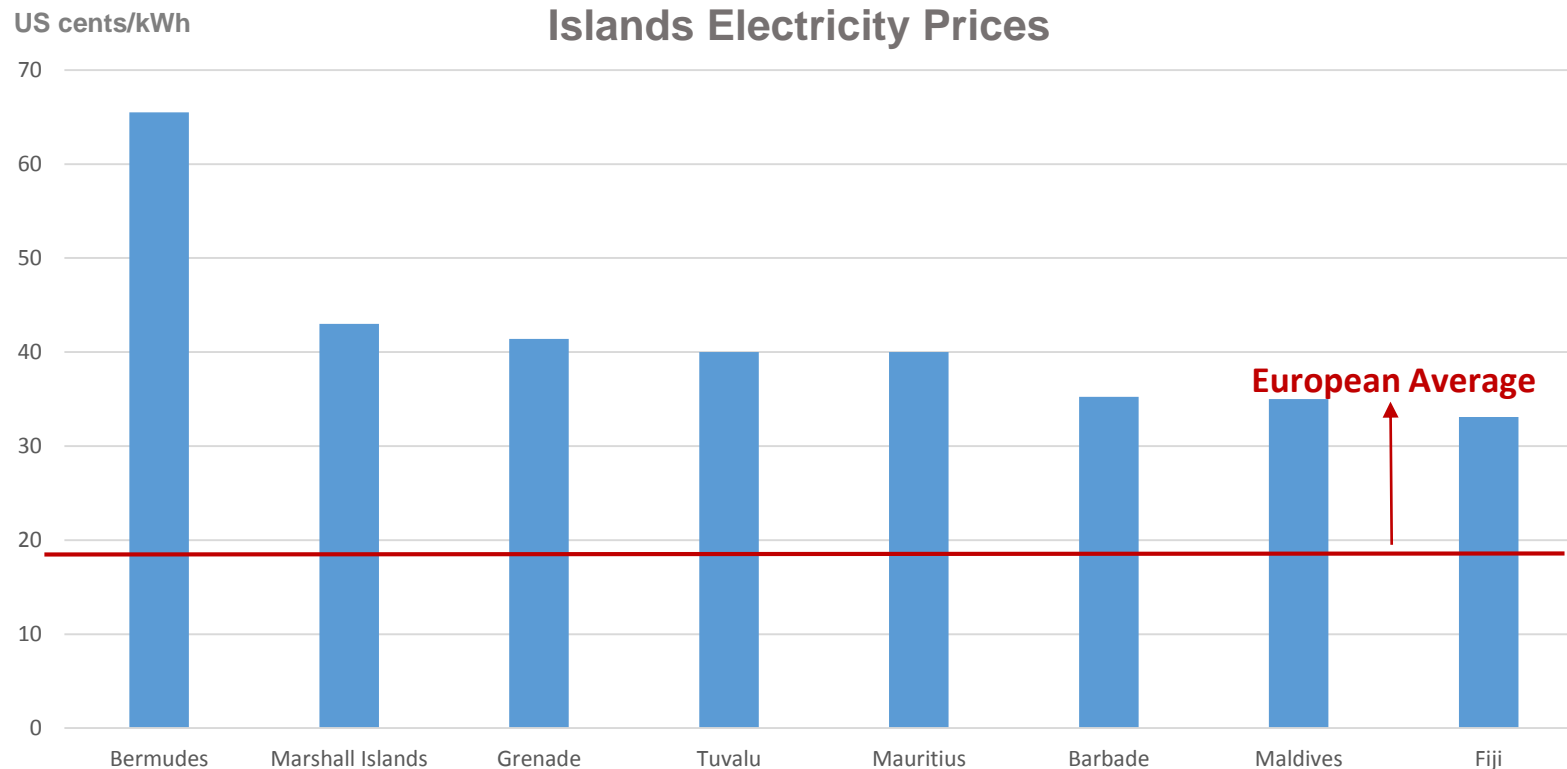
Joint Webinar with UN Foundation and Clean Energy Solutions Center

Abu Dhabi

11th March 2015

Why Renewable Energy on Islands:

