I. Introduction and Context involvement

Country Context

1. The Solomon Islands economy has rebounded since the periods of civil strife (1998, 2003, and 2006), but remains vulnerable to external shocks. With the support of its neighbors led by Australia, the Government had restored law and order and other basic state functions by 2005. In 2005, the Solomon Islands benefited greatly from substantial debt forgiveness, arrears clearance and complementary domestic debt restructuring under the Honiara Club Agreement (HCA) with traditional development partners, including Australia, New Zealand, the European Investment Bank (EIB) and the European Union (EU). The economic rebound that followed, based on commodities such as logging and mining, was interrupted first by the oil price spike in 2008 and then by the global financial crisis in 2009 resulting in a sharp contraction in output, a budget crunch and a depletion of foreign currency reserves. The oil price spike made the country’s vulnerability to oil price shocks clearer as the country’s balance of payments came under severe pressure, because fossil fuel imports make up a significant portion of all imports. Since electricity is, a major consumer of diesel fuel the Government started to consider options for development of domestic sources of energy, particularly hydro and other renewables. The impact of the high fuel prices on the economy and restrictions to borrowing under the HCA, gave an initial impetus to the drive for private sector participation in infrastructure development, financing and operation - a policy that was later embedded in the Government National Development Strategy (2011-2020). Thus, in 2008 the SIG requested the Bank’s support for development of the proposed Tina River Hydropower Development Project (TRHDP).

2. The country’s geography and remote location makes the provision of services, including electricity particularly challenging. The Solomon Islands has an ethnically diverse population of just over half a million people dispersed across 90 inhabited islands and one of the
lowest population densities (18 persons/km²) and urbanization rates (17 percent) in the world. The wide distribution of the population and the low densities make the capital costs of connecting consumers very high relative to the revenue generation. As a result, less than 20% of the population has access to any electrical power supply with the rural areas having access rates of less than 5% on average. When electricity is available it is many multiples more costly than elsewhere in the world and is often less reliable. Lower cost hydropower from the proposed TRHDP will partially displace higher cost diesel-based power resulting in a reduction in the system average unit cost of power production. The availability of power at reduced and therefore more affordable costs will help to ease constraints to growth.

**Sectoral and Institutional Context**

3. **Constraints to meeting power demand**: The country’s installed generation capacity of 28MW (22.8MW on Guadalcanal the largest island on which the capital of Honiara is located; and the balance serving provincial centers on other islands), is inadequate to meet power demand. Peak demand on the Honiara grid has remained generally stagnant since 2009 (at about 14 MW) due to generation constraints in the absence of adequate reserve margins, as units are taken out for maintenance. The power system capacity is almost entirely diesel-based, except for a couple of small provincial mini-hydros that are non-operational. Total power generation was 81.1 GWh in 2013 of which 90% was produced by the Honiara grid and the other 10% by the provincial grids.

4. To be able to meet suppressed demand as well as new projected growth of existing loads, and new consumer connections reliably the Solomon Islands Electricity Authority (SIEA), the state-owned power utility that is responsible for generation, transmission and distribution plans to increase generation capacity in the next several years. About 10 MW are to be added by 2016 at Lungaa power station in the Honiara grid. In addition two large renewable energy projects are being considered: the proposed 20MW Tina River Hydropower Development Project; and a geothermal resource based project on Savo Island, about 35km offshore from Honiara. Both projects will be gradually absorbed, but the commissioning dates will depend on the pace at which the size of the market grows. The first plant will be required by 2018 even under moderate demand growth. The SIG’s prioritization of the TRHDP ahead of the Savo Geothermal Project is consistent with the various analysis carried out by the Bank based on a range of scenarios of growth of existing loads, expected future connections and diesel fuel prices. On commissioning in 2018, the TRHDP would provide about 75GWh or about 68% of the required energy of about 110GWh. When fully absorbed the TRHDP would generate about 88GWh per year.

5. **High costs of electricity and limited access rates**: The limited power supply infrastructure, the dispersion of the population among many islands and the reliance on high cost diesel energy sources has resulted in very high costs of electricity and low access rates.

   a. *Electricity costs in the Solomon Islands are among the highest in the world.* The current average retail tariff is about US$0.82/kWh compared to averages of US$0.06/kWh in Vietnam and US$0.12/kWh in the United States. The high costs of electricity are attributable to the use of high cost imported diesel fuel in production, inefficiencies in the distribution systems, including system losses and poor collection of receivables. A majority of responses to an enterprise survey by the Solomon Islands Chamber of
Commerce and Industry in 2011 identified rising electricity costs as a large constraint to further investment. In its National Development Strategy (NDS) for 2011-2020, the SIG recognizes the need to provide affordable electricity in order to achieve increases in industrial productivity, an essential element of the sustainable and inclusive growth goal. Thus, reducing the cost of electricity through diversifying production sources to include indigenous and renewable energy is an integral part of the Government’s sector development strategy.

