GEF-6 REQUEST FOR PROJECT ENDORSEMENT/APPROVAL

PROJECT TYPE: Full-sized Project
TYPE OF TRUST FUND:GEF Trust Fund
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PART I: PROJECT INFORMATION

Project Title: Facilitation of the Achievement of Sustainable National Energy Targets of Tuvalu (FASNETT)			
Country(ies):	Tuvalu	GEF Project ID:[1]	9220
GEF Agency(ies):	UNDP	GEF Agency Project ID:	5613
Other Executing Partner(s):	Energy Department - Ministry of Public Utilities and Infrastructures	Submission Date: Resubmission Date:	13 Apr 2017 9 May 2017
GEF Focal Area (s):	Climate Change	Project Duration (Months)	48
Integrated Approach Pilot	IAP-Cities ☐ IAP-Commodities ☐ IAP-Food Security ☐	Corporate Program: SGP ☐	
Name of Parent Program	[if applicable]	Agency Fee ($)	250,774

A. FOCAL AREA STRATEGY FRAMEWORK AND OTHER PROGRAM STRATEGIES[2]

Focal Area Objectives & Programs	**Focal Area Outcomes**	**Trust Fund**	**(In $)**	
			GEF Project Financing	**Co-financing**
CCM-1 Program 1	Accelerated adoption of innovative technologies and management practices for GHG emission reduction and carbon sequestration	GEFTF	2,639,725	15,900,000
	Total Project Costs		2,639,725	15,900,000

B. PROJECT DESCRIPTION SUMMARY

Project Objective: Facilitation of the development and utilization of feasible renewable energy resources and application of energy efficiency technologies for achieving realistic energy targets in Tuvalu.

Project Components/ Programs	**Finance Type[3]**	**Project Outcomes**	**Project Outputs**	**Trust Fund**	**(In $)**	
					GEF Project Financing	**Confirmed Co-financing**
1. Awareness Raising on Renewable Energy and Energy Efficiency Applications	TA	1: Improved awareness and attitude towards sustainable renewable energy and energy efficiency technology applications in the public , commercial and energy sectors	1.1: Report on impact analysis of previous EE/RE capacity development activities. 1.2: Completed capacity needs assessment in the area of EE/RE applications 1.3: Completed design and implementation of suitable EE/RE capacity development programs for key stakeholder groups	GEFTF	251,400	1,508,000

[1] Project ID number remains the same as the assigned PIF number.
[2] When completing Table A, refer to the excerpts on *GEF 6 Results Frameworks for GETF, LDCF and SCCF*.
[3] Financing type can be either investment or technical assistance.

			1.4: Comprehensive evaluation report on implemented capacity building programs 1.5: Published and disseminated information on: (a) Sustainable EE & RE technology applications in island communities; (b) Results of project activities particularly from the EE/RE technology and commercial application pilots & demonstrations; (c) Formulated and approved policies and regulatory frameworks in support of EE/RE applications and low carbon development; and, (d) Mechanics of the established financing schemes. 1.6: Established and operational information exchange network and website for the promotion and dissemination of knowledge on low carbon development 1.7: Established and operationalized energy supply and consumption monitoring and reporting and data banking system analysis of previous EE/RE capacity development activities.			
2: Energy Policy Improvement, and Institutional Capacity Building	TA	2: Coherent and integrated implementation of enhanced policies, regulations and projects on energy development and utilization with the country's energy act in support of national economic development	2.1: Completed policy research, analysis and assessment on low carbon community development, as well as institutional mechanisms compatible to the Tuvaluan context 2.2: Recommended standards, policies and implementing rules and regulations (IRRs) on the promotion and application of EE/RE technologies, and financing schemes for EE/RE applications embodied in an energy bill based on completed researches as well as results of implemented low carbon (EE/RE)	GEFTF	502,900	2,516,000

			technology application demonstrations in Tuvalu and other similar SIDs 2.3: Formulated and enforced policies by well-informed legislators and administrators on the provision of energy services, including the publication and dissemination of guides and reference documents for the integrated energy planning and low carbon development in the context of Tuvalu 2.4: Enforcement of the institutional framework and guidelines that support the implementation of low carbon development policies, and IRRs 2.5: Adopted and enforced: (a) sustainable low carbon standards, policies, and IRRs; and (b) suitable institutional mechanisms that integrate low carbon development with the socio-economic, climate change and disaster management objectives of the country 2.6: Performance evaluation report on the adopted institutional framework and mechanisms 2.7: Approved follow-up and sustainability plan for the enforcement of consistent government development plans, policies and institutional framework and mechanisms on RE/EE applications			
3: Applications of Renewable Energy & Energy Efficiency Technologies & Techniques	TA	3.1: Enhanced energy utilization efficiency and development and application of feasible renewable energy resources in support of national economic development	3.1.1: Completed evaluation report on applicable LC development technologies including applicable RE sources and EE technologies that can be feasibly applied in the small island environment in Tuvalu	GEFTF	257,000	1,131,000

			3.1.2: Completed designs, plans of demonstrations of approved RE and EE technologies that promote and support LC development in the country 3.1.3: Successful demonstration of approved EE and RE technologies that promote and support LC development in the country and comparative evaluation report from monitoring of other existing RE/EE installations 3.1.4: Published energy performance and impact reports on implemented LC projects; including action plan for community-supported LC energy initiatives in island communities 3.1.5: Completed technical information packages and guidelines based on RE/EE project implementation experience for use in the capacity development program 3.1.6: Completed design and implementation plans for the replication of demonstrated successful LC energy projects			
	Inv	3.2: Increased application of viable climate resilient renewable energy and energy efficiency technology applications in the country	3.2.1: Completed and operational LC development technology application demos in accordance to established quality standards in pilot tropical coastal communities enhancing market opportunities for RE/EE applications 3.2.2: Implemented LC projects in selected communities	GEFTF	1,000,000	7,478,000
4: Financing of Renewable Energy and Energy Efficiency Initiatives	TA	4.1: Improved availability of, and access to, financing for climate resilient renewable energy and energy efficiency	4.1.1: Completed design and development of feasible inclusive financing models and schemes to facilitate financing of EE&RE projects.	GEFTF	102,800	514,000

			4.1.2: Completed capacity building to increase confidence of the existing banks (e.g., Development Bank of Tuvalu) and private sector on technical and financial viability of residential/ commercial climate-resilient EE and RE projects 4.1.3: Completed technical assistance services to financing scheme applicants			
	Inv	4.2: GoT, the financial sector and donor agencies providing accessible financing for climate resilient renewable energy and energy efficiency projects	4.2.1: Established and operational low carbon technology application support program. 4.2.2: Developed and recommended financing schemes for implementation and capitalization by the GoT and/or private sector financial institutions. 4.2.3: Completed evaluation and continuing enhancement of suggested financing policies and schemes for supporting initiatives on low carbon development.	GEFTF	400,000	2,000,000
Subtotal					2,514,100	15,147,000
Project Management Cost (PMC)[4]				GEFTF	125,625	753,000
Total Project Costs					2,639,725	15,900,000

C. CONFIRMED SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE

Please include evidence for co-financing for the project with this form.

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Amount ($)
Recipient Government	Ministry of Foreign Affairs, Trade, Tourism, Environment and Labor/Department of Environment	Grants	6,700,000
		In-kind	750,000
	Ministry of Public Utilities and Infrastructure/Energy Department	Grants	240,000
		In-kind	560,000
	Tuvalu Electricity Corporation (TEC)	Grants	7,350,000
		In-kind	50,000
GEF Agency	United Nations Development Programme	Grants	250000
Total Co-financing			15,900,000

[4] For GEF Project Financing up to $2 million, PMC could be up to10% of the subtotal; above $2 million, PMC could be up to 5% of the subtotal. PMC should be charged proportionately to focal areas based on focal area project financing amount in Table D below.

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

GEF Agency	Trust Fund	Country Name/Global	Focal Area	Programming of Funds	(in $)		
					GEF Project Financing (a)	Agency Fee a) (b)[2]	Total (c)=a+b
UNDP	GEF TF	Tuvalu	Climate Change		2,639,725	250,774	2,890,499
Total Grant Resources					2,639,725	250,774	2,890,499

a) Refer to the Fee Policy for GEF Partner Agencies

E. PROJECT'S TARGET CONTRIBUTIONS TO GLOBAL ENVIRONMENTAL BENEFITS[5]

Provide the expected project targets as appropriate.

