



GEF-6 PROJECT INFORMATION FORM (PIF)

PROJECT TYPE: Full-sized Project

TYPE OF TRUST FUND: GEF Trust Fund

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PART I: PROJECT INFORMATION

Project Title:	Stimulating Progress towards Improved Rural Electrification in the Solomons (SPIRES)		
Country(ies):	Solomon Islands	GEF Project ID:	9787
GEF Agency(ies):	UNDP	GEF Agency Project ID:	6089
Other Executing Partner(s):	Ministry of Mines, Energy and Rural Electrification (MMERE)	Submission Date:	24 Feb 2017
		Resubmission Date:	21 Mar 2017
GEF Focal Area(s):	Climate Change	Project Duration (Mos)	48
Integrated Approach Pilot	IAP-Cities <input type="checkbox"/> IAP-Commodities <input type="checkbox"/> IAP-Food Security <input type="checkbox"/> Corporate Program: SGP <input type="checkbox"/>		
Name of Parent Program:	N/A	Agency Fee (US\$)	250,774

A. INDICATIVE FOCAL AREA STRATEGY FRAMEWORK AND OTHER PROGRAM STRATEGIES:

Objectives/Programs (Focal Areas, Integrated Approach Pilot, Corporate Programs)	Trust Fund	GEF Project Financing, US\$	Co-financing, US\$
CC-1; Program 1: Promote timely development, demonstration and financing of low carbon technologies and mitigation options	GEFTF	2,639,726	15,600,000
Total Project Cost	GEFTF	2,639,726	15,600,000

B. INDICATIVE PROJECT DESCRIPTION SUMMARY

Project Objective: Facilitation of the achievement of increased access to electricity in rural communities in the Solomon Islands.						
Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Project Financing US\$	Co-Financing US\$
1. RE and Rural Electrification Policies, Regulations and Planning Improvements	TA	Enforcement of approved policies and rules and regulations to support enhanced application of cost-effective RE technologies for electricity generation in the off-grid areas in Solomon Islands	<ul style="list-style-type: none"> Completed review and enhancement of the draft national energy policy, including the proposed policies on renewable energy (RE Policy), energy efficiency (EE Policy) and rural electrification, associated investment plans, and the rural electrification program. Formulated, approved and enforced policies, implementing rules and regulations (IRRs) on RE and EE technology applications for rural electrification. Recommended, approved and enforced rural electricity regulatory framework. Formal rural electrification plans at the national and local levels 	GEFTF	125,000	300,000
2. Promotion of RE and Rural Electrification Initiatives	TA	Enforced improved institutional and financial mechanisms in the integrated planning and	<ul style="list-style-type: none"> Evaluation report on the current institutional arrangements for the financing and implementation of the rural electrification program of the country. Formulated and recommended institutional and financing mechanisms that support the enhanced implementation of the rural 	GEFTF	275,000	700,000

		implementation of rural electrification and RE-based energy production in the off-grid areas	<p>electrification program</p> <ul style="list-style-type: none"> • Completed rural electrification initiatives facilitated by the adopted and enforced institutional and financial mechanisms. • Completed evaluation report on the adopted institutional and financing mechanisms, including suggested policies and strategies for sustaining and/or enhancing the rural electrification program's institutional and financing mechanisms. 			
3. RE Technology Applications for Supporting Rural Socio-Economic Development	TA	Adoption and implementation of climate resilient and low carbon electricity applications in increasing access to electricity in off-grid areas.	<ul style="list-style-type: none"> • Completed DREI assessments of ongoing and planned RE-based electricity generation activities in the off-grid areas¹. • Approved design, engineering, financial and implementation plans for the demonstrations on RE-based electricity generation and EE technology application in the electricity end-use sector in selected off-grid areas². • Approved design, engineering, financial and implementation plans for the replication and/or scale up of demonstrated RE-based electricity generation and EE technology applications in other off-grid areas. • Approved portfolio of follow-up rural electrification projects in other major off-grid areas. 	GEFTF	164,025	900,000
	Inv	Increased confidence in, and application of, RE technologies and RE-based power generation to support socio-economic development in off-grid areas.	<ul style="list-style-type: none"> • Successfully installed and operational systems of the implemented demonstrations of RE-based electricity generation and EE technology application in the electricity end-use sector in selected off-grid areas. • RE and EE technologies application projects designed and financed for implementation as influenced by the results and outcomes of the demonstrations. 	GEFTF	1,300,000	12,500,000
4. RE & EE Capacity Building	TA	Enhanced awareness and knowledge of the government, private sector and communities on the cost-effective application of	<ul style="list-style-type: none"> • Developed and implemented capacity development program on rural electrification planning, energy-integrated development planning, RE/EE technology application project design, implementation, operation and maintenance. • Designed, implemented and operational national supply and consumption monitoring, reporting and database system, 	GEFTF	650,000	600,000

¹ UNDP's flagship Derisking Renewable Energy Investment (DREI) methodology will be used to quantitatively analyze the barriers and risks for sustainable off-grid RE-based power generation options in the Solomon Islands.

² Based on the available ongoing and planned projects on RE-based energy generation and EE technology applications of the SIG, the private sector entities, churches, NGOs, and the communities, this may tentatively include the following demos: (1) RE-based distributed generation serving mini/micro-grids; (2) RE-based power generation in boarding schools (w/ or w/o commercial sales of excess electricity generated to surrounding villages); (3) RE-based power generation and use in rural infrastructure systems (apart from power generation, e.g., water supply and treatment systems, solid waste management systems, telecommunication systems, etc.); (4) electricity and water system loss management schemes; (5) feasible RE-based energy systems for productive use applications; (6) application of demand side management schemes in provincial/municipal government buildings, EE street lighting, application of pre-paid electric meters in selected villages serve by mini-grids.

		RE and EE technologies/practices.	including data/information on the annual energy performance and impact assessment of implemented demos. • Operational information exchange system for the promotion and dissemination of knowledge on sustainable energy technology applications in support of rural electrification and low carbon development. • Established local service provision industry that supports the rural electrification program and the rural electricity sector.			
Sub-Total				GEFTF	2,514,025	15,000,000
Project Management Cost				GEFTF	125,701	600,000
Total Project Cost				GEFTF	2,639,726	15,600,000

C. INDICATIVE SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE, IF AVAILABLE

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Amount US(\$)
National Government	Energy Division - Ministry of Mines, Energy and Rural Electrification (ED-MMERE)	Grant	14,535,000
	Energy & Climate Change Division - Ministry of Environment, Climate Change and Disaster Management (ECC-MECDM)	In-kind	765,000
Private Sector	TBD	Grant	TBD
Others	United Nations International Children's Emergency Fund (UNICEF)	Grant	200,000
GEF Agency	United Nations Development Programme (UNDP)	Grant	100,000
Total Co-financing			15,600,000

D. INDICATIVE TRUST FUND RESOURCES REQUESTED BY AGENCY(IES), COUNTRY(IES) AND THE PROGRAMMING OF FUNDS:

GEF Agency	Trust Fund	Country/Regional/Global	Focal Area	Programming of Funds	(in \$)		
					GEF Project Financing (a)	Agency Fee (b)	Total (c)=a+b
UNDP	GEFTF	Solomon Islands	Climate Change	N.A.	2,639,726	250,774	2,890,500

E. PROJECT PREPARATION GRANT (PPG)³

Is Project Preparation Grant requested? Yes ☒ No ☐ If no, skip item E.

