



Part I: Project Information

Name of Parent Program

GEF-7 Africa Minigrids Program

GEF ID

10832

Project Type

MSP

Type of Trust Fund

GET

CBIT/NGI

CBIT No

NGI No

Project Title

S?o Tom? and Pr?ncipe national child project under the Africa Minigrids Program

Countries

Sao Tome and Principe

Agency(ies)

UNDP

Other Executing Partner(s)

Directorate -General Natural Resources and Energy (DGRNE)

Executing Partner Type

Government

GEF Focal Area

Climate Change

Sector

Renewable Energy

Taxonomy

Focal Areas, Influencing models, Demonstrate innovative approach, Deploy innovative financial instruments, Transform policy and regulatory environments, Strengthen institutional capacity and decision-making, Convene multi-stakeholder alliances, Stakeholders, Communications, Public Campaigns, Education, Awareness Raising, Behavior change, Private Sector, SMEs, Financial intermediaries and market facilitators, Individuals/Entrepreneurs, Large corporations, Capital providers, Civil Society, Type of Engagement, Information Dissemination, Partnership, Participation, Consultation, Local Communities, Gender Equality, Capacity, Knowledge and Research, Capacity Development, Enabling Activities, Knowledge Generation, Learning, Theory of change, Adaptive management, Indicators to measure change, Knowledge Exchange, Innovation

Rio Markers**Climate Change Mitigation**

Principal Objective 2

Climate Change Adaptation

No Contribution 0

Biodiversity

No Contribution 0

Land Degradation

No Contribution 0

Submission Date

8/31/2022

Expected Implementation Start

6/1/2023

Expected Completion Date

5/31/2027

Duration

48In Months

Agency Fee(\$)

177,151.00

A. FOCAL/NON-FOCAL AREA ELEMENTS

Objectives/Programs	Focal Area Outcomes	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
CCM-1-2	Promote innovation and technology transfer for sustainable energy breakthroughs for decentralized power with energy storage	GET	1,968,349.00	6,088,210.00
Total Project Cost(\$)			1,968,349.00	6,088,210.00

B. Project description summary

Project Objective

To support access to clean energy by increasing technical and financial feasibility and by promoting scaled-up commercial investment, in low-carbon minigrids in São Tomé and Príncipe, with a focus on cost-reduction levers and innovative business models.

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing (\$)	Confirmed Co- Financing (\$)
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Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing (\$)	Confirmed Co-Financing (\$)
1.Policy and regulation	Technical Assistance	1 Stakeholder ownership in a national minigrid delivery model is advanced, and appropriate policies and regulations are adopted to facilitate investment in low-carbon minigrids.	<p>1.1 An inclusive national dialogue to identify minigrid delivery models is facilitated, clarifying priority interventions for an integrated approach to off-grid electrification.</p> <p>1.2 DREI techno-economic analyses carried out to propose most cost-effective basket of policy and financial de-risking instruments and contribute to AMP Flagship Report on Cost Reduction.</p> <p>1.3 A mini-grid regulatory framework, including tariff model, tax regime, and settlement model for electricity transaction, is developed in close coordination with the authorities concerned and other development partners.</p> <p>1.4 Preparatory studies conducted for selected mini-</p>	GET	413,000.00	800,000.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing (\$)	Confirmed Co-Financing (\$)
			<p>grid sites to enhance sector planning and decision-making on a delivery model for minigrid development.</p>			
			<p>1.5 Domestication of quality standards for solar mini-grid components, and institutional capacity of national standards organizations/bureau strengthened.</p>			
			<p>1.6 Support provided to establish the environmental and social policies and plans to ensure mini-grid risks are properly handled.</p>			
			<p>1.7 Public programmes (apprenticeships, certificates, university programs) to develop competitive, skilled labor market in mini-grids</p>			

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing (\$)	Confirmed Co-Financing (\$)
2. Business model innovation with private sector	Technical Assistance	2 Innovative business models based on cost reduction operationalized, with strengthened private sector participation in low-carbon/renewable energy minigrid development	2.1 Minigrids pilot proposals prepared, evaluated and selected through a competitive process, leading to cost-reduction in mini-grids. 2.2 Capacity of private sector and end-user groups strengthened for developing innovative minigrid business models.	GET	343,000.00	200,000.00
2. Business model innovation with private sector	Investment		2.3 Minigrids pilots fully designed, constructed and monitored, including productive uses and modular hardware and system design.	GET	740,000.00	3,984,736.00
3. Scaled-up financing	Technical Assistance	3. Financial sector actors are ready to invest in a pipeline of low-carbon minigrids and concessional financial mechanisms are in place to incentivize scaled-up investment.	3.1 Design support for a financial facility for minigrids, distributed electricity grids and services. 3.1.3 Domestic financial sector capacity-building on business and financing models for minigrids.	GET	87,000.00	250,000.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing (\$)	Confirmed Co-Financing (\$)
4. Digital and Knowledge Management	Technical Assistance	4. Digitalization and data mainstreamed, across stakeholders, into local minigrid market development. Increased knowledge, awareness and network opportunities in the minigrid market and among stakeholders, including benefitting from linkages to international good practice.	<p>4.1 A project digital strategy is developed and implemented, including linkages to and following guidance from the AMP Regional Project.</p> <p>4.2 A Minigrids Digital Platform implemented to track minigrid pilots, and to support minigrids scale-up and cost-reduction.</p> <p>4.3 A Quality Assurance and Monitoring Framework (QAMF) is adopted.</p> <p>4.4 Engage with regional project by participating in Communities of Practice and capturing and sharing of lessons learnt.</p>	GET	121,059.00	250,000.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing (\$)	Confirmed Co-Financing (\$)
5. Monitoring & Evaluation	Technical Assistance	5. Ensuring compliance with all mandatory monitoring and reporting requirements of the GEF.	5.1 Inception workshop is conducted and M&E plan is implemented. 5.2 Project Mid-Term Review is conducted. 5.3 GEF Terminal Evaluation is conducted.	GET	85,349.00	50,000.00

Sub Total (\$)	1,789,408.00	5,534,736.00
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Project Management Cost (PMC)

GET	178,941.00	553,474.00
Sub Total(\$)	178,941.00	553,474.00
Total Project Cost(\$)	1,968,349.00	6,088,210.00

Please provide justification

C. Sources of Co-financing for the Project by name and by type

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount(\$)
Recipient Country Government	Directorate-General Natural Resources and Energy (DGRNE)	In-kind	Recurrent expenditures	38,210.00
Donor Agency	African Development Bank (AfDB)	Grant	Investment mobilized	6,000,000.00
GEF Agency	United Nations Development Programme (UNDP)	Grant	Investment mobilized	50,000.00
Total Co-Financing(\$)				6,088,210.00

Describe how any "Investment Mobilized" was identified

The Government DGRNE is providing USD 38,210 in terms of the cost of senior officials, technicians and administrative staff as well as the use of premises and equipment including vehicles to implement project activities. UNDP is supporting the project in terms of training in finance management, procurement, project management for the government with USD 50,000 to move on from the support request for executing GEF projects. Hence, encouraging the government to shift from support to NIM to full NIM. The AfDB Energy Transition and Institutional Support Programme (ETISP) is USD 12 million for the duration of 2020 ? 2025 project. This project has collaborated with the previous GEF-5 UNDP Sustainable Energy Management project where close collaboration on advancing and financing feasibility studies for DGRNE Institutional support and mini hydro, and solar PV collaboration started. In a small market such as STP grid connected and off grid are closely interlinked. For the remaining period of ETISP 2023-2025, the proportion of the project intends to co-finance USD 6 million for continuous (i) institutional support and building capacity at the GoSTP while strengthening financial governance and the business climate in terms of penetration of RE; (ii) finance urgent grid reinforcement and rehabilitation of the Papagaio hydropower plant (<1MW); and the second phase of the hybridization of Santo Amaro thermal power plant with the first solar PV; (iii) collaboration on collecting data and the digitalization of the energy sector.

D. Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
UNDP	GET	Sao Tome and Principe	Climate Change	CC STAR Allocation	1,968,349	177,151	2,145,500.00
Total Grant Resources(\$)					1,968,349.00	177,151.00	2,145,500.00

E. Non Grant Instrument

NON-GRANT INSTRUMENT at CEO Endorsement

Includes Non grant instruments? **No**

Includes reflow to GEF? **No**

F. Project Preparation Grant (PPG)

PPG Required **true**

PPG Amount (\$)

50,000

PPG Agency Fee (\$)

4,500

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
UNDP	GET	Sao Tome and Principe	Climate Change	CC STAR Allocation	50,000	4,500	54,500.00
Total Project Costs(\$)					50,000.00	4,500.00	54,500.00

Core Indicators

Indicator 6 Greenhouse Gas Emissions Mitigated

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO ₂ e (direct)	0	20571	0	0
Expected metric tons of CO ₂ e (indirect)	0	5472	0	0

Indicator 6.1 Carbon Sequestered or Emissions Avoided in the AFOLU (Agriculture, Forestry and Other Land Use) sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO ₂ e (direct)				
Expected metric tons of CO ₂ e (indirect)				
Anticipated start year of accounting				
Duration of accounting				

Indicator 6.2 Emissions Avoided Outside AFOLU (Agriculture, Forestry and Other Land Use) Sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO ₂ e (direct)		20,571		
Expected metric tons of CO ₂ e (indirect)		5,472		
Anticipated start year of accounting		2025		
Duration of accounting		10		

Indicator 6.3 Energy Saved (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Total Target Benefit	Energy (MJ) (At PIF)	Energy (MJ) (At CEO Endorsement)	Energy (MJ) (Achieved at MTR)	Energy (MJ) (Achieved at TE)
Target Energy Saved (MJ)				

Indicator 6.4 Increase in Installed Renewable Energy Capacity per Technology (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Technology	Capacity (MW) (Expected at PIF)	Capacity (MW) (Expected at CEO Endorsement)	Capacity (MW) (Achieved at MTR)	Capacity (MW) (Achieved at TE)
Solar Thermal		0.70		
Energy Storage		1.05		

Indicator 11 People benefiting from GEF-financed investments

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female		10,871		
Male		10,870		
Total	0	21741	0	0

Provide additional explanation on targets, other methodologies used, and other focal area specifics (i.e., Aichi targets in BD) including justification where core indicator targets are not provided

Methodology The methodology for evaluating the core indicators is given in Prodoc Annex 12.

Part II. Project Justification

1a. Project Description

1. Work carried out during the PPG phase was aimed at complementing information and validating the assumptions underlying the Project Identification Form (PIF), as well as engagement with project counterparts. PPG work started in February 2022 and extended to August 2022 due to some delays related to COVID-19 travel limitations and safety measures. A kick-off workshop convoked by the UNDP Country Office (CO) in São Tomé and Príncipe (STP) was held 12 April, 2022 with participation from central Government (GoSTP), district representatives (Camaras distritais), and civil society. A field mission to STP took place 19-27 June, 2022 covering site visits, interviews with GoSTP representatives, and private companies. The Project Document was validated by GoSTP during a presential workshop on 27 June, 2022.

2. The PPG faced initial challenges to align the STP child project with the AMP umbrella program due to the following circumstances: (i) prevailing public utility model with already high electricity coverage rate; (ii) absence of an explicit off-grid electrification policy and resulting minigrad delivery model; (iii) small market size with limited upscaling potential for isolated minigrads; and (iv) scale limitations to take full benefit from digital tender processes. After analyzing alternative approaches, the PPG concluded that promising market niches for minigrads are present in STP, notably: (1) an urban and peri-urban population connected to the main grid but facing severe electricity supply quality issues, undermining economic productivity and income generation; and (2) a smaller, rural population which is unlikely to be served by the national utility in the foreseeable future, and which lacks access to other public services as well.

3. The PPG contributed to building acknowledgement of the relevance of the AMP for STP and better understand the specific circumstances and opportunities. The operation of minigrads based on sound business principles and renewable energy sources, as pursued by the AMP, is expected to deliver valuable experiences for the GoSTP and support a new paradigm for the electricity sector in the country in terms of decentralized, low-carbon power generation, service quality, and cost level.

4. The table hereunder presents the changes between PIF and CEO Endorsement Request (CEO ER) at output level.

Changes in Project's Results Framework between PIF and CEO ER			
Components	Outputs - location at PIF stage	Outputs - location at CEO Endorsement	Comments / Rational for changes
1. Policy and regulation	1.1 An inclusive national dialogue to identify minigrid delivery models is facilitated	1.1 An inclusive national dialogue to identify minigrid delivery models is facilitated, clarifying priority interventions for an integrated approach to off-grid electrification.	Phrasing has been aligned with AMP Regional Project output definitions.
	1.2 A renewables minigrid regulatory framework, including tariff model, tax regime and incentives/compensation mechanism developed in close coordination with other development partners	1.3 A mini-grid regulatory framework, including tariff model, tax regime, and settlement model for electricity transaction, is developed in close coordination with the authorities concerned and other development partners.	Based on DREI barrier analysis, output 1.5 is included to ensure technical quality and performance of RE and EE components and appliances for minigrids.
		1.5 Domestication of quality standards for solar mini-grid components, and institutional capacity of national standards organizations/bureau strengthened.	
	1.3 Assessment and mapping of viable healthcare facilities for minigrid electrification, building government capacity to design and contract out for solarization of health care centres	1.4 Preparatory studies conducted for selected mini-grid sites to enhance sector planning and decision-making on a delivery model for minigrid development.	Phrasing has been aligned with AMP Regional Project output definitions. The scope of the output has been broadened beyond health centres.
	1.4 Derisking Renewable Energy Investment (DREI) Minigrid techno-economic analyses carried out to propose most cost-effective basket of policy and financial de-risking instruments	1.2 DREI techno-economic analyses carried out to propose most cost-effective basket of policy and financial de-risking instruments and contribute to AMP Flagship Report on Cost Reduction.	Phrasing has been aligned with AMP Regional Project output definitions.
	(none)	1.6 Support provided to establish the environmental and social policies and plans to ensure mini-grid risks are properly handled.	This output is mandatory for AMP child projects and has been included as such.
	(none)	1.7 Public programmes (apprenticeships, certificates, university programs) to develop competitive, skilled labor market in mini-grids.	This output is included to address the systemic challenge ? typical for a SIDS ? to access a qualified human resources base, which is key for project sustainability.