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 (include both direct and indirect)	383,862 metric tons[6]

F. DOES THE PROJECT INCLUDE A "NON-GRANT" INSTRUMENT? No

(If non-grant instruments are used, provide an indicative calendar of expected reflows to your Agency and to the GEF/LDCF/SCCF Trust Fund) in Annex D.

PART II: PROJECT JUSTIFICATION

A. DESCRIBE ANY CHANGES IN ALIGNMENT WITH THE PROJECT DESIGN WITH THE ORIGINAL PIF[7]

The project conceptual design and the statement of Objective and Outcomes as presented in the GEF-approved PIF remain the same in the Project Document, except for some refinements/enhancements in the Output statements to improve the wording and logic and interrelationships of related outputs and activities. The justification of the changes is presented in the table below:

Expected Outputs		Rationale for Changes in PIF Outputs/Activities in the ProDoc
GEF-Approved PIF	Project Document	
	(Added) 3.1.3: Successful demonstration of approved EE and RE technologies that promote and support LC development in the country and comparative evaluation report	This is in view of the need to showcase practical RE and EE technologies and experiences learned in similar island countries that could be applicable to Tuvalu as a result of the PPG study on possible RE/EE projects (summarized in ProDoc Annex L). Since the selected RE/EE technologies to be demonstrated in Tuvalu have been applied and found feasible elsewhere, the activities that are designed to result to Output 3.1.3 will focus on ensuring success through systematic M&E on performance, maintenance and energy contribution so that results can be properly evaluated. The

[5] Update the applicable indicators provided at PIF stage. 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] *Based on the lifetime direct, direct post-project, and consequential (bottom-up approach) emission reductions from the RE and EE demonstrations covered under the FASNETT project.

[7] For questions A.1 –A.7 in Part II, if there are no changes since PIF, no need to respond, please enter "NA" after the respective question.

Expected Outputs		Rationale for Changes in PIF Outputs/Activities in the ProDoc
GEF-Approved PIF	Project Document	
	from monitoring of other existing RE/EE installations	findings and recommendations embodied in Output 3.1.3 will feed primarily into the Output 2.5 and Output 2.6 on support policy development and enforcement and the preparation of replication and follow-up plans Output 2.7.
Established and operational financing scheme for EE and RE projects Completed technical assistance services to financing scheme applicants (another output in the TA group of outputs as in PIF)	*(Combined and reworded)* Output 4.2.1: Established and operational low carbon technology application support program)	This reworded output statement now rightly belongs under the INV (investment-related) outputs since it focuses on a support program for LC investments of financing scheme applicants.
	(Added) Output 4.2.2: Developed and recommended financing schemes for implementation and capitalization by the GoT and/or private sector financial institutions	This will improve the logic of the framework of the outputs resulting to the Outcome 4 on financing LC applications. Considering that there are ongoing financing programs being implemented already in the country and the felt need currently, the activity that will result to Output 4.2.2 will focus on the conduct of technical and management advisory services to the Development Bank of Tuvalu and other financial institutions in the establishment and operationalization of the financing scheme(s) that the FASNETT project will facilitate by integrating experiences and lessons with the recommended strategic financing approaches in accelerating the adoption of LC technologies.

A.1. *Project Description*.

Global Environmental Problems, Root Causes and Barriers that need to be addressed

N.A. The project conceptual design, problems, root causes, and barriers as presented in the GEF-approved PIF remain the same in the Project Document.

Baseline Scenario or any associated Baseline Projects

The status of baseline projects stated in the PIF and the other projects of TEC lined up to be baseline projects for FASNETT were updated and the relevant activities and outputs were also identified during the PPG as to which baseline inputs can be subsumed in the FASNETT Project, as explained below:

Project	Status and Accomplishment as of September 2016 *(and what is subsumed in FASNETT)*
World Bank – The Tuvalu Energy Sector Development Project (TESDP)	Installation of the 925 kWe solar PV systems, the 200 KWe wind farm, the 1,000 KWh battery storage systems, the prepayment metes and equipment for telecom are programmed for early 2017 under TEC. *(Activities involving the installation of the solar PVs and battery systems, the installation and use of pre-payment meters, and the installation of communication systems)*
New Zealand Aid - Tuvalu Renewable Energy Project (TREP)	Installation of 1.03 MW solar PV systems with battery storage in various locations at Vaitupu (410 kW), Niutao (232 kW), Nanumaga (205kW) and Nanumea (195kW). It also funded the 170kW solar PV grid-connected system on the main Government office building and the Tuvalu Media Building. *(Operation and performance monitoring of installed systems.)*

UAE-Pacific Partnership ADFD Grant Fund – Pacific Regional RE Project	Installation of a 500 KW solar PV power plant in Funafuti in 2015 being operated by TEC consisted of 350Kw (TEC compound), 75 Kw (Princess Margret Hospital) and 75kW (Marine Warehouse). As of 3rd quarter 2016, the systems have generated a total of 447,666 KWh. *(Operation and performance monitoring of installed systems.)*
EDF-11 Funds - National Indicative Programme for Tuvalu	Installation of solar PV systems in the three small islands of Nukufetau, Nukulaelae and Nui is ongoing. *(Operation and performance monitoring of installed systems.)*
EU/New Zealand Partnership - Reliable Access to Modern Energy Services through Solar PV for rural areas	Installation of solar PV systems at Nukulaelae (45 KW), Nukufetau (87 KW) and Nui (70 KW) in 2016 with the three systems having generated a total of 228,493 KWh as of 3rd quarter 2016. The leftover funds of this project will be utilized to increase the installed capacity by 10 kW each the power generation systems for the three islands and to provide for security fencing for the facilities. *(Operation and performance monitoring of installed systems.)*
Development of Bank of Tuvalu EE Subsidy Scheme	Ongoing implementation of the scheme. *(Enhancement and continued implementation of the scheme.)*
UNDP-SIDS DOCK Demo EE Fale Project	Completed project construction phase. *(Capacity development in the operation and maintenance of the facilities)*

Elaboration of the Proposed Alternative Scenario

As explained above, the baseline activities of the country will only achieve a portion of the 100% RE target. Incremental activities consisting of necessary interventions have to be carried out to reach the target. It is also time to review the feasibility of the set target in the light of present circumstances. The combination of the baseline and incremental activities will bring about the realization of an alternative scenario which features the realization of the committed targets. The proposed project will bring about this alternative scenario wherein there will be enhanced utilization of feasible RE resources and optimal and efficient utilization of energy for supporting of socio-economic development, to contribute to the realization of the country's energy targets.

The 0% growth assumption throughout 2020 that is being assumed previously by TEC needs to be updated. In fact, based on the data provided by TEC, the year-to-year growth in electricity consumption for the period from 2012-2015 (which was part of the period estimated at 0% growth scenario) has been higher than estimated in the Energy Master Plan and has averaged 4.8%

The forecasted consumption for 2016, based on the January-September 2016 data, also provided by TEC, is expected to grow about 20% compared to 2015. The main reason for this extremely high growth is due to the fact that while between 2015 and 2016 many new PV plants have been installed and are now operating at full capacity providing air conditioning to all public offices. Efforts aiming to improve the electricity consumption efficiency have not been as aggressive.

This aggressive growth is not expected to continue for the future, therefore, the conservative 2% growth, matching Tuvalu's GDP growth, has been considered starting from 2017, and until 2025, but only for Funafuti. For the Outer Islands a more aggressive and perhaps realistic 4% annual growth rate has been considered to take into consideration that the outer islands only account for 15% of the total electricity consumption in Tuvalu and their inhabitants are more likely to acquire more appliances similarly to Funafuti.

The growth estimate should be completely revised if the GoT decides to convert the entire motor-vehicle fleet in Tuvalu to electric vehicles. The energy growth rate estimates and energy demand growth are discussed in more detail in Annex K on possible RE contributions, energy savings and GHG emission reduction estimates.

