Report and Recommendation of the President to the Board of Directors

Project Number: 46014
April 2014

Proposed Loan and Grant
Solomon Islands: Provincial Renewable Energy Project

Asian Development Bank

CURRENCY EQUIVALENTS
(as of 1 March 2014)

Currency unit	–	Solomon Islands dollar (SI$)
SI$1.00	=	$0.14
$1.00	=	SI$7.30

ABBREVIATIONS

ADB	–	Asian Development Bank
FIRR	–	financial internal rate of return
km	–	kilometer
kW	–	kilowatt
kWh	–	kilowatt-hour
PMU	–	project management unit
SDR	–	special drawing right
SIEA	–	Solomon Islands Electricity Authority
WACC	–	weighted average cost of capital

NOTE

In this report, "$" refers to US dollars.

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PROJECT AT A GLANCE

1. Project Name: Provincial Renewable Energy Project **2. Project Number:** 46014-002

3. Country: Solomon Islands **4. Department/Division:** Pacific Department/Transport, Energy and Natural Resources Division

5. Sector Classification:

Sectors	Primary	Subsectors
Energy	√	Renewable energy

6. Thematic Classification:

Themes	Primary	Subthemes
Economic growth	√	Promoting macroeconomic stability
Environmental sustainability		Eco-efficiency

6a. Climate Change Impact

Adaptation	Low
Mitigation	High

6b. Gender Mainstreaming

Gender equity theme (GEN)	
Effective gender mainstreaming (EGM)	√
Some gender elements (SGE)	
No gender elements (NGE)	

7. Targeting Classification:

General Intervention	Targeted Intervention		
	Geographic dimensions of inclusive growth	Millennium development goals	Income poverty at household level
	√		

8. Location Impact:

Rural	Medium
Urban	High

9. Project Risk Categorization: Low

10. Safeguards Categorization:

Environment	B
Involuntary resettlement	B
Indigenous peoples	C

11. ADB Financing:

Sovereign/Nonsovereign	Modality	Source	Amount ($ Million)
Sovereign	Project grant	Asian Development Fund	6.0
Sovereign	Project loan	Asian Development Fund	6.0
Total			12.0

12. Cofinancing:

No Cofinancing available.

13. Counterpart Financing:

Source	Amount ($ Million)
Government	3.0
Total	3.0

14. Aid Effectiveness:

No Aid Effectiveness available.

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I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on (i) a proposed loan and (ii) a proposed grant, both to Solomon Islands for the Provincial Renewable Energy Project.[1]

2. The project will increase renewable energy generation and energy access in Auki, the capital of Malaita Province. The project will assist Solomon Islands Electricity Authority (SIEA) in installing hydropower generation to replace diesel generation in the third-largest load center in Solomon Islands, and extend the distribution grid to peri-urban households. This will be the first utility-scale renewable energy project in Solomon Islands.[2]

II. THE PROJECT

A. Rationale

3. Economic development and provision of infrastructure in Solomon Islands is concentrated in the national capital of Honiara, which has about 13% of the national population but 89% of the country's power generation capacity. In contrast, the province of Malaita, with a population of 137,596 (about 25% of the national population), has only about 2% of total generation capacity. Generation by SIEA, the state-owned utility, provides power only to the main provincial center of Auki, entirely through diesel plants at high cost. Power tariffs in Solomon Islands are among the highest in the Pacific.[3] Power provision is unreliable and marked by frequent outages due to diesel fuel supply and maintenance issues. Auki is SIEA's third-largest load center with 274 residential customers and 335 commercial customers.[4]

4. Only about 3% of the population of Malaita has access to grid-connected power. More than three-quarters of households in Malaita use kerosene lamps as their main source of lighting and nearly all use wood for cooking. Other sources of energy include small home solar systems, mini hydropower, portable generators, and gas.[5] The main reasons for the low access rates are (i) the high cost of diesel power generation in the provincial centers, which gives the corporatized SIEA little incentive to expand the distribution network (where generation and supply costs exceed the national tariff); (ii) lack of government community service obligation funding for grid extensions; (iii) a difficult geography and small, dispersed pockets of population, and (iv) low capacity to pay in some areas. Significant unmet demand means that people resort to self-generation but would connect to the grid if sufficient capacity were available. The high cost of electricity and the limited reach of the distribution grid are slowing economic growth in the provincial centers, including Auki, and curb agriculture and tourism in particular.

