IRENA

International Renewable Energy Agency

Small Islands Developing States (SIDS) Lighthouses Initiative

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International Off-grid Renewable Energy Conference (IOREC)
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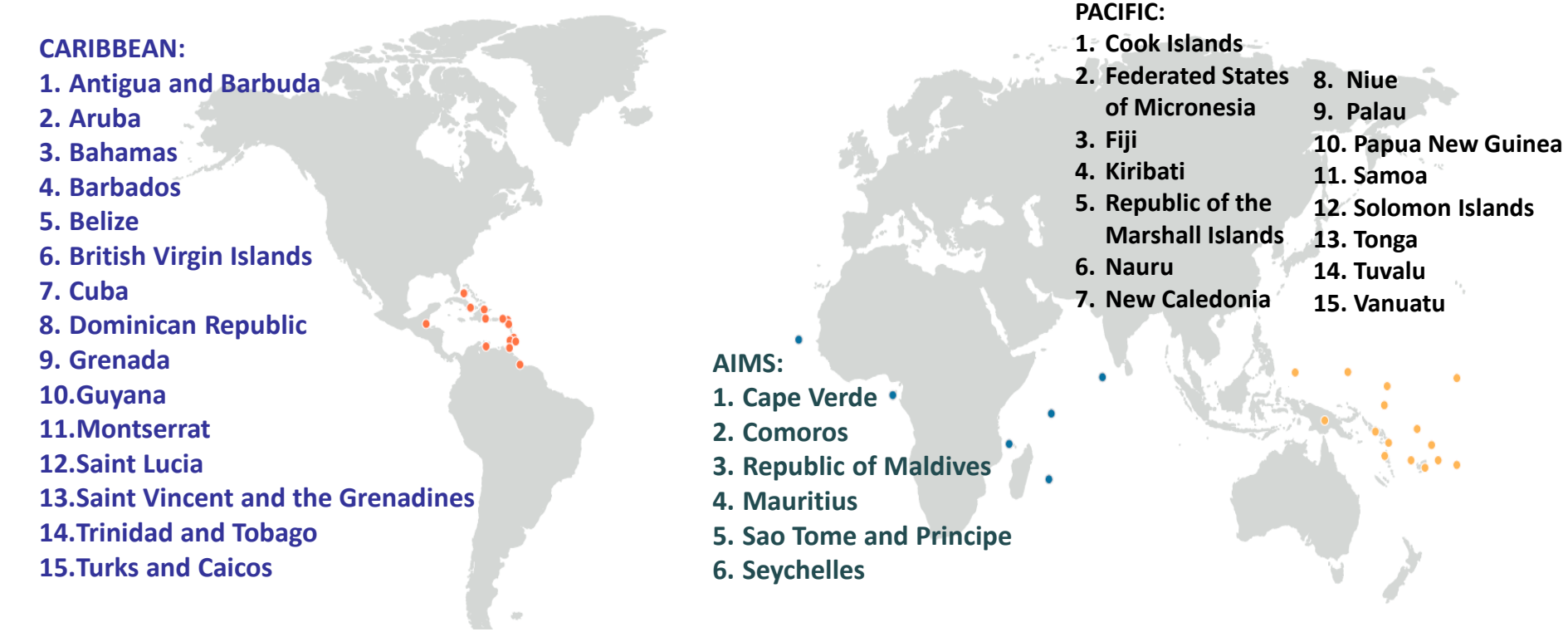
Small Island Developing States in the Lighthouse Initiatives

SIDS Lighthouses Initiative Launched at 2014 Climate Summit.

Today: 57 Partners (36 SIDS and 21 Development Partners)



CARIBBEAN:

1. Antigua and Barbuda
2. Aruba
3. Bahamas
4. Barbados
5. Belize
6. British Virgin Islands
7. Cuba
8. Dominican Republic
9. Grenada
10. Guyana
11. Montserrat
12. Saint Lucia
13. Saint Vincent and the Grenadines
14. Trinidad and Tobago
15. Turks and Caicos

AIMS:

1. Cape Verde
2. Comoros
3. Republic of Maldives
4. Mauritius
5. Sao Tome and Principe
6. Seychelles

PACIFIC:

1. Cook Islands
2. Federated States of Micronesia
3. Fiji
4. Kiribati
5. Republic of the Marshall Islands
6. Nauru
7. New Caledonia
8. Niue
9. Palau
10. Papua New Guinea
11. Samoa
12. Solomon Islands
13. Tonga
14. Tuvalu
15. Vanuatu