High Electricity Price

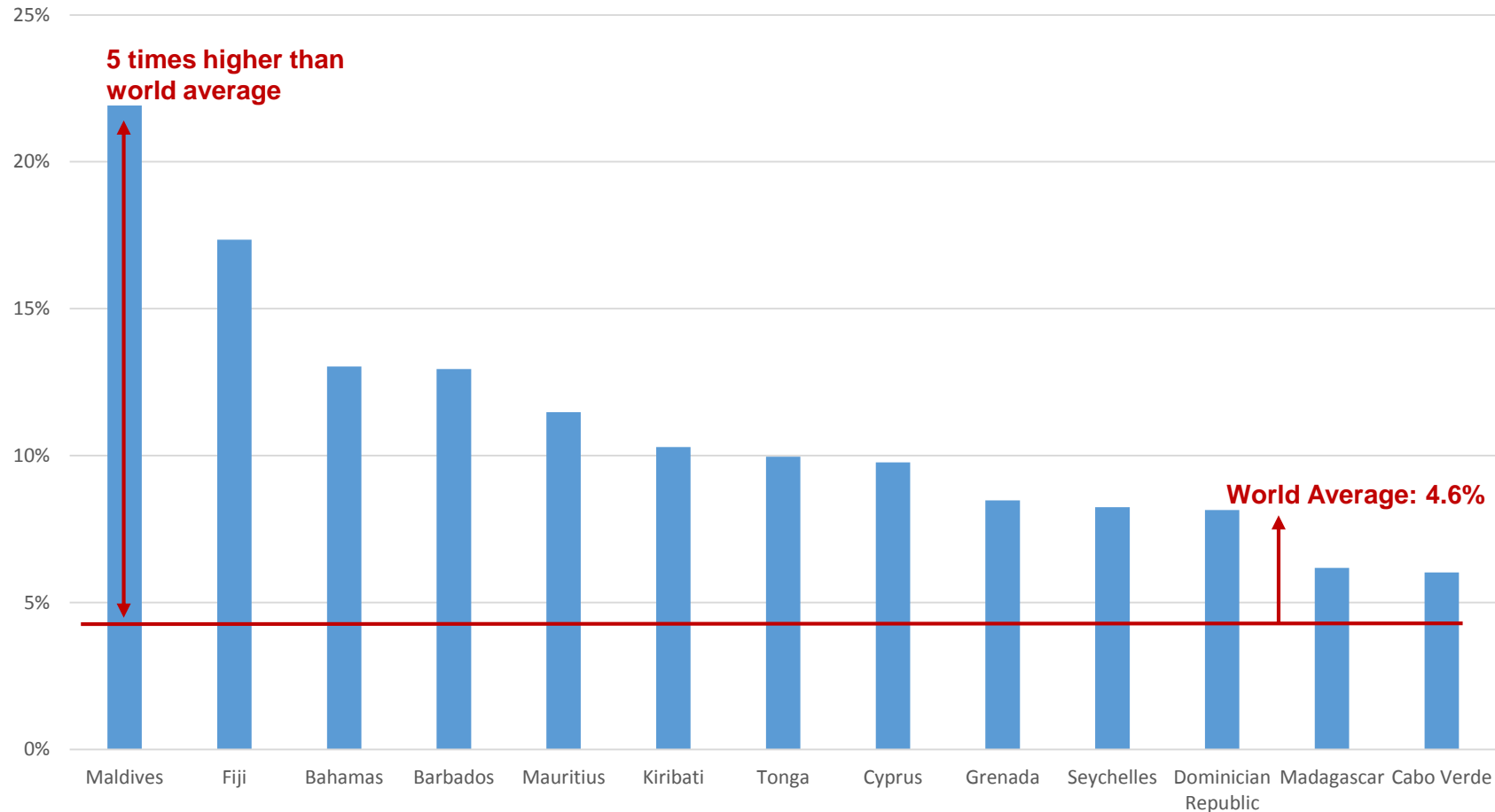


- Compared to the average electricity price in Europe (\$ 19.1 cents/kWh), small islands face high electricity retail prices.
- High electricity prices result from expensive fuel import and the uncertainty of future fuel prices.
- Most of the island countries subsidize residential customers and several subsidize all electricity sales with very few even coming close to a full cost recovery for electricity deliveries. This is a heavy burden on island governments' budget.