PPG AMOUNT REQUESTED BY AGENCY(IES), TRUST FUND, COUNTRY(IES) AND THE PROGRAMMING OF FUNDS

GEF Agency	Trust Fund	Country/Regional/Global ^{a/}	Programming of Funds	(in \$)		
				PPG (a)	Agency Fee ⁴ (b)	Total c = a + b
UNDP	GEFTF	Solomon Islands	Climate Change	100,000	9,500	109,500
Total PPG Amount				100,000	9,500	109,500

³ PPG requested amount is determined by the size of the GEF Project Financing (PF) as follows: Up to \$50k for PF up to \$1 mil; \$100k for PF up to \$3 mil; \$150k for PF up to \$6 mil; \$200k for PF up to \$10 mil; and \$300k for PF above \$10m. On an exceptional basis, PPG amount may differ upon detailed discussion and justification with the GEFSEC.

⁴ PPG fee percentage follows the percentage of the Agency fee over the GEF Project Financing amount requested.

F. PROJECT'S TARGET CONTRIBUTIONS TO GLOBAL ENVIRONMENTAL BENEFITS⁵

Corporate Results	Replenishment Targets	Project Targets
4. Support to transformational shifts towards a low-emission and resilient development path	750 million tons of CO _{2e} mitigated (<i>direct & indirect</i>)	508.9 ktons CO ₂ reduced (<i>direct & consequential</i>)

PART II: PROJECT JUSTIFICATION

1. Project Description.

1.1. Global environmental problems, root causes and barriers that need to be addressed

The Solomon Islands is an archipelago in South Pacific consisting of about 996 islands. Its total land area is 28,450 km², and the total sea area occupied is 800,000 km². Of the country's 515,870 citizens, about 80% lives in rural villages and 20% in urban areas (80% of which lives in the national capital Honiara). During the period 1999-2009, the average annual growth rate (AAGR) of the country's population is 2.3%. In urban areas, the population's AAGR was 4.7%.

The country's economy is comprised of a mixed subsistence sector on which the majority of the population is dependent, and a small sector dominated by large scale commercial enterprises. In 2010 the economy grew by 7.1% and in 2011 it grew even further by 9.3%. The country's leading export is natural forest timber. Export of this commodity is expected to rapidly decline by 2015 lowering long-term economic projections.

While the country is endowed with some renewable energy resources, e.g., geothermal, hydro, solar, ocean, and biomass, most of these (except for solar and hydro) have not yet been tapped⁶. The country is almost entirely dependent on imported petroleum fuels for electricity generation, for transport (land, sea and air) and for modern energy services at household level. Grid-connected electricity (100% diesel-based) is generated and supplied by the state-owned utility Solomon Islands Electricity Authority (SIEA), which supplies electricity to Honiara and 8 provincial centers (Auki, Buala, Gizo, Kirakira, Lata, Malu'u, Noro-Munda, and Tulagi)⁷. The total installed power generation capacity in the country is 30 MW, of which 26 MW is in Honiara—with a peak load of 14.3 MW. The combined installed capacity in the provincial centers is 4 MW. In 2016, the total net electricity generation was 87.45 GWh, of which 81.4% was sold, and 18.6% were distribution losses. Power tariffs in Solomon Islands are among the highest in the Pacific⁸. On the part of the Government of Solomon Islands (SIG), it is the MMERE that manages the energy sector policy and set its power tariffs based on government regulations. The current tariffs allow SIEA to recover costs and invest in infrastructure, which is now doing under its restructuring program. Due to the high cost of diesel transport, generation costs in the provincial centers are considerably higher

⁵ Progress in programming against these targets for the projects per the *Corporate Results Framework* in the [GEF-6 Programming Directions](#), will be aggregated and reported during mid-term and at the conclusion of the replenishment period.

⁶ The following are the estimated potential power generation capacities from the utilization of available RE resources in the Solomon Islands: (1) Geothermal: 20 - 40 MW; (2) Hydro: small hydro at 11 MW, but total hydro energy potential is 300 MW; (3) Wind: Unknown, no detailed wind assessments done so far; (4) solar energy: various small, off-grid solar schemes each at less than 1 MW; (5) woody biomass (timber wood/forest waste and biofuel) 20 MW; and, (6) Off-grid biomass/biogas schemes in rural communities at 500 kW. The Levelized Cost of Energy (LCOE) for different RE options shows that solar PV as the best option in remote villages (US\$ 0.24/kWh in 2013). Utility scale RE-based power generation (e.g., Tina Hydro and Savo Geothermal) is expected to have a lower LCOE.

⁷ In 2009, 11.8% of the households in the country are connected to the SIEA grids. About 90% of these households are in Honiara, 10% are served by SIEA mini-grids in provincial centers. Among the households that are not connected to the grid, 9.4% have their own power generation units (0.7% using diesel gensets; 8.7% using solar PV power generation).

⁸ In June 2013, the national uniform tariff was \$0.85 per kilowatt-hour (kWh) for residential customers and \$0.91/kWh for commercial customers.

than in Honiara (almost 50%), which has a negative financial impact on SIEA's operations and has impeded grid expansion. The high cost of electricity and the limited reach of the distribution grid are slowing economic growth in the provincial centers.

The 2014 National Energy Policy Framework (NEPF) sets out the broad policy of the country regarding energy. The 2014 NEPF is with the Cabinet for review. The draft policy includes a renewable energy target of 50% by 2020 (installed capacity). There is also a draft Renewable Energy Investment Plan, 2014 (Draft REIP), which outlines key investments for renewable energy in the Solomon Islands⁹. The Energy Division within the Ministry of Mines, Energy and Rural Electrification (MMERE) is responsible for energy policy, renewable energy development and project implementation. The Solomon Islands Electricity Authority (SIEA) is responsible for electric power supply and distribution to all urban and provincial centers.

With the ongoing and planned electricity sector projects, including those that were recently completed (e.g., UAE/NZ funded 2 MW solar PV power generation facility in Guadalcanal), the achievement of the urban electricity target (100% by 2020) could probably be achieved. The successful implementation of big hydroelectric power projects, particularly the one on the Tina River, if all parties involved will come up with mutually beneficial agreements, would also significantly contribute to the achievement of %RE electricity target of the country (79% by 2030). However, the rural electrification target (35% of households in rural areas with electricity access by 2020) may not be realized in a timely manner. This is mainly because of problems and gaps that are currently hindering the country in its rural electrification efforts particularly in the outer islands and off-grid areas. For example, the SIEA has plans for setting-up new solar hybrid mini-grids in selected islands but there are certain issues that prevent them from doing so, among which are lack of financing. Also, the achievement of the energy objectives of the country as well as the SIG's investment plans for energy development and utilization will not just rely on the construction of more RE-based power generation units but also on the availability of enabling conditions that will facilitate the implementation of the rural electrification program, clear delineation of the roles and responsibilities of the pertinent national and local government entities involved, and also the capacity and capabilities of the stakeholders involved. This will also depend on what the development partners working on the country's electricity sector. The barriers that have to be overcome to enable the achievement of the rural electrification targets of the country are the following:

Policy, Regulatory and Planning Barriers

The country has a very broad draft national Energy Policy (2013), and for rural electrification there are several broad policies for achieving 35% electricity access in rural areas by 2020. These policies are mostly without the necessary implementing rules and regulations and plans. Hence their enforcement to support enhanced application of cost-effective RE technologies for electricity generation in the off-grid areas in Solomon Islands is not adequate. Actually, these are results of the lack of formal national policies on renewable energy, energy efficiency and rural electrification, which leads to unclear energy regulatory framework including on rural electrification. The lack of regulatory framework also led very limited stakeholders in the energy sector, apart from the SIG and SIEA. There are no clear policies regarding private sector participation in energy sector, and there are inadequate legislation for consumer protection, price control, fuel storage and handling, water rights and permits for hydro-power systems and power sector regulation. Moreover, because of the informal energy policies, there is lack of formal energy planning work at the national and local levels. There are also no data/information collected that can be used for national energy balance and for energy planning. These results in the lack of formal rural electrification development plans, and few standards or regulations regarding electricity use and

⁹ Also relevant in this case are the Scaling-up Renewable Energy in Low Income Countries (SREP) - Investment Plan for Solomon Islands, May 2014; and, the Solomon Islands National Infrastructure Investment Plan, 2013.

development, despite the government's targets to achieve a rather ambitious level of RE electricity generation.