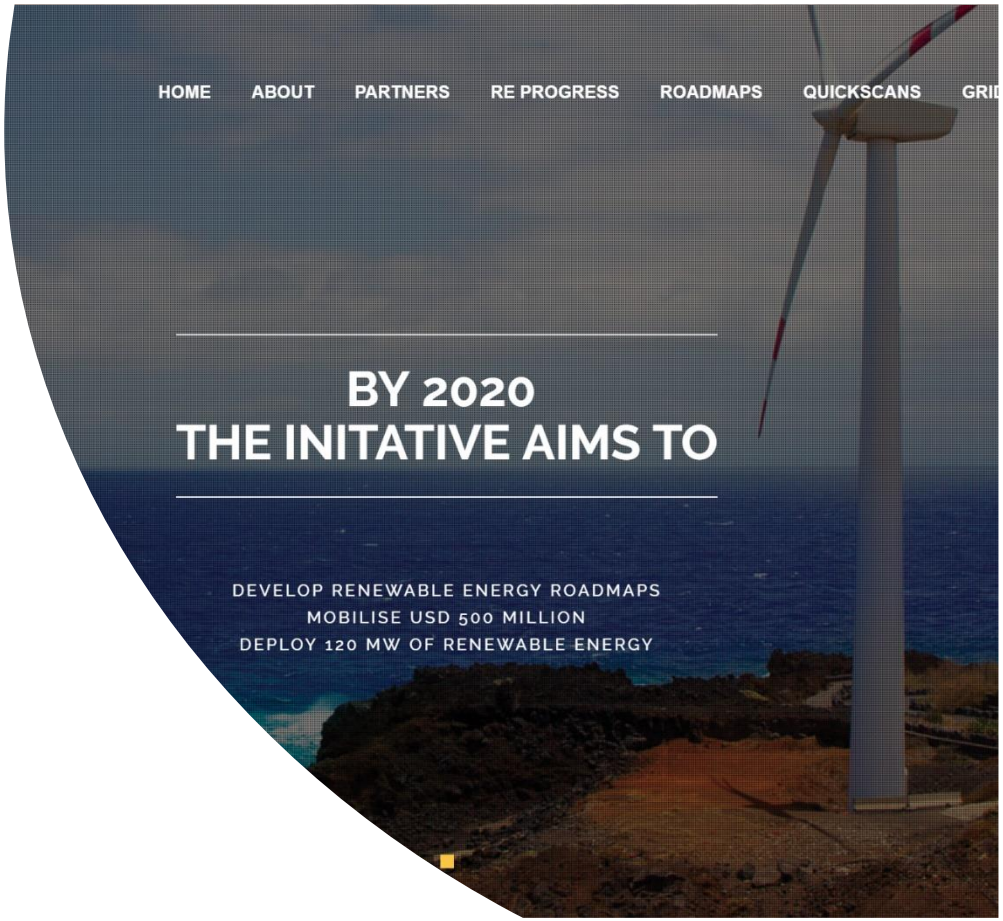
Other partners:

European Union, France, Germany, Italy, Japan, New Zealand, Kingdom of Norway, United Arab Emirates, United States of America, Indian Ocean Commission, International Renewable Energy Agency (IRENA), Association of the Overseas Countries and Territories of the European Union, United Nations Development Programme, World Bank, Enel, Clean Energy Solutions Center, Clinton Climate Initiative, Rocky Mountain Institute—Carbon War Room, Sustainable Energy for All (SEforALL), Organisation of Eastern Caribbean States (OECS), Solar Head of State.

