Energy Security and Resilience in the Pacific Region

Case study: Solomon Islands

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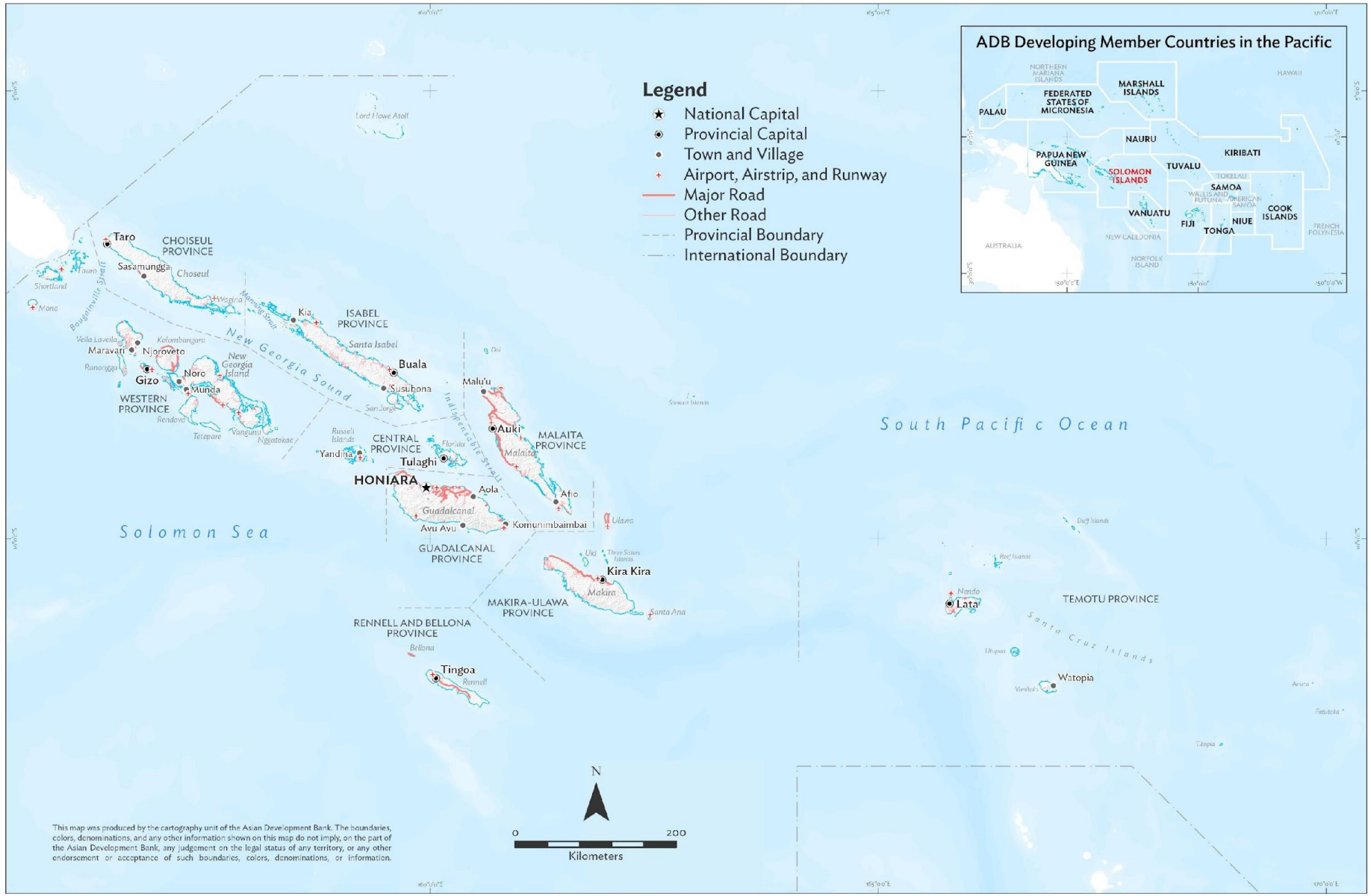
5 June 2025