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[1] The design and monitoring framework is in Appendix 1.

[2] The Asian Development Bank (ADB) provided project preparatory technical assistance. ADB. 2012. *Technical Assistance to the Solomon Islands for Preparation of the Outer Island Renewable Energy Project.* Manila; ADB. 2009. *Technical Assistance for the Promotion of Renewable Energy in the Pacific.* Manila. The latter helped SIEA screen the provincial centers for priority renewable energy projects.

[3] In June 2013, the national uniform tariff was $0.85 per kilowatt-hour (kWh) for residential customers and $0.91/kWh for commercial customers. By comparison, the average domestic tariff across 21 Pacific utilities in 2011 was $0.46/kWh (Pacific Power Association. 2013. *Performance Benchmarking Report for Pacific Power Utilities*. Suva).

[4] The Auki grid has an installed rated capacity of 720 kilowatts (kW) and a peak demand of 350 kW.

[5] Government of Solomon Islands, Solomon Islands National Statistics Office. 2011. *Report on 2009 Population and Housing Census.* Honiara.

5. The proposed project will assist SIEA in constructing the Fiu River hydropower plant and extending the distribution grid to peri-urban households. Hydropower has been assessed to be the least-cost baseload generation option for Auki. More hydropower generation from the Fiu River hydropower plant will benefit the economy by (i) reducing fossil fuel imports; (ii) lowering the cost of power generation, which will ease the pressure on power tariffs and thereby reduce commercial and household expenditure; (iii) improving energy security, and (iv) minimizing tariff volatility by partially converting the national grid to renewable energy.[6] The use of renewable energy also reduces greenhouse gas emissions, which contribute to global warming. Construction of hydropower plants to replace diesel generation will significantly lower SIEA's cost of generating power for the Auki grid, and create a direct incentive to extend the grid. Provision of externally tendered operation and maintenance contracts, including capacity development of SIEA technical staff, will improve the quality of power supply (by reducing outages) in Auki, which will encourage economic development. Recent attempts by SIEA to extend the distribution grid to peri-urban areas around Auki were hampered by land access issues. SIEA has therefore developed a focused distribution expansion plan. The project supports this expansion plan, which will almost double SIEA's residential customer base in Auki. The grid extension will directly benefit new peri-urban customers by (i) replacing kerosene lighting with a cheaper form of energy, thereby freeing household expenditure; (ii) enabling household income generation; (iii) improving children's education; and (iv) reducing indoor health and safety issues associated with burning kerosene. Project benefits will be extended through employment of landowners during the construction period.

6. The government manages sector policy through the energy unit of the Ministry of Mines, Energy and Rural Electrification, and power tariffs are set by government regulations. SIEA is currently completing a utility restructuring program supported by the World Bank.[7] Historically, electricity tariffs were too low for full cost recovery, resulting in a lack of maintenance and underinvestment in capital infrastructure. The rates have recently been increased to allow full cost recovery, and SIEA is carrying out a broad maintenance program to rehabilitate its assets. Historically, revenue collection has also been an issue, but since 2012 SIEA has made an ambitious effort to install prepayment meters for all consumers in parallel with an overhaul of the billing, accounting, and data management systems. Revenue collection is currently high at 97%. SIEA is also partially compensated for community service obligation activities through direct budget transfer by the government.

7. Solomon Islands has requested Asian Development Bank (ADB) support to develop power supply to provincial centers based on renewable energy. The project is included in ADB's country partnership strategy, 2012–2016 and the country operations business plan (2014−2016) as a 2013 project.[8] The country partnership strategy supports Solomon Islands' National Development Strategy, 2011–2020, which prioritizes development of reliable and affordable power supply to urban centers from renewable energy and the expansion of access to electricity. The project is included as a priority investment in the Solomon Islands Infrastructure Investment Plan.[9] It also supports Solomon Islands' National Energy Policy Framework, 2007[10]

[6] Solomon Islands has national power tariffs that also apply to the Auki grid. A reduction in generation costs for the Auki grid from the project will put downward pressure on overall national tariffs.

