



Solomon Islands: Solar Power Development Project

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| Project Name | Solar Power Development Project |
| Project Number | 48346-001 |
| Country | Solomon Islands |
| Project Status | Closed |
| Project Type / Modality of Assistance | Technical Assistance |
| Source of Funding / Amount | TA 8756-SOL: Solar Power Development Project Strategic Climate Fund - SREP US\$ 500,000.00 |
| Strategic Agendas | Environmentally sustainable growth Inclusive economic growth Regional integration |
| Drivers of Change | Governance and capacity development Knowledge solutions Partnerships Private sector development |
| Sector / Subsector | Energy - Renewable energy generation - solar |
| Gender Equity and Mainstreaming | Effective gender mainstreaming |
| Description | The proposed Solar Power Development Project (Project) will support development of solar power in the Solomon Islands . The Project will (i) decrease the cost of power supply by replacing diesel power generation with solar power, (ii) increase access to power through roll-out of a private sector led fee-for-service model, and (iii) reduce greenhouse gas emissions through development of renewable energy. The Project will install grid-connected solar plants and promote private sector led solar household system (SHS) installation and maintenance companies. The Project is proposed to be financed through a project loan and grant. |

Solomon Islands is over-reliant on diesel generation which has resulted in high power tariffs. All grid-connected power generation in Solomon Islands is diesel generated, which has resulted in power tariffs amongst the highest in the Pacific. In June 2013, the national uniform tariff was \$0.85/kWh to residential customers and \$0.91/kWh to commercial customers. The high cost of electricity and the limited reach of the distribution grid is negatively impacting economic growth. In particular, agricultural and tourism are impeded.

Solomon Islands has no installed intermittent renewable energy generation and therefore has limited experience with integration onto existing power grids. Grid-connected electricity is generated and supplied by Solomon Islands Electricity Authority (SIEA), which is a state-owned electricity utility. SIEA provides electricity to the national capital (Honiara) and eight isolated provincial centers on separate islands (Auki, Buala, Gizo, Kirakira, Lata, Malu'u, Noro-Munda, and Tulagi). Installed capacity in Honiara is 26MW (peak load 14.3MW) and combined installed generation capacity in the provincial centers is 4MW. As 100% of grid-connected electricity is diesel generated, SIEA has no experience or human resource capacity in managing intermittent renewable energy integration into the grid. This lack of experience is a barrier to upscaling renewable energy.

The Project includes constructing a total of 2MW grid-connected solar generation at 4 locations on the SIEA grid (Lungga diesel powerplant site, SIEA office, 2 outstations). The solar plants will be owned and operated by SIEA. Increased solar generation will benefit the economy through (i) reduced importation of fossil fuels, (ii) improved energy security, and (iii) reduced tariff volatility due to partial conversion of the national grid to renewable energy. Utilization of renewable energy also reduces greenhouse gas emissions which contribute to global warming. In order to establish the enabling environment for grid-connected solar power, the Project will include (i) training of SIEA staff in operation and maintenance of solar plants, including grid integration, and (ii) preparation of a grid integration analysis. The Project will provide SIEA with experience in solar power generation and contribute to subsequent upscaling of solar power. The project will also transform local supply chains to supply and maintain the assets.

Electricity access is extremely low in Solomon Islands. Solomon Islands has a total population of 512,870 and the capital Honiara, located in Guadalcanal has a population of 64,609 (13% total population). Grid-connected electricity is supplied to approximately 12% of the population on a national basis. The overall access rate in Honiara urban area is 64%, however access in the remainder of the country is 6%, with 5 out of 9 provinces having access rates below 4%. The main reasons for the low access rates are (i) difficult geography and dispersed small size of population centers, (ii) lack of Government community service obligation funding for grid extensions, (iii) high cost of diesel power generation in the provincial centers which provides a disincentive to SIEA to expand the distribution network (where cost of generation exceeds national tariff), and (iv) low capacity to pay in some areas. Due to dispersed nature of the population and difficulty with physical access options for grid extension are limited.