Institutional and Financial Barriers

The main barrier in this aspect of rural electrification in the Solomon Islands is the weak institutional and financial mechanisms in the integrated planning and implementation of electricity infrastructure projects and RE-based electricity production in the off-grid areas. This is due to the MMERE's: (1) limited of permanent personnel and financial resources; (2) limited capacity for energy planning and analysis; and, (3) limited capacity for energy monitoring, reporting, data processing and management to support national energy planning. Poor coordination of rural electrification and RE-based energy generation activities due to unclear institutional arrangements has also led to many stand-alone, fragmented and uncoordinated initiatives in the off-grid areas to implement electricity access projects. RE-based power generation projects in rural communities funded and implemented the communities themselves, or by individual households or private sector entities, by schools (government- and donor-funded), or by NGOs/CSOs were implemented without the benefit of proper design and operations expertise. The results from these initiatives were varied. The implementation of such projects also led to lack of government community service obligation funding for rural electrification, e.g., grid extensions. The government (national and local) also lack capacity to develop bankable renewable energy technology project proposals that are acceptable to donors or financiers. The causes of the lack of financial resources for RE projects are also manifold. So far, most of the financial support comes from the donor agencies. There are other potential sources of RE project financing but their contribution is limited due to various reasons, among them are the inability of banks to use customary land as security or equity for loans; low level of participation of the private sector, which is also due to various causes like lack of legislation for Renewable Energy Service Companies (RESCOs), and no incentives for implementing RE projects (e.g., loans/subsidies for RE projects). The relatively high initial costs of RE technology applications has also created a perception among people in rural areas that RE and EE projects are risky investments, especially considering the fact that there is very low cash incomes in rural communities. The high cost of diesel power generation in the provincial centers, which leave SIEA little incentive to expand the distribution network in the absence of adequate community service obligation funding, not to mention the small, dispersed pockets of population.

Technical Barriers

The varied results from various uncoordinated RE technology application projects, there has been low level of confidence in, and application of, RE technologies and RE-based power generation to support socio-economic development in off-grid areas. This has led to limited adoption and implementation of climate resilient and low carbon energy applications in increasing access to electricity. The geographical circumstances of the country (rough terrain, and widely spread islands) isolate large load demand centers from potential RE sources, like hydropower and geothermal sources that can substantially produce baseload electricity. Apart from this, there is a serious lack of technical skills and virtually no RE industry except in Honiara. There is lack of technical capacity in the design and operation of RE-based power generation systems (e.g., solar PV systems, mini/micro-hydro power systems), and low local capacity in the design, engineering, operation and maintenance of installed RE-based power generation systems in off-grid areas. These are due to the limited support for increasing local technical knowledge on RE/EE technologies, limited opportunities for local engineering firms to carry out design, engineering and implementation of RE-based energy system projects, and the limited availability of RE system components and parts in the country.

Awareness & Information Barriers

With a few exemptions, in general, the SIG (national and local), private sector and the general citizenry, particularly in off-grid areas, have relatively low level of awareness and knowledge about the cost-effective application of RE and EE technologies/practices. This is mainly due to the lack of adequate data, including hydrological data for hydropower, and data for geothermal, ocean energy, wind and biomass potential. Even the data on fuel imports and consumption due to non-cooperation from responsible government departments and oil companies are either lacking or not available to the public. The low level of public awareness of RE and EE technologies/techniques in rural areas is due to little or no energy training available locally to help with operating and maintaining any technical capacity developed by electricity access projects, resulting in low level of knowledge of applying feasible RE technologies, and limited reliable information on potential RE resources.

The abovementioned barriers, if not properly and adequately addressed will continue to prevent the timely and complete achievement of the country's rural electrification target.

1.2. Baseline scenario and any associated baseline projects

The ongoing baseline projects on rural electrification and RE and EE promotion and application in the country include:

- a. World Bank (WB): The WB is currently implementing several energy and development projects in the Solomon Islands that directly and indirectly support the country's rural electrification initiatives. These include: (1) Electricity Access Expansion Project (US\$ 2.22 million) with the objective of increasing access to electricity services in low-income areas of the country, involving the payment of the upfront cost of electricity service connections for 2,565 households to the Honiara grid and outstations through pre-paid metered connections; (2) Solomon Islands Sustainable Energy Project (US\$ 4.5 million), the objective of which is the improvement of the operational efficiency, system reliability and financial sustainability of the SIEA; and a second phase (additional financing – US\$ 13.0 million) still with the same objective for SIEA but through improved financial and operational management, reduction of losses, improved generator and distribution system reliability, and improved revenue collection; (3) Solomon Islands Rural Development Program II (US\$ 9 million), with the objective of improving the basic infrastructure and services in rural areas and to strengthen the linkages between smallholder farming households and markets; and, (5) SB Development of Community-based Renewable Energy Mini-Grids (US\$ 0.95 million), with the objective of supporting the development and sustainable operation of electrical mini-grids that use renewable energy and create an enabling environment (policy, legal and regulatory) that promotes investment in renewable energy technologies and increases access to more affordable energy services in rural areas of Solomon Islands. Together with other donors (e.g., ADB, Australia DFAT, and South Korean investors, and potential funding from the Green Climate Fund) the WB is supporting the development and implementation of the 20 MW Tina River Hydropower Project. This estimated US\$ 190 million project (US\$ 33.6 million from WB) is expected to lower the system average cost of electricity supply and mobilize private financing for power generation.
- b. Asian Development Bank (ADB): This regional development bank is currently implementing the following energy and development projects that also contributes directly and indirectly towards rural electrification in the country. These include: (1) Solar Power Development Project (US\$ 8.44 million), with the objective of the supplying reliable, cleaner electricity from renewable energy sources, and involves the installation and operation of a grid-connected solar power plant put into operation by SIEA; and, (2) Provincial Renewable Energy Project (US\$ 6.0 million), with the objective to support SEIA develop reliable and sustainable supply of electricity in selected provinces to assist economic growth and increase the capacity to support greater access to electricity for local residents, businesses and industry. The major component of this project is the 750 kW Fiu River

hydropower scheme in Malaita Province to generate hydro-electric power. ADB is among the donors that committed funding to the 20 MW Tina River Hydropower Project (US\$ 30.0 million)

- c. European Union EDF-11 Funds (€10.0 million): In cooperation with World Bank, Australia DFAT, and IFAD, this EU support focuses on the agricultural sector in rural areas, creating employment opportunities for trained and untrained rural dwellers, strengthening private sector development and promoting private-public sector linkages.
- d. SIEA (Solomon Power) Projects: The SIEA has an ongoing program that targets reduction of the current 95% diesel fuel consumption in its power generation to 80% by 2020. Among the projects under its program are those funded by the WB and ADB (e.g., US\$ 15.2 M for converting 5 existing diesel power stations to diesel-solar PV hybrid systems), as well as a NZMFAT & UAE funded 2 MW on-grid solar PV power generation system). It also has its own funded projects on such as the 1.5 MW solar PV power generation units in West Honiara, and new solar-diesel hybrid mini-grids in places like Taro, Seghe, Malaita and Choisuel (SBD 30M). According to SIEA, the NZMFAT also plans to support 2 to 3 new solar PV-diesel hybrid systems in other provincial centers.