Changes in Project's Results Framework between PIF and CEO ER			
Components	Outputs - location at PIF stage	Outputs - location at CEO Endorsement	Comments / Rational for changes
2. Business model innovation with Private Sector	2.1 Minigrid pilots developed including innovative appliances and modular hardware/system design for key hospitality, MSME industry and healthcare facilities	2.1 Minigrids pilot proposals prepared, evaluated and selected through a competitive process, leading to cost-reduction in mini-grids.	Phrasing of 2.1 has been aligned with AMP Regional Project output definitions. Output 2.3 has been added to separate INV from TA and to facilitate progress tracking.
		2.3 Minigrids pilots fully designed, constructed and monitored, including productive uses and modular hardware and system design.	
	2.2 National report on opportunities to boost economic activities through minigrid electrification, assessment and mapping of viable hospitality facilities for minigrid electrification, assisting private sector capacity to design and contract out for solarization of tourism centres	(none)	Output removed as progress is being made through parallel initiatives.
	2.3 Capacity of potential tender bidders (private sector developers) strengthened to consider innovative business models and cost-reduction levers	2.2 Capacity of private sector and end-user groups strengthened for developing innovative minigrid business models	Phrasing has been adjusted and aligned with national context.
	2.4 Support to upstream suppliers on hardware standardization/modular approaches, including in tendering processes	(none)	Output removed. A structural approach is sought by promoting technical standards (new output 1.5). Modular solutions will be pursued during design phase of Minigrid Schemes 2 and 3.
2.5 Support provided to the establishment of a national solar sector association for private sector developers and solar installers, to provide to healthcare centres and MSME industry and tourism centres	(none)	Output removed as two RE associations are already active in STP.	

Changes in Project's Results Framework between PIF and CEO ER			
Components	Outputs - location at PIF stage	Outputs - location at CEO Endorsement	Comments / Rational for changes
3. Scaled-up financing	3.1 Innovative financing solutions for renewable minigrid development, especially for healthcare centres, MSME industry and tourism operations, are identified and implemented.	3.1 Design support for a financial facility for minigrids, distributed electricity grids and services.	Phrasing has been aligned with AMP Regional Project output definitions.
	3.2 General market intelligence study on minigrid financing schemes prepared and disseminated amongst public officials, finance community and potential key consumption players that could turn into self-producers.	(none)	Output removed as market size is deemed too small for a general study. Instead, potential SME size, system costs and the effect of price incentives are assessed as part of Minigrid Scheme 2, the results thereof feeding into output 3.1
	3.3 Domestic financial sector capacity building and financing models for minigrid to support key sectors such as healthcare, MSME industry and tourism.	3.2 Domestic financial sector capacity-building on business and financing models for minigrids.	Phrasing has been aligned with AMP Regional Project output definitions.
4. Digital and Knowledge Management	4.1 A digital strategy is developed and implemented, including linkages to (and following guidance from) the regional project	4.1 A project digital strategy is developed and implemented, including linkages to and following guidance from the AMP Regional Project.	Phrasing has been aligned with AMP Regional Project output definitions. The new output 4.2 concerns investment in ITC hardware.
		4.2 A Minigrids Digital Platform implemented to track minigrid pilots, and to support minigrids scale-up and cost-reduction.	
	4.2 A Quality Assurance and Monitoring Framework for measuring, reporting and verification of the sustainable development impacts of all minigrids pilots supported, including GHG emission reductions, is adopted and operationalized based on standardized guidance from the regional project	4.3 A Quality Assurance and Monitoring Framework (QAMF) is adopted.	Phrasing has been simplified.

Changes in Project's Results Framework between PIF and CEO ER			
Components	Outputs - location at PIF stage	Outputs - location at CEO Endorsement	Comments / Rational for changes
	4.3 Engage with regional project, including, but not limited to, via (i) Communities of Practice and (ii) capturing and sharing lessons learnt	4.4 Engage with regional project by participating in Communities of Practice and capturing and sharing of lessons learnt	Phrasing has been simplified.
5. Monitoring and evaluation.	4.4 M&E and Reporting , including (i) Conducting inception workshop and preparing report, (ii) Ongoing M&E, (iii) Mid Term Evaluation and (iv) Terminal Evaluation	5.1 Inception workshop is conducted and M&E plan is implemented.	Changes respond to format. As per GEF guidance, output 4.4 has been moved to new Component/Outcome 5. To facilitate progress tracking, output 4.4. has been divided into new outputs 5.1, 5.2, and 5.3.
		5.2 Project Mid-Term Review is conducted.	
		5.3 GEF Terminal Evaluation is conducted.	

5. With regard to co-financing, the indicative cofinance sources presented in the PIF are: (a) private sector (energy end-users) US\$ 560,000; (b) AfDB ETISP US\$ 3,452,000; (c) utility EdPR (Portugal) US\$ 1,785,000; (d) private sector (end-users with EdPR at Principe Island) US\$ 120,000.

Note that the sources (c) and (d) are not included at CEO ER because the AMP will not implement MG pilots at Principe Island; project sites are in Sao Tome island only. This is related to the fact that EdRP, which was preparing an investment proposal in STP when the PIF was developed, decided to withdraw altogether from the market for commercial reasons. (Reportedly, the sales price under PPA offered by EMAE was insufficient.)

As the MG pilots are only developed conceptually, it is too early to bring specific, private, investors on board. More work is needed - guided by the Minigrad Pilot Plan as part of output 2.1 ? to further mature the pilots. This situation is typical for incipient MG markets in SIDS, as is the case in STP. In these countries, UNDP has decided not to push cofinance letters from private developers at this stage (as this might interfere with government tender processes and would probably be unsuccessful anyway). Therefore, source (a) has not materialized. Yet, in a context of severe electricity supply deficits, many end-users are willing to co-invest to secure supply for critical electricity uses.

UNDP has maintained a continuous dialogue with the AfDB, which was due to the positive collaboration on previous energy projects in STP. As a result, a cofinance letter to the tune of US\$ 12M was obtained, which exceeds the total amount committed at PIF (source a). The AfDB project duration is from 2020-2025, therefore the amount during the AMP STP implementation is 2023-2025 of US\$6M.

For the sake of completeness, mention is made here of additional cofinance from the STP Government (US\$38,210) and from UNDP (US\$50,000).

1a. *Project Description*. Elaborate on: 1) the global environmental and/or adaptation problems, root causes and barriers that need to be addressed (systems description); 2) the baseline scenario and any associated baseline projects, 3) the proposed alternative scenario with a description of outcomes and components of the project; 4) alignment with GEF focal area and/or impact program strategies; 5) incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing; 6) global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF); and 7) innovativeness, sustainability and potential for scaling up. ?

1) the global environmental and/or adaptation problems, root causes and barriers that need to be addressed (systems description)

6. The African Minigrad Program is motivated by the fact that 580 million people in Africa have no access to electricity.[1]¹ Notably, access to adequate and affordable energy as set forth in SDG-7 is a key enabler for other SDGs including poverty reduction, improved health, education, reducing gender inequities, promoting women's empowerment, and inclusive, sustainable economic development.

7. Sub-Saharan Africa (SSA) is characterized by the lowest per capita electricity consumption levels in the world due to a combination of factors including: (i) concentrating of electricity infrastructure in urban areas; (ii) lagging investment in generation, transmission and distribution (G,T&D) infrastructure; and (iii) low purchase capacity impeding lower socio-economic strata of the population to access electricity and other modern energy supplies. In most countries, the traditional electric utility model is technically and financially overstretched, greatly reducing possibilities to attract investment capital and skilled human resources to extend the service. Rapid demand growth has triggered the incorporation of thermal power (fuel oil and recently, natural gas) into the electricity generation mix, increasing the greenhouse gas (GHG) footprint per unit of electricity delivered. Increased fossil fuel imports adversely affect countries' commercial and fiscal balance ? a vulnerability put into full evidence by soaring energy prices in 2022, most notably global natural gas prices. With minimal road infrastructure, large distances and often complex terrain conditions, in many countries electricity grid extension to reach remote communities is technically and economically unfeasible for decades to come.

8. Against the backdrop of Africa's demographic expansion, inadequate energy access is one of a series of deficiencies in rural areas which translate into: (1) a lack of perspective and quality of life for individuals; and (2) too low productivity to sustain populations. As a result, countries face a process of migration towards urban centres and emigration to more prosperous countries. Meanwhile, traditional rural livelihoods are under pressure as their natural resource base (including water and soils) is rapidly declining, exacerbated by the effects of global climate change. Technological inputs, protection of the environment and resource base, and modern energy inputs, are critical to increase local productivity to sustain rural livelihoods in a sustainable way. Many Governments acknowledge the need for a sustainable and more decentralized development model for their territories. Notably, the population in

many countries in SSA is still predominantly rural relying on subsistence agriculture and livestock farming with traditional biomass being the largest energy supply by source.

9. The 18 countries participating in the AMP Rounds 1 and 2 cover over 300 million people without electricity.[2]². Just four countries were able to increase electricity access at a rate faster than rural and urban population growth rates over the last decade (Comoros, Eswatini, Sudan and Zambia); only three countries provide access to more than 40% of the rural population. In Benin, Djibouti, Malawi, Mali, Niger, Nigeria and Somali, the number of rural people without access to electricity, has continued to grow even if more people have been connected. This demonstrates the magnitude of the challenge to meet SDG-7 as a basis for inclusive and equitable social and economic development. Especially young people and women are affected in their opportunities to prepare themselves for tomorrow's society and labor market.

10. Electric minigrids operated by private businesses, have been identified as a promising model to deliver adequate electricity services to communities and areas beyond the established main grid areas. UNDP and its partners have established the AMP as a regional technical assistance program to increase the financial viability and promote scaled-up commercial investment in renewable energy (RE) based minigrids, with a focus on cost-reduction levers and innovative business models. The programmatic approach aims to achieve greater impact by creating new minigrid markets across the African continent, which, in aggregate, will create scale and momentum, attracting private sector interest and investment. The present child project for Sao Tome and Principe fits into this approach, in the understanding that many of the circumstances and challenges for minigrid development are common to all targeted countries.

Specific Context and Challenges for Sao Tome and Principe

11. (Prodoc ?1-8) The Democratic Republic of S?o Tom? and Pr?ncipe (STP) is a small island state in the Gulf of Guinea consisting of the larger island of S?o Tom? (859 km²) and smaller island of Pr?ncipe (142 km²) about 140 km to the Northeast. STP is characterized as a Small Island Developing State (SIDS); it is also a Least Developed Country (LDC). Based on extrapolations from the 2012 General Population and Housing Census (RGPH), population has grown from 178,739 inhabitants (2012) to 219,161 (2020); STP is expected to have 279,981 inhabitants by 2030. 61% of the population is under 25 years. More than 2/3 of population is classified as poor (<USD 3/day), with 25.6% below USD 1.9/day (2017). The RGPH (2012) shows that poverty particularly affects women (poverty rate 71.3%, compared to 63.4% for men). Poverty is prevalent in rural areas. Unemployment in 2021 was around 15.9% and GDP growth 3.1% (2020). Over 90% of the State's investment budget comes from foreign aid and the debt rate is high (70% of GDP).

12. STP's energy sector is governed by the Ministry of Infrastructure and Natural Resources (MIRN) through its Directorate-General for Natural Resources and Energy (DGRNE). The Empresa de ?gua e Electricidade (EMAE, founded by Decree-Law 34/1979) acts as the monopolist for transmission and

distribution (T&D) and commercialization of electricity. Since 2008, independent power producers (IPPs) are allowed in the market, with EMAE as the sole off taker (Decree 40/2008). The sector is regulated by the Autoridade General de Regula??o (AGER, Decree-Law 14/2005). The Regime Jur?dico do Sector El?ctrico (RJSE, Decree-Law 26/ 2014) redefined sector organization and the legal framework and formally puts EMAE under AGER purview. However, the design and adoption of specific regulation is work in progress. As of 2022, EMAE still operates as a de facto monopolist, except for electricity generation. Of 104.9 GWh total generation in 2017, just 3.6 GWh was provided under an IPP scheme.

13. With growing electricity demand and arrears in maintenance of a legacy of small hydropower plants, STP's electricity matrix has shifted towards thermal generation (diesel). In 2019, 94% (45MW) of generation capacity was non-renewable, and 6% (3 MW) renewable (5% hydro and 1% solar PV). STP's (conditional) commitment made in its updated Nationally Determined Contribution (NDC) is to achieve 49 MW renewable energy (RE) electricity generation by 2030 (of which 32.4 MW solar, 14 MW hydropower, and 2.5MW biomass).[3]³ Access to electricity is around 87% and increasing, but with large geographical and socio-economic disparities and supply issues. Following up on SDG-7, Government policy is to achieve 100% electricity coverage by 2030 as well as 100% access to clean cooking solutions.[4]⁴ STP's overall energy balance however is still dominated by the use of traditional biomass (fuelwood and charcoal) which represent about 80% of total energy supplies.

14. As revenues from EMAE's operations are insufficient to cover costs, fuel costs were partly borne by the State. Accumulated payment arrears led Sonangol to suspend exports to STP, which then had to start sourcing at the commodity markets. Acknowledging that continuation of oil imports was beyond STP's economic and fiscal capacity, an emergency situation was declared by the Government (Presidential Decree 3/20, 17 March 2020).

15. The electricity tariffs in STP are not cost-reflective and EMAE is estimated to incur in a loss of about US\$ 0.07 per kWh sold. The last tariff update dates to 2007. EMAE's customer base in 2017 was 43,642 connections (37,205 households and 6,437 other categories). Prohibitive fuel costs and lagging maintenance and repair (including a lack of spare parts for EMAE power plants) translate into a decline of available generation power (estimated at about 20 MW, while actual demand is around 31 MW). As a result grid power supply becomes increasingly compromised with frequent outages. In the absence of a grid status monitoring infrastructure, common industry standard indicators such as SAIFI and SAIDI[5]⁵, have not been determined.

16. (Prodoc ?16) As related to the end-user market, a characterization of final energy uses in the commercial and industrial sectors has not been made yet. Electricity generation for self-supply is allowed in STP and is common practice in the form of diesel gensets (among those who can afford this). STP does not have a framework of incentives for RE equipment (and neither for EE appliances). In fact, substantial upfront taxes, duties, and levies exist that are applied to the import of goods, including for energy purposes (exemptions are possible however, such as for EMAE). The overall

context is demonstrated by STP's poor performance in ease of doing business, ranking 170th among 190 economies. There are plans for gradual integration of the Economic Community of Central African States (ECCAS) enabling a free market for goods and services, but these processes are lengthy. In the absence of a Value Added Tax (VAT) system in STP, small businesses are not encouraged to formalize, and are characterized by low competitiveness, little investment capacity, and poor access to credits. The tertiary sector represents 60% of GDP and is largely informal

Barriers and risks to renewable energy minigrid development in STP:

17. (Prodoc 219, table) The PPG assessed the barriers to minigrid developing in STP following UNDP's Derisking Renewable Energy Investment (DREI) Methodology. The main conclusions are presented below. Information sources included stakeholder consultations, inception workshop and desk review.

18. Energy market: Upgrades and reforms to the STP electricity sector are underway, including the creation of AGER as the regulator. However, the market still largely works as a single-utility model, with EMAE as the sole buyer and operator of the grid system and most of the generating power. The isolated diesel grids in the south, operated by EMAE, are now being interconnected. Plans for RE and EE development have recently been adopted. The current sector model does not foresee minigrid systems nor independent (private) companies, but non-utility grids (below 150 kW) can apply for authorization. ESCO-like services to rationalize electricity use and implement EE solutions (including RE capacity behind the meter) are not receiving due interest, and their market is small. A DESCO approach/grid-tied MG (behind and before the meter) has not been considered yet in STP and would require further regulation.