GEOGRAPHY


Legend
National Capital
Provincial Capital
Town and Village
Airport, Airstrip, and Runway
Major Road
Other Road
Provincial Boundary
International Boundary
ADB Developing Member Countries in the Pacific
PALAU
FEDERATED STATES OF MICRONESIA
MARSHALL ISLANDS
NAURU
PAPUA NEW GUINEA
SOLOMON ISLANDS
TUVALU
KIRIBATI
SAMOA
VANUATU
FIJI
TONGA
NIUE
COOK ISLANDS
AUSTRALIA
NEW CALEDONIA
Taro
CHOISEUL PROVINCE
Sasamungga
Choiseul
Kia
ISABEL PROVINCE
Santa Isabel
Buala
Susubona
Maravari
Njoroveto
Gizo
Noro
Munda
WESTERN PROVINCE
New Georgia Island
New Georgia Sound
Malu'u
Auki
MALAITA PROVINCE
Malaita
CENTRAL PROVINCE
Yandina
Tulaghi
HONIARA
Aola
Afio
Guadalcanal
Avu Avu
Komunimbaimbai
GUADALCANAL PROVINCE
Solomon Sea
South Pacific Ocean
Kira Kira
Makira
MAKIRA-ULAWA PROVINCE
RENNELL AND BELLONA PROVINCE
Tingoa
Lata
TEMOTU PROVINCE
Santa Cruz Islands
Watopia
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200
Kilometers
This map was produced by the cartography unit of the Asian Development Bank. The boundaries, colors, denominations, and any other information shown on this map do not imply, on the part of the Asian Development Bank, any judgement on the legal status of any territory, or any other endorsement or acceptance of such boundaries, colors, denominations, or information.

ELECTRICITY SECTOR

- **State-owned Utility:**
  - Solomon Islands Electricity Authority (trading as Solomon Power) as state-owned and vertically integrated utility responsible for generation, transmission, distribution, licensing, etc.
  - No private sector involvement in Renewable Energy, except one project structured as Public-Private Partnership:
    - 15MW Tina River Hydropower Project

- **Installed Capacity:**
  - Honiara grid (~32MW, ~19,000 customers)
  - 11 provincial grids (4MW, ~6,500 customers)

- **Electrification:**
  - About 67% in Honiara
  - < 50% of households in Solomon Islands
  - 12-15% of the population are connected to the Grid

- **Electricity Tariff:**
  - With around 80c/ kWh among the highest in the world

ENERGY SECURITY & RESILIENCE – URBAN (Honiara)

Status:

- **RE share in the Honiara grid around 10%**
- **High dependence on imported expensive fossil fuels leading to high exposure & vulnerability to global oil prices**
- **Highest Tariff in the Pacific impeding economic activity and well-being of Solomon Islanders**

Challenges	Mitigation
• Land Ownership Issues with 80% land customary	• Enhanced Due Diligence and government contribution

• Limited public sector financing and slow implementation of RE projects by the public sector	• Involvement of the private sector
	  • Increase funding through private investment
	  • Accelerated RE implementation through private sector expertise
	• Bilateral and multilateral development partner support

• Limited interest from Private Sector due to high-risk perception and inadequate Legal & Technical Framework	• Planned Power Sector & Solomon Power (SP) Reforms
	  • PPP guidelines & SP corporate reforms & National Grid Code & Net Metering/ Feed-in-tariffs (solar rooftop)
	  • Establishment of an Independent Energy Regulator

• Inadequate transmission network capacity	• Expansion and strengthening of the transmission network
• Grid stability issues due to increase in RE	• Implementation of battery energy storage systems requires training and technical expertise
• Full electrification challenging due to rapid population increase	• Accelerated household connection initiatives
• Climate change impacts, disaster risk due to extreme natural events	• Implementation of climate-resilient infrastructure and focus on sustainability

ENERGY SECURITY & RESILIENCE – RURAL (Provinces)

Status:

- **Low energy access in rural areas (3.5% of hh grid-connected)**
- **RE share in the provinces below 5%**
- **High dependence on imported expensive fossil fuels leading to high exposure & vulnerability to global oil prices**

Challenges	Mitigation

• Geographically dispersed (70% living in rural area)
  • High Cost of Transport & difficult to access
  • RE Systems & Maintenance
	• Decentralized RE solutions
	• Development of O&M Systems that include local communities & appropriate training

• Land Ownership Issues with 80% land customary	• Involvement of communities through Community Benefit Sharing Schemes

• No dedicated public funding scheme for rural electrification
• Low incentive of state-owned utility to progress rural electrification
  • Contradicting mandates – profit vs. energy access
  • Cross-subsidization of operations in provinces
	• Potential unbundling of Solomon Power (SP) to create dedicated legal entity focused on rural electrification