There are also other energy projects in the country at various stages of implementation such as electrification projects of boarding schools, which follows the same scheme that were earlier implemented by GIZ and funded by European Governments (Italy, Turkey). There are small community-based RE projects (3 mini-hydros at 50 kW/unit) funded by constituency development funds¹⁰. Moreover, there are also similar community-based projects that are funded, installed, operated and maintained by CSOs such as the religious institutions. The Japan International Cooperation Agency (JICA) has also funded solar PV power generation projects for SIEA (Improvement of the Honiara Power Supply; and, Lunga Power Generation Development). Other RE/EE related projects that are currently implemented and planned by JICA are on the upgrading of the water supply system in Honiara (potentially for energy efficient systems), and a sustainable resource management in the forestry sector (potentially for exploring biomass-based power generation). The United Nations International Children's Emergency Fund (UNICEF) is also implementing a 5-year project (NZD 2.0 million) that involves, among others, the electrification of primary schools in Guadalcanal.

Considering the current approach in improving awareness raising and information dissemination, the current low level of public awareness, particularly in the rural areas about cost-effective RE technology applications not only for electrical energy purposes, and the low level of efforts to conserve energy and use energy efficiently will continue as in the past. If this is not adequately addressed, the country may fall short of reaching its set target of 35% electricity access in rural areas. This may even persist for a much longer period of time if the current strategy (and lack of appropriate support policies) would remain as the primary feature of capacity building, awareness raising, and information/data generation and dissemination. The opportunities to achieve the 2020 rural electrification target, and for reducing GHG emissions to achieve the country's commitments in its Nationally Determined Contributions (NDC)¹¹ document, while improving the living conditions of the citizenry will be lost if only the baseline projects/activities will be implemented. The realization of significant GHG emission reduction through the implementation of applicable and feasible RE technologies and EE measures, techniques and practices in support of the rural development of the country will not be realized if an alternative development path that will facilitate the achievement of the rural electrification target will not be taken and facilitated.

¹⁰ There is rather scant literature on CDFs in Solomon Islands, which cast uncertainties whether the RE projects funded through this can be sensibly used as baseline projects to build on. It is unclear whether such funded projects have resulted in strengthened rural development, i.e., whether such development funding scheme has been a positive instrument for improving the country's rural areas. Perhaps, improving the scheme arrangements may in time provide a stable, effective provisioning system that is gradually mainstreamed into the SIG mechanisms.

¹¹ Solomon Islands submitted its INDC to the UNFCCC on 22 April 2015. The country ratified the Paris Agreement on 21 September 2016. Its INDC is now referred to as its NDC.

Building on the ongoing and planned rural electrification and RE/EE technologies application projects in the country will involve incorporation of relevant enhancements or modifications to the abovementioned baseline projects to enhance the realization of not only national benefits but also global environmental benefits. These could be on: (1) aspects not covered by the baseline project; (2) modifications (e.g., additional features) that can be done; and, (3) follow-up interventions to enhance the realization of the rural electrification target.

1.3. Proposed alternative scenario

The facilitation of the achievement of the energy objectives of the country including for rural electrification would not only help the country in its low carbon development path, but also enable the country to have the energy security that it wants for ensuring its citizens' access to reliable and safe energy services. It also enables the realization of Solomon Islands' contribution to the global effort to mitigate climate change as stated in the NDC. With the assistance of the GEF, the proposed project will facilitate the application of appropriate policy, institutional, financial, technological and information-oriented options that would enable the removal of the current gaps in the widespread application of EE and RE technologies in the electricity sector in Solomon Islands that will ultimately also realize the timely achievement of the rural electrification target. Achieving this target is currently hampered by the focus on the SIEA's mainly on-grid projects. RE-based power generation units in off-grid areas are currently being studied and planned (e.g., solar home systems (SHS) for individual houses or decentralized solar PV mini-grid systems serving villages). Moreover, addressing the barriers that are hindering the achievement of increased efficiency of utilizing electricity in specific end use sectors (government, residential and commercial) will result in lower electricity demand. The reduction of electricity demand will also contribute to the achievement of the country's %RE electricity target.

The project focus is on the enhanced application of low carbon technologies, techniques and practices to support Solomon Islands' rural electrification program, particularly in achieving the set target of 35% electricity access in rural areas. The project will comprise of components that will specifically address each major type of barrier to enhanced rural electrification to support climate resilient and low carbon development of rural communities in the Solomon Islands. Specifically, these components will comprise of interventions to enable increased installation of feasible RE-based power generation systems in the country to facilitate rural electrification, and also stimulate energy efficiency applications to reduce electricity demand in the major end use sectors. The expected outcomes from each project component are presented in the project framework (Part I, Sec. B), and each of these will be realized through the implementation of the following major strategies:

1. Review, improvement, approval and enforcement of appropriate policy, planning and regulatory frameworks that will support enhanced and accelerated electrification of the off-grid areas in the country.
2. Development and enforcement of suitable institutional and financial mechanisms in the integrated planning and implementation of rural electrification in the country.
3. Development and implementation of cost-effective demonstrations of various schemes for rural electrification in the off-grid areas involving the private sector, CSOs, NGOs and local communities.
4. Design and conduct of information, communication and education activities to improve levels of awareness and knowledge of the government, private sector and citizenry on climate resilient and low carbon development of off-grid areas.

These 4 barrier removal strategies are by and large based on the UNDP's flagship Derisking Renewable Energy Investment (DREI) methodology, which in this project will involve quantitative analysis of the barriers and risks for sustainable off-grid rural electrification in the Solomon Islands. As a tool for the

barrier removal activities, this methodology will be applied to come up with the most cost-effective interventions to mitigate or transfer whatever risks that need to be addressed to facilitate investments, particularly private sector investment, in the rural electrification program of the government. A detailed risk and barrier analysis (inclusive of quantification of risks and power generation cost modelling), will be done during the project implementation, and in so doing also assist in evaluating the impact of the interventions. The following paragraphs describe each project component, which is intended to bridge the current gaps (due to barriers) in achieving the country's rural electrification target. The proposed GEF project will also contribute to the achievement of the country's RE and EE targets and NDC commitments.

Component 1: RE and Rural Electrification Policies, Regulations and Planning Improvements –

This project component will address the weak enforcement of the rather limited policies and regulations to support enhanced application of cost-effective RE technologies for electricity generation in the off-grid areas in the country. The expected outcome of the major outputs that will be delivered by the activities that will be carried out under this component is the enforcement of approved policies and rules and regulations to support enhanced application of cost-effective RE technologies for electricity generation in the off-grid areas in Solomon Islands. The required outputs include: (1) Comprehensive reports on the analyses and recommended enhancements of the draft national energy policy, including the proposed policies on renewable energy (RE Policy), energy efficiency (EE Policy), and rural electrification, associated investment plans, and the existing rural electrification program. These will serve as bases and references for new policies and regulations that will be developed and recommended, and eventually enforced; (2) Formulated, approved and enforced policies, implementing rules and regulations (IRRs) and standards, which will be on the: (a) Promotion and application of EE & RE technologies; (b) rural electrification; and, (c) national energy planning, as well as energy-integrated development planning; (3) Recommended, approved and enforced electricity sector regulatory framework, which will formally guide the planning and implementation of rural electrification development and utilization initiatives at the national and local levels; and, (4) Formal and enhanced rural electrification plans (as part of an enhanced rural electrification program), inclusive of rural energy development investment plans, and follow-up plan for the enhancement of rural energy policies, regulations and plans.