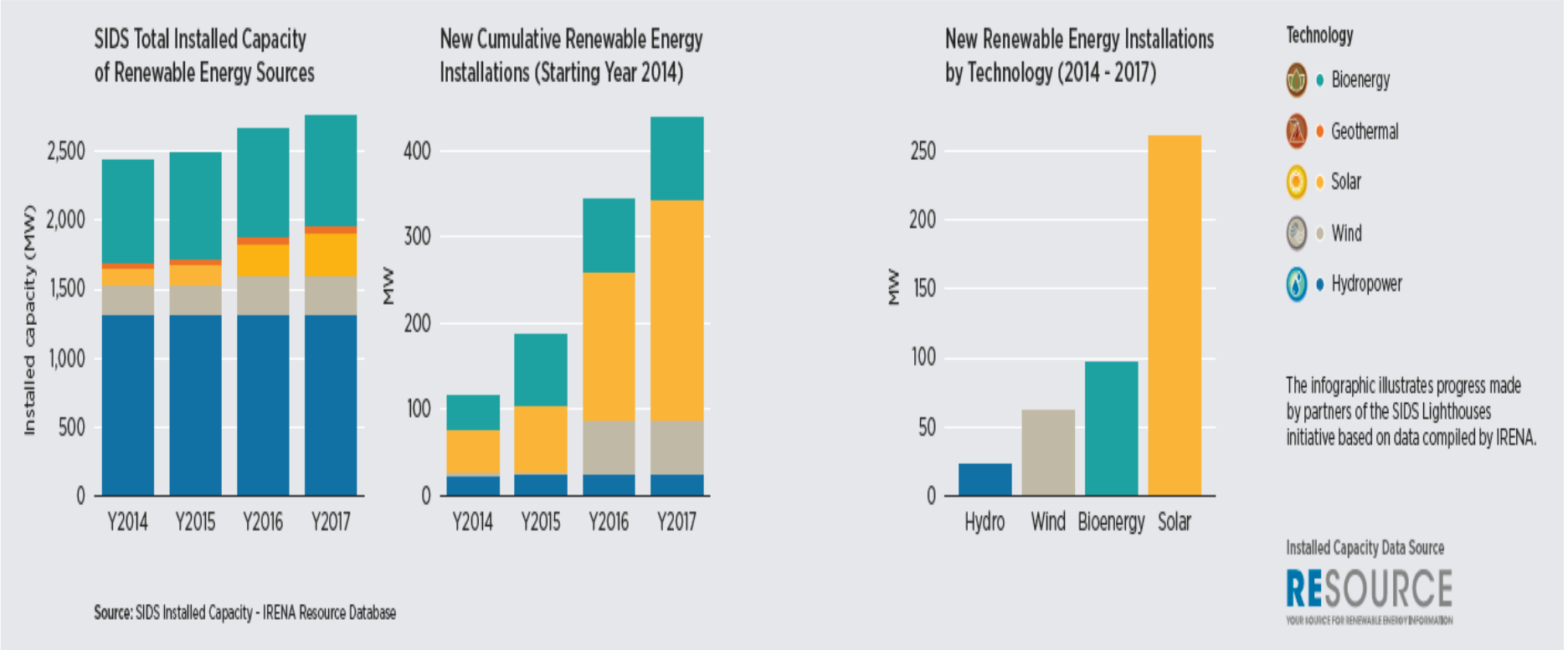
SIDS Lighthouses initiative

Partnership launched between Small Island Developing States (SIDS), IRENA and other development partners

- **Strategic objectives:**
  - Enabling a sustainable energy transformation for people on the front line of climate change on small islands around the world
  - Improving energy security and economic prosperity on SIDS
- **Main original elements:**
  - Focus on RE deployment in the power sector
  - Information exchange between partners
  - Capacity building in SIDS
  - Improving the knowledge base, including about technology options
  - Supporting renewable energy planning



Achievements to date



- More than 250 MW of solar PV and 50 MW of wind capacity installed in SIDS partners of LHI in 2014-2017
- More than USD 500 million mobilized in SIDS partners of LHI

Persisting Key Challenges in SIDS

Climate change / natural disasters

SIDS are the forefront of climate change and have to build up resilience in the energy sector

Vulnerability water and food scarcity

Fossil fuel imports and high tariffs

Heavy Dependence of Fossil Fuel is a still major issue, notably in the transport sector

Electricity tariffs considerably high

Financial issues

Weak local markets for RE financing

Limited financial availability

Institutional Framework

Tariff structures designed for diesel generation

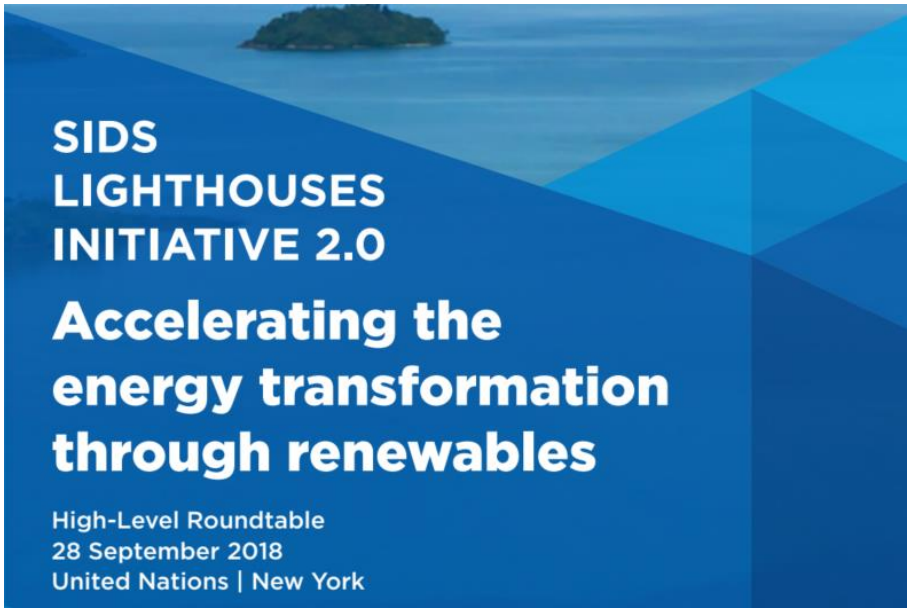
Implementation orientated roadmaps are still needed, esp. in the AIMS and Caribbean regions.