19. Electricity Tariffs: These are regulated per customer type. In the absence of enforced quality standards and with intermittent supply, there is no clear relation between price and service. A revised tariff scheme has been prepared by AGER with World Bank support but has not been adopted by the Government yet. For sustainable operation of the system, including minigrids, the tariffs must cover OPEX as a minimum or be complemented through subsidies or performance-based revenues.

20. Technical standards: These are not in place for minigrids in STP. Government nor EMAE has experience so far with the application of international industry standards in MG tenders; STP can borrow on expertise in other countries under MLF programmes. It is not clear how customer's internal installations (household or commercial) are verified for acceptance by EMAE, and how the impact of irregular connections on grid supply and stability, is controlled.

21. Data availability: Quantitative information on electricity end-use is very limited as such information, even at aggregated level, was measured at only few points in the grid system. Recently, the World Bank upgrades incorporate status measurements at substations and transformers. Smart meters are being introduced enabling measurement of consumption patterns among EMAE customers in the coming years. An analysis of energy demands (including suppressed demand) for electricity and other energy sources, for households according to socio-economic profile and geographic locations, has

not been made. The lack of data is a barrier for the identification of opportunities for fuel switching, and to understand people's preferences and choices (such as fuel stacking).

22. Public sector capacities for planning and sector purview in STP face barriers due to organizational weaknesses, staffing, tools and financial resources. A multi-sectorial approach to planning may allow for more effective use of people, competences, and digital infrastructure for planning, including planning for resilience. However, this requires political buy-in and a positive attitude towards the exchange of information between government bodies.

23. Social acceptance and awareness: Solar panels and electric appliances are not new to STP but are considered out of reach by poor people and the lower middle-class. Energy cost issues and the urgency to save energy and reduce oil imports are in the daily news but more support is needed to transform this awareness into operational actions by the population. In STP, many rural people use very little electricity making MG not cost-effective, their main energy demand being heat and mechanical power. These may be served by PV lantern and cell phone charging schemes. Informal connections are common in the utility-served area with many customers not paying for the service (commercial losses are estimated at 25%). In these areas, it will be challenging to change the attitude and make people aware that the services come at a cost. In STP, the most likely scenario is a differentiated, but geographically uniform tariff model for the entire country. This would imply cross-subsidies between customer groups and financial injections (operational cost subsidies) for financial sustainability.

24. Hardware quality and performance: Although technically mature, imported hardware for minigrids should be treated as capital goods with extended supplier responsibility, service contracting, engineering, procurement and construction (EPC) contracting to control hardware risks. Given the harsh climate conditions and poor maintenance culture, resources and skills, caution is needed to ensure long-term technical sustainability.

25. Equipment market in a SIDS context: Small market volumes and high transport costs lead to high costs of imported equipment. In STP, this is exacerbated by complex import requirements, duties and levies. Global supply chain issues due to petrol price increase and post covid economy recovery as per 2022, may cause suppliers to ignore small markets such as STP, moreover if the business environment is unattractive. Quality electric appliances currently serves the high-end market while low-quality equipment targets majority population. Product warranties are minimal with little options for enforcement. Technical and EE standards for electric appliances are work in progress.

26. Labor market constraints: Being a SIDS, STP faces systemic challenges to source sufficient and well-prepared human resources to develop, operate and maintain minigrids. Due to low average salaries in STP, skilled individuals may migrate to find work in other countries. Operation and maintenance of MG systems requires fast responses to maintain service standards. There is currently no culture, nor capacity, to keep service quality up to standards. There is no strong track record in organizing electricity supply to ensure that qualified staff, materials including spare parts, logistics and oversight are in place when required. The MG operator needs to combine a broad skill set.

27. Private minigrid developer risk: Private minigrids do currently not exist in STP and are not yet considered as a modality for electricity supply in national sector policy. Given the small customer

potential in STP, developers face challenges to reach break-even point and become financially sustainable (even with CAPEX subsidized). Given poor purchase capacity among the general population, value creation at community level is critical to reduce the gap between service costs and service revenues. A local anchor tenant can improve financial sustainability and subsidize other consumers during the minigrid growth phase. Under the utility monopoly, autonomous (private or community) minigrids cannot use their assets as collateral. An alternative scenario can be that the assets are public property and leased to the minigrid operator. Minigrids lack a track record in STP which translates into a high perceived risk concerning both technical performance and a proven business model.

28. Domestic investment and commercial banks: National financial institutions are small and not prepared to approve loans to private developers. Project proposals submitted in recent years recur to international financiers and programs, not to the local bank sector. Government spending is backed up by multilateral and bilateral development banks and funds. The local sector has limited capacity to assess applications for energy systems by customers, beyond standard consumer credit lines.

2) the baseline scenario and any associated baseline projects (see Prodoc 09-019)

29. The baseline scenario in STP is characterized by the mixed pattern of energy sector in its early stages of transformation. As reflected in its NDC, the GoSTP strives to interconnect 100% of the population by 2030. This goal has been embraced by the national utility, EMAE which, with support from development partners, is expanding the T&D network. Since 2014, the sector is governed by the Regime Jurídico do Sector Eléctrico (RJSE, Decree-Law 26/ 2014) which put EMAE under purview of the regulator AGER. Generation by independent power producers (IPP) is now possible but as of 2022, EMAE still operates as a de facto monopolist. Three isolated diesel-based utility minigrids in the south of Sao Tome are now being interconnected, leaving only smaller, dispersed communities unserved (at least 20 communities).

30. There is an acknowledgement that the current utility model is overstretched and unsustainable due to: (i) very high personnel and overhead costs; (ii) high technical and commercial losses (35%); (iii) inability to recover operational costs; (iv) inability of EMAE, and GoSTP, to bear the costs of imported fossil fuels; and (v) inadequate service quality affecting businesses and households. In 2019, an energy crisis was declared by GoSTP prioritizing the development of domestic renewable energies (solar PV, hydro, and biomass). Investment in on-grid RE generation has recently begun with UNDP, UNIDO and AfDB support and ambitious sectoral plans (PANEE, PANER) are laid out.

31. However, addressing more structural issues including sector purview and the adoption of sound business practices in the electricity sector, takes time and the envisioned social and economic benefits are not reaped by the population. To this context, one must add the challenges for SIDS including small human and technological resource base, remoteness to global markets, small internal market, and high cost of capital. As concluded by the AMP, the minigrid model can offer STP a range of approaches that are scalable in terms of scope, technology, and finance thereby reducing investment and operational

risk, and which can help STP to accelerate the transition towards a sustainable, RE-based electricity sector that is based on solid business practices.

32. (Prodoc 79-18), The GoSTP receives support from its development partners through a series of initiatives as outlined hereunder:

33. (1) The World Bank Power Sector Recovery Project (PRSP) concerns actions to restore generation capacity and improve transparency by technical monitoring of utility generation and T&D assets, and meters for large customers. The Least-Cost Power Development Plan (LCDP) provides guidance to GoSTP for planning of new capacity. GoSTP has announced the preparation of an Integrated Resource Plan (IRP) to: (i) update the LCDP, (ii) update the planned generation mix including mini hydro and solar PV; (iii) carry out technical studies on the integration of variable RE (VRE) generators; (iv) assess T&D upgrade needs; and (v) assess technical needs for electricity storage and integration with transport sector.

34. The Energy Transition and Institutional Support Programme (ETISP) implemented by the African Development Bank (AfDB) pursues: (i) initiating the energy transition toward RE sources; (ii) institutional support while strengthening financial governance and the business climate; and (iii) supporting the GoSTP in implementing the ETISP and building institutional capacity. It finances urgent grid reinforcement and maintenance works on existing thermal plants; rehabilitation of the Papagaio hydropower plant (<1MW); and hybridization of Santo Amaro thermal power plant with solar PV. ETISP further supports implementation of an Energy Efficiency (EE) programme.[6]⁶ Scenarios for long-term electricity planning were developed under the Sao Tome Green Energy Acceleration Plan, funded by AfDB.[7]⁷

35. UNDP contributions to the sector include a GEF-5 project [8]⁸. As private participation was found unlikely under the existing market scenario[9]⁹ the project focused on creating enabling conditions for investment including: (i) contributions to the legal and technical framework; (ii) four (4) feasibility studies for sites identified by the LCDP for micro-hydro production (5,2 MW); one (1) complete feasibility and technical study for a solar plant in Santo Amaro (2,2 MW); and (iii) the development of five Integrated Watershed Management Plans of the rivers Abade, Manuel Jorge and Io Grande in S?o Tome and the rivers Papagaio and Banzu in Principe; (iv) full feasibility, socio-environmental study and tender documents for micro hydropower plant in Principe (0,6 MW) to be built with funding of the African Development Bank; (v) Sustainable Land and Forestry Management practices on more than 250-ha; (vi) national training plan for the energy transition; (vii) construction of the first solar PV (Santo Amaro) in partnership with AfDB and United Nations Industrial Development Organisation (UNIDO); and (viii) first rooftop initiative providing energy to the MIRN compound.

36. UNIDO implements the GEF-funded Strategic Program to promote RE and EE investments in the electricity sector of STP.[10]¹⁰ The project pursues GHG emission reductions and domestic value

creation through the uptake of inclusive RE and EE technology markets in STP. The programme envisions: (1) sustainable policies with RE and EE targets; conducive legislation, standards and incentives; (2) RE/EE status report; Geographic Information System (GIS) for mapping of RE resources and high-impact sites; (3) National Sustainable Energy Investment Plan (NSEIP); establishment of Financing Facility; (4) demonstration of feasibility of innovative RE/EE investment projects; (5) improved qualification, certification and accreditation framework; enhanced capacities in public institutions; and (6) online training shared across lusophone countries in the region; support to national RE associations; capacity building, training, and awareness raising. Significant outputs include the National EE Action Plan (PANEE) and the National RE Action Plan (PANER), both delivered in December 2021.

37. Bilateral partners include the lusophone community, notably Portugal, Angola, Brazil and Cabo Verde. Active is also France and more recently ties with China are intensified. the Lusophone Renewable Energy Association (ALER) promotes south-south capacity building and knowledge exchange between Portuguese-speaking countries in Africa. [11]¹¹

3) the proposed alternative scenario with a description of outcomes and components of the project (Prodoc 232-238)

38. The STP child project follows the common theory of change developed in the AMP Program Framework Document (PFD), which is premised on a baseline context in which several risks and barriers are driving high financing costs (equity and debt), which translate into higher energy prices that adversely affect affordability for the end-user and demand for tariff subsidies for rural electrification which governments may not be able to sustain in the long run. By focusing on cost-reduction levers and innovative business models, the AMP aims to improve the economy and financial viability of RE minigrids. With RE minigrids becoming more competitive, risks for private investors reduce and private capital and commercial financing flow in, resulting in investment at scale, accelerated electrification with associated GHG emission reductions, and lower tariffs for end-users. Specifically, the AMP envisions and seeks to develop comparative advantages in three key areas of opportunity: (i) advancing national dialogues on minigrid delivery models, (ii) promoting productive uses of electricity, and (iii) leveraging data and digital solutions for minigrid cost-reduction.

39. The objective of the STP child Project is: To support access to clean energy by increasing technical and financial feasibility and by promoting scaled-up commercial investment, in low-carbon minigrids in São Tomé and Príncipe, with a focus on cost-reduction levers and innovative business models. Specifically, the STP project aims to increase the supply of adequate, reliable, affordable, low-carbon electricity for unserved and underserved communities in STP, with a focus on productive end-users [12]¹².

40. The Project will follow a two-pronged approach by: (1) fostering dialogue and building a conducive regulatory framework for grid-tied and isolated minigrid electricity delivery models in STP;

and (2) accelerating the market off-take of low-carbon electricity technologies including minigrid solutions and small-scale generation systems and energy-efficient electric appliances.

41. Through its focus on value creation from electricity inputs, the Project's Theory of Change is to transform the current, vicious cycle of low productivity and poor electricity service which makes the electricity service unsustainable, into a virtuous cycle, in which: (1) improved electricity services enable higher productivity, which in turn: (2) triggers increased demand and: (3) generates the necessary revenues (increase in purchase capacity) to sustain the electricity service.

42. As minigrids have so far not been considered in Sao Tome and Principe's energy sector framework, key elements for devising a mini-grid delivery model are presently undefined. The island is small and the utility EMAE has the ambition to reach 100% coverage by 2030. Financially supported by World Bank, European Investment Bank, and African Development Bank, investment is ongoing to upgrade the country's generation and T&D infrastructure. For clarification, the status of key aspects for minigrid deployment is summarized in the table below (from Prodoc, 2017, Box 3).

Aspect	Current Status
Ownership and Operation	Budgetary limitations make sector development reliant on concessional funding. Policy for private sector participation is in place for production (IPP) and in progress for distributed power systems by consumers (such as net metering). The utility's management issues are acknowledged but so far third parties are not allowed to operate the grid (or parts thereof). The small size of STP in combination with very low income levels makes it a less attractive market for private sector, which will unlikely invest in grid infrastructure due to high asset exposure. Financial guarantees (alongside evolving sector policy) are required to absorb these risks, which can only be provided by the State backed up by its financiers.
Tariff mechanisms	Not defined for minigrids. Currently, differentiated tariffs are applied according to customer type; these are uniform for the entire territory. The tariffs were last updated in 2007 and are not cost-reflective. With World Bank assistance, AGER developed a new scheme (2020) including a social 'lifeline' level and progressive unit cost in function of the energy consumed. However, this has not been adopted by the Government. Social acceptance is a serious concern, especially in a context in which some groups of customers are reluctant to pay the electricity bill and no counter measures are taken, while others connect informally, undermining system reliability and general public's willingness to pay for utility service. For prospective minigrid operators, this situation is challenging. Given its small size, a geographically differentiated tariff is not likely as this may lead to inequalities in energy costs for productive customers putting those in rural areas in a disadvantaged position.
Subsidy mechanisms	Not defined. With a geographically uniform tariff, cross-subsidies will be in place. Currently, sector investment is back by high concessional funding from multilateral banks (grants). CAPEX subsidies can be expanded to minigrids and distributed power systems (such a rooftop PV integrated into a local minigrid model).

Regulation	Not defined. Sao Tome and Principe does not have a policy for off-grid electrification, neither a delimitation of areas that are foreseen to remain unserved by the main grid. The utility EMAE still acts as the de facto monopolist including sector planning but a gradual shift of sector governance has started. Electrification challenges in the country are a combination of unserved (officially 13% of population) and underserved affecting large sectors of the population (due to weak distribution grids, insufficient generation capacity, and high technical and commercial losses). The isolated, utility diesel grids in the country are affected by fuel availability and costs, and management issues.
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Managerial, technical, and operational constraints however make 100% main grid coverage unlikely to happen in the medium future. As such, a discussion has started towards the adoption of alternative schemes, including minigrids, distributed (embedded) power systems at end-user premises, and demand-side management. Parallel to this discussion, is the urgent need to reduce dependency on fossil fuel imports due to intermittent supplies and prohibitive market price levels (as of Q2, 2022). In practice, an enhanced operational model is welcomed as a way to mitigate current weaknesses. A firewall between politics and electricity sector operations is also needed to combat commercial losses and implement sound business practices.