Component 2: Promotion of RE and Rural Electrification Initiatives – The barriers related to the institutional and financial aspects of rural electrification will be addressed in this project component. The enforcement of improved institutional and financial mechanisms in the integrated planning and implementation of rural electrification and RE-based electricity production in the off-grid areas is the expected outcome from the collective outputs that will be delivered by the various project activities that will be implemented under this project component. These outputs include: (1) Evaluation report on the current institutional arrangements for the financing and implementation of the rural electrification program of the country, to better understand the extent and nature of the prevailing issues and limitations; (2) Enhanced institutional and financing mechanisms that support the enhanced implementation of the rural electrification program, including the pertinent capacity development for all parties involved on the effective implementation of the new institutional mechanisms; (3) Completed rural electrification initiatives/projects¹² as per the enhanced rural electrification program and facilitated by the enforced enhanced institutional and financial mechanisms, including the results and where applicable, impacts, and contribution to achieving the rural electrification target; and, (4) Completed evaluation report on the effectiveness and impact of the enforced enhanced institutional and financing mechanisms, including suggested policies and strategies for sustaining and/or enhancing further the rural electrification program's institutional and financing mechanisms.

¹² These projects contribute to the enhancement of the rural electrification in the country and are in line with the identified mitigation actions involving energy technology deployments (solar home systems, mini/micro hydro, and energy efficiency) in the NDC Document.

Component 3: RE Technology Applications for Supporting Rural Socio-Economic Development –

The technical issues that are currently hindering investments on rural electrification in Solomon Islands will be addressed under this project component. From the technical assistance and investment related activities that will be carried out under this component the expected outcomes are: (i) Adoption and implementation of climate resilient and low carbon electricity applications in increasing access to electricity in off-grid areas; and, (ii) Increased confidence in, and application of, RE technologies and RE-based power generation to support socio-economic development in off-grid areas. The major outputs that are expected to bring about the first outcome are the following: (1) Completed assessments of ongoing and planned RE-based electricity generation activities in the off-grid areas (including the RE-based power generation and distribution demonstrations) in terms of contribution to the achievement of the country's rural electrification targets, including the results of the: (a) updated evaluation of the levelized cost of energy (LCOE) of other potentially applicable RE resources for power generation in the country¹³; and, (b) feasibility assessment of private sector participation in the various aspects of the country's rural electrification program; (2) Approved design, engineering, financial and implementation plans for the demonstrations on RE-based electricity generation and EE technology application in the electricity end-use sectors in selected off-grid areas – for showcasing various approaches to enhancing electricity access in off-grid areas¹⁴; (3) Approved design, engineering, financial and implementation plans for the replication and/or scale up of demonstrated RE-based electricity generation and EE technology applications in other off-grid areas; and, (4) Approved portfolio of follow-up rural electrification projects in other major off-grid areas, including investment plan.

The following are the expected major outputs to realize the second outcome: (1) Successfully installed and operational systems of the implemented demonstrations of RE-based electricity generation and EE technology application in the electricity end-use sector in selected off-grid areas, based on the approved designs and implementation plans; and, (2) RE and EE technologies application projects designed and financed for implementation as influenced by the results and outcomes of the demonstrations, which will also be made available in the project website. The results and impacts of the implemented RE-based electricity generation and EE technology application demos in selected on-grid and off-grid areas, will serve as main bases for the planned follow-up projects that can make use of currently available financing sources such as the private sector, and also the Green Climate Fund (GCF).

Component 4: RE & EE Capacity Building – Solutions that will address the information and capacity issues that are currently hindering investments on rural electrification in the Solomon Islands will be developed and implemented under this project component. The expected outcome from the various deliverables that will come from the activities that are planned under this project component is enhanced awareness and knowledge of the government, private sector and communities on the cost-effective application of RE and EE technologies/practices. The expected major outputs are the following: (1) Developed and implemented capacity development program on national and rural electricity sector planning, energy-integrated development planning, RE/EE technology application project design, implementation, operation and maintenance. The application of the skills and knowledge learned will be included in the program that will target government and private sector entities, as well people in the rural areas; (2) Designed, implemented and operational national energy supply and consumption monitoring,

¹³ The DREI methodology will be applied in the evaluation of the most cost-effective rural electrification schemes. The barrier removal activities that will be identified and carried out using this methodology will be those that will mitigate risks to investments, particularly private sector investment, in the rural electrification program of the government.

¹⁴ These demonstrations will be in line with the identified mitigation actions involving energy technology deployments (solar home systems, mini/micro hydro, and energy efficiency) stated in the country's NDC document. Relevant experiences and lessons learned from the big on-grid projects mentioned in the NDC Document will (if possible) be considered in the design and implementation of these projects, particularly the replications. The proponents/implementers of the on-grid projects can also benefit from the experiences from implementation and operation of the demo and replication projects, aside from the energy policies, energy planning tools/systems, energy database and institutional mechanisms that the project will develop and establish.

reporting and database system, for the purpose of generating relevant energy data/information on a regular basis that will be used in the preparation of the national energy balance, and for national and rural energy planning - this includes data/information on the annual energy performance and impact assessment of implemented demos, based on the operations reports and performance evaluations to be conducted; (3) Operational information exchange system for the promotion and dissemination of knowledge on sustainable energy technology applications in support of rural electrification and low carbon development – this will also make use of the information from the national energy database system, and for the purpose of knowledge sharing within the country and also to other SIDS; and, (4) Established local service provision industry that supports the rural electrification program and the rural electricity sector, as a tangible follow-up to the capacity development for the private sector and also to facilitate their active involvement in the country's energy sector, in general, and rural electrification program, in particular.

1.4. Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing

Presently, there are ongoing and planned projects and activities of the SIG towards the realization of the rural electrification target by 2020, and are expected to contribute to the achievement of the country's RE and EE targets. However, these projects/programs are rather limited in achieving these set targets. The full potential for the use of the country's indigenous RE resources, potential for energy and energy cost savings, clean energy and low carbon technology applications, and associated local benefits (e.g., improved energy services, increased income generation activities, etc.), and GHG emission reductions from the major energy end use sectors will not be realized, if the efforts are limited to these.

The proposed SPIRES Project is intended to build on these baseline initiatives of the SIG by enhancing them through the incorporation of added features that will facilitate the enhanced utilization of the country's RE resources (mainly solar and hydro), as well as improved low carbon initiatives (practices, techniques and technologies). The target 35% rural electrification by 2020 is expected to be achieved with the installation of power generation facilities (RE-, or non-RE-based). Currently, the overall access rate in Honiara is 64%, but access in the rest of the country averages just 6%, and five of nine provinces have access rates below 4%. In 2009, the estimated household electricity access rate in the country was 21.2%. This comprised of 11.8% households connected to SIEA system, and 9.4% of households in off-grids with own generators and solar PV systems).