The proposed GEF project builds on, and incorporates relevant enhancements to the abovementioned baseline projects. The following were considered to be incremental projects that the proposed project focuses on:

- Load management control systems in TEC power generation facilities (in Funafuti and in outer islands) for optimal dispatch of the diesel power gensets in conjunction with the solar PV power generation units;

- EE investments in institutional buildings, e.g., air conditioning system in government building, EE retrofits in hospital;

- TNEP updating and integrated planning towards developing a comprehensive national energy plan and fully supported by policies and institutional support that will be embodied in an Energy Act including RE and EE program development, implementation and penetration into a the predominantly petroleum–based energy supply mix from the baseline scenario.

- Additional RE generation capacities and EE technology applications towards the 100% CO2 reduction goal by 2025 as committed in country's Nationally Determined Contributions (NDC)[8]

- Assessment and demonstration of solar thermal systems (for water desalination);

- Finacial incentives for EE projects of households and businesses, particularly for features that will be showcased in the UNDP SIDS DOCK EE Demo House project such as replacement of old, inefficient refrigerators and freezers; and additional pre-payment meters;

- Development of biogas energy systems in the households in Funafuti and outer islands as well as biomass energy systems, as maybe feasible, e.g. biogas to replace electric cooking and heating in commercial and small industry applications that could reduce electricity demand and other possible; appropriate demand side management activities for the residential and commercial sectors.

- Development and demonstration of other future RE systems such as floating Solar PV generating plants, wind energy systems, bio-fuels for diesel gensets, and others as maybe found practical and feasible in Tuvalu

- Taking into consideration in the overall electricity demand the planned conversion of some modes in the transport sector to electricity-driven vehicles (EVs)

- Policy development work on RE/EE applications particularly in line with socio-economic development in the outer islands;

- Technology support, access to financing, awareness, and capacity development for RE/EE projects.

The additional RE and EE projects that will be implemented as incremental projects to be influenced directly by the FASNETT interventions will be added together with the above-mentioned Baseline Projects and the whole becomes the Alternative Scenario for the project duration 2017-2020 and beyond up to 2025 – 2030. Thus, the realization of this scenario that will be facilitated by FASNETT will also be the situation to achieve the country's overall goal of 100% GHG reduction through RE/EE applications and in the process displacing the diesel-based power generation by 2025. Figure 1 illustrates this energy scenario of reducing the petroleum-based generation.

Elaboration of the Strategy

[8] Tuvalu signed and ratified the Paris Agreement on 22 April 2016.

During the PPG phase, the application of several RE technologies was considered as demos under the FASNETT project. These included solar PV, concentrating solar power generation, electricity generation from biomass combustion or gasification, and other similar technically and economically feasible RE technologies that are existing in the region. Some RE technologies that are still in the developmental stage have not been considered for various reasons. Since other RE technologies, such as ocean thermal energy, tidal energy, and other similar technologies that may have potential in terms of resources, do not offer any substantial economic advantage over the existing ones which are mostly solar PV. Therefore, the project strategy is to use a mix of technologies that have already been proven or included in energy plans in Tuvalu or in other similarly-situated Pacific island countries in view of the country's 100% RE electricity target. The proposed power generation mix for the country is composed of the following: solar PV installations, wind energy farms, battery storage and back-up bio-diesel generators. Since the previous and current energy efficiency improvement efforts have not been enough to bring down petroleum-based electricity demand, additional EE-related activities and programs have to be carried out. The possible RE and EE technology options for Tuvalu, classified as: (a) for commercial adoption; and, (b) for demonstration for coverage by the FASNETT project, as determined during the FASNETT project development phase.

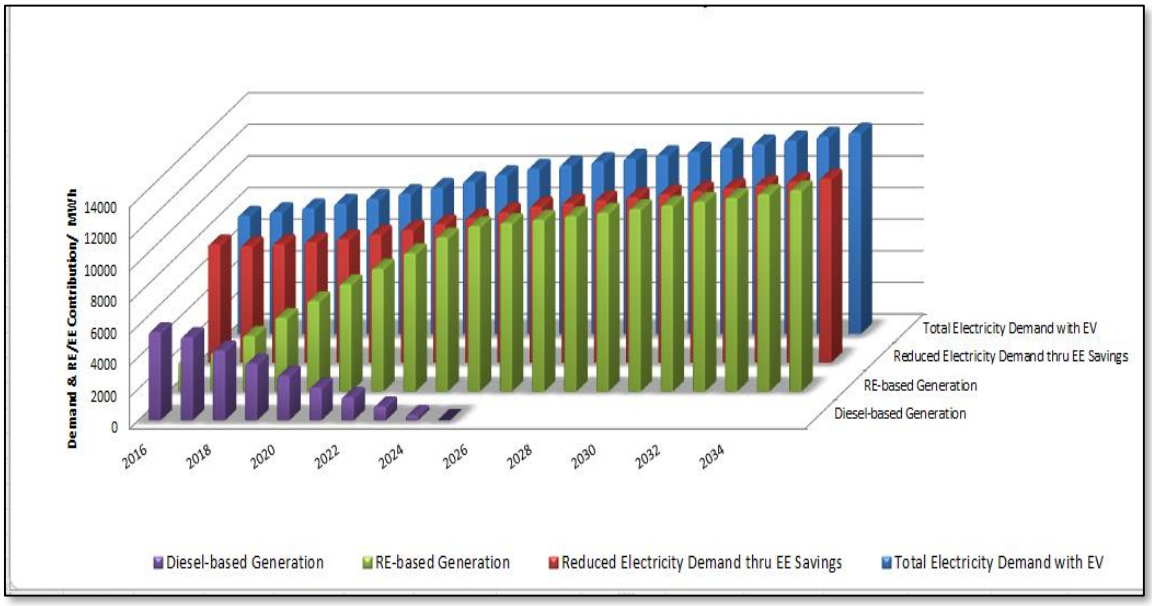

Figure 1: Reduction of Annual Petroleum-based Electricity Demand to 0% by 2025 through the penetration of RE-based Generation and EE Savings Contribution

A. For commercial adoption

RE Applications

- Solar PV systems
- Wind energy generators
- Solar water heaters (SWH) for domestic, commercial and industrial use to substitute for electric water heaters.
- Hybrid power generation systems such as wind/PV hybrid power system for charging backup batteries at several remote sites and wind/PV/diesel hybrid power systems specifically designed for power generation.
- Biomass, biogas, improved cook stoves, bio-diesel and other bio-energy systems that have been found practical
- for PICs that present fuel substitution possibilities in heating applications and electricity generation to bring down petroleum-based electricity generation.

Although a number of small-scale rural RE-based electrification projects have been carried out in Tuvalu over the last two decades, their impacts have been minimal since they are mostly donor-funded equipment-based demonstrations; some are non-operational now and lack real private sector participation. The Tuvalu Government understands the benefits of developing and utilizing available the RE resources. However, the more widespread utilization and application of RETs is constrained by many closely interrelated and intertwined barriers but will be resolved by the interventions that will be carried out in FASNETT.

EE Applications

In addition to current EE initiatives in Tuvalu, the project also includes EE activities on the development and implementation of energy efficiency policies, institutional and financial support for initiatives in the following:

- Application of EE technologies for increased demand-side energy efficiency and smart metering systems; and,
- Development and implementation of actions towards increased capacity to replace or modify inefficient power generation systems

B. For Demonstrations

The Project will demonstrate proven successful applications of RE and EE technologies in PICs and other SIDS. This program will showcase applicable RE and /EE technologies that can be adopted and replicated in Tuvalu. Based on the study done during the PPG phase, the following RE and EE technology application projects will be demonstrated under FASNETT:

RE Application

- Floating 100 kWe solar PV power generation – This can be scaled-up to 2 MWe, and can potentially serve a significant portion of Funafuti's electricity demand
- Off-grid solar PV desalination – This generates solar PV electricity which is used to desalinate sea water for the outer islands, e.g. the smallest of Tuvalu's island, Niulakita.

EE Application

- Financial incentive mechanism for replacement programs for old, inefficient household and commercial appliances and equipment, e.g. refrigerators, freezers, lights, and other major electricity-consuming devices to more efficient models through incentives and rebate schemes following regulations on EE standards and labeling.
- Demand management/response system to augment existing facilities in TEC's Demo EE Fale to provide assistance in coming up with updated load demand, technology choice and investment planning.for PICs that present fuel substitution possibilities in heating applications and electricity generation to bring down petroleum-based electricity generation.