43. Specific regulation for minigrids is not in place yet, but smart grids and decentralized, privately-owned RE power systems are identified as a priority action in the PANEE. The Energy Services Company (ESCO) model could be an appropriate delivery model to attract private sector participation (see also Prodoc, Fig. 7).

44. A brief outline of the Project components, in adherence to the general structure for child projects as indicated by the AMP, is as follows: (1) Policy and regulation; (2) Business model innovation with private sector; (3) Scaled-up financing; (4) Digital and Knowledge Management; and: (5) Monitoring & Evaluation; these components are briefly described below. Please refer to the Results Framework in Annex A for the proposed progress indicators and targets.

45. Component 1: Policy and regulation (GEF US\$ 413,000; co-finance US\$ 2,000,000). Outcome 1: Stakeholder ownership in a national minigrid delivery model is advanced, and appropriate policies and regulations are adopted to facilitate investment in low-carbon minigrids. (Prodoc ?59-?73). The specific objective of this component is to establish a conducive policy and regulatory framework for the electric minigrid sector in STP, articulate the delivery model appropriate for the country, and ensure national ownership. Specifically, the Project will contribute to the dialogue on the future of STP's energy sector, which has already started brought initial changes in the sector governance and market model (Output 1.1). The dialogue is a continuous process focused currently on increasing installed electricity generating capacity, upgrading T&D infrastructure, reduction of technical losses, and reduction of commercial losses by the installation of (smart) meters at customers. The AMP will contribute to this process addressing key issues regarding who finances, builds, owns and who operates and maintains minigrid solutions, and aspects including tariffs and subsidies.

46. The dialogue will take place at the highest level with thematic working groups in charge of problem analysis and proposal preparation. Several project outputs are defined to provide relevant inputs including the following. Execution of UNDP's Derisking Renewable Energy Investment (DREI) techno-economic analysis (Output 1.2). This output will assist the GoSTP to identify appropriate instruments for de-risking of investments in RE assets and related infrastructure. DREI is a quantitative framework to support policy makers to promote investment in renewable energy and will serve as the AMP's mechanism to track and share information on minigrid costs and cost reductions.

47. Support for legal and regulatory framework for distributed power systems and minigrids (Output 1.3). This output will enhance and complement work in progress under the baseline supported by STP's development partners. The focus is on strengthening the legal basis for distributed power systems including grid-tied and isolated minigrids, and on building a more dynamic electricity market model enabling better utilization rates of installed generation capacity and grid infrastructure. Key elements include: (i) legal definition of concepts and technologies relevant to distributed electricity networks including minigrids and smart grids; (ii) consideration of minigrids considered in tariff update proposals by AGER; (iii) gender-responsive and inclusive tax policies to mitigate the high CAPEX of minigrids; (iv) recommendations for power transactions between the utility and distributed RE power systems, including minigrids and smart grids; (v) assessment and recommendation of legal status of minigrids, model contracts, performance criteria.

48. Minigrid project developers are facilitated by the preparation and publication of relevant data, analyses and studies (Output 1.4). This includes: (i) to collect and validate available information describing distribution grids, grid extension plans, distribution level demand profiles, maps of population density, demographics and income levels, among others; (ii) current energy use, ability and willingness to pay, electricity consumption relevant discrete productive consumers (larger public and private consumers), and derivation of load profiles. The findings shall translate into a portfolio of candidate areas for the application of isolated and/or grid-tied minigrids; (iii) market intelligence and analysis covering the market offer (minigrid developers and technology suppliers), financial analysis, cost-benefit analysis, and risk analysis of minigrid business models; and technical and operational sustainability aspects, among others.

49. Quality standards for solar mini-grid components will be assessed and adopted as a basis for eligibility under public tender/procurement schemes and/or financial incentive schemes and financing programs (Output 1.5). The Project shall seek harmonization with common standards in the region while acknowledging applicable national standards. The consolidated standards will provide a basis for efficient procurement and quality assurance and contribute to compliance with relevant UNDP and GEF safeguards.

50. Output 1.6 responds to the Project's Social and Environmental Screening Procedure (SESP, Prodoc Annex 5) by funding the social and environmental assessments and management activities stipulated in the SESP, including adaptation thereof to SESP updates and progressive insights. Finally, human capacity gaps in the energy sector are addressed by supporting curriculum development, partnerships with foreign training institutes and universities, and technical training. Given STP's small national market, this output shall aim at building capable human resources in the broader region of the ECCAS, and Lusophone community (Output 1.7).

51. Component 2: Business model innovation with private sector (GEF US\$ 1,083,000; co-finance US\$ 9,500,000). Outcome 2: Innovative business models based on cost reduction operationalized, with strengthened private sector participation in low-carbon/renewable energy minigrid development. (Prodoc 74-100). The objective of this component is to prepare, implement, and monitor minigrid demonstration projects in the country under a defined delivery model.

52. The Project Preparation Phase has identified three (3) minigrid schemes as highly relevant for Sao Tome and Principe, as summarized in the table below (from Prodoc 39, Table 3). In STP, the productive use overlay is not directly pursued but energy supplies for creating economic and social value is a key aspect of all proposed pilot types. The identified minigrid schemes serve as reference to design minigrid pilots under the Project. Each scheme serves a different category of end-users (market niches), involves different technological solutions, and has different potential for replication. Importantly, each scheme has associated risk and the overall risk profile varies.

Type of pilot	Description	Scenario without project	Use of GEF funds
Hybridization of existing or planned diesel minigrids (rural population)	?Minigrid Scheme 1: Hybridization of existing, isolated, utility diesel-grid with RE generation, MG management model and payment scheme.? The population size is typically between 1,000 and 3,000 people per community. The Minigrids Pilot Plan would further document the justification (if any) of hybridizing instead of replacing existing minigrids for sites	Diesel-only minigrid system with intermittent service.	<p>GEF funding will not be used to finance interventions to hybridize existing minigrids where the diesel capacity is increased. In no cases will GEF funding ever be invested in fossil fuel power generation assets.</p> <p>The GEF funds will go towards adding PV-capacity to the existing diesel minigrid and progressively phasing out the legacy diesel plants, alongside upgrading of distribution grids, implementation of metering service and adequate business operations</p>

Grid-tied minigrids based on distributed RE generation (urban/peri-urban population)	?Minigrid Scheme 2: Embedded distributed power generation by private commercial ?prosumers? to strengthen weak utility grid.? Typically, grid distribution areas of 5,000 to 10,000 people with about 100 ?prosumers? are targeted.	Existent Intermittent utility grid service.	GEF funds and co-finance will be used as CAPEX subsidy for eligible RE/EE proposals by ?prosumers? in targeted grid areas.
Greenfield minigrids (rural population)	?Minigrid Scheme 3: RE-based MG in small, remote, off-grid community with public service anchor tenant, following MG management model and payment scheme.? The population size is typically between 30 and 150 people per community.	Without access to basic electricity service.	GEF funds will be used for developing one or more minigrids (microgrids or solar PV lantern schemes) and finance CAPEX (alongside co-finance).
A productive use overlay to an existing or planned minigrid	This type is not pursued explicitly in Sao Tome and Principe. However, productive use of electricity is specifically targeted in Schemes 2 and 3.	-	-

53. These pilot proposals are conceptually defined. Hence, no specific site has been selected as yet. The viability of each, including compliance with UNDP and GEF safeguards as well as technical and economic feasibility, needs to be further assessed, after which the Project will support implementation of one or more of these business cases. Detailed assessment, including the collection of additional information, shall take place during the Project (Component 2). The PPG mission has performed an initial analysis of the Strengths, Weaknesses, Opportunities and Threats (SWOT) of these cases, which is attached to the Prodoc as Annex 22 (see also Prodoc Tables 4, 5, and 6 for a summary of the SWOT analysis).

Minigrid Scheme 1 (isolated grids): The baseline situation is the public utility which is the prevailing business model for public electricity supply in STP, both the main grid, and the three isolated grids in the South targeted by Minigrid Scheme 1. The purpose of Minigrid Scheme 1 is to re-constitute these isolated grids as RE-powered minigrids that are managed and operated sustainably in accordance with the AMP's principles and safeguards. The existing diesel plant may not be relocated, but diesel back-up is foreseen to be phased out. The GEF funding will not be used to finance interventions to hybridize

existing minigrids where the diesel capacity is increased. In no cases will GEF funding ever be invested in fossil fuel power generation assets. The utility

envisions to interconnect the area to the main grid and a transmission line is currently being built. However, it is recognized that the national grid system is too weak to deliver adequate service.

54. User willingness to pay is partly mapped. In some areas, bad attitudes have been created due to unenforced payment collection, causing the population to view the electricity service as a "right for free". Simplifying matters, the lowest income strata refrain from accessing the electricity grid. This is less of an issue of tariff affordability, but rather of the prohibitively high connection fee with EMAE and of a lack of savings and access to credits for house-wiring and appliances (as per ESMAP 2017).

55. The isolated grids in the South already have productive uses of electricity in place, such as small commerce, refrigeration etc. As mentioned, current utility supply is intermittent but cheap (low tariff with payments often not charged due to irregularities). Hence, people take benefit to obtain cash income but they do not invest to grow further or improve. More dynamic and wealthy entrepreneurs also exist. These demand quality, for example for ecolodges targeting (foreign) tourists; they don't view interconnection to the isolated grids nearby as a viable solution for their needs. Owners invest over 100,000 US\$ (all equity) in autonomous PV-battery systems to ensure adequate service levels to satisfy customer requirements. The investment is recuperated through the revenue stream from tourism. These entrepreneurs are a minority group who has own capital.

56. Minigrid Scheme 2: Embedded distributed power generation by private commercial ?prosumers? to strengthen weak utility grid. This scheme concerns an embedded minigrid in which multiple consumers (typically commercial establishments in the range 5-50 kW) implement RE generating capacity (typically rooftop solar PV systems) accompanied by EE measures to reduce their energy bill expenses and to mitigate utility grid disruptions. The Project envisions preparing a one or more Call for Proposals inviting this market segment to present investment proposals, which will be evaluated by the Project according to criteria laid out in the MPP, such as minimum technical and performance specifications for the hardware, payback time, expected energy savings and GHG emission reductions; and requested CAPEX subsidy for the investment.

57. In order to become a ?real? minigrid scheme, a phased approach is required dictated by progressive regulation of decentralized power systems in the utility?s distribution grid. The immediate ambition level is to improve reliability and availability of electricity supply, enabling customers to operate their businesses more successfully and increase turnover (productive use). For some businesses, such as dairy processing or fisheries which rely on an uninterrupted cold chain, on-site power supply is critical. At all ambition levels, the embedded minigrid scheme is highly scalable and replicable can serve as a paradigm for a decentralized sector model. Importantly, it provides a platform for new business development adding value to the sector, and establish a new type of customer relations across the network.

58. Towards Project finalization, it is expected that multiple distributed generators are in place, local grid performance parameters have improved, and customers receive financial stimuli to supply power

and/or adjust demand. This scenario assumes that progress is made in the regulatory domain, including enabling of net metering and billing, for which proposals are currently being prepared. This ambition level further builds on the prioritization of regulation enabling smart grids in the National EE Plan (PANEE). In alignment with the key principles of the AMP and its digital component, all supported investments will be collectively monitored through a data acquisition system for data collection, sharing and analysis.

59. Minigrid Scheme 3: RE-based minigrids in small, remote, off-grid community with public service anchor tenant, following minigrid management model and payment scheme. Sao Tome hosts rural communities (officially: 13% of population) that are not interconnected to the main grid and for which grid extension is not cost-effective as loads are very small. The Project seeks to support off-grid minigrid ("microgrid") schemes. The majority of these communities lack access to electricity altogether, including modern cooking technologies and access to key public services (potable water, sanitation, and health services) which rely on electricity supply.

60. Local partners have advised that household income levels are very low. Many families have no access to electricity and those who could connect to the main grid often choose not to do so for financial reasons. In response, minigrid schemes based on the provision of PV lanterns and cell phone charging, around a community charge center may be more adapted to the local situation allowing financial sustainability. An opportunity exists by linking to health services as the anchor tenant (a productive user creating social value).

61. The promotion of such microgrids in STP may well be pushed by sectors different to the traditional electricity sector (e.g., health, education, community development, agriculture), as primary focus is on the delivery of basic services rather electricity as a commodity. Given existing needs for, for example, potable water (water filters) and waste management, a combined service operator scheme for rural communities seems promising offering scale and efficiency gains. Specific, cost-based tariff models for PV lantern schemes can be assessed and proposed by the regulator (AGER). Small minigrids of this kind may also benefit from simplified technical specifications (thereby reducing CAPEX).

62. The AMP's overarching principles apply to each of these Minigrid Schemes, ensuring that an investor/operator modality is in place with responsibility to ensure service quality over the established lifetime. Solid project design and approval by the Project Board shall warrant sustainable operation during lifetime at three levels:

63. - Project level: by following a due diligence approach towards technical and financial sustainability (robust assumptions as related to cost aspects, revenue streams, appropriateness of technical specifications, compliance, system integration and O&M. This, alongside enforcement of social and environmental standards and safeguards. Among other aspects, special attention shall be given to tropicalization of solar panels, batteries, controllers and connectors, given the hot and humid climate in the country.

64. - Minigrid governance level: by putting in place an appropriate ownership/operator model, anchored through long-term contractual agreements. For Scheme 1 (isolated minigrids), asset

ownership is presumably public (EMAE) but other options will be assessed; for Scheme 2 (grid-tied RE systems), assets will be held by private sector; for Scheme 3 (micro-grids), a dedicated private, or possibly community-based entity is foreseen to own the system. In all cases, operation shall be according to sound business principles allowing a surplus for re-investment and expansion of the service. Mixed-capital ventures through public-private partnerships will be encouraged.

65. - Sector framework level: by assisting GoSTP and its partners to put in place a conducive framework for minigrids and other decentralized energy systems in STP. Given the AMP's limited time horizon (4 years), the Project cannot warrant that legislation and agreements enabling minigrids (specifically the pilots) will be respected over lifetime of the investment. A political risk exists that cannot be ignored. This is mitigated by UNDP's long-term commitment enabling it to maintain a constructive dialogue with policy makers in support of building a low-carbon, resilient power sector in STP.

66. Output 2.1 encompasses the scoping, design, technical specification, economic and financial analysis, assessment of social and environmental benefits, impacts, and applicable safeguards for proposed minigrid pilots (isolated and grid-tied), including the consolidation of envisioned business models and investment. The process will be led by the Technical Advisor assisted by an expert Project Engineer. In Project Year 1, a Minigrid Pilot Plan will be prepared for detailing and advancing the envisioned pilots. Minigrids initiatives in STP can be either private/community-led, or initiated by the Government through a call for services and infrastructure. The Project will assess these options in more detail and elaborate on the legal, regulatory, and commercial implications. The Project team, in close dialogue with the Implementing Partner, will shape a customized, competitive process to select minigrid pilot developers. Options include a call for expression of interest, publication of an incentive model, or project partnership).