Local capacity

Access to data is major drawback

Weak local capacity for energy planning, project assessment and development

Launch SIDS Lighthouses Initiative 2.0



Launched at High-Level Roundtable, 28 September 2018 on the side-lines of the United Nations General Assembly

Priority Areas identified for SIDS LHI 2.0

- **Move from assessment and planning to implementation** of effective and innovative solutions with continued technical and regulatory advisory to help SIDS overcome their unique challenges
- **Support NDC implementation** and the review process towards more ambitious NDCs
- **Look beyond power generation**: RE in end-use sectors, particularly transport
- **Promote geothermal and ocean energy** along with stepping up solar and wind
- **Support development of bankable projects** and foster access to finance

Priority Areas identified for SIDS LHI 2.0

- Leverage synergies between renewables and energy efficiency
- Reinforce links between renewables and food and agriculture, health and water
- Link renewable energy to climate resilience and disaster recovery
- Strengthen institutional & human capacities along the RE value chain
- RE Power Deployment Target → 5 GW installed capacity by 2023
- Reinforced and expand partner engagement, leverage synergies with other SIDS initiatives and IRENA coordinated initiatives

SIDS LIGHTHOUSES INITIATIVE

Linkages of SIDS LHI 2.0 to Off-Grid Electrification

- Reinforce links with water-energy-food nexus
  - Solar powered crop irrigation
  - Water supply via Solar powered reverse osmosis

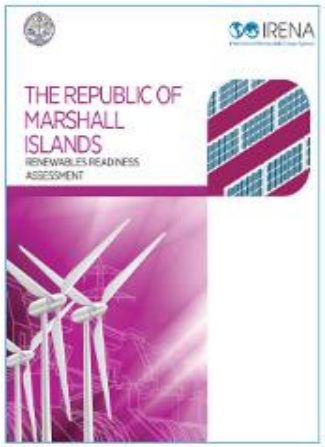
- Climate resilience and disaster recovery
  - Back-up power supply for essential services e.g. health facilities, emergency shelters, communication
  - Power supply for local areas in event of loss of grid access

- Support the development of bankable projects, fostering access to finance and closer cooperation with the private sector

Linkages of SIDS LHI 2.0 to Off-Grid Electrification

- Archipelagic States
  - Not connected to main grid
  - Expensive local diesel powered grids
- Low Grid access states
  - Too expensive to extend grid
- Improve resilience against natural hazard events
  - Ensure essential services (e.g. health, communications) are not offline for extended periods
- Water supply
  - Solar powered Reverse osmosis water solutions
  - Solar water pumping

Renewables Readiness Assessments



Objective:

- Comprehensive review of renewable energy development to improve understanding of the national energy sector
- Identification and analysis of key issues associated with the deployment of RE
- Present the opportunities for scaling up renewable energy development
- Discuss the specific issues to be addressed, and prepare specific policy recommendations
- Produce a portfolio of actionable initiatives to be developed

Outputs

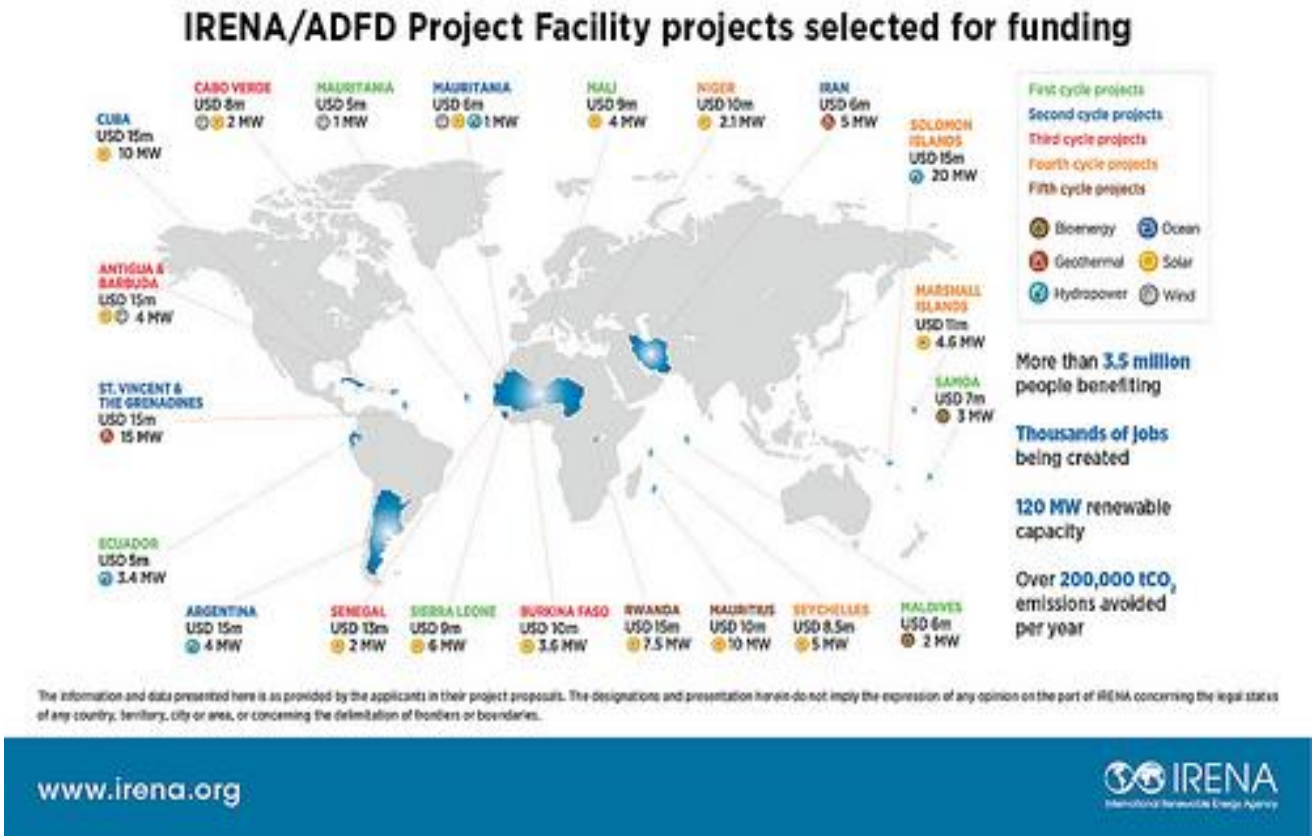
- Recommendations for rural, outer islands and off-grid electrification