[7] The World Bank's Solomon Islands Sustainable Energy Project supported capacity building for utility management, financial management, and asset management as well as tariff analysis to ensure full cost recovery.

[8] ADB. 2012. *Country Partnership Strategy: Solomon Islands, 2012–2016*. Manila.

[9] Government of Solomon Islands, Ministry of Development Planning and Aid Coordination. 2013. *Solomon Islands National Infrastructure Investment Plan*. Honiara.

[10] Government of Solomon Islands, Ministry of Mines, Energy and Rural Electrification. 2007. *Solomon Islands' National Energy Policy Framework*. Honiara.

and the draft National Energy Policy Framework 2013,[11] which both prioritize development of renewable energy. The project also supports the draft Solomon Islands Renewable Energy Investment Plan, 2013.[12]

B. Impact and Outcome

8. The impact of the project will be increased economic activity in Auki, Malaita Province. The outcome of the project will be that SIEA has increased supply of more reliable and cleaner power to Auki, Malaita Province.

C. Outputs

9. The outputs of the project are as follows:

(i) **Fiu River hydropower plant.** This involves constructing a 750-kilowatt (kW)[13] run-of-river hydropower plant, including (a) a 3.5-kilometer (km) access road, (b) a 9.7 km distribution line (11 kilovolts), (c) an intake structure, (d) a 1.55 km headrace canal, (e) a 250-meter steel penstock, and (f) a powerhouse. The Fiu River hydropower plant will almost entirely displace diesel generation in Auki.[14]

(ii) **Distribution grid extension.** This includes extending the grid to an estimated additional 250 households, which will increase SIEA's customer base in Auki by 91%. The project will finance step-down transformers, distribution lines, house connections, and provision of minimum supply kits, including prepayment meters.

(iii) **Capacity building.** This consists of (a) training SIEA staff in the operation of hydropower plants through a 3-year outsourced operation and maintenance contract and (b) training newly connected households on options for electricity-based income generation, electricity safety, and household budget management.

(iv) **Efficient project management services**. This involves establishing a project management unit (PMU) that will provide efficient technical design, management, and supervision services.

D. Investment and Financing Plans

10. The project is estimated to cost $15.0 million (Table 1).

[11] Government of Solomon Islands, Ministry of Mines, Energy and Rural Electrification. 2013. *Draft Solomon Islands' National Energy Policy Framework*. Honiara.

[12] Government of Solomon Islands, Ministry of Mines, Energy and Rural Electrification. 2013. *Draft Solomon Islands Renewable Energy Investment Plan.* Honiara.

[13] The physical infrastructure will be sized for 750 kW capacity, including intake structure, headrace canal, penstock, and powerhouse, but initially only two 250 kW generators will be installed. Another 250 kW generator will be fit into the spare generator bay once load growth increases. Installation of two 250 kW generators has been analyzed as the most efficient extent to meet the current 350 kW peak as well as anticipated short-term demand growth.

[14] The hydropower plant has a design flow of 1.2 m^3/s which is available 85% of the time and yields a plant factor of 94%. Backup diesel generation will be maintained in case of disruptions to the hydropower supply and for maintenance.

Table 1: Project Investment Plan
($ million)

Item			Amount[a]
A.	**Base Cost**[b]		
	1.	Fiu River hydropower plant	8.7
	2.	Distribution grid extension	0.6
	3.	Capacity building[c]	1.7
	4.	Project management	1.4
		Subtotal (A)	**12.4**
B.	**Contingencies**[d]		**2.6**
		Total (A+B)	**15.0**

[a] Includes taxes and duties of $1.7 million to be financed from government resources through exemptions and/or provision of funds.
[b] In mid-2013 prices. Cost estimates are based on feasibility studies prepared by project preparatory technical assistance.
[c] Includes 3-year operation and maintenance contract.
[d] Physical contingencies computed at 10% for civil works and goods. Price contingencies computed at foreign inflation on foreign exchange costs and local inflation on local currency costs.
Source: Asian Development Bank estimates.