6. **Improvements in the performance of the Solomon Islands Electricity Authority (SIEA) need sustaining.** Over the past several years, SIEA has made significant progress in delivering services to its customers. The utility accomplished these gains through, amongst others: (i) better scheduling of maintenance to reduce the incidence and duration of interruptions and, improved generator efficiency; (ii) improved corporate governance, including strengthening of management and of the Board; (iii) financial management and audit control functions; and (iv) sharper focus on system loss reduction, revenue generation and costs control.

7. Sustainability of these improvements, and therefore their development impact, will depend crucially on the degree to which SIEA consolidates and mainstreams institutional reforms and capacity building gains. SIEA Board and management recognize that existing reforms need consolidation and that further institutional strengthening is required. The Government also continues to demonstrate strong support for improved SOE performance and sustainability, including by supporting a financial restructuring plan for Solomon Islands Water Authority (SIWA), SIEA’s single largest customer and compensating utilities for non-commercial community service obligations.

8. **Power sector planning capabilities require strengthening.** The energy sector falls under the auspices of the Ministry of Mines, Energy and Rural Electrification (MMERE). Thus, MMERE is responsible for policy formation and regulation of the sector, while the SIEA is in charge of generation, transmission and distribution, but has no monopoly in generation. SIEA continues to receive support from the Bank under the SISEP project and from other development partners on system planning expansion, including analyses in associated areas such as tariff studies. However, its in-house capacity to review and utilize the planning support provided by external experts requires further improvement. MMERE is also responsible for planning of rural electrification expansion, but lacks adequate capacity to carry out this function effectively. In addition, MMERE is the logical institution to integrate the results of SIEA expansion with other non-SIEA proposed investments into a coherent sector plan.

**Relation of the Country Partnership Strategy**

9. The proposed project supports the Government’s medium term economic development strategy as set out various strategy documents including the NDS (2011-2020) and
the Solomon Islands National Infrastructure Investment Plan (SI NIIP) prepared in June 2013. Broadly the medium term strategy aims to secure sustainable growth; increase social and economic opportunities for all Solomon Islanders; and maintain peace and stability. The project is also aligned with the Country Partnership Strategy priorities (FY2013-2017), the World Bank’s Energy Directions Paper, other Bank operations and the WBG corporate goals for poverty reduction. The proposed operation will support these strategies by helping to: (i) ease constraints to growth through provision of lower cost and reliable electricity; (ii) facilitate private sector development; and (iii) promote clean development through substitution of hydropower for diesel power production in line with the Bank’s Energy Directives Paper. Reducing the cost of power supply would make electricity more affordable to lower income households thereby contributing to the two corporate goals of ending extreme poverty and increasing shared prosperity for the poorest 40% of the population.

10. The project would complement the support that the Bank is providing under two other projects - the ongoing SISEP project, including additional financing; and the proposed Electricity Access Expansion Project. The objective of the SISEP project is to improve operational efficiency, system reliability and financial sustainability of SIEA through improved financial and operational management, reduction of losses, and increased revenue collection. Through additional financing provided in 2014, the project is also supporting rehabilitation and reinforcement of generation, transmission and distribution networks. The new proposed project will help the Solomon Islands to increase the access of low-income households to electricity in peri-urban and rural areas. Output based aid subsidies will be used to buy down the investment cost for grid and micro-grid prepaid metered connections and basic wiring.

II. Proposed Development Objective(s)

11. The Project’s development objective is to lower the system average cost of electricity supply and mobilize private financing for power generation.

Key Results

12. The direct beneficiaries of the proposed project are electricity consumers of SIEA as the power off-taker and distributor of electricity generated by the TRHDP, and the communities in the project area who will receive a dedicated share of project benefits.

13. The proposed Development Objectives indicators for the Project include:

- Reduction in system average cost of electricity supply relative to an all-diesel system (US$ per kWh); and
- Amount of private funding mobilized (US$ million) – core sector indicator.

14. The Project’s intermediate indicators will measure implementation progress of the project. These will be decided during the Project appraisal after selection of the project sponsor. The intermediate indicators will likely include:

- Generation capacity of hydropower constructed under the project (MW) – core sector indicator;
• % of energy generated from renewable energy sources (GWh)
• Direct project beneficiaries (number), of which female (percentage) – core sector indicator; and
• Actual progress relative to planned implementation schedule as well as actual investment expenditures in relation to budget plans.

Preliminary Description

15. The TRHDP will consist of two components as follows: (i) a hydropower facility (HPF) with an installed capacity of 20 MW to be developed and operated by an independent power producer (IPP) under a [30-year] concession and sell power to the SIEA under a long-term Power Purchase Agreement (PPA); and (ii) technical assistance to the SIG to monitor and support project implementation and to develop a benefit sharing scheme

16. Component 1: Tina River Hydropower Project Facility (HPF): This component is to develop, finance, construct and operate a hydropower generation plant with the capacity of 20 MW. The HPF will be located on the Tina River, east of Honiara. The HPF will be implemented on a build-own-operate-transfer (BOOT) basis by a "Project Company" to be set up by an IPP to be selected through a competitive bidding process. The Bank will offer a Guarantee of up to US$20 million to the successful bidder, backstopping certain payment obligations of the government for the project. The HPF will comprise:

a. a 50m-high roller-compacted-concrete (RCC) dam located in a narrow gorge on the river;
b. a 3.3km headrace tunnel, 3 m in diameter, to convey water from the dam to the power station;
c. a powerhouse about 3-4 km downstream from the dam site that will house 4x5 MW Francis turbine machines.
d. two parallel (on separate towers) 33kV single circuit transmission lines connecting the power station to the existing Lungga diesel power station; and
e. access roads and other ancillary facilities.