Considering a business-as-usual scenario, the forecast % electricity access in rural areas by 2020 may not be expected to be realized. The facilitation and enabling of the installation of RE-based rural electrification systems is expected to make the current gap closer to the set percentage electricity access in rural areas target in 2020. Assuming this proposed 4-year UNDP-GEF project will commence in 2019, based on the forecast national electricity generation during the period 2019-2022 in the baseline and alternative scenarios, the potential cumulative tons CO₂ emission reduction from supplanting existing diesel power generation with RE-based power generation units, is about 107.1 ktons. This is just in the non-SIEA areas outside of the Honiara system. If say 35% of the non-SEIA households in the Honiara system are using RE-based power generation systems as influenced by the project, the estimated total GHG emission reduction during the SPIRES Project implementation period would be around 174.8 ktons. Considering an average lifetime of 20 years for typical RE-based power generation systems in SIDS, an overall potential of about half a million tons of GHG emissions (direct and consequential) would be reduced (Refer to Annex 1).

The barrier removal approach that will be applied in this proposed project for enabling the achievement of the country's rural electrification target (and contribute also to the realization of the set %RE electricity target) will involve addressing barriers associated with the lack of supportive policies and regulations, institutional and financial mechanisms; and the limited capacity and knowledge about the application,

design, financing and operation of feasible RE-based power generation and distribution systems in the off-grid areas by the government and private sector. The barrier removal activities practically make up the incremental activities that the project will carry out particularly those that the SIG will not be, or presently does not have the capacity for, addressing these barriers. To achieve the project objective, several incremental support activities will be carried out to facilitate the demonstration of the processes and procedures involved in national/local energy planning, energy-integrated development planning, and application of RE-based power generation schemes in the off-grid areas of the country. Without the incremental barrier removal and enabling activities the achievement of the anticipated alternative scenario in the country's electricity sector in Solomon Islands will not be realized. The realization of the substantial socio-economic development co-benefits that result from the various rural electrification-related interventions is contingent to the removal of the barriers.

1.5. Global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF)

The proposed project is aimed at reducing GHG emissions from the country's power generation sector. In that regard, the global environmental benefits from this proposed GEF project will be derived mainly come from GHG emission reductions (tons CO₂) from the displacement of fossil fuel used in diesel-based power generation particularly in using available feasible RE resources. Provincial centers and off-grid areas that currently have diesel-based power generation will be replaced with RE-based power generation units, or revamped to operate as diesel-solar PV hybrid systems. Moreover, sustainable energy utilization and management that result in the improvement of the energy use indices of electricity end use sectors in the both on-grid and off-grid areas will also contribute to this. The GHG emissions reductions that will be attributed to this proposed project would come from: (1) Direct emission reductions from completed RE-based power generation and EE technology application demonstrations and replications; and, (2) Indirect emission reductions from follow-up sustainable RE and EE technology application projects in the country as influenced by this proposed GEF project. Based on the trend analysis of the historical annual electricity generation and consumption in the country (on-grid and off-grid), and the current level of rural electrification in the country, the potential average annual GHG emission reductions would be around 14,900 tons/year (see Annex I). This will be realized when more RE-based power generation units will be installed to serve the current off-grid areas, and when some SEIA power generation units in provincial centers are replaced with RE-based power generation systems. Taking into account the average lifetime of 20 years for a typical RE-based power generation system in SIDS, the estimated overall potential GHG emission reductions (direct and consequential) would be about 508.9 ktons (Annex 1).

This proposed project will also bring about local benefits to Solomon Islands. These benefits are mainly through contributions to: (1) improvement in energy supply security; (2) improvement of the air quality in areas within the vicinity of the existing diesel-based power generation facilities; (3) reallocation of energy budget to other areas that can contribute more to the national economy; (4) foreign currency reserves improvement with the reduction in fossil fuel importations; and, (5) a number of social co-benefits such as: improved access to communication services, better health services due to lighting in clinics and improved ability to store vaccines; improved education services through provision of lighting and communication services to schools; improved security due to increased availability of public lighting; increased economic activity such as small businesses to generate additional income for rural folks; employment opportunities during project construction stage; and increased empowerment of women who receive proportionally higher benefits from increased access to energy.

1.6. Innovativeness, sustainability and potential for scaling up.

Innovation: This proposed project will involve the initiatives that will enable and facilitate the establishment of RE-based electricity systems in the off-grid areas of the Solomon Islands that will be far removed from the usual dependency on the government providing electricity access/services in the off-

grid areas. In the context of the Solomon Islands, this approach of encouraging community-led, and private sector-financed and commercial business operated energy service provision is considered innovative in achieving the rural electrification objectives of the country. Such approach in a country like Solomon Islands is rather novel considering the fact that policies and regulations that will facilitate community-based, private sector-financed RE-based electricity systems, as well as energy-integrated development planning are currently non-existent. Moreover, the inclusion of interventions to improve the energy efficiency in the electricity end use sectors of the country as a means of speeding up the realization of the country's %RE and rural electrification targets is also an innovation to the usual approach of PICs like Solomon Islands in RE development and utilization.

Sustainability: The establishment of the required enabling conditions that will be supportive of actions that would contribute to increased rural electrification will facilitate the sustainability of whatever policies/regulations, institutional and financial mechanisms to facilitate increased investments in RE-based power generation facilities in the off-grid areas of the country to contribute to the achievement of the country's rural electrification and also %RE electricity targets. Since the project is linked and is complementing and supplementing the national development strategy, rural electrification and RE and EE investment plans of the country, the sustainability of project outputs will be sustained.

Potential for Scaling-up: The current low level of electricity access in the country's rural areas presents the best opportunity to scale up and also replicate the planned RE-based power generation schemes that will be demonstrated under this project. The successful demonstrations that will be implemented in selected off-grid areas can be replicated as is, or at a scaled-up configuration in the other areas in the other provinces. After all, these planned demonstrations are meant to be replicated and/or scaled-up to achieve the enhanced rural electricity access. The approved portfolio of follow-up rural electrification projects in other major off-grid areas that will be delivered in Component 3 of the project would most likely include those that are scale-up and replication of the demo projects. Best practices and lessons learned that will come out from the project implementation will also be shared with other PICs and SIDS with similar circumstances of the country, thereby ensuring the scaling up of the project interventions beyond Solomon Islands.

2. Stakeholders: Will project design include the participation of relevant stakeholders from civil society (Yes ☒ /No ☐) and indigenous people? (Yes ☒ /No ☐) If yes, identify key stakeholders and briefly describe how they will be engaged in project design/preparation:

The main stakeholders of this project is the Energy Division - Ministry of Mines, Energy and Rural Electrification. The tentative list of project stakeholders is shown below. This will be finalized during the project design and preparation period.

Stakeholder	Roles and Responsibilities in Project Preparation
Ministry Mines, Energy and Rural Electrification (MMERE)	Responsible for communication and coordination with the MECDM (GEF OFP) and UNDP on the PIF development, liaison with villages, in-charge of management of project development
Ministry of Infrastructure and Development (MID)	Provision of data inputs on plans and programs of the country concerning the energy provision in the public infrastructure, transport and communications projects of the government.
Ministry of Environment, Climate Change and Disaster Management (MECDM)	Provision of assistance in the identification and analysis of impacts on the environment of all energy-related projects, as well as in the utilization of natural resources (including biomass). Provision of advice on linkages of the project with requirements on multilateral environmental agreements, as well as guidance on GEF requirements to comply with in the PIF development.