67. Outreach activities to the private sector and end-user groups are envisioned to increase the quality of minigrid (pilot) proposals (Output 2.2). This encompasses: (i) evaluation of potential project sites on terrain, socio-economic, infrastructure challenges, and risks; (ii) support and training for proposal writing to access external finance and permitting. Another aspect is empowerment of end-users and communities (Output 2.3). This is pursued through awareness building, information campaigns, and ongoing needs analysis; and organization of communities for quality assurance and complaints handling. The Project will contribute to building civil society capacity to increase demand for adequate, affordable, and low-carbon electricity services in adherence to appropriate quality standards.

68. The actual investment, construction and operation of the pilots is the scope of Output 2.3. This entails communication with the energy users in the target area(s), prospection, drafting of detailed procurement plan, and preparation for equipment installations. In the context of STP, pilot preparatory work will include one part assigned to the public sector (DGRNE supported by the Project team) and another part to the awarded operator. Planning is critical, especially delivery times by equipment suppliers after contract award may be lengthy. The Project Engineer will be in charge of process purview and be present during formal acceptance of equipment and works. Data generated by the pilot(s) - once in operation - will be collected using the digital platform, connecting directly to remote monitoring and smart metering equipment.

69. GEF funds are available to reduce operator's financial risks through incentives informed by the DREI process. The funding will be targeted at demonstrating the indicated Minigrid Schemes 1, 2, and 3 through a tailored CAPEX subsidy. The feasibility, sustainability risk, and required subsidy level will be assessed in detail according to the minigrid design process to be laid out in the MPP. For each Minigrid Scheme, evaluation criteria, milestones, and go/no-go decision points will be defined. Long-term finance including OPEX subsidies or annual, performance-based payments, will be modelled through a sustainable finance and guarantee scheme (Component 3). To this purpose, the Project with support from UNDP will maintain a continuous dialogue with the GoSTP and the development partners, specifically the MDBs.

70. Component 3: Scaled-up financing (GEF US\$ 87,000; co-finance US\$ 500,000). Outcome 3: Financial sector actors are ready to invest in a pipeline of low-carbon minigrids and concessional financial mechanisms are in place to incentivize scaled-up investment. (Prodoc ?101-?106). This outcome addresses the challenges to sustain capital flows towards in minigrids and RE technologies in Sao Tome and Principe and foster investors' appetite in this sector. Public budgets for investment are heavily constrained as the country largely depends on concessional funding from its development partners for investment and recurrent expenditures. Given the very low-income level of most of STP's population, minigrid operators will require subsidized tariffs to cover operational costs. Long-term contracts have been identified as a de-risking measure to persuade minigrid operators to enter the market. Such contracts shall be backed up by financial guarantees. The Project will collaborate with STP's development partners to design and implement a long-term financial instrument to this purpose.

71. The Project will support the design of a financial facility for minigrids, distributed electricity grids and services (Output 3.1). This project will participate in high-level negotiation and design panels to collaborate with multilateral agencies in STP and/or the region. Where possible, leverage of partners and funding is sought through the AMP Regional Programme thereby seeking economies of scale. It further encompasses promotion and targeted training for national financial sector entities to understand and implement RE/EE financing schemes for households and commercial sector (Output 3.2). The Project will encourage strengthening of partnerships in the region enabling local banks to pool resources. In collaboration with MDBs, the Project will explore synergies with related fields, including investment in productive uses (such as by rural banks), insurance policies and terms to mitigate loan risks, collateral terms, and mitigation policies to address climate risks.

72. Component 4: Digital and Knowledge Management (GEF US\$ 121,059; co-finance US\$ 500,000). Outcome 4: Digitalization and data mainstreamed, across stakeholders, into local minigrid market development. Increased knowledge, awareness and network opportunities in the minigrid market and among stakeholders, including benefitting from linkages to international good practice. (Prodoc ?107-?118). Supported by the AMP Regional Project, this component will make available specialized digital tools and solutions for the off-grid and minigrids sector in the participating countries, identify relevant cases, and assess value and social impact. Digital technologies and solutions are fundamental to enabling off-grid electrification. And offer significant cost-reduction opportunities.

73. The project will prepare a digital strategy to improve minigrid scalability and oversight, departing from the overall digital strategy developed by the Regional Project (Output 4.1). A digital hardware/software system (the ?Minigrid Digital Platform?) will be adapted to context of STP offering

benefits to the sector agencies (Implementing Partner) including: (i) validation and storage of data and characteristics of all distributed energy projects/programs at in a centralized database; (ii) interface for collection, management and aggregation of data from all minigrids and connected RE systems; (iii) possibility to run digitized tenders and administer grants (if considered by Government); (iv) performance verification of minigrids; (v) real-time monitoring and evaluation of electrification projects/programs; and (vi) advanced analytics of minigrid portfolios to generate critical insights. The platform will be hosted by the DGRNE.

74. A standardized framework (the Quality Assurance and Monitoring Framework -QAMF) will be developed by the AMP Regional Project for measuring, reporting and verification of the impact of the supported pilots, to be adopted by the child projects (Output 4.3). Learning and capturing of lessons learnt is a key aspect of the AMP Regional Project. Communities of Practice (CoP) are supported by UNDP's partner in the AMP, the Rocky Mountains Institute (RMI). The COP will share knowledge and facilitate the development of solutions to common challenges within the African minigrid sector providing support to ministries, government agencies, and electric utilities, among others. The CoP will strengthen South-South cooperation and learning, drawing on the experiences of participating countries in minigrid cost reduction and deployment, with a focus on policy & regulations, finance, and new business models (Output 4.4). Within this approach, all projects will contribute to the preparation and publication of knowledge products (?insight briefs?).

75. Component 5: Monitoring & Evaluation (GEF US\$ 85,349; co-finance US\$ 50,000). Outcome 5: Ensuring compliance with all mandatory monitoring and reporting requirements of the GEF. (Prodoc ?119-?120). This outcome will assist the Implementing Partner in establishing project oversight and monitoring systems, including the Project's Environmental and Social Management Framework (ESMF) and resulting management plans and the Gender Action Plan (GAP) as part of the project's Inception phase and Workshop (Output 5.1). It further comprises the implementation of: (Output 5.2) the Mid-term Review (MTR); and (Output 5.3) the GEF Terminal Evaluation (TE) of the Project.

4) alignment with GEF focal area and/or impact program strategies

76. This Project is aligned with GEF-7 Climate Change Mitigation Objective 1: "Promote innovation and technology transfer for sustainable energy breakthroughs", through CCM 1-1 - Promote innovation and technology transfer for sustainable energy breakthroughs for de-centralized renewable power with energy storage. It also contributes to GEF-7 Programming Directions to accelerate "the speed and scale of sustainable energy investment in developing countries", to develop "innovative business models that go beyond business as usual" and to foster innovation.

5) incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing

77. The Project builds on STP's baseline scenario to upgrade the electricity sector, improve coverage and service quality, and drastically reduce dependency on imported fossil fuels. In adherence to national development plans and sector policies and plans and the updated NDC (2021) which sets forth 49 MW RE generation by 2030 and a 100% electrification rate. The transition will assist STP to control expenditures on imported fossil fuel and achieve a more balanced and resilient energy matrix. As reflected in the National EE Action Plan (PANEE), RE-based distributed generation in combination with battery storage and smart grids are considered to build a more resilient sector model.

78. Public-sector contributions under the baseline include: (i) incremental improvements to the sector policy and regulatory framework; (ii) rehabilitation and expansion of existing central power plants including thermal (such as Santo Amaro) and hydropower (including Contador and Papagaio); (iii) investment in transmission and distribution infrastructure; and (iv) introduction of (smart) electricity consumption meters. Capital expenditures and recurrent costs to execute baseline activities in the energy sector are made with financial support from STP's development partners including WB, EIB, AfDB, UNIDO, UNDP, and bilateral partners. Private sector investment in RE-based power plants and minigrids as anticipated at PIF stage is prioritized by GoSTP to fast-track an initial pipeline of projects.[13]¹³ However, private sector appetite so far has not met GoSTP expectations. Country risks are deemed high and guarantees to absorb financial risks (including counterpart risk for PPAs with EMAE) are not in place yet. This justifies a systematic and comprehensive approach to de-risking of RE investments as pursued by the AMP.

79. The Project's incremental action will enable GoSTP to address institutional and capacity limitations and accelerate the delivery of policy instruments and regulation. To this purpose, the Project will make available specific know-how, methodologies and tools and tap into the global knowledge base. It is acknowledged that minigrids are new to STP and considered in the current sector model. There is little experience so far with modular, minigrid technologies including remote supervision, digital payment, and after-sales services by an electricity supplier. In the policy and regulatory domain, work is to be done on technical and performance standards for minigrid equipment and systems, cost levels, and access to finance, and the design of an adequate delivery and business model in the context of STP. A local ecosystem needs to be built covering aspects such as system design and integration, maintenance and servicing, as well as disposal of used equipment, notably batteries. The Project will bring in expertise in all these areas which is currently not available in STP. Given STP's scale limitations, the Project will encourage building a regional ecosystem within the context of ECCAS and the lusophone community, and capitalize on the synergies and partnerships arising from the AMP as a regional initiative in Africa.

80. The expected contributions from the baseline will be of the order of USD 12,967,000 as specified in Table C. As part of the baseline commitments, UNDP will provide USD 50,000 TRAC funds (grant administered by UNDP) and continuous support to the Implementing Partner through the AMP Regional Project team, the Regional Support Centre and the UNDP Country Office in STP.

6) global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF)

81. (Prodoc ?121-122) The project is expected to bring about the direct commissioning of 0.7 MW in solar photovoltaic (PV) generation capacity and 1.0 MWh of battery storage. The lifetime greenhouse gas (GHG) emission reduction from project activities, particularly investment in minigrid pilots, is estimated at approx. 20,500 metric tons of carbon dioxide equivalent (tCO₂eq) (direct) and 5,500 tCO₂eq (indirect). The number of direct beneficiaries is estimated at 21,750 people, of which at least 50% are women, as a result of 4,400 new and/or improved minigrid connections.

7) innovativeness, sustainability and potential for scaling up

82. (Prodoc ?138-?142) Innovation is at the core of the AMP Program given its focus on cost-reduction and enhanced business models to increase affordability of RE-based electricity. De-risking of RE investments in combination with cost reduction translates into lower financing costs for the investor and increases economic and financial sustainability. Hardware, project development, and operational cost reductions are sought through competitive selection of minigrid project proponents to set a trend towards lower unit energy costs (LCOE) in the region. The incorporation of productive energy uses provides opportunities for income generation in communities improving local capacity to pay for, and sustain, the service. The focus on the utilization of digital technologies is another innovation of the AMP, harnessing the opportunities of digitalization for improved efficiencies, lower costs and risks, facilitate the flow of investment and revenue streams, and thereby contribute to sector development in the region.

83. Specifically, the STP project is innovative as it seeks to mainstream the concepts of minigrids into national electrification plans and articulate minigrid solutions in function of beneficiaries (off-grid, unserved, embedded), each of them with a distinct reality, background, and needs. Given the small scale of STP, the minigrid approach promises to deliver tangible and sustainable, low-carbon solutions that may serve as a paradigm towards a more decentralized, resilient electricity sector in the country. Synergies with other sectors, including small and medium enterprises, tourism, and public services (e.g., public health, water supply, and waste) are exploited to maximize impact and leverage funding from other sectors to cover investment and operational costs. As such, the STP Project seeks to produce value for the national economy, as well as financial returns on capital expenditures.

84. Social and economic sustainability is pursued based on a human rights approach to secure access to clean and affordable energy and related services. The STP Project aims to test and anchor the required boundary conditions for minigrids to actually deliver on this promise. These include: (a) thorough specification and testing of applied hardware, including a definition of the appropriate product choice striking a balance between hardware design, serviceability, repairability, replacement, and overall costs and support infrastructure; (b) social acceptance including local willingness to pay and care for installed equipment; (c) promotion of productive energy uses and access to finance for appliances and equipment by end-users; (d) integration of environmental protection aspects in the business model (such as waste collection). Given beneficiaries' very low-income levels, the Project

seeks securing financial and operational sustainability through long-term service contracts under public procurement.

85. Environmental sustainability is of particular concern (see also section on *Risks*, below). Environmental risks are essentially two: (i) potential adverse impacts on biodiversity and habitat; and (ii) dispersal of electronic waste including batteries, into the environment. Environmental sustainability is guided by the Project's Environmental and Social Management Framework (ESMF) aimed to avoid and prevent adverse effects. As concerns the generation of waste, the PPG observed that waste management practices in STP are still weak and often absent especially in rural areas. In particular non-degradable waste and objects (plastics, batteries, broken equipment and tools) are abandoned and become dispersed in the environment. The situation poses a challenge for the repair and end-of-life treatment of minigrid components including wiring and electric appliances. Increasing awareness of the local population and inducing a sense of ownership and responsibility is one line of action. A second one is the integration of electronic waste management into an Extended Supplier Responsibility (ESR) scheme. Among other options, such responsibility could be demanded from a minigrid operator under its contractual obligations.

86. Potential for scaling up is significant at project level as well as strategically. Isolated minigrids in STP have limited potential for replication; more likely, the isolated grids as well as other utility grid areas are expected to evolve into grid-tied minigrids, with the potential to be operated as decentralized smart grids by a designated operator. The STP project envisions accelerating market uptake of distributed RE systems by customers seeking a more reliable and cheaper electricity supply. Sector policy and regulation enabling such scheme is in progress. Notwithstanding STP's high electrification rate, many small communities exist (at least 30 communities with 200 people) who would remain deprived from any electricity service in the medium future (10-20 years). The small minigrid ("microgrid") model including solar PV lantern/cell phone charging schemes around a community/health center, would be a valuable response to serve this market.

87. Sustainability and relevance viz-a-viz COVID-19 effects is addressed through the overall approach of this programme in the context of a potential pandemic situation. It contemplates in the first place the assessment of the programme's relevance through three main questions, namely (i) the likeliness of a change in national priorities; (ii) the validity of original assumptions and theory of change in the programme with regards to vulnerable groups and drivers of change; and (iii) the need for UNDP to re-prioritize existing programming and rapidly deliver a new programme offer to help the country respond. Access to energy and in particular, access to clean energy and the promotion of scaled-up commercial investment in RE technologies, are expected to remain a priority even under a pandemic situation. The AMP has identified opportunities for building back better and greener, offered by STP's COVID-19 SERP (Socio Economic Response Plan), ensuring and sustaining a focus on the poorest and leaving no-one behind. In particular, Pillar 3 of the SERP offers an adequate canvas for the AMP since it includes areas of investment in which the AMP could leverage the potential of the use of solar energy, especially for productive uses.