17. Complementary financing of about US$8 million is under discussion with the New Zealand government for construction of the access road and transmission line under component 1 as ancillary facilities (as above) to be constructed by the project company. Options for channeling the grant funds from the Government of New Zealand to the IPP are being investigated. The grant funds would be provided as a capital subsidy that would result in a lower power purchase price that could be passed on to the final consumers.

18. For the HPF IFC is serving as the Transaction Advisor for SIG, assisting in attracting an IPP. The following are the key estimated dates for the selection of a developer and the completion of construction:
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<tr>
<th>Milestone</th>
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<tr>
<td>Prequalification submissions due</td>
<td>21 November 2014</td>
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<tr>
<td>Issue Request for Proposals to prequalified bidders</td>
<td>8 December 2014</td>
</tr>
<tr>
<td>Close of bid period</td>
<td>22 May 2015</td>
</tr>
<tr>
<td>Sign contract with selected bidder</td>
<td>30 June 2015</td>
</tr>
<tr>
<td>Financial close and initiation of construction</td>
<td>30 March 2016</td>
</tr>
<tr>
<td>Completion of construction</td>
<td>31 December 2018</td>
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19. **Component 2: Technical Assistance:** Under this component the Bank and the Australian Department for Foreign Affairs and Trade (DFAT) will provide US$2 million each to finance technical assistance for the SIG to help develop the IPP, monitor project implementation, liaise with various government counterparts and other stakeholders, support the ongoing land acquisition process, and support communities in utilizing their share of project benefits for community development. A portion of the fuel cost savings [15%] arising from generating power using hydropower instead of diesel oil will be provided to the communities in the project area as their share of project benefits. The design, and piloting of the benefit-sharing scheme will include the preparation of implementation and governance arrangements, participatory planning, community capacity building, procedural and legal documentation and other related activities. Additional donor resources are being sought to finance more extensive support in this area, potentially including a series of demonstration projects (e.g. water supply, education and health infrastructure), to build capacity for implementing the benefit sharing scheme in advance of its activation upon the first electricity payment to the IPP.

**III. Safeguard Policies that might apply**

20. The project will be implemented through the contracting of a private sector developer using a “Build, Own, Operate, Transfer” arrangement, and possibly include financing from IFC. The responsibility for implementation of safeguard mitigation measures will, therefore, largely lie with the developer and the Bank’s Performance Standards will be applied via the triggering of OP 4.03– Performance Standards for Private Sector. Importantly, the project would satisfy all of the “Scope of Application” requirements in Clauses 3 – 6 of OP 4.03. Limitations identified in Clause 7 of OP 4.03 would not apply. It is noted that the World Bank PS will apply to Component 1 irrespective of whether IFC is involved in financing the private entity as use of OP4.03 is linked to the private entity, not IFC. These activities are reflected in Component 1 of the project. All eight of the Performance Standards would be triggered and assessed as part of appraisal. The World Bank Performance Standards are:

- Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts
- Performance Standard 2: Labor and Working Conditions
- Performance Standard 3: Resource Efficiency and Pollution Prevention
- Performance Standard 4: Community Health, Safety, and Security
- Performance Standard 5: Land Acquisition and Involuntary Resettlement
- Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources
- Performance Standard 7: Indigenous Peoples
21. Under Component 2, project implementation and implementation of the community benefit sharing scheme will have the potential to have both environmental and social impacts. Accordingly the Technical Assistance to support the SIG’s monitoring of the implementation of technical, social and environmental aspects implementation of the project and the community benefit sharing scheme will require that the SIG be supported by skilled and experienced consultants. The consultants will need to be able to build capacity in SIG on both the World Bank Performance Standards which will apply to Component 1 (to ensure effective capacity development), as well as be able to assist the SIG with effective implementation of the World Bank Safeguard Policies which will apply to land acquisition and the benefit sharing scheme.

22. Through its experience in preparing safeguard documentation for the benefit of the developer, and to support preparation of the project, the Project Office (PO) in the Ministry of Mines, Energy and Rural Electrification (MMERE) has gained considerable experience with the oversight and management of the both Bank’s Safeguards Policies and IFC’s Performance Standards. Notwithstanding this capacity, the Bank will, under Component 2, support the SIG’s monitoring of the implementation of technical, social and environmental aspects of project implementation as well as to support implementation of a community benefit sharing scheme.

### Safeguard Policies Triggered by the Project

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**IV. Tentative financing (Unavailable)**

Source: Carbon Finance

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<tr>
<td>Contact: Joel Maweni</td>
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<tr>
<td>Title: Team Leader</td>
<td></td>
</tr>
<tr>
<td>Tel: 202 4734089</td>
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</table>
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