Why Renewable Energy on Islands:

GDP spent on fuel import

GDP spent on fossil-fuel imports

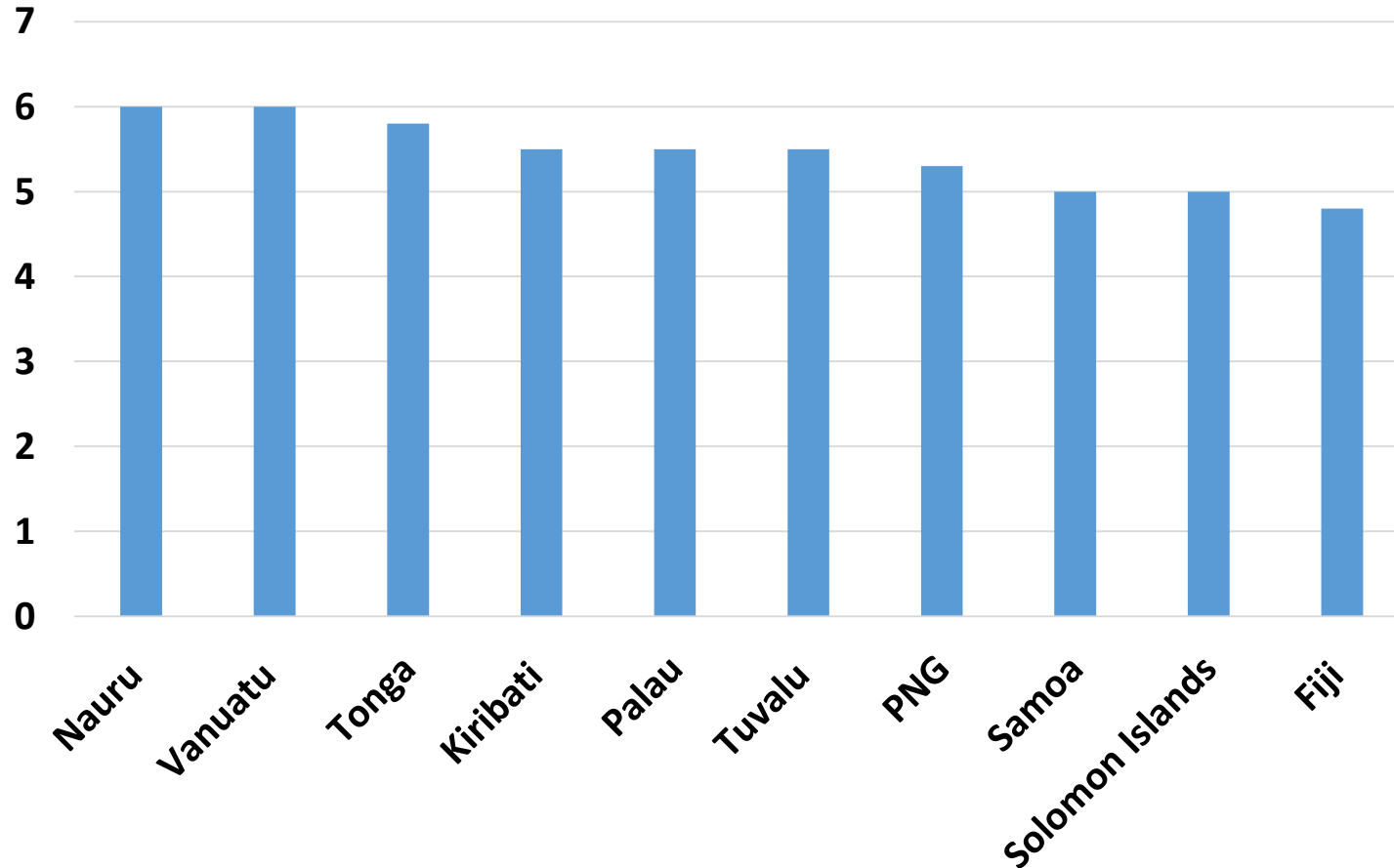


- Compared to the world average spending on fuel import (4.7% in 2012), islands are 2-4 times higher, highly vulnerable to fuel price volatility.
- A significant portion of islands' hard-earned GDP is spent on fossil fuel import, which could be used on social and economic development.
- The development of renewable energy markets as a substitute thus makes economic sense. The awareness is high, and actions are beginning to take shape.

Why Renewable Energy on Islands:

Abundant Renewable Resource Potential

Solar Potential (kWh/m²/day)



- The solar resource potential is measured in kilowatt-hours per square meter per day (kWh/m²/day).
- 3.5 kWh/m²/day is classified as “Good” potential for solar power development.
- All the Pacific islands are well above the threshold.
- Two key barriers are – a) lack of comprehensive data on sub sectors and; b) lack of appropriate skills and knowledge (and the willingness) to collect and analyze data locally.