FASNETT Goal, Objectives, Outcomes and Outputs

N.A. The statement of the project's goal, objective, outcomes, components and outputs as presented in the GEF-approved PIF remain the same in the Project Document. The project activities that will be carried out under each component to deliver the expected outcomes and outputs are described in detail in the Project Document and support the GEF funds and co-financing contributions that have been earmarked in the PIF.

A.2. Child Project? NO

A.3. Stakeholders. Identify key stakeholders and elaborate on how the key stakeholders engagement is incorporated in the preparation and implementation of the project. Do they include civil society organizations (yes ☐ /no☒)? and indigenous peoples (yes ☐ /no☒)? [9]

The project will follow a participative approach and inclusive strategy for engagement of all stakeholders not only in achieving the energy but also the social and environmental impacts of the project consistent with Tuvalu's development objectives.

The main stakeholders of this project are the Energy Department - Ministry of Public Utilities and Infrastructure (ED/MPUI), the Department of Environment and the Tuvalu Electricity Corporation (TEC). The other stakeholders are those involved in public works and infrastructures, water and sanitation, and the banks/financial institutions.

1) Energy Department - Ministry of Public Utilities and Infrastructure (ED/MPUI) - Lead agency for the implementation of RE/EE projects in the government, islands, and private sector and the overall implementation and management of the project including communication and coordination with MOF and UNDP, providing staff and administrative support, liaison with local governments, project management and monitoring and project financial management.

2) Department of Environment – Ministry of Foreign Affairs, Trade, Tourism, Environment and Labor MFATTEL/DOEn) - Provision of technical support and assistance in the implementation of demonstrations for the promotion of the application of RE/EE technologies and provision of data inputs on plans and programs of the country concerning donor funded sustainable and environment-friendly energy projects.

3) Tuvalu Electricity Corporation (TEC) – This is the state-owned (100% GoT-owned) national power utility. It will assist the ED/MPUI in the management and implementation of the project. Considering its primary role in the country's electricity sector, specifically, it will take charge of the implementation of project activities involving the demonstrations of EE and RE technology applications in electricity generation systems, and in the promotion of measures for the efficient and conserving use of electricity in households and businesses.

4) Department of Rural Development - Coordination, communication and provision of data for the implementation of project activities in selected islands, liaison with island Kaupules (councils) and Falekaupule in the design and implementation arrangements for the demonstration activities on islands, sustainable livelihood and community mobilization

5) NGO, Social community and the other social/civic groups - Provision of assistance in the identification and analysis of barriers to the application of RE/EE in village development. Provision of advice in the implementation of the barrier removal activities of the project and participation of socio-civic groups in project activities.

6) Island communities and households - Provision of assistance in the identification and analysis of barriers to the application of RE/EE in village development and engagement of community leaders. Provision of advice in the implementation of the barrier removal activities of the project

7) Kaupules (outer islands local councils) - Assistance in the implementation of the relevant activities in the project demonstration, replication activities, operation and maintenance, resource mobilization and engagement of local government.

[9] *As per the GEF-6 Corporate Results Framework in the GEF Programming Directions and GEF-6 Gender Core Indicators in the Gender Equality Action Plan, provide information on these specific indicators on stakeholders (including civil society organization and indigenous peoples) and gender.*

8) Department of Gender, Tuvalu National Council of Women - Provision of advice on the gender-sensitive implementation of capacity development activities of the project, including the involvement of women in the implementation of demonstration activities and sustainable RE-based livelihood and energy conservation.

A.4. Gender Equality and Women's Empowerment. Elaborate on how gender equality and women's empowerment issues are mainstreamed into the project implementation and monitoring, taking into account the differences, needs, roles and priorities of women and men. In addition, 1) did the project conduct a gender analysis during project preparation (yes ☐ /no☒)?; 2) did the project incorporate a gender responsive project results framework, including sex-disaggregated indicators (yes ☒ /no☐)?; and 3) what is the share of women and men direct beneficiaries (women 50 %, men 50%)? [10]

The Government of Tuvalu, recognizing the benefits of gender mainstreaming, has issued the Tuvalu National Gender Policy which includes the Strategic Action Plan 2014-2016[11] that focuses on four key policy measures: Institutional strengthening and capacity building, Women's economic empowerment, Women in decision-making and Ending violence against women as a result of the stock taking and analysis in 2013. The FASNETT project development has referred to this policy and guiding framework for multi-sectoral engagement and partnerships towards the overarching goal of gender equality and empowerment of women, with particular contribution through application of RE/EE technologies in community-based projects. During the project implementation, updates on relevant gender mainstreaming policy and guidelines shall be incorporated in the Project's action plans and strategies.

Therefore, the proposed GEF project presents opportunities for the involvement of women working in both management and technical departments of the Tuvaluan Government agencies/institutions who can play important roles in the design, development and implementation of the proposed UNDP-GEF project. Potential opportunities to further assess and enhance the role of women in deployment of low carbon technologies and mitigation options, and come up with gender-sensitive policies in the energy sector and the energy end-use sectors of the country will be done, recognizing the possible contributions of women in the management and implementation of climate change mitigation measures, for example, their participation in projects that will promote or enhance women-owned and women-operated businesses that will make use of RE-based energy, or energy efficient appliances. Furthermore, the implementation of the project will also take into account, whenever possible, the contributions, impacts and benefits of community-based EE and RE technology applications, including children and indigenous people.

The cost involved in undertaking the gender-related activities are already subsumed in the GEF and co-financed budgets of the Project activities.

A.5 Risk.

There were some identified risks that could affect the realization of the outcomes and objective of the project. Therefore the project was also designed to address these risks to mitigate their effects. As per standard UNDP requirements, the Project Manager will monitor risks quarterly and report on the status of risks to the UNDP Country Office. The UNDP Country Office will record progress in the UNDP ATLAS risk log. Risks will be reported as critical when the impact and probability are high (i.e. when impact is rated as 5, and when impact is rated as 4 and probability is rated at 3 or higher). Management responses to critical risks are discussed and will also be reported to the GEF in the annual PIR.

A.6. Institutional Arrangement and Coordination.

[10] Same as footnote 7 above.

[11] Tuvalu National Gender Policy (2014-2016) and Stock take of the Gender Mainstreaming Capacity of Pacific Island Governments – Tuvalu by the Secretariat of the Pacific Community (2013).

The project will be implemented and managed following UNDP's national implementation modality (NIM) according to the Standard Basic Assistance Agreement (SBAA) between UNDP, the Government of Tuvalu and the Country Programme), but supplemented by UNDP Country Office (CO) support arrangement covered by applicable guidelines and manual of procedures for such arrangements.

The Implementing Partner (IP) for the FASNETT project is the Government of Tuvalu (GOT) represented by the Energy Department (ED) under the policy umbrella of the Ministry of Public Utilities and Infrastructure (MPUI). The IP is responsible and accountable for managing this project, including the monitoring and evaluation of project interventions, achieving project outcomes, and for the effective use of UNDP resources. Specifically, the IP oversees the management and delivery of project activities to achieve specified results including the procurement and delivery of UNDP program activity inputs and their use in producing outputs, as set forth in the signed FASNETT Project Document between UNDP and the GOT. It will designate a Responsible Party that will take charge of the project operations, under its supervision.

The ED/MPUI will engage the Tuvalu Electricity Corporation (TEC) following the government rules and regulations, to act on its behalf as Responsible Party. This will be done through a written agreement or contract defining specific roles, duties and responsibilities using the project budget consistent with project goals and objectives defined in the Project Document.

The project team will also coordinate with the relevant departments and agencies of the government of Tuvalu on the implementation of their relevant ongoing/planned program particularly in the implementation of some of their activities that have needs for energy supply and conservation. As designed, this is not only meant to make use of potential synergies, and ensure complementarity and building on best practices and lessons learned but also to enhance these with the inclusion of incremental activities on the facilitation of the delivery of services specially in the outer islands..

Additional Information not well elaborated at PIF Stage:

A.7 *Benefits.*

Since this project is also within the context of sustainable development in Tuvalu, it will bring about local benefits mainly through contributions to: (1) improvement of the living conditions of Tuvaluans particularly in the outer islands and allows them to contribute more productively to the economy; (2) protection of the natural environment; (3) improvement in the welfare and well-being of women and children, (4) diversification of the resource base of the economy; and, (5) strengthening of the balance of payment position of the country since the gradual substitution of fossil energy generation by indigenous RE resources will contribute to improvement in the country's foreign exchange reserves due to reductions in petroleum products import bill.