11. The government has requested a loan in various currencies equivalent to SDR3,886,000 ($6,000,000 equivalent) from ADB's Special Funds resources to help finance the project. The loan will have a 32-year fixed term, including a grace period of 8 years, an interest rate of 1.0% per annum during the grace period and 1.5% per annum thereafter, and such other terms and conditions as set forth in the draft loan, grant, and project agreements. The government has requested a grant not exceeding $6 million from ADB's Special Funds resources to help finance the project. The government and SIEA will finance the remainder of the total project cost in the amount of $3 million, including taxes and duties and land acquisition costs. The foreign exchange risk will be borne by the government. From the proceeds of the Asian Development Fund loan and grant, the government will relend $10,500,000 equivalent to SIEA and will make $1,500,000 equivalent available as a grant in local currency under a subsidiary financing agreement acceptable to ADB.[15] The relending terms will include (i) interest at the rate of 4% per annum over $6,000,000 equivalent and interest at the rate of 1% per annum over $4,500,000 equivalent; and (ii) a repayment period of 20 years, inclusive of a grace period of 7 years or until the project is completed, whichever comes earlier.[16] The financing plan is in Table 2.

Table 2: Financing Plan

Source	**Amount** ($ million)	**Share of Total** (%)
Asian Development Bank		
Special Funds resources (loan)	6.0	40.0
Special Funds resources (grant)	6.0	40.0
Government or Solomon Islands Electricity Authority	3.0	20.0
Total	**15.0**	**100.0**

Source: Asian Development Bank estimates.

E. Implementation Arrangements

12. The Ministry of Mines, Energy and Rural Electrification will be the executing agency for the project. SIEA will be the implementing agency. A PMU will be established within SIEA to

[15] The government has determined which components of the project classify as community service obligations and the costs thereof will be passed on to SIEA as grant.
[16] ADB financing may finance local transportation and insurance costs.

implement the project. SIEA will provide the services of (i) two project engineers, (ii) finance officer, and (iii) administrative assistant, as required. The project will finance additional consultants, equipment, and office furnishings to support the PMU in implementing the outputs. Consulting firms will be engaged using the quality- and cost-based selection method with a quality–cost ratio of 90:10 (considered justified due to the technical complexity of the power grid upgrades). All consultants will be recruited in accordance with ADB's Guidelines on the Use of Consultants (2013, as amended from time to time). The PMU will be responsible for procurement of all civil works and goods contracts. Procurement of goods and works will be undertaken in accordance with ADB's Procurement Guidelines (2013, as amended from time to time). Solomon Islands has requested that ADB select the design and supervision consultants on its behalf. The contract will be signed between the government and the selected consultant. Additional financing for additional sites may be considered if the project is performing well. If so, additional project preparation financing required (in areas such as design, safeguards, and capacity) will be sourced from the additional financing. A project steering committee will oversee implementation, monitor progress, and provide guidance to the executing agency. The project steering committee will meet at least quarterly and will be chaired by the energy ministry. The PMU will host the project steering committee and will act as the secretariat.

13. The project will be implemented over 7.25 years, including a 3-year operation and maintenance period, with completion estimated by 30 September 2022. To expedite implementation, the government has requested advance consultant recruitment. ADB has informed the government that approval of advance consultant recruitment does not commit ADB to finance the project. The implementation arrangements are summarized in Table 3 and described in detail in the project administration manual.[17]

Table 3: Implementation Arrangements

Aspects	**Arrangements**		
Implementation period	June 2014–September 2021		
Estimated completion date	30 September 2022		
Management			
(i) Oversight body	Provincial Renewable Energy Project Steering Committee Ministry of Mines, Energy and Rural Electrification (chair) Ministries of finance and treasury, planning and aid coordination, rural development, and infrastructure development; Department of Environment and Conservation; and SIEA (members)		
(ii) Executing agency	Ministry of Mines, Energy and Rural Electrification		
(iii) Key implementing agency	SIEA		
(iv) Implementation unit	The project management unit will be established within SIEA, with 4 SIEA staff as required, 10 international consultants (intermittent), and 6 national consultants (intermittent)		
Procurement	ICB	3 contracts	$11,941,000
	Shopping	2 contracts	$158,000
Consulting services	QCBS	102.5 person-months	$1,950,000
Advance contracting	Advance contracting for QCBS		
Disbursement	The loan and grant proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2012, as amended from time to time) and detailed arrangements agreed upon between the government and ADB.		

