Solomon Islands Government

Request for Proposals

Solomon Islands Ministry of Mines, Energy & Rural Electrification

Independent Technical and Financial Advisor (ITFA)

on the

Proposed Study on the Solomon Power Energy Efficiency Initiative

April 26, 2023

1. Background

Energy costs in the Solomon Islands—among the highest in the world—affect all Solomon Island residents, businesses, and Government Ministries and institutions. The energy costs have hampered economic development and job growth, since new investment is not attracted to the prevailing high energy cost environment. There is enormous need and opportunity for the Solomon Islands to invest in the growth of a clean energy sector, including renewable energy, energy storage systems, and the use of energy efficiency measures to reduce energy waste and imported diesel oil usage. Throughout the world these energy technologies have proven they can lower energy costs, enhance economic development, and create good paying jobs.

Accelerating renewable energy installations in the Solomon Islands will significantly reduce energy costs and decrease the use of diesel oil and other fossil fuels. Adding energy storage systems will make these renewable energy sources more useful and longer lasting, improving power quality and voltage regulation while helping to avoid power outages. And importantly for energy consumers, advanced energy efficiency technologies such as efficient lighting and

appliances, refrigeration, air conditioning, pumps, and energy management systems can decrease energy consumption by 25-35% or more, with excellent returns on the investment.

The Solomon Power Energy Efficiency Initiative

The Ministry of Mines, Energy & Rural Electrification (MMERE) and Solomon Power have been working with Pacific Clean Energy Partners in developing the *Solomon Power Energy Efficiency Initiative* (SPEEI), a program that would accelerate the installation of solar PV and battery energy storage systems in the facilities or on the land of large energy consuming companies and Government institutions.

The SPEEI program would assist these large energy users in installing energy efficiency measures that would lower their energy costs. MMERE, Solomon Power, and Pacific Clean Energy Partners have signed a Memorandum of Understanding in support of the detailed development and implementation of the SPEEI program. As a first step, the partners have proposed to undertake a feasibility study to examine the overall revenue and profitability impacts of the SPEEI measures on Solomon Power. This study should take into account the lower cost of solar energy, the reduction of diesel oil consumption, and Solomon Power's loss of revenue from the customers' energy efficiency installations.

Participants

The initiative will begin with a pilot program including approximately seven (7) large energy consumers, including commercial or industrial customers as well as Government Ministries or institutions. Pacific Clean Energy Partners has met with large Solomon Power electricity users to initiate the process of selecting the initial participants in the Solomon Power Energy Efficiency Initiative. The selection criteria include: 1) adequate space for rooftop or ground-mounted solar installations; 2) significant energy consumption and related costs, with potential for reduction through energy efficiency technologies and measures; and 3) location in the greater Honiara region. The SPEEI program will be extended to additional participants after this pilot phase.

Financing

The key to SPEEI's strategy for accelerating clean energy development in the Solomon Islands is innovative financing. The Ministry of Mines, Energy & Rural Electrification, Pacific Clean Energy Partners, and Solomon Power will work with the Asian Development Bank and other international finance institutions to establish the SPEEI financing facility that will initially provide up to $80 million (SBD) for clean energy investments in the Solomon Islands—starting with the seven pilot commercial, industrial, and Government customers.

The SPEEI initiative will employ a financing structure similar to one that has been used successfully throughout the world for three decades, known as ESCO (energy service company) financing, in which future energy savings pay for current investments. Using this structure, energy saving measures can be installed at customer locations with no upfront costs to the customer. The upfront costs will be financed through international financial institutions. The customer will

repay the costs over a number of years through the customers' electricity bill savings. The repayment program will be designed such that the customer's electricity bills will not increase even during the repayment period.

This financing approach is expected to work well in the Solomon Islands, where high energy prices will result in relatively quick paybacks for the clean energy measures.

Technology

The SPEEI program will include the following technology.

- Solar Installations - Pacific Clean Energy Partners, through its local company, Solomon Clean Energy Partners, will install rooftop or ground-mounted solar photovoltaic panels at the customers' facilities. These solar installations will be coupled with smart inverters and battery storage to ensure they can provide uninterrupted power in case of grid interruptions. While the solar systems will be owned by Solomon Power, customers will benefit through: 1) a discount in the price of electricity that is generated by the PV panels, and 2) improved energy resiliency in the event of power outages. The customer will sign a power purchase agreement (PPA) with Solomon Power for the purchase of the electricity and the accompanying bill discount.
- Energy Efficiency - Solomon Clean Energy Partners will work with participating SPEEI clients to select energy saving measures that will lower energy costs and result in facility improvements. Customers can choose to install energy-efficient lighting and upgrade their appliances, refrigeration, HVAC systems, machinery, pumps, controls, and other systems to reduce energy consumption. There will be no upfront costs to the customer for these installations, and they will be fully owned by the customers at the end of a financing period of approximately 3-5 years, depending on the facility enhancements selected by the customer. Because of the energy savings, the customers' Solomon Power electricity bills will be no higher, and will likely be lower, even during this repayment period. At the end of the repayment period the customers' electricity bills will decrease, and they will own all of the energy-related improvements at no further cost.
- Energy Storage - Where power reliability, frequency or voltage regulation, or power factor is a problem for customers or Solomon Power, a battery energy storage system (BESS) will be installed at the customer's facilities. While the BESS will be owned and operated by Solomon Power, the customer will benefit from improved power quality and reliability, ensuring smooth operations of electronics, computer operations, and the customer's other energy dependent infrastructure. The BESS also will provide backup power in the case of power outages. An agreement will be signed with Solomon Power and the customer governing the BESS system and its use.