The abovementioned socio-economic benefits would ensure the continuity of the low carbon development efforts that the FASNETT Project will bring about. Experiencing these benefits would encourage them to continue further the changes that they have done as influenced by the promotional campaigns, successful demonstrations that the project will deliver, as well as the capacity development activities that will be implemented. These benefits will serve as evidences/proofs that the low carbon technologies/techniques and practices that will be implemented and showcased are not only applicable but will also bring about energy savings but also the associated global environmental benefits (GEBs), which would come from GHG emission reductions from the displacement of diesel fuel oil in electricity generation with the installation of RE-based power generation units, and from other fossil fuel substitutions using available feasible renewable energy resources.

A.8 *Knowledge Management.*

Considering the current capacity of the country in designing and implementing EE and RE projects, the knowledge management system that will be employed in the project will consist of the conduct of training courses for pertinent personnel in the energy and utilities sector, as well as those in the outer island communities. There will be special mentoring sessions for specific group of staff who will be carrying out the operations and maintenance of the various demo/pilot installations that are part of the project. These mentored staff will form the cadre of in-house experts in the TEC and ED/MPUI. Under this project, an information exchange network will be established and operationalized for the promotion and dissemination of knowledge on low carbon development within and outside of the country (including other PICs and SIDS). Moreover, as part of the design, establishment and operationalization of an energy supply and consumption monitoring and reporting, database development and maintenance will be carried out. 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 EE and RE 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 (e.g., EE/RE technology applications) will also be disseminated to other PICs and SIDS through the information exchange network.

Thus, the primary emphasis of the FASNETT knowledge management and communication strategy is to enhance the tools to capture processes, lessons and results of country level demonstrations, the experience of its partners, and enhance sharing and dissemination via innovative knowledge management and communication through tri-media or internet-based information exchange tools linked to FASNETT project network. The KM reports and outputs that will be produced during project implementation include: lessons learned reports, briefing notes, concept notes, how-to technical guides, newsletter, technical papers on best available practices and technologies on RE/EE applications and such advocacy information packages as deemed appropriate and practical in the Tuvalu small-island situation. These are fully covered by the GEF funds and co-financing inputs.

B. Description of the consistency of the project with:

B.1 *Consistency with National Priorities.* Describe the consistency of the project with national strategies and plans or reports and assessments under relevant conventions such as NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, etc.:

The proposed project is consistent with Tuvalu's National Energy Plan (NEP), and is actually meant to facilitate the realization of the 2020 RE and EE targets of the country as set in the NEP. It is also in line with the country's Second National Communications to the UNFCCC, particularly in specific actions and policies related to RE and EE applications in supporting economic and social development. Specifically, the project is in accord with the country's Renewable Energy and Energy Efficiency Master Plan (REEMP). The proposed project is fully consistent with the country's national strategies and will contribute to the achievement of the national energy saving and the achievement of its climate change mitigation commitments, as stated in its Nationally Determined Contributions (NDC).

C. DESCRIBE THE BUDGETED M&E PLAN:

There will be continuous and regular monitoring and evaluation of the implementation of all project activities towards achieving the expected outputs and outcome. This M&E work is in line with the UNDP/GEF monitoring and evaluation (M&E) system. A formal M&E Plan will be adopted during the

project inception corresponding to a full-scale project to track the activities and contributions of the activities by all the project partners, in terms of both in-cash and in-kind co-financing contributions to augment the GEF funds. These M&E findings will be reported on in the project's two in-depth independent reviews during the mid-term and towards the end of the project.

GEF M&E requirements	Primary responsibility	Indicative costs to be charged to the Project Budget[12] (US$)		Time frame
		GEF grant	Co-financing	
Inception Workshop	UNDP Country Office	5,000		Within two months of project document signature
Inception Report	Project Manager	None	10,000	Within two weeks of inception workshop
Standard UNDP monitoring and reporting requirements as outlined in the UNDP POPP	UNDP Country Office	None	None	Quarterly, annually
Monitoring of indicators in project results framework	Project Manager	16,000		Annually
GEF Project Implementation Report (PIR)	Project Manager and UNDP Country Office and UNDP-GEF team	None	5,000	Annually
NIM Audit as per UNDP audit policies	UNDP Country Office	16,000		Annually or other frequency as per UNDP Audit policies
Lessons learned and knowledge generation	Project Manager			Annually
Monitoring of environmental and social risks, and corresponding management plans as relevant	Project Manager UNDP CO	None		On-going
Addressing environmental and social grievances	Project Manager UNDP Country Office BPPS as needed	None for time of project manager, and UNDP CO		
Project Board meetings	Project Board UNDP Country Office Project Manager			At minimum annually
Supervision missions	UNDP Country Office	None[13]		Annually
Oversight missions	UNDP-GEF team	None[13]		Troubleshooting as needed
Knowledge management	Project Manager	10,000	5,000	On-going
GEF Secretariat learning missions/site visits	UNDP Country Office and Project Manager and UNDP-GEF team	None		To be determined.
Mid-term GEF Tracking Tool to be updated by (add name of national/regional institute if relevant)	Project Manager	10,000	5,000	Before mid-term review mission takes place.
Independent Mid-term Review (MTR) and management response	UNDP Country Office and Project team and UNDP-GEF team	25,000		Between 2nd and 3rd PIR.

[12] Excluding project team staff time and UNDP staff time and travel expenses.

[13] The costs of UNDP Country Office and UNDP-GEF Unit's participation and time are charged to the GEF Agency Fee.

GEF M&E requirements	Primary responsibility	Indicative costs to be charged to the Project Budget[12] (US$)		Time frame
		GEF grant	Co-financing	
Terminal GEF Tracking Tool to be updated by (add name of national/regional institute if relevant)	Project Manager	10,000	5,000	Before terminal evaluation mission takes place
Independent Terminal Evaluation (TE) included in UNDP evaluation plan, and management response	UNDP Country Office and Project team and UNDP-GEF team	25,000		At least three months before operational closure
Translation of MTR and TE reports into English	UNDP Country Office			
TOTAL indicative COST Excluding project team staff time, and UNDP staff and travel expenses		**127,000**	30,000	

PART III: CERTIFICATION BY GEF PARTNER AGENCY(IES)

A. RECORD OF ENDORSEMENT[14] OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S):

NAME	POSITION	MINISTRY	DATE
Mataio Tekinene	GEF Operational Focal Point, Director: Dept. of Environment	Ministry of Foreign Affairs, Trade, Labor & Environment (MFATLE)	13 March 2015

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF policies[15] and procedures and meets the GEF criteria for CEO endorsement under GEF-6.

Agency Coordinator, Agency Name	Signature	Date	Project Contact Person	Telephone	Email Address
Adriana Dinu UNDP-GEF Executive Coordinator		May 9, 2017	Manuel L. Soriano Sr. Technical Advisor Energy & Climate Change	+66-2-3049100 ext 2720	manuel.soriano@undp.org

[14] 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.

[15] GEF policies encompass all managed trust funds, namely: GEFTF, LDCF, and SCCF

ANNEX A: PROJECT RESULTS FRAMEWORK (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).