• Limited interest from Private Sector due to high-risk perception and inadequate Legal & Technical Framework	• Potential unbundling of SP to create entity for rural electrification • Introduction of Independent Energy Regulator • Subsidy scheme required to incentivizes private sector investment
• Climate change impacts, disaster risk due to extreme natural events	• Implementation of climate-resilient infrastructure and focus on sustainability

WAY FORWARD TO ENABLE ENERGY SECURITY & RESILIENCE

Power sector reforms for increased private sector participation:

- **Institutional:**
  - **Establishment of Electricity Sector Planning Agency (at MMERE) - ONGOING:**
    - Planning for grid-scale electrification and electrification of other urban areas and rural areas
    - Drafting Integrated Resource Plan to determine resources required to reliably supply power at least cost.
  - **Establishment of Private Public Partnership (PPP) Unit (at MOFT) - ONGOING:**
    - Capacitate MOFT staff
    - Identify potential PPP transactions
    - Structure, tender, award and monitor PPP transactions, including energy
    - Undertake advocacy and awareness campaigns.
  - **Establishment of Independent Electricity Regulator - ONGOING:**
    - Protecting the interests of consumers and other participants in the sector
    - Tariff setting
    - Issuance of licenses
    - Regulate the performance of the Off taker and System Operator.

WAY FORWARD TO ENABLE ENERGY SECURITY & RESILIENCE

Policy reforms for increased private sector participation:

- **Structural:**
  - **Introduction of National Grid Code - COMPLETED:**
    - Establishment of requirements for accessing and connecting to the grid.
  - **Unbundling of Energy Sector:**
    - Independent Power Producers (IPP) for electricity generation.
- **Tariff:**
  - **Shortening of tariff review period**:
    - Reduce from 5 to 3 years.
  - **Removal of Demand Charge:**
    - Customers who own a generation facility connected to the grid are currently charged around $70-$110/installed kW/month
    - Removal to incentivize RE installation, e.g. rooftop solar.
  - **Introduction of Net Metering/ Feed-in-tariff:**
    - Incentive for consumers to install solar rooftop generation plants.

WAY FORWARD TO ENABLE ENERGY SECURITY & RESILIENCE

Potential new structure of the power sector:

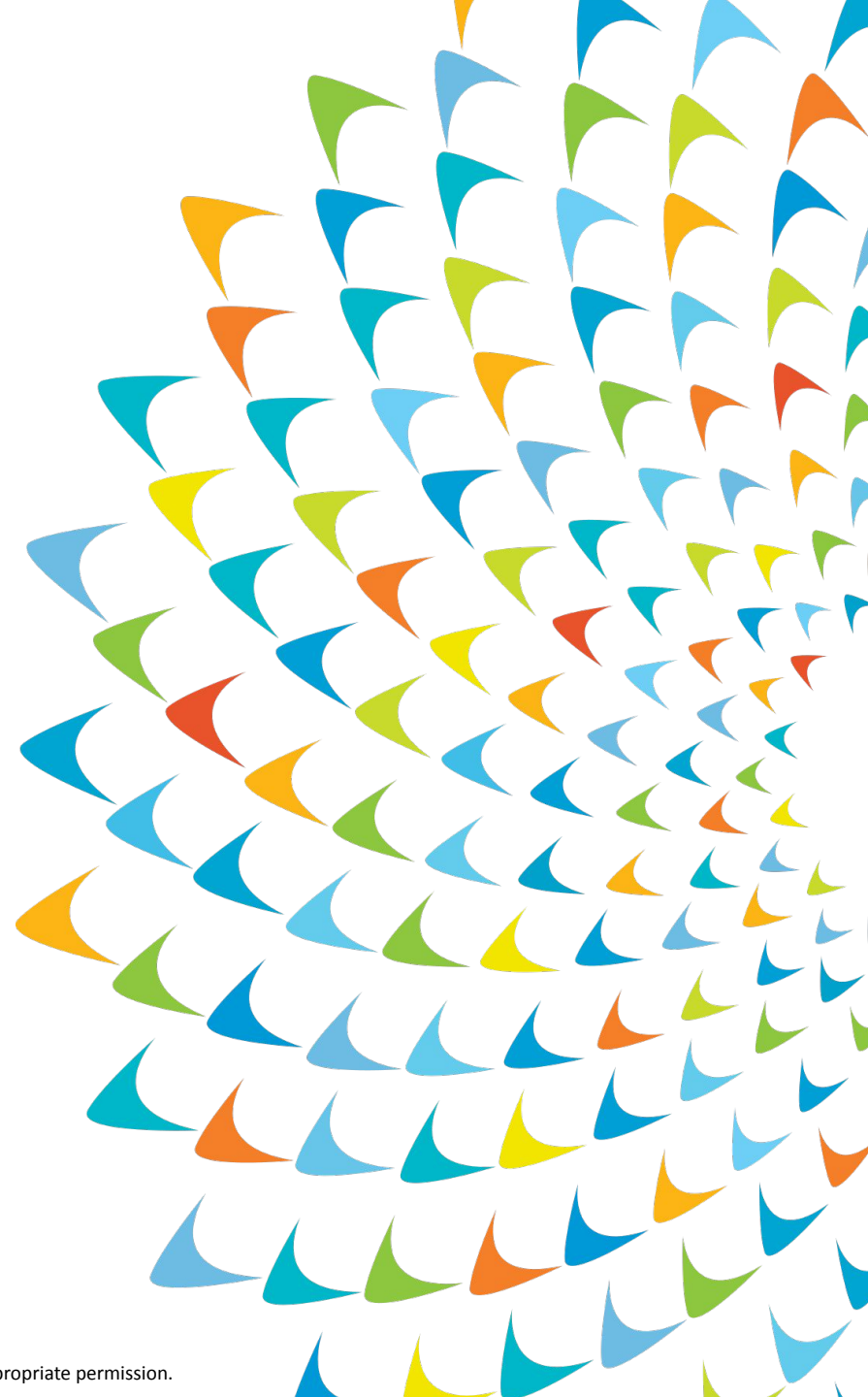
Private Sector:

- Opportunities for IPP in Honiara (economic hub) to further drive down electricity prices and stimulate economic activity through increased RE generation supported through
    - Independent Energy Regulator
    - PPP Unit at MOFT
    - National Grid Code

Public Sector:

- Potential restructuring of Solomon Power and establishment of an entity focused on rural electrification
- Public sector intervention for rural electrification and support for private sector investment through public funds/ subsidies
- Facilitation of land acquisition and community involvement through Community Benefit Sharing schemes
- Stimulation of economic activity in rural communities through increased access to electricity

Thank you



LEGAL & POLICY FRAMEWORK

Act/ Policy	
Electricity Act 1969	Establishment of Solomon Islands Electricity Authority (monopoly for generation, transmission, distribution, licensing and tariff setting)
Electricity (Amendment) Act 2023	• Explicitly states that generation from any electricity generation equipment is allowed, including RE technology • Recognizes new tariff setting process under the MMERE

Solomon Islands National Energy Policy 2019	• (i) promoting efficient use of energy resources and increasing sector sustainability, (ii) establishing a sound regulatory environment, and (iii) increasing use of renewable energy for power generation.
	  • Electrification target: 80% in urban households/ 40% in rural households by 2025
	  • Renewable energy: 50% by 2030 (grid power generation)

Renewable Energy Strategy and Investment Plan	Renewable energy: 100% RE share in 2050 (Solomon Islands)
Honiara RE Roadmap	Renewable energy: 100% RE share in 2030 (Honiara Grid)
Nationally Determined Contribution	• Power sector is responsible for 39% of greenhouse gas emissions. • Committed to reduce GHG, with additional assistance, to a 27% reduction by 2025, and 45% by 2030.

EXPANSION OF RENEWABLE ENERGY (URBAN)

Honiara Grid (target 100% RE by 2030):

- **Tina River Hydropower Project:**
  - 15MW plant, access road, dam, transmission lines, community benefit sharing program

- **Solomon Islands Electricity Access & Renewable Energy Expansion Project:**
  - 2MW grid-connected solar capacity
  - 300kW rooftop solar

- **Renewable Energy Development Project**
  - 1 MW solar farm grid-connected (Honiara grid)
  - 9 MW/24 MWh Battery Energy Storage System (BESS) for the Honiara grid to enable higher solar penetration (grid stability, load shifting)

EXPANSION OF RENEWABLE ENERGY (RURAL)

Provincial electrification (target 100% RE by 2050):

- **Solar Power Development Project:**
  - Solar hybrid mini-grids in 5 provincial centers (2MW)
- **Solomon Islands Electricity Access & Renewable Energy Expansion Project:**
  - 5 provincial solar hybrid mini-grids (1.5MW)
- **Renewable Energy Development Project**
  - Provincial solar hybrid mini-grid (1.5MW)
  - Solar roof-top on 1 rural schools