Support the development of bankable projects

PROJECT NAVIGATOR

- Provide training in the use of Navigator Tool : SIDS Module
- Mini-Grid Project Guide for Small Island Developing States
- Provides the tools and guidance to assist in developing renewable mini-grid projects
- Renewable Mini-grids guidelines describes in nine stages bankability requirements to develop, construct, and operate a renewable mini-grid project

IRENA/ADFD Project Facility

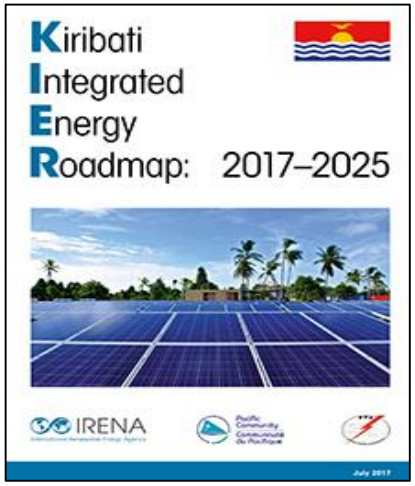


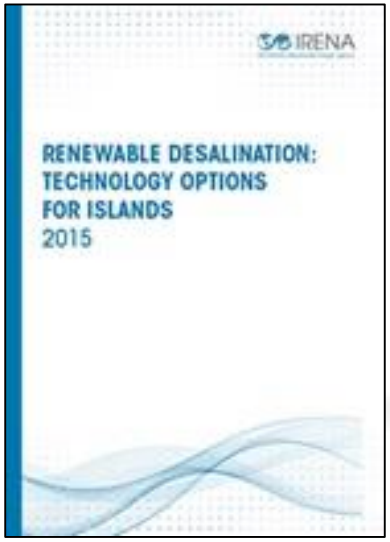
- Co-funding of projects: Marshall Islands outer islands solar/hybrid battery storage project
- Up to US $15million
- Up to 50% of total funding

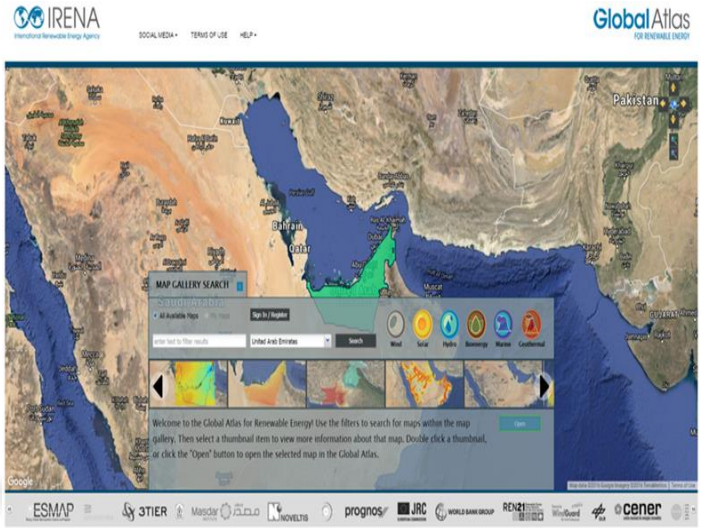
Technical Support and Appraisals

- Desalination options for Islands
  - Included in Kiribati Energy Road Map, desalination option for South Tarawa, Kiritimati and Nonouti