This project will contribute to the following Sustainable Development Goal (s): *SDG #7-* Ensure access to affordable, reliable, sustainable and modern energy for all					
This project will contribute to the following country outcome included in the UNDAF/Country Programme Document: *Area #1: Environmental management, climate change and disaster risk management;* **O***utcome 1.1: By 2017 the most vulnerable communities across the PICTs are more resilient and select government agencies, civil society organizations and communities have enhanced capacity to apply integrated approaches to environmental management, climate change adaptation/mitigation, and disaster risk management*					
This project will be linked to the following output of the UNDP Strategic Plan: Output 1.5: Inclusive and sustainable solutions adopted to achieve increased energy efficiency and universal modern energy access (especially off-grid sources of renewable energy)					
Strategy	**Objective and Outcome Indicators**	**Baseline**	**Mid-term Target**	**End of Project Target**	**Assumptions**
Project Objective: Facilitation of the development and utilization of feasible renewable energy resources and application of energy efficiency technologies in Tuvalu for achieving realistic energy targets in Tuvalu[16]	% share of RE in the national power generation mix[17]	*26%*	*44%*	*67%*	Regional oil prices will be at levels that make RE/EE still competitive and cost-effective
	Cumulative GHG (CO_2) emission reduction from power generation, tons CO_2	*nil*	*5,000*	*15,000*	
	No. of women actively involved in the planning and implementation of energy services provision in the outer islands	*0*	*5*	*10*	Acceptance from community on RE/EE application
Outcome 1 Improved awareness and attitude towards sustainable RE & EE technology applications in the public[2], commercial and energy sectors	No. of communities that are capable of organizing, planning, designing, implementing, operating and maintaining RE-based power generation systems.	*0*	*2*	*4*	Acceptance from community on RE/EE application
	No. of households, schools, public buildings and commercial establishments that are using low carbon technologies (by RE- and EE-based energy systems)[18]	*396*	*400*	*410*	

[16] In November 2015, the Government of Tuvalu submitted its Intended Nationally Determined contributions (INDC) to UNFCCC, updating the goal set in the country's 2009 National Energy Policy (NEP), that now sets out the objective to reduce emissions of greenhouse gases from the **electricity generation** (power) sector, **by 100%, i.e., almost zero emissions by 2025** through the use renewable energy sources and energy efficient technologies. With the current economic development situation in the country and the actions that are ongoing and are being planned towards the achievement of this target, the project will re-evaluate the target to either confirm or reset it to a more realistic level that can be achieved by 2020 within the timeframe of this four-year project, and facilitate the achievement of target through the removal of barriers or filling of the gaps that would bridge the achievement of said RE target by 2020. In this project, both energy efficiency and renewable energy technology applications will be enhanced in supporting the economic development of the country and minimizing GHG emissions.

[17] As an important benefit in the increasing share of the RE and EE contribution, the cost saving in imported oils should also be monitored and reported.

[18] This also includes those that are directly investing their own resources in implementing low carbon technologies (RE & EE).

Outcome 2 **Coherent and integrated implementation of enhanced policies, regulations and projects on energy development and utilization with the country's energy act in support of national economic development**	No. of planned RE & EE projects benefiting from the policies and regulations supported by the Energy Act[19]	*0*	*50*	*100*	Political stability of the country is sustained
Outcome 3 **3.1 Enhanced energy utilization efficiency and development and application of feasible renewable energy resources in support of national economic development**	No. of companies adopting the established standards in supplying or producing RE/EE system equipment or component parts	*0*	*1*	*2*	Regional oil prices will be at levels that make RE/EE still competitive and cost-effective
	% users of RE/EE system equipment and component parts that are satisfied with the quality, cost and operating performance of these items	*0*	*25*	*80*	
3.2 Increased application of viable climate resilient renewable energy and energy efficiency technology applications in the country	Increased no. of low carbon technology projects (new, or replication, or scale-up)	*16*	*20*	*26*	Acceptance from community on RE/EE application
Outcome 4 **4.1: Improved availability of, and access to, financing for climate resilient renewable energy and energy efficiency**	No. of established and operational financing schemes for RE/EE projects	*0*	*1*	*2*	Financing institutions will continuously support RE/EE projects
	No. of private sector RE/EE projects financed by commercial banks and/or by the private sector	*0*	*1*	*2*	
4.2: GoT, the financial sector and donor agencies providing accessible financing for climate resilient renewable energy and energy efficiency projects	Increase in government budget for low carbon technology-based projects, US$	*0*	*200,000*	*400,000*	Regional oil prices will be at levels that make RE/EE still competitive and cost-effective

[19] Close monitoring of the progress in the enactment process, e.g. number of parliamentarians endorsing the approval and enforcement of the Energy Act and other pertinent indicators shall be done with the objective of passing the act within the two years of project implementation as much as possible.

ANNEX B: RESPONSES TO PROJECT REVIEWS (*from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).*

Responses to GEF Council Member (Germany) Comments – 13 October 2015

Germany welcomes the holistic project proposal which aims at facilitating the achievement of the national energy target of Tuvalu. As other SIDS-state, Tuvalu has set an ambitious national target to produce 100% of its electricity from renewable energy by 2020.

Comment	Response
Suggestions for improvements to be made during the drafting of the final project proposal:	
As many other SIDS and Pacific Islands Countries (PICs) have set similar national energy targets (e.g. Fiji plans to convert to 100 percent renewable energy by 2013, while the Cook Islands and Niue are aiming for 100 percent electricity generation from renewable sources by 2020, see also Barbados Declaration), a close coordination and exchange of information is crucial to maximize synergies in both phases, the successful preparation of the final project document as well as for the implementation of the project. In the same vein, the project proposal may benefit from depicting further related and relevant initiatives in other SIDS/ PICs and the role the Secretariat of the Pacific Regional Environment Programme (SPREP) of which Tuvalu is a member may play in achieving the set targets.	Among the activities of the FASNETT project is the conduct of research studies on policies and measures on low carbon development (LCD) that were considered and implemented in other SIDS/PICs and their impacts. This presents an opportunity for Tuvalu to work in synergy with the other PICs that are also currently working on achieving their set and committed %RE electricity production, particularly in the formulation and recommendation of applicable standards, policies and implementing rules and regulations (IRRs) on the promotion and application of EE/RE technologies, and financing schemes for EE/RE applications. Moreover, among the project activities is the establishment and operationalization of an information exchange network for the promotion and dissemination of knowledge on LCD within and outside of the country (including other PICs/SIDS). With such network, data/information on lessons learned and best practices in the application of LCD techniques and practices, as well as implementation of EE and RE 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 (e.g., EE/RE technology applications) will also be disseminated to other PICs/SIDS through the information exchange network. The presence of regional organizations in the Pacific such as SPREP and SPC can be tapped in the design and/or implementation of specific activities of the project that could benefit from their respective institutional expertise and comparative advantages.
The project proposal addresses many of the stated barriers. However, the project proposal could be strengthened by focusing on and narrowing the scope to some of the barriers and by depicting more clearly how these are complementary to the activities already in place.	Agree. FASNETT is intended to facilitate the achievement of the set %RE electricity target of Tuvalu. It will do this through the removal of barriers that hinder the country in carrying out the government's planned actions and measures to realize such target. It will build on the ongoing activities in the country that are also addressing such barriers. In this regard, the proposed project will build on, and incorporate relevant enhancements to the ongoing

	activities on the ground (i.e., baseline projects). Building on the baseline projects will be done by: (1) working on specific aspects that are/will not be covered by the ongoing projects; (2) incorporating enhancements (additional features or modifications) that can be feasibly applied to the ongoing projects; and, (3) implementing follow-up interventions to enhance the realization of EE&RE targets from these baseline projects.
In the context of the ongoing preparation process for countries' Intended Nationally Determined Contributions, it would be useful to outline how the existing 100% renewable energy target relates to the envisaged INDC by Tuvalu (provided it will submit one before the COP in Paris). Clarification on this aspect is needed, as the assessment of mitigation options/targets for an INDC has in many countries entailed activities similar to those proposed in this PIF document (e.g. an evaluation of the already set national target).	Before PPG Stage[20]: Tuvalu is in the process of preparing its INDC. Agree to the suggested review of the rationale behind the set national 100% RE electricity target, as has already been included in the FASNETT project concept. The project will re-evaluate the target to either confirm or reset it to a more realistic level that can be achieved by 2020, and facilitate the achievement of target through the removal of barriers or filling of the gaps that would bridge the achievement of said RE target by 2020. Definitely, during the project design and development stage (i.e., PPG exercise) the identification and design of interventions that will facilitate and enable the realization of the %RE electricity target shall be in line with those stated in the soon-to-be finalized INDC report that Tuvalu will submit to the UNFCCC. After PPG Stage: During the PPG exercise, the activities that will facilitate the achievement of the country's %RE electricity target were designed. The detailed description of the project components (inclusive of the activities that will be carried out to deliver the outputs that will contribute to the realization of the component outcome) represent the results of the PPG activities that developed the FASNETT project, with the overall objective of developing and using feasible renewable energy resources and application of energy efficiency technologies for achieving realistic energy targets in Tuvalu, inclusive of the %RE electricity target. In addition, Annex L in the ProDoc presents the results of the PPG Study on possible RE/EE projects to be covered by the FASNETT Project for commercial adoption or for demonstration.