- [1] <https://www.ica.org/reports/sdg7-data-and-projections/access-to-electricity>
- [2] Round 1 countries: 221.3 million people without access to electricity, Round 2 countries: 63.4 million
- [3] Sao Tome and Principe, Nationally Determined Contributions (NDC-STP) Updated, 2021. Source: <https://unfccc.int/documents/497944>.
- [4] Plano de Acção Nacional das Energias Renováveis (PANER) para São Tomé e Príncipe, p.8
- [5] SAIFI = System Average Interruption Frequency Index; SAIDI = System Average Interruption Duration Index.
- [6] ETISP implementation started in 2020 and will last 4 years. Technical assistance was further provided under the AfDB/SEFA ML-0024 Sao Tome e Principe Mini-hydropower projects support programme (July 2018 - December 2021).
- [7] Presentation 14 February 2022, by iED Consultants, for the Government of STP.
- [8] GEF-5 project PIMS4602 "Promotion of Environmentally Sustainable and Climate-Resilient Hydroelectric Electricity through an Integrated Approach in Sao Tome and Principe". Operationally closed since April 2022 but open until September 2022.
- [9] The UNDP Project's Mid-term Review concisely depicts the challenge for a private operator: "this (?) will require, at this moment, investments in the network, dispatch, counting and marketing systems and, also, conjunctural costs of context as a guarantee of payment." Source: <https://erc.undp.org/evaluation/documents/download/15152>
- [10] UNIDO Project 150124, GEF ID 9897. GEF grant US\$1,575,571, approved in 2019. Executing partners are MIRN, APAP, and the ECOWAS Centre for Renewable Energy and Energy Efficiency (ECREEE). The Project started in 2017 and will run until May 2023. <https://open.unido.org/projects/ST/projects/150124>
- [11] ALER Relatorio 2020, <https://www.aler-renovaveis.org/>
- [12] Indicatively: small businesses (from micro to SME) with commercial, agri-food, and manufacturing activities. Tourism is a large commercial sector. Public services may also be considered as a productive use (social/human capital).
- [13] Decree- Law No. 1/2020 of 17 February, which establishes the special regime for acquisition of RE electricity by EMAE.

1b. Project Map and Coordinates

Please provide geo-referenced information and map where the project interventions will take place.

88. The PPG has identified three specific minigrid schemes (or: business cases), which are as follows: (1) Isolated PV/battery minigrids: Southern coast of Sao Tome Island; (2) Grid-tied PV minigrids: urban and peri-urban area in and around Sao Tome capital; and (3) PV-based micro-grids (even lantern schemes): small, currently unserved communities in central part of Sao Tome Island. These pilots are conceptually defined. No specific site has been selected as yet. The viability of each, including compliance with UNDP and GEF safeguards as well as technical and economic feasibility, needs to be further assessed, after which the Project will support implementation of one or more of these business cases.

89. The table below provides indicative areas (coordinates) for each of the models, in respectively, the South (1); peri/urban area (2); and (3) Central, unserved, area; of Sao Tome Island. For a map, reference is made to Annex E of this document.

S?o Tom? and Pr?ncipe AMP Child Project (PIMS6657) ? Areas of Intervention				
	national territory	Mini Grid Scheme 1 Pilot Area	Mini Grid Scheme 2 Pilot Area	Mini Grid Scheme 3 Pilot Area
Description		Southern part S?o Tom?	S?o Tom? (peri-) urban area	S?o Tom? central area
Coordinates	whole of S?o Tom? and Pr?ncipe	Between: 0?04'26.2"N 6?30'15.7"E and 0?01'07.4"N 6?34'17.9"E	Between: 0?22'28.9"N 6?40'16.5"E and 0?19'06.2"N 6?44'28.9"E	Between: 0?17'38.0"N 6?38'23.9"E and 0?15'01.5"N 6?42'37.1"E

1c. Child Project?

If this is a child project under a program, describe how the components contribute to the overall program impact.

90. (Prodoc, ?21-31) The Project is part of the Africa Minigrids Program (AMP, GEF ID 10413), a regional technical assistance program with the objective of supporting access to clean energy by increasing the financial viability and promoting scaled-up commercial investment in renewable minigrids, with a focus on cost-reduction levers and innovative business models. The programmatic approach aims to achieve greater impact by creating new minigrid markets across the African continent, which, in aggregate, will create scale and momentum, attracting private sector interest and investment. It will also allow for a broader sharing of knowledge and good practice and create economies of scale in providing program services.

91. The AMP is comprised of two main elements: (i) a Regional Project, acting as the knowledge, advocacy and coordinating platform of the Program; and (ii) a cohort of an initial 21 AMP National Projects that share a common approach, seeking to reduce minigrid costs via five country-level components: (i) policy and regulations, (ii) business model innovation with private sector, (iii) scaled-up financing, (iv) digital and knowledge management; and (v) M&E. With UNDP acting as the lead

GEF Agency, the Regional Project activities are executed by UNDP's partner the Rocky Mountains Institute (RMI).

92. Within this architecture, AMP will emphasize - and seek to develop comparative advantages - in three key areas of opportunity: (i) an emphasis on advancing national dialogues on minigrid delivery models, (ii) promoting productive uses of electricity (PUE), and (iii) leveraging data and digital solutions for minigrid cost-reduction. Collectively these three areas can guide AMP's overall direction, creating a niche identity for the program. The child project including the STP Project have assigned budget for supporting minigrid investment pilots seeking to demonstrate innovative business models and cost-reduction opportunities (Component 2). The minigrid pilots play a key role within the AMP by probing and demonstrating cost-reduction opportunities which can be leveraged to improve the financial viability of renewable energy minigrids. The pilots are aligned with one or more of the three key areas of opportunity mentioned above.

93. All child project components and outcomes are structured according to a harmonized Results Framework. Standardization at output level has been pursued through a menu of applicable outputs allowing an approach tailored to the needs of each individual country as determined through the assessment of risks and barriers (Prodoc, table 19). This structure is further specified at the activity level. Progress and impact monitoring is done through a harmonized set of indicators for all child projects, which feed into the aggregated indicators of the AMP.

2. Stakeholders

Please provide the Stakeholder Engagement Plan or equivalent assessment.

94. (Prodoc 133-135) The Stakeholder Engagement Plan is presented in Prodoc, Annex 8. This Plan will be used as a tool for reference and will be further detailed during the Project's inception phase and updated annually. The Stakeholder Engagement Plan is a starting point for the design of the Project communication strategy and specific communication plans which will be further elaborated during the inception workshop (output 5.1.1).

Purpose: The purpose of the Stakeholder Engagement Plan (SEP) for STP is to support the identification of key stakeholders and undertake the consultations required throughout the project cycle. The SEP is part of the UNDP Social and Environmental Safeguards (SES) requirements and shall be reviewed and updated during the course of the social and environmental assessment processes required for the development of the Project's Environmental and Social Management Framework (ESMF). In addition to national requirements for stakeholder consultations, the Project will adhere to the relevant UNDP requirements on public consultation and disclosure requirements specifically the Guidance Note of the UNDP Social and Environmental Standards (SES) for Stakeholder Engagement. The SEP shall enable the Project to meet the requirements of the GEF's Environmental and Social Safeguards Policy regarding stakeholder engagement.

Stakeholders: A list of identified stakeholders with description of their mandate and activities and their classification is included in the SEP and the table below. Since the Project is initiated by the GoSTP, public institutional stakeholders were easily identified. Minigrid users and people otherwise affected by the Project are not always well represented as association levels of civil society in STP are

rather low, especially in rural areas. This barrier shall be mitigated during Project execution by seeking alternative entry points to reach rural communities, such as social and agriculture development programs and associations, CSOs including churches and charity organizations.

Engagement with private sector during PPG has been limited to EMAE and some RE-MG retailers and project developers. The PPG deployed several activities to engage with stakeholder including: (1) Virtual kick-off event 12 April 2022; (2) Mission to STP by PPG Team Leader with support from National Consultant and UNDP CO, from 19-27 June 2022; (3) Validation workshop on 27 June 2022; and (4) Separate calls/meetings with AfDB and World Bank. Some site visits and interviews with households as well as private business owners were conducted during the mission by the PPG consultants. Especially in the small communities, the meetings were kept low-key to avoid creating expectations, as specific sites have not been selected yet. Note that representatives from the District chambers and from the Autonomous Region of Principe (island) took part in the events. It is recommended to review the stakeholder mapping at various moments during the Project's lifecycle including at: (1) PAC; (2) Inception Workshop; (3) Annually as part of PIR/AWP.

Note that in STP no indigenous peoples or minority peoples have been identified (in this respect, STP is an exceptional case in the AMP Round 2 portfolio).. Note further that UNDP is fully aware of the importance to manage local expectations, customs, intended and non-intended impacts, as well as aspects related to gender, environment, access to resources, and human rights. The ESMF, guided by the SEP is put in place as a framework to structure, monitor, and adjust all project actions to maximize positive impact while avoiding adverse effects. Among other measures, the Project will contract community engagement experts to prepare and accompany communities, individual beneficiaries and other local stakeholders along the process.

Consultation: The complexity and transversal character of the Project brings translates into a large number of actors, stakeholder, and partners, who may become relevant to the Project at different points during its execution. In order to manage this set of stakeholders, various levels of stakeholder groups are defined in the SEP: Implementing Partner (IP); Project Board Members; Policy Dialogue Group; and: Broader Stakeholder Group. The SEP provides a schedule for engagement with the multiple stakeholders.

From its position as the Implementing Partner under (supported) National Implementation Modality (NIM), the Directorate-General Natural Resources and Energy (DGRNE), which belongs to the Ministry of Infrastructure and Natural Resources (MIRN) will lead the process of engagement with stakeholders for: (1) delivery of project outputs; (2) consultation; and (3) outreach. Project-level consultation and consensus building will take place in the Project Board, which comprises the following GoSTP entities (MIRN, DGRNE; and UNDP). Specialists from GoSTP dependencies or designated entities (such as EMAE) can be invited if deemed appropriate.

Dialogue and consultation towards the delivery of project outputs is envisioned through the Policy Dialogue Group. Tentatively, the Group will meet 3-4 times per year, anticipating a process throughput time of 2 years to deliver their products (minigrad policy, technical standards and regulation, delivery model, financial incentives). Project results shall be consulted with key stakeholders not represented in the Policy Dialogue Group with the purpose of receiving viewpoints and inputs, and well as to comply

with social safeguards as per the ESMF. The Group shall provide annual progress summaries as input for engagements between the Project Team and a core group of external stakeholders (see next item). These engagements can be, for example: annual workshops, newsletters or social media channels.

Communication and consultation of the Broader Stakeholder Group is envisioned for feedback and for broadcasting project results and outputs to the wider audience in Sao Tome and Principe, specifically CSOs, private sector and individuals in their role as minigrid beneficiaries. Importantly, the development of policy and regulatory instruments may be bound to formal consultation steps as per national legislation. To the extent possible, the delivery of these project outputs is to be mainstreamed into national processes. Where not feasible, the Project shall aim at producing proposals or intermediate results for posterior adoption.

Budget: As of CEO Endorsement, the actions listed in the Stakeholder Engagement Plan would be funded from: (1) stakeholder co-finance (in-kind); (2) through parallel initiatives such as events and fairs organised by GOJ or multilateral agencies; (3) PPG funds and UNDP own resources as part of project preparation activities; (4) outreach activities as budgeted in the Project's Total Budget and Work Plan (TBWP), as follows: (a) Training and communication events: Project Components 1 and 4; (b) Inception Workshop and Terminal Evaluation: Project Component 5; and (c) PIR: Included in Project Management.

In addition, provide a summary on how stakeholders will be consulted in project execution, the means and timing of engagement, how information will be disseminated, and an explanation of any resource requirements throughout the project/program cycle to ensure proper and meaningful stakeholder engagement.

Select what role civil society will play in the project:

Consulted only; Yes

Member of Advisory Body; Contractor;

Co-financier; Yes

Member of project steering committee or equivalent decision-making body; Yes

Executor or co-executor;

Other (Please explain) Yes

95. The following national stakeholders have been identified and are involved in the Project:

List of Stakeholders and Project Partners

Name	Role in Project Implementation
1. Energy	
Ministry of Infrastructure and Natural Resources (MIRN)	Formulate and ensure the implementation of Public Policies for the sustainable management of energy resources, contributing to the socioeconomic development of the country. Definition of national policies on geology, exploration and production of mineral and energy resources; use of water, photovoltaic and other sources for electricity purposes.
Directorate-General Natural Resources and Energy (DGRNE)	DGRNE's mandate is to contributing to the design, promotion and evaluation of policies on energy and geological resources. DGRNE promotes and participates in the development of the legislative and regulatory framework for systems, processes and equipment related to the production, transport, distribution and use of energy, in particular for security of supply, diversification of energy sources, energy efficiency and environmental preservation. Its mission includes raising citizens' awareness of such policies in the context of economic and social development, informing them of the instruments available for policy implementation, and disseminating results.
Autoridade Geral de Regula??o (AGER)	Public body in charge of regulating the electricity, telecommunications, water and post office sectors. It acts in the public interest and protects the rights and interests of present and future consumers. AGER has regulatory, supervisory, advisory, sanctioning and arbitration powers.
Empresa de ?gua e Electricidade (EMAE)	Company concessionaire of water and electricity services, having in its range the activities of production, transport, distribution and marketing.
Associa??o Santomense de Energias Renov?veis (AENER)	The Association acts as a facilitator of opportunities by supporting the private sector as an interlocutor with national and international authorities to create a favorable regulatory framework and as coordinator of the various stakeholders, creating a platform for cooperation and constituting the common voice of renewable energies.
Associa??o para Promo??o das Energias Renov?veis e Ambiente Sustent?vel de S?o Tom? e Pr?ncipe (APERAS)	The Association acts as a facilitator of opportunities by supporting the private sector as an interlocutor with national and international authorities to create a favorable regulatory framework and as coordinator of the various stakeholders, creating a platform for cooperation and constituting the common voice of renewable energies.
Plataforma Nacional de Energia Sustent?vel (PNES)	Facilitator of opportunities through support to the private sector as an interlocutor with national and international authorities to create a favorable regulatory framework and as coordinator of the various stakeholders, creating a platform for cooperation and constituting the common voice of renewable energies.
2. Economy and Finance	
Minist?rio do Planeamento, Finan?as e Economia Azul (MPFEA)	It is the responsible Central Government body that has the mission of proposing, formulating, conducting, executing and evaluating the government's financial policy, promoting the rational management of public financial and property resources and the internal and external balance of public accounts, as well as the general inspection and supervision of public finances.
Trade and Investment Promotion Agency (ACPI)	Facilitating investment in the country with the main objective of private sector development and poverty reduction.