Stakeholder	Roles and Responsibilities in Project Preparation
Ministry of Finance and Treasury	Provision of advice on the energy investment plan of the SIF, including assistance in coordination of the project with other related external and national projects.
Ministries of Education	Responsible for the coordination, communication and provision of data for the design of project activities in selected islands, particularly in relation to their program on primary and secondary school electrification
Ministry of Rural Development (MRD)	Provision of advice and assistance in the identification of rural development projects that can be supplemented/augmented by the rural electrification interventions that the project will implement.
Ministry of Development and Aid Coordination (MDAC)	Provision of data inputs on plans and programs of the country concerning government and donor funded energy projects
Solomon Islands Electricity Authority (SIEA)	Provision of advice and assistance in the identification and design of demonstrations for RE/EE technology applications in power generation, distribution and utilization in off-grid areas
CSO, NGO, community-based social/civic groups (e.g., churches)	Provision of assistance in the identification and analysis of barriers to enhanced rural electrification and in the application of low carbon technologies for energy generation. Provision of advice in the design of the barrier removal activities of the project.
Private Sector Entities (commercial and industrial)	Provision of assistance in the identification and analysis of barriers to the application of low carbon technologies (RE/EE) in commercial and industrial establishments in off-grid areas. Provision of advice in the design of the barrier removal activities.
Village/Community leaders	Responsible for the coordination, communication and provision of data for the design of project activities in off-grid areas, liaison with village leaders in the design and implementation arrangements for the demonstration activities in selected off-grid areas.

3. Gender Equality and Women's Empowerment: *Are issues on gender equality and women's empowerment taken into account? (Yes ☒ /No ☐). If yes, briefly describe how these will be mainstreamed into project preparation (e.g., gender analysis), taken into account the differences, needs, roles and priorities of men and women.*

Gender equality is one of the important aspects of this proposed GEF project, particularly in the context of village life in the off-grid areas. The logical framework analysis (LFA) for the design of this project will cover all relevant issues that pose as barriers to improved electricity access in off-grid areas, as well as the application of low carbon technologies in the provision of electricity services in Solomon Islands. Among the issues that will be covered will be those that relate to gender equity and women's role, and will cover potential barriers (if any) posed by gender equity issues, and barriers to: (1) Supporting gender equity and women empowerment in the promotion and implementation of low carbon development; (2) Enhancing opportunities to enhance the role and influence of women in the deployment of low carbon technologies and climate change mitigation options, and, (3) The development of gender-sensitive policies in the electricity sector and the electricity end-use sectors of the country. Full recognition of the important contributions of women in the management and implementation of such measures, and also in the productive and social uses of electricity, the supply of which in villages is the design of this project. The project design and preparation will also take into account the potentials for the involvement of women working in both management and technical departments of the SIG agencies/institutions who can play important roles in the design, development and implementation of this proposed UNDP-GEF project. Furthermore, the design and preparation of this project will take into account the contributions, impacts and benefits of community based sustainable energy and low carbon technology applications, including children and indigenous people.

4. Risk: Indicate risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, propose measures that address these risks to be further developed during the project design (table format acceptable):

The risks that might prevent the project objectives from being achieved are listed below. For each risk, recommended mitigation actions are provided for preventing the risk from happening, and for alleviating the impacts, in case it happens:

Risk	Level of Risk	Mitigation Actions
1. Inadequate local capacity leads to not fully implemented project activities.	Medium	<p>Preventive: Project design technical support and capacity development will be provided to MMERE and other key stakeholders to support the efficient design and implementation of the project components and sustainable systems are established for the operation and maintenance period. Additional capacity development activities for MMERE and others will be provided during the project design. A capable project team comprised of competent local and international experts to expand the capacity of people in off-grid areas in the implementation of the relevant project activities. Support from UNDP Pacific-Solomon Islands Office is also available per SIG request.</p> <p>Alleviative: With the agreement of the MMERE, UNDP Pacific- Solomon Islands Office will manage and expedite the procurement process for external personnel that will work on the project activities. Potential modification of activities to allow for expeditious implementation will be done.</p>
2. Delayed approval and enforcement of recommended policies and regulations of the project by the pertinent SIG agencies.	Medium	<p>Preventive: The project includes advocacy campaigns to get adequate support from the SIG authorities on the adoption of the recommended policies and regulations. UNDP will assist if necessary.</p> <p>Alleviative: A consensus will be taken among the project stakeholders about the action steps to be taken to expedite the approval and enforcement of the recommended policies and regulations. Led by the MMERE and MECDM, this will be done through project board (PB) meetings, in coordination with the relevant SIG regulatory authorities</p>
3. Demonstrated RE-based rural electrification schemes are not economically feasible for off-grid communities	Medium	<p>Preventive: Proper selection, based on agreed criteria, of the recommended RE-based electricity generation schemes will done, and their design properly done to facilitate financially sustainable schemes to be showcased, aside from the social benefits from increased electricity access.</p> <p>Alleviative: In case during the course of design of selected demos, indications that the selection may not be economically viable (e.g., equipment price increase, initial design assumptions no longer apply, etc.), alternative schemes will be recommended for consideration, and appropriate adjustments will be done taking into account the factors that made the initial selections no longer economically viable.</p>
4. Installed rural electrification installations are affected by adverse climate-related events.	Medium	<p>Preventive: Proper engineering and construction design and construction that ensure structural integrity but also climate resilience will be strictly followed in the construction/installation of rural electrification facilities. This applies also in the procurement, design/engineering, installation and operation of the pertinent installations¹⁵.</p> <p>Alleviative: Based on the damage assessments made, appropriate modifications or rehabilitation of the damaged installations (and budget) will be done. Potential reduction in the number of installations, or replacement with alternative demos will be done while taking into account the need to ensure the resulting interventions are still contributing to the realization of the</p>

¹⁵ The design and construction/installation of the physical infrastructures that will be installed will be based on the technical and structural specifications that major bilateral and multi-lateral donors require for the infrastructure projects that they are funding in the Pacific Islands region.

		project outcomes.
5. Off-grid area demonstrations are not supported by communities.	Low	<p>Preventive: Promotional work in regards the rural electrification schemes that will be implemented will be carried out with the MMERE and MECDM, and possibly with CSOs/NGOS. Villages that appreciate and support the planned demos will be selected for the implementation of the demos. Regarding land tenure issues, part of the project activities will be on standardized approach to addressing land acquisition for power sector infrastructure assets.</p> <p>Alleviative: In case selected villages will withdraw support during the course of the project implementation, the demos will be redesigned for implementation with other alternative off-grid areas.</p>
6. Non-availability of committed co-financing for specific activities of the project at the scheduled time.	Low	<p>Preventive: The SIG assurance of co-funding shall be confirmed and secured prior to project launching. The project team will closely monitor and ensure the timely availability of co-financing from project partners and co-financers during project implementation.</p> <p>Alleviative: Possible reallocation of budget to support the implementation of activities affected by the delays in the availability of co-financing. Potential modifications of activities will be done to allow delivery of alternative outputs that are still contributing to the achievement of the relevant outcomes, in the case of committed co-financing is not forthcoming. Together, with MMERE and MECDM conduct follow-up meetings with co-financer, or alternatively find and negotiate with other potential co-financers.</p>
7. Non-continuous national government support to the project.	Low	<p>Preventive: Continuous SIG support, particularly by MMERE, MECDM and other stakeholders will be assessed during PB meetings, and courses of actions will be carried out to ensure SIG ownership and support of the project. UNDP executive management intervention may be required, if necessary.</p> <p>Alleviative: PB meetings and special meetings with the IP and GEF OFP will be conducted to discuss courses of actions to take to sustain the SIG's support to the project, and carry out such plans accordingly.</p>
8. Relatively low petroleum fuel prices will reduce interest in RE-based power generation	Low	<p>Preventive: The project's awareness raising interventions are expected to sustain the overall interest of the country in transforming their power generation system to RE-based systems even when the petroleum fuel prices are relatively low.</p> <p>Alleviative: In case petroleum fuel prices go down, the project will emphasize the need to take advantage of the energy, environment and economic benefits of RE, and the country's obligation towards the realization of its climate change mitigation targets in its NDC to ensure that the interest of the SIG in low carbon development is sustained</p>
Overall Level of Risk		Medium

5. Coordination: *Outline the coordination with other relevant GEF-financed and other initiatives:*

As previously mentioned, this proposed GEF project builds on the ongoing and planned rural electrification and RE and EE initiatives in the Solomon Islands. In that regard, the clear understanding of these initiatives of the SIG and other segments of the country towards the achievement of the rural electrification target is essential to the design and development of this proposed GEF project. To make use of the potential synergies with the ongoing and planned initiatives of the SIG and other project partners, adequate coordination work will be carried out. The coordination work is also to achieve complementarities and building on best practices and lessons learned; and for potential sharing of project resources.