[20] This is the response to GEF Council Member (Germany) Comments on 13 October 2015. At that time, the country's INDC was not yet submitted to the UNFCCC. The INDC was submitted in November 2015. The country signed and ratified the Paris Agreement on 22 April 2016, and in that regard the INDC is now the country's NDC.

Responses to STAP Comments (21 September 2015)

(Includes responses before and after the PPG Exercise)

Comment	Response
The small project investment of $109,500 is to build on this range of existing projects by improving the understanding by the energy sector of managing and maintaining projects and raise the public's knowledge level of the benefits, and hence gain wider acceptance.	The US$ 109,500 is the amount of project preparation grant (PPG) allocated for the design of the FASNETT Project (US$ 100k + GEF Agency Fee). If the PPG exercise is considered as a project, yes the project design and development work will build on the ongoing and planned projects focusing on how to make them more effective, and influence the government and the public to further support the efforts to achieve the national energy targets of the country.
The claimed 273.3 kt CO2 reductions is hard to justify for this project, given all the other initiatives that support displacing diesel power generation by renewables (see Footnote 12). Around 40% of total cumulative emissions reduction by 2020 is attributed to the financing initiatives from this project and a lifetime avoidance of 109.3 kt CO2. It is difficult to accept that by creating greater awareness, such a large increase in emission reductions will result, except by better informing residents on the outlying islands and this is certainly to be encouraged.	Before PPG Stage: As pointed out in the PIF, this amount is what would be achieved if the 100% RE electricity generation target is realized by 2020, and sustaining that target level throughout the lifetime of the RE systems that will installed during the GEF project implementation. It was also pointed out that at least 40% of the cumulative CO2 emission reductions by 2020 (i.e., 109.3 ktons) would be attributable to the project investment activities. Discussions with the project stakeholders during the PIF formulation stage showed that the interest of people particularly in the outer islands in having more access to electricity is high. Using RE-based electricity in these places is possible (considering the solar PV power generation systems installed and maintained by TEC in some of these islands) making use some available RE resources (e.g., biomass and animal waste) that the residents would like to use to supplement or possibly supplant the current diesel gensets that are used for supplying electricity. In Funafuti, the residents are very keen in utilizing energy efficient appliances and to make their homes more energy conserving. As per the project concept, these will be substantial in better informing residents on the outlying islands and in the main island of Funafuti. Hence it is expected that these level of GHG emission reduction (direct and consequential) can be realized and attributed to the project. Nevertheless, these will be verified further during the project design and the appropriate potential level of GHG emission reduction will be calculated in more detail. After PPG Stage: Based on detailed discussions and analyses of the ongoing and planned RE-based power generation, and EE initiatives in the country (Funafuti, and in the outer islands), the lifetime direct CO2 emission reductions is about 68,440 tons (906.5% from RE-based power generation; 3.5% from EE). The expected lifetime direct post-project CO2 emission reductions is about 59,514 tons (92% from RE-based power generation; 8% from EE). The consequential CO2 emission reductions range from 58.6 to 256.0 ktons. Please refer to Annexes K and L of the FASNETT Project Document.

Comment	Response
There is no comment made on the load-following challenges for the local grids when they have a growing share of solar generation that is a variable resource. It is assumed that the biodiesel generation is able to be dispatched at times of low solar radiation and high demand.	In the case of the grid in Funafuti, the operation and performance of the existing diesel gensets are expected to be the same as normal when these are operating using biodiesel, and should be able to ensure the reliability of the system even with the variable inputs from the solar PV units, or from whatever feasible RE-based power generation units will be integrated to the grid. Before PPG Stage: This aspect of the grid system reliability when RE-based power generation units are integrated into it will be covered in the design of the RE-based power generation demonstrations that will be carried out under the project. After PPG Stage: Potential grid stability problems were considered in the preliminary design of the identified RE-based power generation demonstrations. To ensure grid system stability, the services of an expert on Electric Power Systems for RE and EE Technology Application will be engaged to assist the ED/MPUI and TEC in design of the integration of the demo RE-based power generation systems into the existing TEC grid, as well as in the design of a program for the promotion improving power systems stability, reliability and performance, considering short- and medium term integration of additional RE-based power generation systems.
With respect to Knowledge Management, how will information from this project relate to existing knowledge centres for the region such as SPREP (Secretariat of the Pacific Regional Environment Program) and the newly created Pacific Climate Change Portal (http://www.pacificclimatechange.net/)? Or the Clean Energy Information Portal â€“ REEGLE (http://www.reegle.info/index.php ?)	As stated in the project concept (PIF), information and data that will be generated from the project activities will be disseminated and shared with other PICs and SIDS through an 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 EE and RE technologies specifically in small island settings, can be obtained from other PICs and SIDS, and applied to specific situations and localities in the country. Such information exchange network will obviously be linked with other existing information websites and portals in the Pacific region and also in other SIDS regions. Linking with existing knowledge centers like SPREP, SPC, and UNESCAP would be easily done since Tuvalu is a member of these regional organizations. After PPG Stage: The FASNETT Project includes the establishment and operationalization of an information exchange network and website for the promotion and dissemination of knowledge on low carbon development, as initially planned during the PIF stage.

Responses to GEFSec Comments (10 August 2015)

Comment & Response	Reference
1: Is the project aligned with the relevant GEF strategic objectives and results framework?	
Comment (1): *Please add Program 1 in Table A as many components of the project also aim for technology transfer.* Response: Per guidance provided by GEFSec on CC1 programs, this proposed project is under CC1: Program 1. This is now reflected in the PIF.	PIF: Part I, Sec. A
5: Are the components in Table B sound and sufficiently clear and appropriate to achieve project objectives and the GEBs?	
Comment: *ON GEBs, 273,300 tons of CO2 reduction is calculated according to the national target, and is indirectly achieved, as it includes both contribution from this proposal as well as other initiatives. Please estimate the GEBs directly achieved by the investment planned in this project.* Response: As previously described, by 2020, the cumulative CO2 emission reduction (due to the annual reduction in diesel-based power generation) would be about 13,665 tons. Considering the anticipated baseline activities that can be subsumed into the proposed project and the estimated incremental activities that will be funded by the project, it is estimated that about 40% of the cumulative CO2 emission reductions can be attributable to the project. This would be about 5,446 tons. Considering the average lifetime of the RE-based power generation systems that will be installed with the support of the GEF project, the estimated lifetime CO2 emission reduction would be about 109,300 tons.	PIF: Part II, Sec. 1.5, Footnote 12
7: Is the proposed Grant (including the Agency fee) within the resources available from the STAR allocation?	
Comment: *Agency Fee is $250,774 in the first section of the PIF, and $ 250,775 in Table D. Project cost $2,639,725 (as in the letter from OFP), and maximum agency fee is $250,773.875 (= $250,774, up to 9.5%). Please revise.* Response: The stated Agency Fee in the table in Part I, Sec. D has been changed to US$ 250,774.	PIF: Part I, Sec. D.

Facilitation of the Achievement of Sustainable National Energy Targets of Tuvalu (FASNETT)
Responses to GEFSec Comments (31 July 2015)

Comment & Response	Reference
3: Does the PIF sufficiently indicate the drivers of global environmental degradation, issues of sustainability, market transformation, scaling, and innovation?	
Comment (1): *Please include activities for these business and commercial actors in relevant component and as stakeholders to reduce the technical barriers discussed in page 6* Response:	