The current solar household system (SHS) supply and maintenance system is unsustainable. Over the past 2 decades there have been a significant number of household systems given to households for free as part of donor supported projects or politically funded distribution schemes. Surveys and anecdotal evidence indicates that the majority of these systems are not maintained adequately, fail in a relatively short period, and do not deliver anticipated development impacts. There is a nascent industry of equipment suppliers and system maintenance providers established in Solomon Islands, however the market is distorted by the grant nature of the current funding system. The current system is unsustainable due to (i) lack of private sector involvement in the supply and maintenance of the solar home system equipment, (ii) lack of standards for solar equipment, (iii) absence of battery recycling system, (iv) lack of trained technicians for system maintenance, (v) lack of incentives for households to properly maintain equipment which was provided free of charge and expectations by households for free replacement systems, (vi) intermittent household incomes for regular maintenance payments for household solar systems, and (vii) distributed population centers and low economies of scale for service providers.

The Project includes a private sector fee-for-service model to install, own, operate and maintain household solar systems for rural households. The Project will design the model, undertake capacity building and partially subsidize equipment costs. Ownership of the household solar systems will remain with the private sector and households will pay an upfront fee for operation and maintenance and partial asset depreciation. This will address (i) irregular income generation in rural areas, (ii) need for regular external maintenance, and (iii) difficulties with tariff collection from remote locations. Requiring households to pay for electricity services (below current costs of kerosene) will improve ownership of the systems and address the lack of ownership demonstrated with free systems. The Project will include (i) competitive bidding for private sector to own and operate household solar system assets, (ii) development of solar standards, (iii) training of private sector in business management, and (iv) training of households in income generation through electricity, electricity safety and household budget management. The Project will benefit new households through (i) replacing kerosene lighting with a cheaper form of energy, thereby freeing household expenditure, (ii) enable household income generation, (iii) improved children education, and (iv) reduced indoor health and safety issues associated with burning firewood and kerosene. Project benefits will be extended through employment of local communities during the construction period

The project supports Solomon Islands National Development Strategy 2011-2020, which prioritizes renewable energy and increasing electricity access. The proposed project supports Solomon Islands National Energy Policy Framework, 2007 and the Draft National Energy Policy Framework, 2013, which both prioritize renewable energy. The project supports the draft Solomon Islands Renewable Energy Investment Plan, 2013.

Project Outcome

Description of Outcome

Progress Toward Outcome

Implementation Progress

Description of Project Outputs

Status of Implementation Progress (Outputs, Activities, and Issues)

Geographical Location

Summary of Environmental and Social Aspects

Environmental Aspects

Involuntary Resettlement

Indigenous Peoples

Stakeholder Communication, Participation, and Consultation

During Project Design

During Project Implementation

Business Opportunities

Consulting Services 5 international consultants will be recruited for this TA.

Responsible Staff

Responsible ADB Officer

Lee, Woo Yul

Responsible ADB Department

Pacific Department

Responsible ADB Division

Transport, Energy and Natural Resources Division, PARD

Executing Agencies

Ministry of Finance and Treasury
P.O. Box 26
Honiara, Solomon Islands

Timetable

Concept Clearance

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Fact Finding

-

MRM

-

Approval

20 Nov 2014

Last Review Mission

-

Last PDS Update

30 Sep 2016

TA 8756-SOL

| Milestones | | | | | |
|-------------|--------------|------------------|-------------|-------------|--------|
| Approval | Signing Date | Effectivity Date | Closing | | |
| | | | Original | Revised | Actual |
| 07 Nov 2014 | 25 Dec 2014 | 25 Dec 2014 | 31 May 2015 | 30 May 2016 | - |

| Financing Plan/TA Utilization | | | | | | Cumulative Disbursements | | |
|-------------------------------|-------------|-------------|---------------|-----------------|--------|--------------------------|-------------|------------|
| ADB | Cofinancing | Counterpart | | | | Total | Date | Amount |
| | | Gov | Beneficiaries | Project Sponsor | Others | | | |
| 0.00 | 500,000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 500,000.00 | 07 Nov 2014 | 440,318.58 |

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| Project Page | https://www.adb.org/projects/48346-001/main |
| Request for Information | http://www.adb.org/forms/request-information-form?subject=48346-001 |
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