Agencia Fiduciaria de Administracao de Projetos (AFAP)	Trust Management of Projects and supervised by the Ministry of Finance. Administration of funds from Santomense Government projects financed mainly by the World Bank.
Central Bank of S?o Tom? and Pr?ncipe (BCSTP)	It is the issuing bank, state banker and supervisor of national financial institutions, in addition to ensuring the internal and external stability of the national currency.
African Development Bank (AfDB)	AfDB's prime objective is to mobilize financial resources to support sustainable economic and social development in Africa. To do this, the Bank raises funds from inside and outside the continent to finance development projects such as roads, hospitals and schools, agricultural projects and electricity.
World Bank Group (WBG)	The World Bank Group works in every major area of development. Provide a wide array of financial products and technical assistance, and help countries share and apply innovative knowledge and solutions to the challenges they face. Is an international financial institution that provides loans and grants.
European Investment Bank (EIB)	Contribute to the balanced development of the community through economic integration and social cohesion. Increase growth and jobs potential in Europe and support climate action and EU policies to support third countries.
3. Climate Change and Environmental Protection	
Direc??o Geral do Ambiente (MIRN/DGA)	The Directorate General for the Environment, has as its attribution, the coordination of the country's environmental actions and the definition and implementation of the State's policy on the environment.
Conselho Nacional de Prepara??o e Resposta as Cat?strofes (CONPREC)	CONPREC is dedicated to the prevention and response of disasters, support for the development of arid and semi-arid areas. Directorate and coordination of disaster management, including actions to prevent and rescue victims, reduce vulnerability of people, infrastructure and property exposed to negative effects of disasters, coordination the implementation of the Master Plan for Disaster Prevention and Response, design, formulate and propose to the Government.
4. Education and Professional Training	
Centro de Forma??o Profissional (CFP)	Promote the valorization of trainees, easing them with knowledge and skills; Evaluate the training actions carried out; Teach courses in accordance with the law; Organize and certify with the ministry the vocational training courses taught.
Instituto Superior de Ci?ncias da Sa?de Victor de S? Machado (ISCSVSM)	Training of technicians at a higher level in the health sector.
Minist?rio da Educa??o e do Ensino Superior (MEES)	Its mission is to define, coordinate, implement and evaluate national policies aimed at education, with professional qualification policies.
Universidade de STP (USTP)	Train skilled labor, position as a research and innovation hub.
5. Gender and Community Development	
Instituto Nacional para a Promo??o da Igualdade e da Equidade de G?nero (INPIEG)	Ensuring the support and engagement of the INPG as an expert institution in the field of gender, a cross-cutting issue that should be brought to all activities, where gender equity issues will be given priority by the project.
District Chambers (communities)	It has primary functions for the consolidation of democracy: legislating on matters of national interest and supervising the application of public resources.

6. Transversal Entities	
Câmara de Comércio, Indústria, Agricultura e Serviços de São Tomé e Príncipe (CCIAS)	It represents the national private sector and is an institution of private law and public utility run by its associates. It aims to promote a business environment conducive to the performance of economic and business activities. Also work on the development of a productive, cohesive, competitive private sector, capable of creating wealth and jobs.
Companhia Santomense das Telecomunicações (CST)	Telecommunications services company (data and voice).
Instituto Nacional de Estatística (INE)	The National Institute of Statistics (INE), is the central executive body of the National Statistical System (SEN), which is responsible for the production and dissemination of official statistics. It has the function of guiding, coordinating, executing the statistical activity of the SEN, as well as centralizing and disseminating official statistical information relating to the country, conducting censuses and statistical surveys; and develop technical instruments for statistical coordination.
Instituto Nacional de Meteorologia (INM)	The mission of the National Institute of Meteorology (INM) is to provide meteorological information and constructively influence the decision-making process, contributing to the sustainable development of the country.

3. Gender Equality and Women's Empowerment

Provide the gender analysis or equivalent socio-economic assesment.

96. The Gender Analysis and Gender Action Plan (GAP) are attached as Annex 10 to this Project Document. The Plan is to be expanded during the Project's inception phase and will be periodically updated. It shall also benefit from ongoing engagement with stakeholders and result in concrete actions. The GAP is one of the instruments under the Social and Environmental Management Framework (ESMF).

Background: STP ranks relatively highly on gender indicators related to human capital (e.g., health and education indicators), but is weaker on issues related to women's economic advancement due to local gender norms which put domestic chores and care-taking largely on women's shoulders. While women enjoy freedom of movement, decision to work, and access to property and inheritance, legal constraints exist affecting payment to women, labour position after having children, starting and running a business, and pension levels for women. Formal marriages are typically only entered into by educated and elite individuals. Polygyny and serial relationships are common, leading to a female-headed single parent households with while men often heading several couple-based families with children. De facto unions, while legally recognized, offer incomplete legal protection for women and leave children overwhelmingly at their mothers' responsibilities. With a Gender Inequality Index (GII) value in 2019 of 0.537, STP ranked 133rd of 162 countries.

Despite having a relatively gender balanced population, women account for only 35% of the labour force, and the female per capita Gross National Income (GNI) in 2019 was under half of the male GNI (US\$ 2,463 versus US\$ 5,439). Women represent 71% of the unskilled labor force, 94% of the domestic sector and 59% of the services and commerce sector. The agricultural sector exhibits significant occupational segregation; women are mostly involved in selling and distribution while men, who make up 66 percent of rural workers, are mostly involved in production. Fewer female-headed household access a loan or line of credit compared to male-headed households.

The National Strategy for the Promotion of Gender Equality and Equity (ENEIG) is a key initiative establishing policy and strategic; its current five-year plan, drafted in 2019, will run through 2026. The National Institute for the Promotion of Gender Equality and Equity (INPG) is charged with implementing ENEIG, however the INPG is somewhat marginalized politically, limiting its ability to influence policy and strategy reforms, mobilize resources, and incorporate targeted indicators and results into sectoral strategies and action plans.

Energy access: Male-headed households are slightly more likely to lack access to electricity, largely because the majority of female-headed households are located in the Center-West region where grid coverage is higher. In rural areas, 41% of male-headed households are in Tier 0 of the ESMAP Multi-Tier Framework (MTF) compared with 36% of female-headed households; more female-headed households are also in Tier 5. By far the most important barrier to gaining access to grid electricity is the initial connection cost. Biomass is the most common cooking fuel in rural areas, accounting for 66% of cooking practices. The adoption of LPG is driven almost entirely by female-headed households in urban areas. LPG cooking significantly reduces the time women spend on cooking chores while increasing the participation by men. These facts weigh significantly in favor of piloting high-efficiency electric cooking appliances due to the positive outcomes they may provide (e.g., freeing up women's and children's time encouraging a more equitable division of household labor).

Scope and limitations: Due to its small size, STP lacks data for several of the gender statistics collected in comparison to other countries in the AMP portfolio. For most of the other countries; only 34% of the gender indicators needed to monitor the SDGs were available. The most recent population survey was held in 2012. There are also fewer recent, in-depth gender analyses published by development agencies and the ones that do exist rely on dated statistics themselves. The Project shall therefore strive at complementing data gaps, spend time conducting site-specific gender assessments and avoid gender-biases in existing data sets and policies. Progressive knowledge and data shall be used to update and further articulate the Project's Gender Analysis and Action Plan, and extract useful lessons learned for UNDP and its partners.

Opportunities: Gender opportunities identified for the Project include: (1) ensuring gender-balanced representation within meetings, working groups, and implementation teams; (2) promotion and support of energy end-uses valued by women and men, to be determined via site-specific focus groups that include: women heads of households, women in male-headed households; female employees and entrepreneurs, agricultural development program participants, health and sanitation groups, youth associations, and tourism boards, among others; (3) gender assessment of potential anchor clients to ensure that benefits are gender-equitable; and: (4) advocacy and design of proposals to ensure equitable

access to electricity from minigrids (and the national grid system) through subsidies, credits, or a combination of both.

Minigrid activities that support electrification and help female-led enterprises grow and achieve parity with male-led enterprises, can yield positive impact. The Project shall seek out a balanced set of activities to support men and women across the economic spectrum, noting that energy use by volume and by gender change in function of income level. Interventions that seek to ease and redistribute household and caregiving work can include: (i) support and electrification of day-care facilities; (ii) child-care facilities for project-related events, such as training, conferences, or apprenticeships, enabling women to attend; (iii) promotion of end-use equipment related to domestic chores, such as high efficiency e-cookers, water boilers, food processors, saving women time and encouraging men to become more involved in cooking tasks.

Budget:The Gender Annex provides a table that details a menu of gender actions, and their associated budget, for consideration in concert with the outputs set forth by the Project. Given the Project's budget limitations, periodic review and guidance through a Gender Expert (hired by the Project) shall ensure gender representativeness and balance in project activities and management, as well as screening of outcomes on gender-balance and recommendation of corrective action in needed. As related to energy end-uses and anchor clients, the Project will contract national experts to ensure buy-in from communities in target areas and identify and develop local energy services aimed to maximize local social, gender and economic impact. Through this approach, the Project aims to mainstream gender analysis and action into its activities as much as possible. The total cost of the gender expert and community experts is US\$63,000 (GEF budget). Gender-related data collection and system design aspects will be mainstreamed into the respective Terms of Reference of studies works, and procurement, as appropriate. The cost thereof is estimated between US\$10,000 ? US\$30,000.

Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment?

Yes

Closing gender gaps in access to and control over natural resources;

Improving women's participation and decision making Yes

Generating socio-economic benefits or services or women Yes

Will the project's results framework or logical framework include gender-sensitive indicators?

Yes

4. Private sector engagement

Elaborate on private sector engagement in the project, if any

97. (Prodoc, ?125-126) The private sector consists of businesses that assume different roles in the minigrid and RE/EE value chain, including: (i) national equipment suppliers and installers; (ii) national RE project developers; (iii) international RE project developers with interest in STP market; (iv) prospective minigrid operators and ESCO?s; (v) owners of distributed RE power systems (?prosumers?); (vi) maintenance and service companies; and (vii) private (national) banks offering lending to RE/EE sector.

98. Against the backdrop of STP?s general context of a small, heavily indebted, island state, each group faces specific risks and barriers, many of which related to the absence of financial guarantees, exposure of assets, and high capital costs, which reduces appetite to enter the market under the current scenario. The PPG has initiated a dialogue with national private partners, which will be continued during project implementation through periodic consultations and workshops. The Project aims to implement one or more Calls for Proposals for the described minigrid schemes to directly engage the private sector.

5. Risks to Achieving Project Objectives

Elaborate on indicated risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, the proposed measures that address these risks at the time of project implementation.(table format acceptable):

99. (Prodoc, ?127-132) Specifically, the SESP identified 14 risks, 3 of which assessed as ?substantial?, 10 as ?moderate?, and 1 as ?low?. The DREI framework identifies 10 main risk categories which indicate an overall high market risk for minigrid development (see Prodoc ?20, table). Two more risk were added related to national ownership, coordination, and implementation capacities, which were rated as ?moderate? if duly addressed. One category was added to handle COVID-19 risks. The SESP risk profile triggers the design and implementation of an Environmental and Social Management Framework (ESMF) and resulting specific plans including a Gender Action Plan, to monitor these risks, keep track of defined mitigation measures, and take additional action if needed. The Project will hire a SESP expert (output 1.6) and gender specialist (output 5.1) for periodic reviews and advice.

100. Social and environmental risks are primarily linked to human rights given the challenges to secure social inclusiveness and incorporate vulnerable people. Among other root causes, underlying factors include very low-income levels of rural people living in small communities which rely on subsistence farming and collection; undefined or absence of land tenure titles and associative structures enabling people to claim their rights; demographic pressure which may lead to local movements of people as a result of electrification, potentially separating them from their food sources.

101. While electricity supply is a socio-economic enabler, the nexus between productive uses and electricity supply needs to be further articulated - including according to gender. To address this risk, the Project design incorporates sustained community engagement during the preparation phase of the proposed pilots. This activity will draw upon country knowledge and positive experiences in other sectors (e.g., agricultural development) to make these available to the energy sector in STP.

102. Environmental risks are essentially two: (i) potential adverse impacts on biodiversity and habitat; and (ii) dispersal of electronic waste including batteries, into the environment. As related to the former, STP is a sensitive tropical island where human activity can lead to loss of species, soil erosion, and degradation of rivers and aquifers. Electrification will lead to increased human activity; adverse effects are mitigated by proper planning, avoiding specific areas such as natural parks altogether, and promote best practices including changes in attitude among local dwellers. The community engagement shall result in an appraisal of site-specific risk and determination of mitigation options.

103. As concerns the latter, the PPG observed that waste management practices in STP are still weak and often absent especially in rural areas. In particular non-degradable waste and objects (plastics, batteries, broken equipment and tools) are abandoned and become dispersed in the environment. The situation poses a challenge for the repair and end-of-life treatment of minigrid components including wiring and electric appliances. Increasing awareness of the local population and inducing a sense of ownership and responsibility is one line of action. A second one is the integration of electronic waste management into an Extended Supplier Responsibility (ESR) scheme. Among other options, such responsibility could be demanded from a minigrid operator under its contractual obligations.

6. Institutional Arrangement and Coordination

Describe the institutional arrangement for project implementation. Elaborate on the planned coordination with other relevant GEF-financed projects and other initiatives.

104. (Prodoc ?154-?174) The Project will be implemented following UNDP's National Implementation Modality (NIM) and according to the Standard Basic Assistance Agreement between UNDP and the Government of the Democratic Republic of São Tomé and Príncipe (STP) signed 26 January 1976. UNDP will provide implementation support in accordance with the signed Letter of Agreement (LoA) and specification of activities and costs pre-approved by GEF prior to CEO Endorsement Request. The Implementing Partner (IP) for this project is the Directorate-General for Natural Resources and Energy (DGRNE). The IP is a directorate of the Ministry of Infrastructure and Natural Resources (MIRN). The Ministry will assign the National Project Director (NPD) who holds ownership as the Executive of the Project.

105. A dedicated Project Management Unit (PMU) will be established and hosted by DGRNE. The PMU will consist of the Project Manager (PM) who will combine policy-oriented activities and part-time management functions. The PMU will further include a part-time Finance and Administrative Officer (FA) and a Procurement Specialist (PA). Specific technical expertise is provided through the Technical Project Advisor (TA) who will work in a tandem with the PM. The PMU, assisted by the TA will: (i) define terms of reference for consultancies, services and goods to be procured under the Project, for submission to the Project Steering Committee (PSC); (ii) supervise contracted services and consultancies; (iii) manage and monitor the Project on a day-to-day basis; and (iv) report to the PSC and UNDP.

106. The Project Steering Committee (PSC) will serve as the Project's decision-making body. It will meet according to necessity, at least twice each year. The PSC will provide strategic guidance to the PMU including corrective action if needed to ensure the Project achieves the desired results. The PSC will comprise the following members: (1) MIRN, as the Executive of the Project; (2) UNDP in its role as

Development Partner and GEF Agency; (3) DGRNE, as the Implementing Partner for day-to-day operation. The PM will act as the convenor of PSC meetings on behalf of the IP.

107. UNDP project support: The Implementing Partner and GEF OFP have requested UNDP to provide support services to the amount of USD 58,338.92 for the full duration of the Project. On July 28, 2022, GEF Sec has agreed for UNDP to provide such limited support to NIM and for the cost of these services to be charged to the project budget. The support services - whether financed from the project budget or other sources - have been set out in detail and agreed between UNDP Country Office and the Implementing Partner in a Letter of Agreement (LOA), attached to the Prodoc as Annex 2. Supported activities belong to the following categories: (1) finance management, including management of vendors, issuing cheques, managing and monitoring of financial transactions (bank and cash); and (2) procurement of goods and services, including management of calls for proposals/quotations, preparation of bidding documents, terms of reference, recruitment, travel authorisation and settlement of travel cost expenses; disposal of equipment.

108. To ensure the strict independence required by the GEF and in accordance with the UNDP Internal Control Framework, these execution services will be delivered independent from UNDP's GEF-specific oversight and quality assurance services.