In the original PIF, Component 1 includes Activity 5, which is on the design and conduct of a capacity development program for the energy sector on the energy efficient operation and maintenance of RE-based power generation systems. Currently, there are a number of business entities that provide small scale engineering, repair and maintenance services to the energy sector, and mainly to the commercial/residential sector. These are also among the intended beneficiaries of the capacity development program. This has been revised (Component 1, Activity 3c) to include these business entities in the capacity development program on energy services business model and technical capacity for the provision of services in the design, engineering, installation, energy efficient operation and maintenance of RE systems for electricity and non-electricity applications.	PIF: Part II, Sec. 1.3, Component 1, p. 10.
Comment (2): *Please revise footnote. There are many discussions of barriers and issues in the footnote, but some are very important information for this project and should be discussed in the main body.* Response: It is not clear what footnote is being referred to. It is assumed that these are footnotes (which are mainly supplementary information) on the paragraphs on barriers. Nonetheless, the sub-section on barriers have been revised to incorporate accordingly these footnotes.	PIF: Part II, Sec. 1.1, pp. 5-7
5: Are the components in Table B sound and sufficiently clear and appropriate to achieve project objectives and the GEBs?	
Comment (1): *Please revise the activities of component 1. We understand that any awareness raising activity should result in the change of behavior, and it should be supported by practical tools and schemes available for the public. This project will develop policy and test technology pilots and financial schemes. Once they are operationalized and can be replicated in nationwide, then the information should become available for the public to encourage their behavior change. However, current component 1 describe very general information, which will not result in fruitful outcome.* Response: The items shown in Table B for all project components are outputs, not activities. The indicative activities for each component are presented in Part II, Sec. 1.3. For Component 1, the project proponents agree to the comment that awareness raising activities should result in the change of behavior. To avoid falling into the same unsuccessful results of previous capacity development efforts, the proposed program will focus on specific stakeholders that will play key roles in developing, implementing, operating and sustaining low carbon initiatives (e.g., EE and/or RE) in the country. The Component 1 outputs and activities have been revised in line with the reviewer's suggestion to ensure the realization of improved awareness and attitude towards renewable energy and energy efficiency applications in the energy and energy end use sectors in the country.	PIF: Part II, Sec. 1.3, Component 1, p. 10
Comment (2): *Please merge component 2, 3 and activities (1) and (2) of component 4). Policy and institution cannot be developed separately. The issue of "who do what and how" should be developed in the integrated manner. The activities (1) and (2) of component 4 seems to cover nationwide technologies, and if so, they also should be discussed in relation to national policies, plans and institutions.* Response: Trivial as it may, but the reason for grouping the activities addressing institutional barriers and policy/regulatory barriers into 2 separate components is mainly for ease of	PIF: Part I, Sec. B:

implementation. Nonetheless, it makes sense that the 2 components be merge since the resolution of these 2 types of barriers go hand in hand. Hence, following the reviewer's suggestion Components 2 and 3 have been merge to address policy/regulatory and institutional barriers in an integrated manner. It is however not clear why Activities 1 & 2 of the original Component 4 have to be included in the now combined Components 2 & 3. These 2 activities are mainly for identification and selection of applicable low carbon development technologies (EE/RE) that will be demonstrated under the project; and for the design and planning of the application demonstrations of the selected EE/RE technologies. While the results and data/information generated from these 2 activities, and the results of the implementation of the selected EE/RE technology demonstrations can definitely be used as references for energy technology policy making, these 2 activities are not specifically designed for energy policy and planning work. These 2 activities are among the activities that are meant to address technical barriers, in general, and for the design of the EE/RE technology demonstrations, in particular.	Component 2, pp. 2-3; Component 3, p. 3 Part II, Sec. 1.3: Component 2, pp. 10-11; Component 3, p. 11
Comment (3): *Please clarify the current project target of 273,300 tons CO2 reduced will be directly and/or indirectly achieved.* Response: The estimated CO2 emission reductions are mainly based on achieving the country's target of 100% RE electricity generation by 2020, and sustaining that target level throughout the lifetime of the installed RE systems during the GEF project implementation. Based on the forecast annual % RE electricity in the country, and the current energy performance of diesel-based power generation, it is expected that by 2020, the cumulative CO2 emission reduction (due to the annual reduction in diesel-based power generation) would be about 13,665 tons. Considering the average lifetime of the installed RE-based power generation systems (mainly solar PV, with some biogas/biomass energy-based, and wind energy-based) the estimated lifetime CO2 emission reduction would 273,300 tons. This conservative amount does not include indirect CO2 emission reductions from EE initiatives in the energy end use sectors that not only save electricity and fossil fuel, but also reduce the grid electricity demand.	PIF: Part II, Sec. 1.5; Footnote 12, p. 14
Comment (4): *Please include knowledge management activity to learn from other relevant projects in other SIDS.* Response: Part II, Sec. 7 has been revised to include uptake of lessons learned and best practices on low carbon development and EE/RE technologies from other Pacific Island Countries (PICs) and SIDS, as well as sharing of project results to other PICs and SIDS.	PIF: Part II, Sec. 7, p. 18
7: Is the proposed Grant (including the Agency fee) within the resources available from the STAR allocation?	
Comment: *Please clarify Agency Fee, and please produce appropriate Table D. The endorsement letter shows agency fee of $260,275, but PIF shows only $9,500 in the Table E.* Response: In regards to the table in Part I, Sec. D, there was this note *"No need to fill this table if it is a single Agency, single Trust Fund, single focal area and single country project."* in the PIF template. Since the project is only for Tuvalu, with UNDP as GEF Agency, and is only seeking for GEFTF funds for a Climate Change project, we don't fill up the table.	PIF: Part I, Secs. D & E.

Anyway, the filled-in table has now been included in the revised PIF. The Agency Fee for the project proper is US$ 250,775 (Part I: Project Information; Part I, Sec. D), while for the PPG, it is US$ 9,500 (Part I, Sec. E). Hence, the total Agency Fee is US$ 260,275.	

ANNEX C: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS[21]

A. Provide detailed funding amount of the PPG activities financing status in the table below:

PPG Grant Approved at PIF: US$ 100,000			
Project Preparation Activities Implemented	***GEF/LDCF/SCCF/NPIF Amount ($)***		
	Budgeted Amount	***Amount Spent To date***	***Amount Committed***
1. Revalidate Barriers and Baseline Projects/Activities	20,000	16,509	3,491
2. Identification, evaluation and selection of demonstrations	20,000	15,000	5,000
3. Conduct of Logical Framework Analysis (LFA) with the project stakeholders	16,000	5,000	11,000
4. Detailed Design of Project Components & Activities	25,000	8,000	17,000
5. Establishment of institutional framework for project partners/co-financiers in the project implementation and to ensure close coordination with co-financed baseline activities	19,000	6,514	12,486
Total	**100,000**	**51,023**	**48,977**

The objective of the PPG exercise was achieved with the successful implementation of the planned activities for the design, development and preparation of the FASNETT Project. The project development team (PDT) that was organized by the project implementing partner carried out the PPG Exercise based on the agreed project initiation plan. The PDT was able to gather and organize the relevant data and information that were used in the design of the various project activities. Information about the ongoing and planned programs of the GoT, as well as private sector entities that are interested, in RE-based power generation and EE technology/technique applications, were gathered, processed and analyzed to obtain a clear understanding of the current situation concerning the issues and concerns regarding the GHG emission reduction target of the country. Plans and programs of the country on electrification and its NDCs were also researched and reviewed. The discussions with the key stakeholders and project partners have made possible the identification of relevant issues and barriers that need to be addressed and considered in the development and implementation of the FASNETT Project. The TEC, relevant private sector entities, and RE/EE technology experts in the country were engaged in intensive discussions for the project development team to fully understand the nature and extent of these issues/barriers. As is the usual practice in project design, a logical framework analysis (LFA) was carried out by the PDT together with the stakeholders to verify and confirm the project results framework that was developed during the PIF stage of the project development. The LFA confirmed the previously defined project goal and objective, and expected outcomes. Discussions with PPL and selected provincial governments regarding their technical capacity development needs, and other technological and business concerns became the basis of the demonstrations and specific technical assistance in various aspects of the design, engineering and installation of RE-based energy systems both for power applications. The discussions with the stakeholders and project partners also resulted in getting commitments for the co-financing of the baseline activities that were subsumed into the project, the government's contribution to the funding of some of the incremental activities, as well as in the

[21] If at CEO Endorsement, the PPG activities have not been completed and there is a balance of unspent fund, Agencies can continue to undertake the activities up to one year of project start. No later than one year from start of project implementation, Agencies should report this table to the GEF Secretariat on the completion of PPG activities and the amount spent for the activities. Agencies should also report closing of PPG to Trustee in its Quarterly Report.

agreed project coordination mechanisms and the project implementation arrangements. The outputs of the PPG exercise were used in the detailed design of the FASNETT project components and the relevant activities that will deliver the necessary outputs that will collectively realize the expected outcomes of this GEF-funded climate change mitigation project of Tuvalu.

ANNEX D: CALENDAR OF EXPECTED REFLOWS (if non-grant instrument is used**)**
Provide a calendar of expected reflows to the GEF/LDCF/SCCF Trust Funds or to your Agency (and/or revolving fund that will be set up): N.A