Clean energy development programs being implemented around the world have proven effective at lowering energy prices, reducing oil and fossil fuel consumption, and helping countries transition to sustainable energy. In addition, following this energy path helps create a robust

clean energy sector with new companies; new jobs for engineers, technicians, and other workers; and an increase in business for existing electrical, plumbing, and civil engineering companies.

2. Purpose of the Study

The Ministry of Mines, Energy & Rural Electrification, in conjunction with Solomon Power and Pacific Clean Energy Partners, is seeking proposals from qualified contractors for the role of the Independent Technical and Financial Advisor (ITFA) in the proposed feasibility study for the Solomon Power Energy Efficiency Initiative.

MMERE, Solomon Power, and PCEP are seeking an ITFA to conduct a study of the cost-effectiveness of the proposed SPEEI, the implications for customer energy consumption, and the financial implications for Solomon Power. The feasibility study should also assess how SPEEI could be financed without relying upon Solomon Power or its customers.

3. Scope of Work

Overview

This proposed scope of work for the engagement of an Independent Technical and Financial Adviser (ITFA) outlines the ITFA's tasks and details the goals of the feasibility study that will be completed by the ITFA.

Significant investment in energy efficiency as well as new renewable energy generation capacity has the potential to both disrupt the current business model at Solomon Power and enhance Solomon Power's profitability and other grid benefits. These benefits will be essential to ensure that Solomon Power can effectively serve its customers while financing the transition to a lower-carbon future in the Solomon Islands.

Key Aspects of Study

The feasibility study to be completed by the ITFA will be used by Solomon Power and Pacific Clean Energy Partners during the development of the Solomon Power Energy Efficiency Initiative.

- One key objective of this study is to evaluate the likely impact of SPEEI on the future profitability and financial stability of Solomon Power. This will require the ITFA to assess the potential energy efficiency savings, PV generation, and storage operating parameters to identify the extent to which SPEEI will affect generation, distribution profiles, and Solomon Power's sales and revenues. It will require the ITFA to assess Solomon Power's rates and rate structures to determine the portion of rates that are dedicated to fixed costs versus variable costs. The ITFA will also look at alternative ratemaking options to identify ways to support SPEEI while protecting the profitability and financial stability of Solomon Power.

- Renewable energy generation and energy efficiency equipment are mature technologies with well-understood performance, but the actual performance of specific assets varies based on context, design, deployment, customer-specific issues, and other considerations. The ITFA should complete a preliminary review of the proposed asset designs to provide a basis for Solomon Power to evaluate the likely technical and financial performance of the proposed SPEEI assets.
- Battery storage systems provide significant value to small grid systems in the process of integrating renewable energy assets in the form of load shifting; reducing grid congestion; enhancing grid stability; regulating voltage, frequency, and phase (power factor); and facilitating the integration of dispatchable generation with slow response times (such as hydropower). The ITFA will identify and quantify the benefits from these ancillary services to Solomon Power operations.
- The study will be limited to commercial, industrial, and Government customers in the greater Honiara area, in Guadalcanal Province. The Province has a peak load of roughly 25–30 MW.
- The study will begin with an assessment of the impacts of roughly 1.5 MW of installed PV systems. It will also look at additional scenarios where the SPEEI is expanded over time, for example to 5 MW of PV.

Tasks

1. Review and analyze materials relevant to the study provided by Solomon Power and PCEP.
2. Interview management, technical, and financial representatives of Solomon Power and PCEP, as well as individuals at MMERE and potential financing and customer organizations.
3. Identify and evaluate the likely financial impacts for Solomon Power from participation in the SPEEI. Such impacts may include:
    a. Financial performance of proposed projects, including distributed solar generation assets and investments in energy efficiency at client sites.
    b. Lower cost of generation for Solomon Power and avoidance of fuel costs, as well as possible impact from lower utilization or early retirement of diesel generation assets.
    c. Changes in grid stability due to geographic distribution of generation assets, variability of renewable energy generation, reduced demand from efficiency investments, etc.
    d. Costs and benefits from potential battery storage assets, including benefits from shifting load off peak, reducing congestion, and overall impact on grid stability and regulation of voltage, frequency, and phase (power factor) based on designs proposed by PCEP.
    e. Overall revenue and profitability impact from SPEEI projects, offset by reduced demand and write-downs from possible early asset retirements.
4. Provide analysis to support Solomon Power's justification for rate-basing or otherwise recovering its investment in assets installed through the SPEEI initiative.