- Global Atlas Site Appraisal for solar off-grid



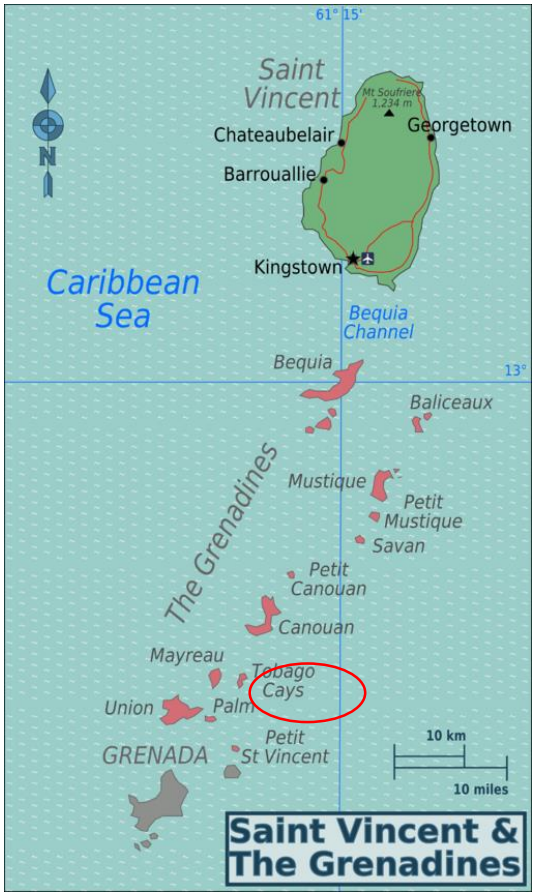




Extra Slides examples

Saint Vincent & the Grenadines - Mayreau

- Diesel powered grid
  - Diesel barged from main island
- 130 kw of solar and battery storage project in Mayreau
  - Produce enough renewable energy to silence the diesel generators for up a period of 6 to 10 hours per day.
  - Approximately 46 per cent of the energy generated would be only from solar



Haiti

- Electricity access lowest in Caribbean (38.69%)
  - 53% Urban, 17% Rural
- High use of self-generation and back-up power
- Municipal diesel grids (30+ diesel powered, 100-500kW)
- Municipal RE mini-grids (2)
- Private solar-off grid solutions increasing (3)
- World Bank support for off-grid distributed RE
  - Haiti: Renewable Energy for All Project

Haiti– Private mini-grid development

Mini-Grid impacts

- 10,000 Kerosene lamps displaced
- 35 local vendors employed
- 50 new jobs created
- 100 street lights installed
- 20,000 lives improved

Kingdom of Tonga

- Tonga Outer Islands Solar Electrification Programme
  - Started in 1987
  - Provision of home solar systems
  - Systems provided by local ESCOs
  - Requirement was for a very basic level of power to reduce the amount of kerosene used for lighting

Source: Outer Islands Solar Electrification in Tonga: A Case Study, Government of Tonga Energy Department, 2015