ADB = Asian Development Bank, ICB = international competitive bidding, QCBS = quality- and cost-based selection, SIEA = Solomon Islands Electricity Authority.
Source: Asian Development Bank.

[17] Project Administration Manual (accessible from the list of linked documents in Appendix 2).

III. DUE DILIGENCE

A. Technical

14. The proposed hydropower plant and extended distribution grid have been assessed to be technically viable. Analysis has been completed to determine the optimum technical configuration for all components, including analysis of the hydrology of alternative river catchments, hydropower turbine size configurations, penstock arrangements, and distribution configurations to maximize system efficiencies. The design was based on analysis of Solomon Islands' conditions to ensure that the proposed systems are suitable for local conditions. A 3-year operation and maintenance contract will be financed through the project to ensure that the hydropower plant is operated and maintained sustainably during the initial period and that capacity is transferred to SIEA staff to enhance long-term sustainability. Hydrological monitoring is ongoing at the proposed site and will be used to update the analysis during detailed design. The detailed design will incorporate climate change resilience measures.

B. Economic and Financial

15. The financial internal rate of return (FIRR) of the consolidated project is 9.6% (real), with a project net present value of $17.9 million. The financial viability of the project has been assessed comparing the FIRR with the (real) weighted average cost of capital (WACC). The WACC to the government is 1.1%, which is lower than the FIRR. Following the State-Owned Enterprises Act (2007), the government will relend the funds to SIEA at quasi-commercial rates. Considering the proposed relending terms and conditions, the real WACC to SIEA is 1.7%. SIEA's WACC also compared favorably with the FIRR. The economic internal rate of return for the consolidated project is 12.9%. This compares favorably with the economic opportunity cost of capital of 12% recommended in ADB's Guidelines for the Economic Analysis of Projects. A sensitivity analysis was conducted to account for potential increases in economic and financial costs, as well as a reduction of economic and financial benefits.[18] The financial rate of return is robust to cost increase and benefit reduction. The Fiu River hydropower plant has been assessed as the least-cost generation alternative for the Auki grid.[19]

C. Governance

16. **Financial management.** A financial management assessment was completed for SIEA.[20] Inefficiencies were noted in areas such as internal control. Based on this risk evaluation, the PMU will include a financial specialist to assist with (i) design, implementation, and monitoring of internal controls; (ii) capacity building of SIEA staff to perform this function; and (iii) training for SIEA on ADB financial management requirements.

17. **Procurement capacity**. A procurement capacity assessment was completed for SIEA. The assessment found that SIEA has an established procurement unit with considerable procurement experience; however, the experience is largely related to procurement of small equipment packages. SIEA has limited experience in managing larger packages or with ADB procurement systems. Additionally, SIEA staff have limited experience with hydropower procurement or construction management of larger projects. Based on this risk evaluation, the

[18] Financial and Economic Analysis (accessible from the list of linked documents in Appendix 2).
[19] The levelized cost of energy for the Fiu River hydropower plant is $0.63/kWh, lower than the levelized cost of energy for diesel generation of $0.80/kWh.
[20] In accordance with ADB. 2005. *Financial Management and Analysis of Projects*. Manila; and ADB. 2009. *Financial Due Diligence – A Methodology Note*. Manila.

PMU will include international expertise to (i) train SIEA staff in procurement processes for preparation and management of larger contracts, particularly engineer–procure–construct contracts; (ii) manage preparation of ADB standard bidding documents; and (iii) provide international expertise to support construction supervision.

18. **Private sector**. The project considered options to involve the private sector in project development. Private expertise will be engaged by incorporating an initial 3-year operation and maintenance contract into project design. This will include capacity building for SIEA operational staff.