- WB-funded energy and development projects that directly and indirectly support the country's rural electrification initiatives.
 - Electricity Access Expansion Project – *lessons learned that can be applied in the establishment and operation of RE-based mini-grid systems in off-grid areas*

- Solomon Islands Sustainable Energy Project – *capacity development activities in SIEA mini-grids in provincial centers*
- Solomon Islands Rural Development Program II – *capacity development activities linked to productive uses of RE-generated electricity in off-grid areas*
- SB Development of Community-based Renewable Energy Mini-Grids – *policy/regulatory activities for promoting investment in RE technologies and increases access to more affordable energy services in rural areas.*
- ADB-funded energy and development projects that also contributes directly and indirectly towards rural electrification in the country
 - Solar Power Development – *capacity development activities for SIEA in installation and operation of a grid-connected solar power plants*
 - Provincial Renewable Energy Project – *technical assistance activities for greater access to electricity for local residents, businesses and industry.*
- European Union EDF-11 – technical assistance in revenue generating activities supported by increased electricity access in rural areas.
- SIEA (Solomon Power) Projects – capacity development in the operation and maintenance of provincial mini-grids.

Establishing links and coordination with other implementers of related ongoing projects/programs (e.g., community-led/organized power generation projects) will help in identifying the relevant activities that will build on their respective achievements. The UNDP Pacific-Solomon Islands Office will be fully involved in the project development through its participation in the various stakeholder and co-financing consultation meetings and technical workshops during project development, and in the multipartite review meetings.

6. Consistency with National Priorities. *Is the project consistent with the National strategies and plans or reports and assessments under relevant conventions? (Yes ☒ / No ☐). If yes, which ones and how: NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, etc.*

The proposed project is for facilitating the achievement of the country's rural electrification target and contributes to the achievement of the % RE electricity target in 2030. In that regard, it is consistent with broad energy objectives and plans that are embodied in the National Development Strategy (2011-2020) and the draft 2014 Solomon Islands National Energy Policy and Strategic Plan. Since the global environmental impact of the project is the reduction of GHG emissions, this project is also in line with the achievement of the commitments set in the country's Nationally Determined Contributions (NDCs) particularly in specific actions and policies related to climate change mitigation actions.

7. Knowledge Management: *Outline the knowledge management approach for the project, including, if any, plans for the project to learn from other relevant projects and initiatives, to assess and document in a user-friendly form, and share these experiences and expertise with relevant stakeholders.*

Since barriers related to low level of awareness and lack of information regarding RE-based rural electrification schemes, and on RE and EE technologies in general, will be addressed in one specific component of the project, there will be several capacity development and knowledge management interventions that will be carried out. The knowledge management system that will be employed in this proposed GEF project will consists of the design, organization and conduct of training courses for pertinent personnel in the SIG and in the utilities sector, as well as those in the off-grid communities that will participate in the project activities. Coordination with the implementers of ongoing climate change and energy projects will be carried out to determine potential synergies in the knowledge management activities, particularly in the approach and methodologies that will be applied. For the project's knowledge management work, a team comprised of competent local and international experts will be


formed, and this team will work on information, communication and education activities that are aimed at enhancing the capacity of the local community people in the operation and management of RE-based rural electrification facilities. Part of the knowledge management interventions of the project is the establishment and operation of an information exchange network for the promotion and dissemination of knowledge on low carbon development within and outside of the country (including other PICs and SIDS). Part of the project activities will be the establishment and operationalization of a rural electricity supply and consumption monitoring and reporting, database to be housed in the ED/MMERE. This aspect of knowledge management, which involve the drawing on of information from a wide variety of sources, will be implemented, not only for the purpose of the country's energy planning but also to achieve an organized usage of knowledge about the energy situation in the country. This will be made possible through the information exchange network that will be established and operationalized under the project. With such network, data/information on lessons learned and best practices in the application of low carbon development techniques and practices, as well as implementation of sustainable energy and low carbon technologies specifically in small island settings, can be obtained from other PICs and SIDS, and applied to specific situations and localities in the country. The results of the project activities will also be disseminated to other PICs and SIDS through the information exchange network.

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

A. RECORD OF ENDORSEMENT¹⁶ OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S):

NAME	POSITION	MINISTRY	DATE
Chanel Iroi	Undersecretary & GEF Operational Focal Point	Ministry of Environment, Climate Change and Disaster Management	2 March 2017

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF policies¹⁷ and procedures and meets the GEF criteria for project identification and preparation under GEF-6.					
Agency Coordinator, Agency name	Signature	Date	Project Contact Person	Telephone	Email
Adriana Dinu UNDP/GEF Executive Coordinator		March 21, 2017	Manuel L. Soriano Sr. Tech. Advisor Energy, Infrastructure, Transport & Technology	+66-2-304- 9100 Ext 2720	manuel.soriano@undp.org

C. ADDITIONAL GEF PROJECT AGENCY CERTIFICATION (*Applicable Only to newly accredited GEF Project Agencies*): N.A.

¹⁶ For regional and/or global projects in which participating countries are identified, OFP endorsement letters from these countries are required even though there may not be a STAR allocation associated with the project.

¹⁷ GEF policies encompass all managed trust funds, namely: GEFTE, LDCF, and SCCF

Annex 1: Estimated Potential GHG Emission Reductions (Direct and Consequential)

	Rural Non-SEIA¹⁸	Honiara Non-SEIA¹⁹	Total Rural Sector
Ave. Annual Power Generation (2019-2022) ²⁰ , MWh	6,236.5	3,944.3	10,180.8
Ave. Annual Power Generation (2019-2032) ²¹ , MWh	8,955.5	5,663.9	14,619.4
Ave. Annual GHG Emission Reduction (2019-2022), tons CO2	4,901.9	3,100.2	8,002.1
Ave. Annual GHG Emission Reduction (2019-2032), tons CO2	7,039.0	4,451.8	11,490.8
Cumulative GHG Emission Reduction (2019-2032) ²² , ktons CO2	212.4	134.4	346.8
Cumulative GHG Emission Reduction (2019-2038) ²³ , ktons CO2	311.7	197.2	508.9

¹⁸ RE-based power generation only.

¹⁹ Assumes 35% of non-SEIA households using RE-based power generation influenced by the SPIRES Project.

²⁰ During SPIRES Project implementation period.

²¹ During 10 years influence period after the SPIRES Project closure.

²² Assumes average 20 years lifetime of installed RE-based power generation systems but considering only the timeline covering SPIRES Project implementation and influence period.

²³ Period covered is 20 years starting from first year of SPIRES Project.