5. Identify potential risks (e.g., technical/financial/regulatory changes) to which both Solomon Power and the investor may be exposed.
6. Assess the likely requirements imposed on Solomon Power (e.g., rental of space, easements) of installing the assets within customers' property.
7. Consider potential impacts of proposed legislation, including changes to the Electricity Act, on the SPEEI.

Data Sources

The Ministry of Mines, Energy & Rural Electrification, Solomon Power, and Pacific Clean Energy Partners will provide much of the data and information sought by the selected ITFA to complete the study. If needed, phone conferences can be set up to answer questions and provide relevant information. For questions relating to the design and economic modeling done for the development of the SPEEI initiative, Pacific Clean Energy Partners will provide information on the program.

4. Roles and Responsibilities of the Parties

Solomon Power

1. Provide information to the ITFA on Solomon Power's tariff structures, internal accounting, capital structure, outstanding and projected debt, sources and required returns on asset investments, regulatory constraints, and other matters that may impact Solomon Power's participation in the SPEEI.
2. Make available to the ITFA reasonable staff time to support the ITFA's analysis, including records and plans required to supplement the study. Solomon Power may impose reasonable conditions of confidentiality and nondisclosure beyond internal use by the ITFA.
3. Provide such other materials and access as the ITFA may reasonably request.

Pacific Clean Energy Partners

1. Provide engineering descriptions of the proposed SPEEI projects, including how each asset will be integrated into the grid and dispatched by Solomon Power, and consideration of safety and interconnection procedures.
2. Provide the ITFA with a financial model, a version of which was provided to Solomon Power in July 2022.
3. Meet with the ITFA to review the financial model in detail and assist the ITFA's independent analysis of each input and modeling assumption.
4. Recommend criteria for customer and site selection and priorities for the pilot program.
5. Conduct and submit to the ITFA preliminary analyses of the financial loss per kWh of reduced customer billings due to energy efficiency savings and solar power displacement, net of avoided fuel and other incremental costs.

6. Recommend SPEEI structure and relationships based on experience with projects in other markets.
7. Recommend financing structure and parties based on experience with projects in other markets.
8. Describe new business opportunities for Solomon Power that may be presented by participation in the SPEEI, and their potential impact on Solomon Power's net revenues.
9. Provide such other materials and information as the ITFA may reasonably request.

5. Deliverables

The primary deliverable will be a report that addresses the questions and issues raised in the Scope of Work above. MMERE, Solomon Power, and PCEP will prepare one round of comments on the draft report. The ITFA will organize one or more conference calls with MMERE, Solomon Power, and/or PCEP to discuss the report and its findings and inform the final SPEEI offering.

6. Timeline

The study is expected to have the following timeline:

- RFP issued: **26th April 2023**
- Questions can be addressed in emails directed to John Korinihona, Director of Energy at MMERE, at JKorinihona@mmere.gov.sb. Questions are due no later than three weeks after the date of the RFP issuance.
- Proposals are due one month from the date of the RFP issuance, on **26th April 2023** and should be forwarded in electronic form to John Korinihona at JKorinihona@mmere.gov.sb.
- The work on the study will commence as soon as the bidder is selected. The selected bidder will have three (3) months to complete the draft report for PCEP to review and provide feedback on. The ITFA will use that feedback to complete the final report, which will ultimately be submitted to MMERE.

7. Budget

The maximum potential budget for the study is $150,000 (US), but economical budgeting will be one factor in the selection of the successful proposal.

The proposed budget should identify the labor charge rates associated with each staff member involved in the project. The budget should also present an estimate of the hours that each key staff member will be expected to spend on each of the key tasks of the study, as well as an estimate of the cost of each of the key tasks.

Bidders should not include proposed travel to the Solomon Islands to carry out the study. MMERE, Solomon Power, and PCEP will provide access to needed information remotely.

8. Proposal Content

The proposal should include at least the following items:

- A description of the company bidding. This should include an overview of the company as well as descriptions of the following:
    - Experience working with clean energy projects, including energy efficiency, distributed renewable resources, and distributed storage resources.
    - Experience working on utility ratemaking issues, particularly regarding recovery of capital and non-capital costs, treatment of lost revenues from distributed energy resources, and treatment of stranded costs in general.
    - Experience working with island states and nations.
- A summary of how the company intends to address the SOW described above.
- A description of the project team that will be assigned to conduct the study and a description of each member's role in the project. Resumes and bios for each team member should be provided as well.
- At least three examples of similar projects that the bidder has conducted recently, including references for the clients of each of the project mentioned.

All these items will be used to evaluate each of the bids and determine a winner.

MMERE maintains the right to reject any and all bids for any reason.