19. **Anticorruption measures**. ADB's Anticorruption Policy (1998, as amended to date) was explained to and discussed with the government, the energy ministry, and SEIA. The specific policy requirements and supplementary measures are described in the project administration manual and the legal agreements.[21]

D. Poverty and Social

20. The project design includes pro-poor or poverty reduction measures to manage poverty issues. The project's poverty reduction measures entail engaging low-income households (including landowners) for construction works, extension of the distribution grid (including to poor households), and training on income-generating activities. The project will comply with applicable national labor laws and core labor standards, including but not limited to equal work for equal pay regardless of gender, race or ethnicity, and excluding child labor. The poverty reduction measures will be implemented by the PMU, which will include a social specialist. The social specialist will establish a monitoring system to track employment opportunities and technical training for local people, the poor, and vulnerable groups.

21. The project is categorized as effective gender mainstreaming. A gender action plan has been developed based on gender analysis and community consultations, and includes specific measures related to the construction of the hydropower plant. Measures included in the gender action plan cover (i) women's engagement in consultation activities, (ii) provision of gender awareness training to target groups, (iii) training of women on how to participate in income-generating activities, (iv) actions to encourage women's participation in project-related contracts, and (v) collection of gender-related data for monitoring purposes. The gender action plan has been linked with national targets for women's development as set out in the government's policy on gender equality and women's development.

E. Safeguards

22. **Environment**. The project has been classified as category B for environment following ADB's Safeguard Policy Statement (2009). An initial environmental examination has been prepared and disclosed on the ADB website. The main potential environmental impacts will be created by construction of the access road, plant installation at intake and powerhouse sites, and vegetation trimming along the low-voltage distribution line corridor. After updates in line with the detailed design, the results of the environmental examination will be integrated into the bidding documents. If there are changes to the scope of the works, the PMU will compile an updated initial environmental examination and environmental management plan to be approved by ADB. As part of the assessment a climate change adaptation risk evaluation was conducted and considered in the preliminary design of the schemes, and the findings of the assessment

[21] Project Administration Manual (accessible from the list of linked documents in Appendix 2).

will be integrated into the detailed design. The PMU will be supported by environmental specialists (3 person-months international and 14 person-months national) to ensure capacity building for SIEA, and implementation and monitoring of the environmental management plan.

23. **Involuntary resettlement and indigenous peoples.** The project has been classified as category B for resettlement and category C for indigenous peoples following ADB's Safeguard Policy Statement. The project will have land acquisition impacts that are not deemed significant. No physical relocation or loss of income is expected from the implementation of the project. The hydropower scheme will require land acquisition of about 11 hectares of customary land and tree clearance for construction. The land is owned by nine separate clans totaling about 600 persons. A draft resettlement plan has been prepared based on impact assessment and consultations with affected persons during project preparatory technical assistance. Affected persons will be further consulted during the detailed design and implementation. Information such as a brochure in local language has been disseminated to affected persons and local stakeholders. The resettlement plan has been endorsed by SIEA and disclosed on the ADB website.

24. SIEA will finalize the resettlement plan after the detailed design and ensure that affected persons receive their compensation before the start of civil works that affect land or property. SIEA will (i) appoint a focal person for land issues; (ii) establish environmental and social safeguard capacity within the PMU, including social safeguard specialists; and (iii) coordinate with the Ministry of Land, Housing and Survey, provincial government, and other relevant agencies to implement resettlement activities. The project will support the strengthening of SIEA's social safeguard capacity, including recruiting social development and/or resettlement specialists (3 person-months international and 14 person-months national) and conducting trainings. The due diligence concluded that while there are clans in the project area, their institutions are not separate from mainstream society, and these groups are not vulnerable. As sociocultural groups need to be both "distinct" and "vulnerable" to trigger the ADB Safeguard Policy Statement requirements on indigenous peoples, the project has been categorized as category C and an indigenous peoples plan is therefore not required.

F. Risks and Mitigating Measures

25. Major risks and mitigating measures are summarized in Table 4 and described in detail in the risk assessment and risk management plan.[22] The risks of the project have been assessed and the benefits are expected to outweigh the costs.