IRENA'S ISLAND INITIATIVES



A platform to share knowledge and best practices
www.irena.org/grein

SIDS Lighthouses

A holistic approach to deploy renewable systems on the ground

5 – year timeframe

Mobilize **\$500 million** USD

Deploy **100MW** solar PV

20MW wind and other RE technologies

Capacity Building in SIDS

Objectives

- ❑ **Support building capacities at the following levels:**
 - ❑ Strengthening the **policy** environment
 - ❑ Building **technical** capacities
 - ❑ Facilitating access to **finance** and empowering **entrepreneurs**
- ❑ **Contribute to the gradual transition from donor support to sustainable markets**

What are the principles of supporting SIDS through capacity building?

- ✓ **Demand-driven**
- ✓ **Long-term sustainability**
- ✓ **Islands' sizes & economies**

Capacity Building in SIDS

Content

- Capacity Building for **policy** maker - *creating an enabling environment*

Target audience:

- Senior technical officials from energy ministries, regulatory bodies and power utilities

Partners include:

- The Government of Japan: Tokyo – 13 participants (5 from Pacific Islands)
- Secretariat of the Pacific Community: 11-15 August 2014, Fiji – 45 participants

Contents include:

- Setting renewable energy targets: methodology and best practices
- Lessons from the Cape Verde, Cook Islands, Reunion Island and Samsø Island
- Options of renewable energy procurement in islands:
 - Net metering for the Pacific Islands
 - Feed-in tariff for the Pacific Islands
 - Utility-led models for renewable energy deployment



Capacity Building in SIDS

Content

- Building **technical** capacities – *certification of technicians in the Pacific Islands*

Objectives:

- ✓ Provide qualified local skilled technical force to support growth of solar PV
- ✓ Increase confidence of consumers and end users of solar PV systems
- ✓ Enhance market attractiveness through increased mobility of skilled workforce in regions

Delivery:

- ✓ 50 hrs online course: theoretical + 2 design tasks + final exam (self funded)
- ✓ 4-day practical course: installation, fault finding and commissioning (IRENA funded)

Results:

- ✓ 7 installers certified and 2 companies accredited in Pacific



Capacity Building in SIDS

Content

- Facilitating access to **finance** and empowering **entrepreneurs**

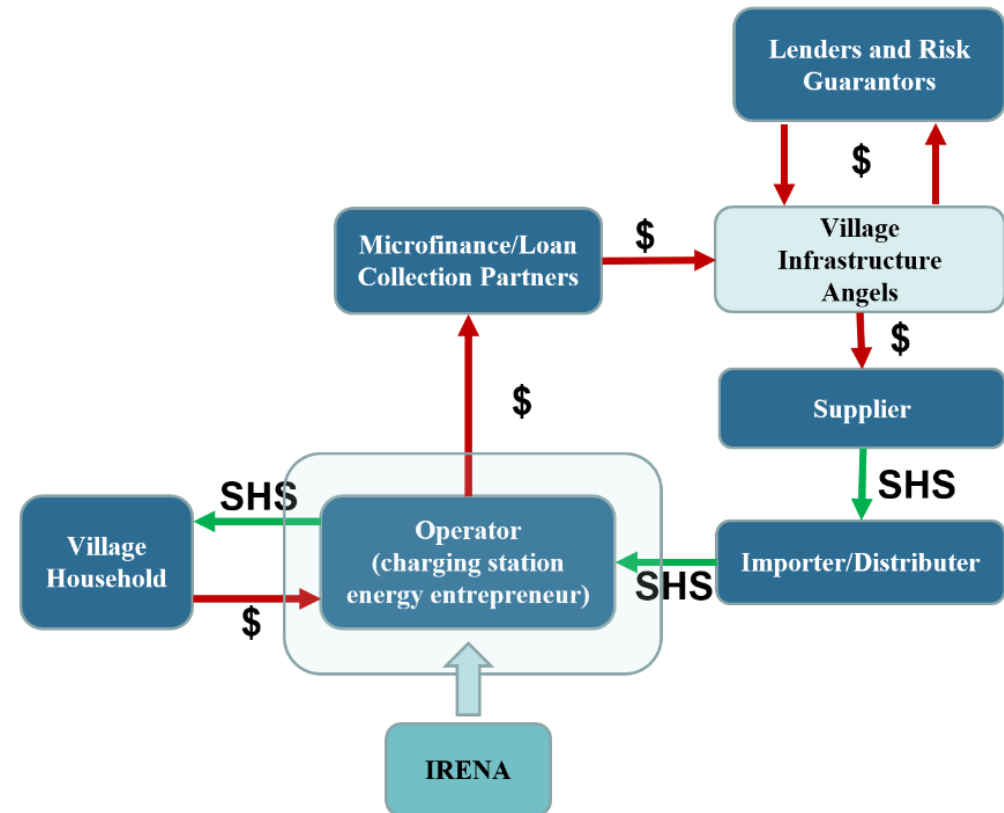


Pacific Islands – Empowering Entrepreneurs in Vanuatu

- ✓ An innovative zero subsidy energy lending model in the Pacific Islands
- ✓ Builds sustainable market
- ✓ Why capacity building? Decline in sales due to loss of market confidence and not due to market saturation



Over 20 entrepreneurs from Tanna Island (Vanuatu) are trained



IRENA supports capacity building activities

Pacific Islands – Empowering Entrepreneurs in Vanuatu

Building local renewable energy delivery capacity

Component of delivery network	Stakeholders	What capacity building addresses
Manufacturing PV panel components	International suppliers	How to modify some components of solar power systems to match project design and help achieve deep market penetration
Shipping and delivery	Local importers	How to conduct efficient freight forwarding of services, not wholesaling
Distribution	District managers Local entrepreneurs	How to conduct efficient freight forwarding services to the last mile to reach villages
Installation	Local entrepreneurs	How to properly and safely install solar PV systems Principles of accounting and bookkeeping
Maintenance and services	Local entrepreneurs	How to manage and operate the charging stations How to provide technical support How to manage spare parts How to collect payments from households
Enterprise development	District managers Local entrepreneurs	How to identify other business ideas; such as solar-agro processing How to increase customer and geographical range How to attract crowd funding Marketing and communication

Pacific Islands – Empowering Entrepreneurs in Vanuatu

Sequential training modules for building capacities

Training	Focus Areas	What capacity building addresses
Module 1	Installation, business planning and book keeping	<ul style="list-style-type: none"> - Village operators on operating the charging station works, solar lantern characteristics, book keeping and the payment modalities - District managers on how the charging stations and products operate; maintaining a handbook and revenue sharing model of the project - Importer/Distributor on providing freight forwarding logistics and aftersales technical support
Module 2	Increasing customers and providing technical support	<p>Local communities, village operators & district managers on</p> <ul style="list-style-type: none"> - Project Check-and problem-shooting - Basic Bookkeeping Education - Large System Installations and Basic Maintenance Training - Increasing Customers and Geographical Range - Preparation for Kiva Campaign
Module 3	Default management	<p>Local communities, village operators & district managers enhanced training on</p> <ul style="list-style-type: none"> - Project check and troubleshooting - Advanced bookkeeping - Spare parts management and other advanced maintenance - Laying the groundwork for a larger Kiva campaign - Increasing customers and geographical range
Module 4	Scaling up with larger systems and deep market penetration	<p>Operators and regional managers on</p> <ul style="list-style-type: none"> - Loan collection data, cash collection and deposits - Review of technical performance of systems, record keeping - Upscaling and Market penetration - Project progress reporting; improvements in reporting and communications

Pacific Islands – Empowering Entrepreneurs in Vanuatu

Initial results:

- 200 households benefited
- Trained over 20 entrepreneurs
- Expanding to solar agro processing
- Support from local partners to expand to other regions



Pacific Islands – Empowering Entrepreneurs in Vanuatu

- ✓ **Beyond lighting: second phase supporting solar agro-processing applications**
- ✓ **Grants used appropriately to strengthen market chain**

Results:

- ✓ Tested 10 mills, installed 6 (two with real time monitoring)
- ✓ Total of 62 customers used the mill
- ✓ 9 entrepreneurs trained on the usage of the solar agro mills
- ✓ Workshops in Port Vila (Vanuatu) and Lae (Papua New Guinea) attracted 39 participants
- ✓ 4 concrete commercial opportunity identified (rice hulling and coconut grinding)
- ✓ Video of 9 minutes created and available to view online
<https://www.youtube.com/watch?v=b6DxLmNM6AQ&feature=youtu.be>
- ✓ A case study prepared – to be put up in the GREIN website



Way forward: Building capacities for scaling up

- Strengthen capacities of local product developers to get access to capital financing
- Strengthen capacities in product design; replace AC systems with DC models to simplify and minimize costs
- Increase local entrepreneurship in village communities to run solar lighting and agro based businesses