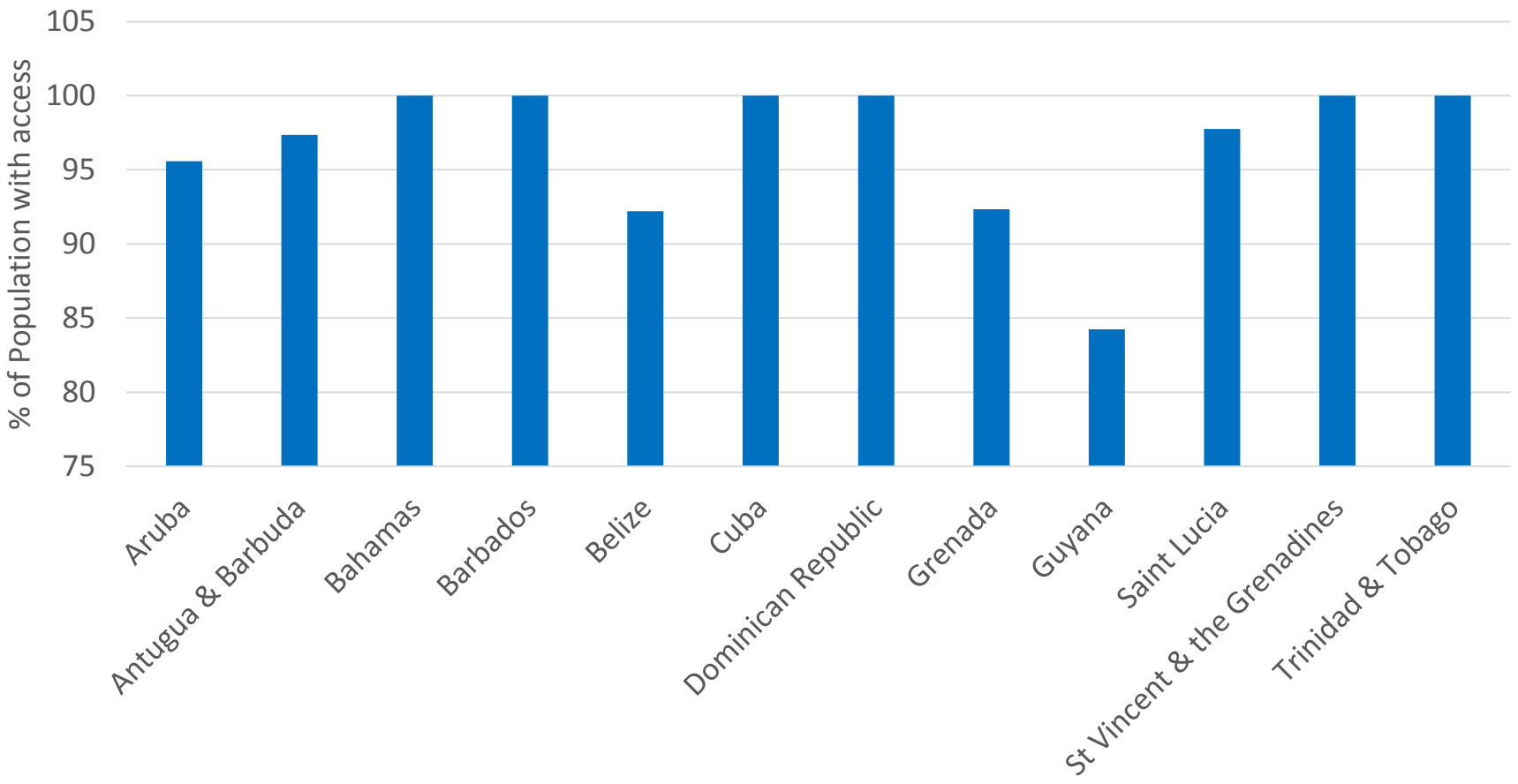
Cabo Verde

Renewable Energy Village - Vale de Custa

- Wind-Solar Hybrid (15kW wind, 20kW solar)
- Replaced household generators
- Impacts
  - Improved water supply
  - Public lighting
  - Reduced electricity costs
  - Improved health care

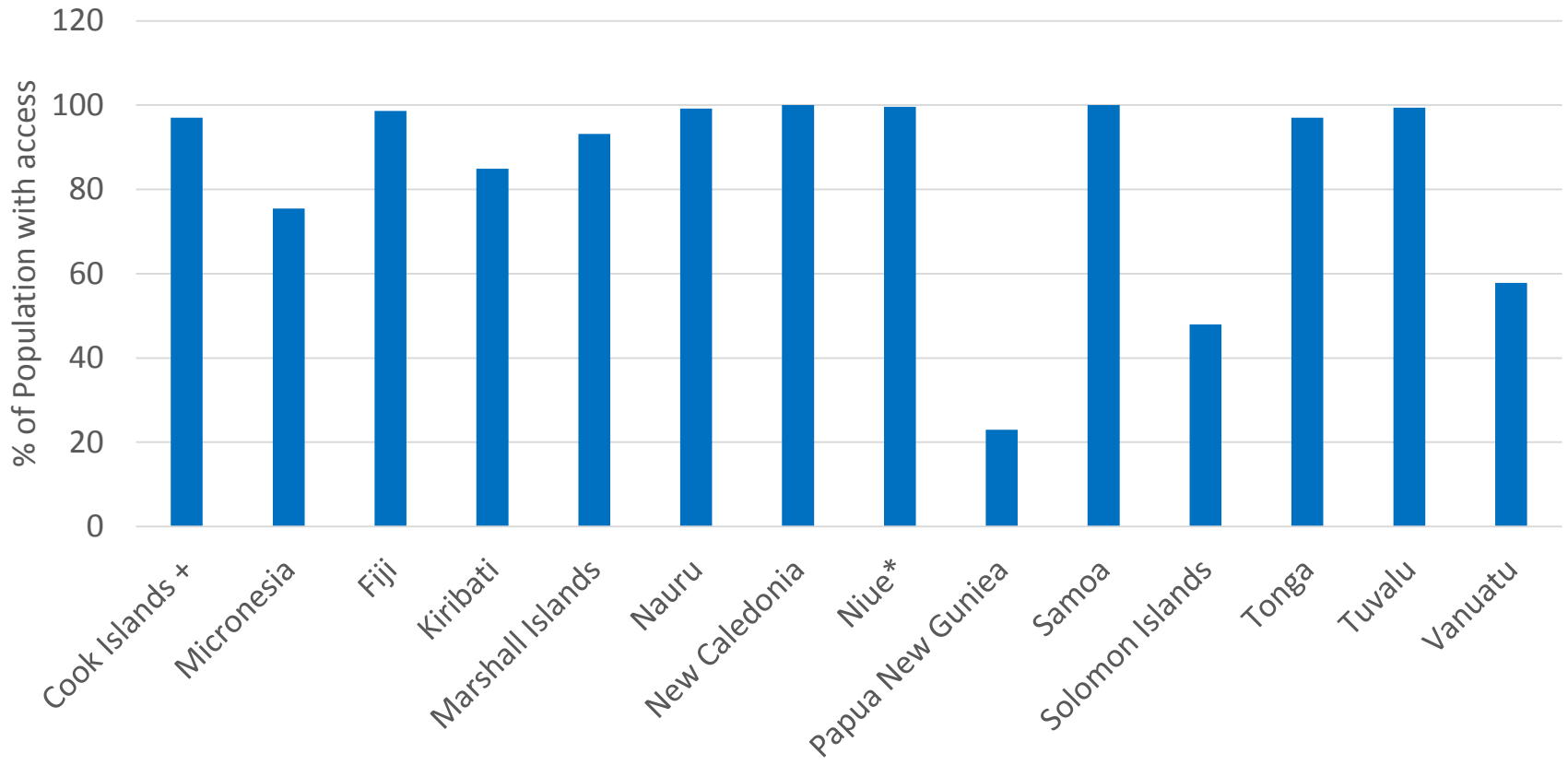
https://www.enair.es/en/installations/installation/village-isolated-on-cape-verde