Table 4: Summary of Risks and Mitigating Measures

Risk	Mitigating Measures
Delays in land acquisition result in delays to construction.	Land acquisition issues have proved to be the largest single risk to economic infrastructure development in Solomon Islands. Thus, (i) design work will not begin until land acquisition has been completed, (ii) the Malaita Provincial Government will take the lead on arranging consensus among the landowners, (iii) the PMU (through Malaita Provincial Government) will implement the stakeholder consultation and participation plan, and (iv) the PMU (supported by international and national consultants) will ensure that land issues are managed by following the

[22] Risk Assessment and Risk Management Plan (accessible from the list of linked documents in Appendix 2).

Risk	Mitigating Measures
	approved resettlement plan. To mitigate the risk of SIEA not being able to supply the Auki grid, the project design assumes that 100% backup diesel generation will be maintained at the existing Auki diesel-fueled power plant.

ADB = Asian Development Bank, O&M = operation and maintenance, PMU = project management unit, SIEA = Solomon Islands Electricity Authority.
Source: Asian Development Bank.

IV. ASSURANCES AND CONDITIONS

26. The government and SIEA have assured ADB that implementation of the project shall conform to all applicable ADB policies, including those concerning anticorruption measures, safeguards, gender, procurement, consulting services, and disbursement as described in detail in the project administration manual and loan documents. The government and SIEA have agreed with ADB on certain covenants for the project, which are set forth in the financing and project agreements.

27. No disbursements will be made for civil works until the government has notified ADB in writing that the government and SIEA will be able to make available all land and rights-of-way required for the project in accordance with the requirements under the financing agreement.

V. RECOMMENDATION

28. I am satisfied that the proposed loan and grant would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve

(i) the loan in various currencies equivalent to SDR3,886,000 to Solomon Islands for the Provincial Renewable Energy Project, from ADB's Special Funds resources, with an interest charge at the rate of 1.0% per annum during the grace period and 1.5% per annum thereafter; for a term of 32 years, including a grace period of 8 years; and such other terms and conditions as are substantially in accordance with those set forth in the draft financing and project agreements presented to the Board; and

(ii) the grant not exceeding $6,000,000 to Solomon Islands, from ADB's Special Funds resources, for the Provincial Renewable Energy Project, on terms and conditions that are substantially in accordance with those set forth in the draft financing and project agreements presented to the Board.

Takehiko Nakao
President

8 April 2014

DESIGN AND MONITORING FRAMEWORK

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
Impact Increased economic activity in Auki, Malaita Province	Increase in SIEA business customers in Auki by 20% by August 2020 compared with June 2014 baseline of 335 Increase in registered businesses in Auki by 20% by August 2020 compared with June 2014[1]	SIEA annual corporate report	**Assumption** New businesses will connect to the grid and existing businesses will stop self-generating **Risk** Economic development will create power demand that exceeds installed hydropower generation
Outcome SIEA has increased supply of more reliable and cleaner power to Auki, Malaita Province	Renewable energy generation increased as a percentage of Auki power generation, from 0% in June 2014 to 99% (2.04 GWh) by June 2018 Duration of outages for customers reduced by 20% in Auki by June 2018 compared with June 2014[1] CO_2 emissions reduced by 1623 tCO_2e by January 2018 relative to June 2014 baseline[1] Diesel imports into Malaita Province for power generation reduced by 672,000 liters by June 2018 relative to June 2014 baseline[1]	SIEA annual corporate report SIEA annual corporate report PMU quarterly reports SIEA annual corporate report	**Risk** Delays in land acquisition result in delays to construction
Outputs 1. Fiu River hydropower plant put into operation by SIEA	2.04 GWh hydropower generated from the Fiu River hydropower plant per annum by June 2019 (2014 baseline: 0.0 GWh)	SIEA annual corporate report	**Risks** Extended droughts affect hydropower utilization Low capacity of local contractors results in low-quality installation

[1] Baseline will be determined by design and supervision consultants.