Electricity Access in Caribbean SIDS LHI Partners



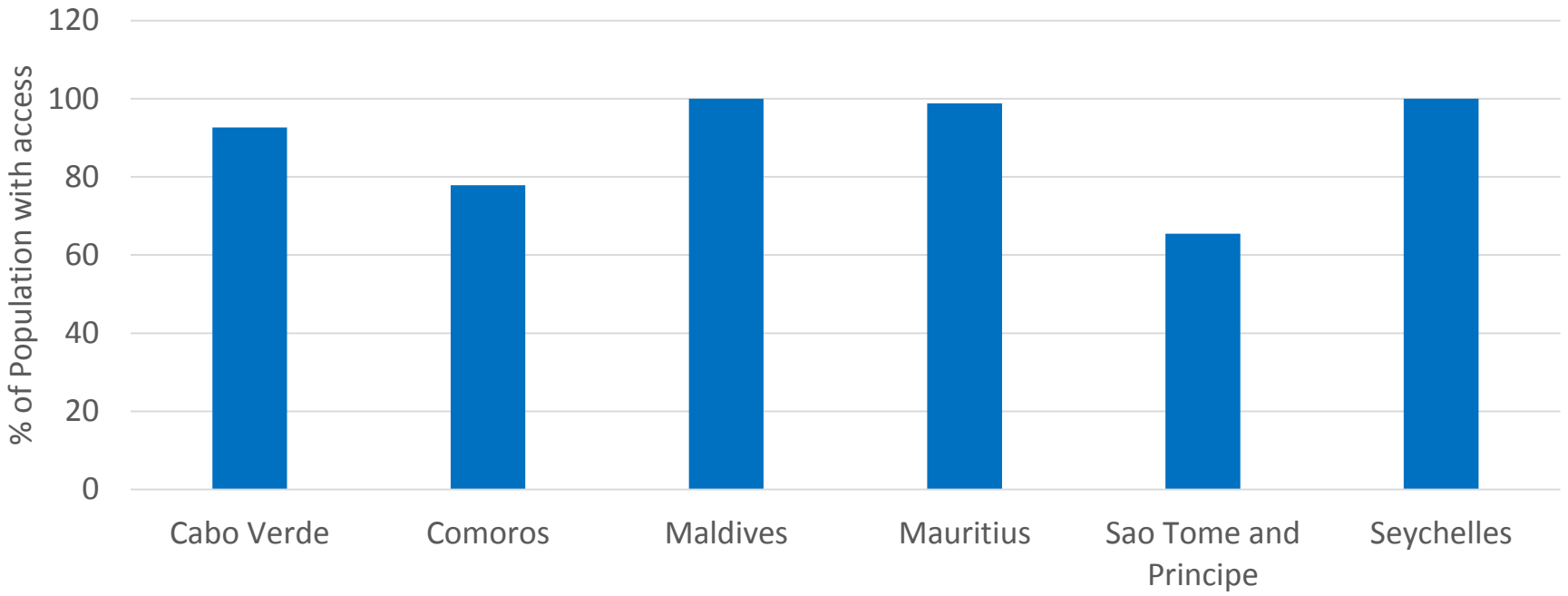
Source: World Bank Data, Electricity Access

Electricity Access in Pacific SIDS LHI Partners



Source: World Bank Data, Electricity Access

Electricity Access in Atlantic, Indian Ocean and South China Sea (AIS) - SIDS LHI Partners



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