Design Summary	Performance Targets and Indicators with Baselines	Data Sources and Reporting Mechanisms	Assumptions and Risks
2. Extension of distribution grid by SIEA	SIEA increases household customers from 274 in June 2014 to 524 in June 2020, including subsidized connections to households headed by women Construction of 9.7 km distribution line by June 2020 (June 2014 baseline: 0 km distribution line to Fiu River hydropower plant) SIEA increases commercial customers by 20% by February 2020 (baseline: 335 in June 2014)	SIEA annual corporate report SIEA annual corporate report	
3. Capacity building undertaken for implementing agency and project beneficiaries	PMU conducts training workshops for 250 newly connected households on power safety, household utility budget, and business skills (including 50% women participation) by June 2018 Minimum 6 SIEA staff receive comprehensive training in hydropower operation by operation and maintenance contractors by September 2021	PMU quarterly reports	**Risks** Insufficient financial management capacity within SIEA SIEA staff trained during the 3-year O&M contract are not retained, resulting in lack of capacity for ongoing maintenance
4. The PMU renders efficient project management services	The PMU meets annual target contract awards and disbursements The PMU conducts training for PMU staff and SIEA management, including gender awareness training, by June 2015	PMU quarterly reports PMU quarterly reports	**Risks** Insufficient procurement capacity in the PMU Poor technical input during development of specifications leads to technical failure Staffing of the PMU is insufficient to manage project construction

Activities with Milestones	Inputs
Output 1: Fiu River Hydropower plant put into operation by SIEA 1.1 PMU prepares design and bid documents by September 2015 1.2 PMU starts community consultations, including at least 30% women, by June 2014 1.3 Government completes land acquisition by June 2015 1.4 SIEA awards EPC contract by June 2016 1.5 EPC contractor mobilizes by August 2016 1.6 SIEA awards O&M contract by October 2017 1.7 SIEA commissions Fiu River hydropower plant by January 2018 **Output 2: Extension of distribution grid by SIEA** 2.1 PMU prepares design and bid documents by September 2015 2.2 SIEA awards goods packages by June 2016 2.3 Contractor starts construction of distribution upgrades by April 2017 2.4 Contractor completes construction of distribution upgrades by October 2017 2.5 SIEA commissions distribution extensions (including to households headed by women) by November 2017 **Output 3: Capacity building undertaken for implementing agency and project beneficiaries** 3.1 PMU conducts training workshops in newly connected households (at least 50% female participation) on electricity safety, operation of prepayment meters, energy efficiency, household utility budgeting, and use of electricity to increase income generation before commissioning the distribution lines (June 2017) and after connection (June 2018) 3.2 PMU conducts gender awareness training for at least 50% SIEA management by August 2014 **Output 4: PMU renders efficient project management services** 4.1 PMU established within SIEA by June 2014 4.2 ADB shortlists design and supervision consultants by October 2013 4.3 SIEA awards design and supervision consulting contract by June 2014 4.4 PMU establishes grievance redress mechanism (including at least one women member) by August 2014 4.5 Fielding of design and supervision consultants by June 2014	**Loan** ADB: SDR3,886,000 ($6,000,000) **Grant** ADB: $6,000,000 Government or SIEA: $3,000,000

ADB = Asian Development Bank, CO_2 = carbon dioxide, EPC = engineer–procure–construct, GWh = gigawatt-hour, km = kilometer, O&M = operation and maintenance, PMU = project management unit, SDR = special drawing right, SIEA = Solomon Islands Electricity Authority, tCO_2e = tons of carbon dioxide equivalent.
Source: Asian Development Bank.

LIST OF LINKED DOCUMENTS

http://www.adb.org/Documents/RRPs/?id=46014-002-3

1. Financing Agreement: Special Operations
2. Project Agreement
3. Sector Assessment (Summary): Energy
4. Project Administration Manual
5. Contribution to the ADB Results Framework
6. Development Coordination
7. Economic and Financial Analysis
8. Country Economic Indicators
9. Summary Poverty Reduction and Social Strategy
10. Gender Action Plan
11. Initial Environmental Examination
12. Resettlement Plan
13. Risk Assessment and Risk Management Plan