Planned coordination with other relevant GEF-financed projects and other initiatives.

109. The Project will be coordinated with the following GEF-funded and other initiatives:

110. The GEF-5 project "Promotion of Environmentally Sustainable and Climate-Resilient Hydroelectric Electricity through an Integrated Approach in Sao Tome and Principe" (UNDP PIMS 4602). This project has been under implemented during the PIF/PPG phases of the AMP project in STP and has been recently closed April 2022. The AMP will build upon achievements of the GEF-5 project and has taken benefit from the collected experiences to validate assumption, strengthen the theory of change, and to set priorities for the Project's time horizon. The GEF-6 project "Strategic Program to promote RE and EE investments in the electricity sector of STP" is currently under implementation (UNIDO Project 150124). Important achievements include the development and adoption of the National Action Plans for RE and EE (PANER, resp. PANEE), mapping of RE potential using GIS tools, and capacity building (with CERMI, Cabo Verde). Both GEF projects are managed by project teams under DGRNE. As such, it is well positioned to assess the pertinence and added value of proposed AMP activities and recommend adaptive management measures when appropriate.

111. STP's development partners in the energy sector engage regularly through existing platforms including SE4All. The AMP Regional Project and the proposed minigrid dialogue (Output 1.1) provide an additional entry point for UNDP and GoSTP to shape a roadmap and set priorities, notably in the domain of policy, regulation, access to finance and incentives. Current funding programs include the Energy Transition and Institutional Support Programme (ETISP) implemented by the African Development Bank (AfDB) and the World Bank Power Sector Recovery Project (PRSP). Monitoring of the advances towards Derisking of RE Investments (DREI, output 1.2) in STP and for the AMP as a whole, will enable UNDP to help shaping a comprehensive financing mechanism for minigrids in dialogue with national governments and the multilateral development banks in the region.

7. Consistency with National Priorities

Describe the consistency of the project with national strategies and plans or reports and assessments under relevant conventions from below:

NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc.

112. (Prodoc, table ?19) The Project is aligned with (a) national development policies including: the S?o Tom? and Pr?ncipe Transformation Agenda 2030 (2015); the National Development Plan 2017-2021 (2017); (b) sector policies and plans: National Energy Efficiency Action Plan (PANEE, 2021); National Renewable Energy Action Plan (PANER, 2021); (c) climate change plans: Third National Communication under the UNFCCC (TNC, 2019); and Updated Nationally Determined Contributions (NDC, 2021).

113. Please refer to the table below for more details on the alignment with national priorities.

Policy / planning document	Name	Relevance	
Sector Policies	Strategic Vision / Development Plan	2030 S?o Tom? and Pr?ncipe Transformation Agenda (2015)	2030 Transformation Agenda and the SDGs.
		National Development Plan 2017 - 2021 (2017)	National Development Plan 2017 ? 2021 (PND 2017-2021) for operational implementation of the STP 2030 Transformation Agenda and the SDGs.
		Major Plan Options for 2019 (2018)	Investment Plan 2019
	National energy policies and plans	Least Cost Development Plan (2018)	Electricity generation investment targeting 57% (2028) and to 53% (2030).
		National Energy Efficiency Action Plan	National EE action plan targeting grid losses, conversion efficiencies in generation, and foster targets for universal access by 2020 and 2030.
		National Renewable Energy Action Plan;	National Plan for achieving at least 50% RE by 2030.
	National policies and plans concerning environment and climate change sector	National Adaptation to Climate Change Action Plan (2006);	National adaptation plan
		Proposal for State of Preparedness Measures (2014)	National readiness plan.
		Third National Communication under the UNFCCC (2019)	Third national communication.
		Nationally Determined Contributions	National determined contribution.
Territorial planning policies and plans	National Territorial Planning plan for the Territory of Sao Tom? e Pr?ncipe (PNOT), 2018	National spatial planning diagnostics and plan	

Policy / planning document	Name	Relevance	
	Regional policies	ECCAS/CEMAC White Paper on Energy (2015);	Common view on integration and human and sustainable development of Central Africa by 2030, including access to modern energy.
		ECCAS Regional Energy Policy Strategic Document (2014).	Strategy towards regional energy policy and market in the region.
Legislation	Overall legislation	Constitution of the Republic Law No. 1/2003	National Constitution of Sao Tome and Principe
		Administrative Policy Division, Law No. 5/1980	Law on the Administrative Policy Division (Law No. 5/1980).
		Decree-Law No. 1/2019 of 30 January	Organic Law defining the XVII Constitutional Government
		Law No. 4/2010, of 18 June, PAS	Law defining the efficiencies Political-Administrative Statute of Principe Island.
Laws	Energy Sector Laws and bylaws	Decree-Law No. 26/2014, RJSE - Regime Jur?dico do Sector El?ctrico	Legal framework of the electricity sector.
		Decree-Law No. 26/2014	Decree-Law No. 26/2014 governs electricity supply tariffs and billing of the service.
		Decree- Law No. 1/2020 of 17 February	Establishes special regime for acquisition RE electricity for EMAE.
		AGER Resolution No. 1/2016, assisted by EMAE Order No. 7/2016, of 27 October	EMAE?s Customer Ombudsman System.
		Quality of Service Regulation (Resolution No. 020/CA/2017 of 29 December	Establishes the technical and commercial quality of service obligations by the national electricity system services.
		Decree-Law No. 15/2019	Regulation of Regulatory Fees for the electricity sector
	Concessional Regime for minigrids	Article 53	Allowing entities in isolated location not connected to the national and below 150 kVA, to qualify for authorization to operate a local grid.
	Environmental legislation (pertinent to the energy sector)	Decree-Law No. 10/1999	Legal framework for the environment.
		Decree-Law No. 37/1999	The Environmental Impact Evaluation (EIE) Regime, approved by Decree-Law No. 37/1999.

Policy / planning document		Name	Relevance
Cross-cutting policy and regulation	Fiscal policy	Corporate Income Tax Code, approved by Law No. 16/2008 Personal Income Tax Code, approved by Law No. 17/2008) Stamp Duty Regulation, approved by Decree- Law No. 7/2005 Consumption Tax, approved by Decree-Law No. 9/2005	Legislation governing tax and duty obligations of companies. Activities in the energy sector are subject to a 5% tax rate on the supply of services which is levied on the value of the supply of services and is payable by the final consumer, which is a common practice of the only electricity supply company, EMAE. There is no Value Added Tax (VAT).
	Customs	Harmonized Commodity Description and Coding System (Decree-Law No. 1/2000, of 28 January, with subsequent amendments, Decree No. 12/2009, of 24 June) Community Integration Contribution of 0.4% (Decree-Law No. 23/2005 of 28 November)	Regulation and taxation schemes for imported goods.
	Public-Private Partnerships Law or Framework	Investment Code (approved by Decree-Law No.19/2016 of 17 November)	The Code refers all incentives and benefits to the Tax Benefits Code (Article 21)

8. Knowledge Management

Elaborate the "Knowledge Management Approach" for the project, including a budget, key deliverables and a timeline, and explain how it will contribute to the project's overall impact.

114. Being part of the AMP Regional Project, Knowledge Management (KM) is mainstreamed into the STP child project through several entry points. Capacity building and the exchange of knowledge and experiences with peer countries is a transversal aspect of the AMP, including by pooling of vetted consultants in the field of policy and finance, guidance by UNDP's AMP core staff, and a harmonized approach to digitalization and performance monitoring and progress reporting for the child projects and at the aggregated level.

115. The transversal approach to KM will notably benefit the following outputs through collective learning to tackle issues and problems that shared by the countries participation in the AMP: 1.2 ?DREI techno-economic analyses carried out?; 1.5 ?Domestication of quality standards for solar mini-grid components?; 3.2 ?Design support for a financial facility?; 4.1 ?Project digital strategy?; and 4.4 ?Engage with regional project?. As a result, the quality of identified solutions will be greatly enhanced while project resources can be applied more efficient- and effectively avoiding doubling of efforts. Specifically, outputs 1.2 and 4.4 provide budget analytical work and travel expenses to enable participation in regional events.

116. Training and capacity building are present in all components. Specific outputs include: 1.7 ?Public programmes to develop competitive, skilled labor market?; 2.2 ?Capacity of private sector and end-user groups?; 3.2 ?Domestic financial sector capacity-building?; and 4.2 ?Minigrids Digital Platform? (training on its configuration and operation). Knowledge creation and consistency throughout Project execution is further strengthened by the core Project team consisting of the Project Manager (PM), Project Technical Advisor (TA), complemented by the Project Engineer (PE) and the local DREI/Minigrid Expert (MG) supporting the preparation and implementation of the minigrid pilots.

117. The budget directly associated to KM is of the order of US\$ 120,000 (US\$ 40,000 Output 1.2; US\$ 80,000 Outputs 4.1-4.4 excluding ICT hardware costs). As presented in Prodoc, Annex 4, Outputs 1.2 and 4.1 are programmed for completion in Project Year 1; Outputs 4.2 and 4.3 will start in Year 2, while Output 4.4 concerns periodic events (indicatively one AMP peer event per year).

9. Monitoring and Evaluation

Describe the budgeted M and E plan

118. (Prodoc, ?143-153) Project monitoring and evaluation (M&E) are conducted in accordance with established UNDP and GEF procedures. The M&E activities are defined by Project Component 5. The concrete activities for M&E that are specified and budgeted in the M&E plan (please refer to the table below). Monitoring will be based on the indicators defined in the Results Framework and as further detailed in the Monitoring Plan (table Prodoc, p.65-72), which indicates the means of verification. The GEF Core indicators (Prodoc, Annex 16) will be used to report the attained GHG benefits. Importantly, the Implementing Partner and the Project team are responsible for updating the indicator status for reporting to the GEF. The End-of-Project data should be shared with TE consultants prior to required evaluation missions according the M&E Plan. Intermediate measurements of progress can be recorded and shared through the GEF Portal.

119. UNDP as the GEF Implementing Agency will involve the GEF Operational Focal Point in STP and its project partners during all stages of M&E activities to ensure that the findings are used for further planning and implementation. According to the Monitoring and Evaluation policy of the GEF and UNDP, follow-up studies like country portfolio evaluations and thematic evaluations can be initiated and conducted. All project partners and contractors are obliged to: (i) make available studies, reports or other documentation related to the Project; and (ii) facilitate interviews with staff involved in the Project's activities. Specific M&E activities such as oversight missions will be planned between the Implementing Partner and UNDP CO, to be reflected in the Annual Work Plans. The estimated M&E plan and budget (US\$ 85,349 including travel) shall provide guidance to this purpose (see also tables Prodoc, p. 73-74).

Monitoring and Evaluation Budget for project execution		
GEF M&E requirements to be undertaken by Project Management Unit (PMU)	Indicative costs (US\$)	Time frame

Inception Workshop and Report	US\$ 12,000	Inception Workshop, within 2 months of First Disbursement
M&E required to report on progress made in reaching GEF core indicators and project results included in the project results framework	US\$ 0	Annually, prior to MTR, and prior to TE
Preparation of the annual GEF Project Implementation Report (PIR)	US\$ 0	Annually, between June-August
Monitoring all risks (Atlas risk log)	US\$ 0	On-going
Monitoring of stakeholder engagement plan	US\$ 0	On-going
Monitoring of ESMF and specific management plans	US\$ 19,349	Annually before PIR and as requested
Monitoring of Gender Action plan	US\$ 13,000	Annually before PIR and as requested
Supervision missions	US\$ 0	As needed
Learning missions	US\$ 0	As needed
Independent Mid-term Review (MTR)	US\$ 19,000	1 March 2025
Independent Terminal Evaluation (TE)	US\$ 22,000	1 February 2027
TOTAL indicative COST	US\$ 85,349	

10. Benefits

Describe the socioeconomic benefits to be delivered by the project at the national and local levels, as appropriate. How do these benefits translate in supporting the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCF/SCCF)?

120. (Prodoc ?121-?122) The Project will deliver social, economic and environmental benefits as a result of the envisioned technical assistance activities and the proposed minigrids pilots, which directly contributed to SDG-7 (affordable and clean energy); and SDG-12 (climate action). These include: (a) direct energy savings (MWh) from replaced fossil fuel-based electricity suppliers under the business as usual scenario and associated costs savings (USD); (b) reduced emissions of greenhouse gases (GHG) from fossil sources (diesel); and Other Atmospheric Contaminants (OACs) from fossil fuels and traditional biomass (fuelwood and charcoal) in urban areas and indoor spaces, which reliefs public health risks associated with baseline emissions; (c) development of innovative businesses contributing to economic growth and job creation; (d) enhanced quality and user experiences for household and business minigrid end-users; and (e) social and human capital development.

121. Aspects such as impact on public health and business, employment and national income generation will expectedly be assessed through the AMP's Communities of Practice, as inputs for the national policy. A direct metric for economic benefits is obtained from the avoided costs of imported fossil fuels for electricity generation. For SME, a comparison can be made of the duration of electricity supply outages and associated business/income losses under the baseline, and once the customer is served by a minigrid.

Assessments shall differentiate according to gender, income level or business type. For grid-tied minigrids, industry standard indicators such as such as the System Average Interruption Duration Index (SAIDI) can be monitored to obtain information at the aggregate level.

122. For rural and currently unserved population, electric lighting and appliances create time-flexibility enabling people to deploy more income-generating activities during the day while additional opportunities may be created in evening hours. Electricity also contributes to building human and social capital by facilitating children to do homework after sunset; equally youngsters and adults can take benefit to acquire new skills; women in particular can benefit if electricity effectively reduces care-taking and household chores which traditionally rely on them. Electricity is further an enabler for accessing information both for leisure and commercial purposes, including access to market data for local produce, public information campaigns related to health, disaster prevention, awareness about protection of the local environment and natural resource base, and more. Access to information can help empower rural people to become full citizens and have their voices and needs reflected in public policies and plans. As such, the Project indirectly contributes to sustainable development in STP, specifically as reflected by SDG-1 (no poverty), SDG-3 (health and well-being); SDG-4 (quality education); SDG-5 (gender equity); SDG-6 (clean water and sanitation); and SDG-8 (decent work and economic growth).[1]

123. The lifetime greenhouse gas (GHG) emission reduction from project activities is estimated at approx. 20,500 metric tons of carbon dioxide equivalent (tCO2eq) (direct) and 5,500 tCO2eq (indirect). The number of direct beneficiaries is estimated at 21,750 people, of which at least 50% are women, as a result of 4,400 new and/or improved minigrid connections.

[1] For the current status of STP in relation to the attainment of the SDGs, please refer to: <https://dashboards.sdgindex.org/profiles/sao-tome-and-principe>

11. Environmental and Social Safeguard (ESS) Risks

Provide information on the identified environmental and social risks and potential impacts associated with the project/program based on your organization's ESS systems and procedures

Overall Project/Program Risk Classification *

PIF	CEO Endorsement/Approval	MTR	TE
High or Substantial			
Measures to address identified risks and impacts			

Elaborate on the types and risk classifications/ratings of any identified environmental and social risks and impacts (considering the GEF ESS Minimum Standards) and any measures undertaken as well as planned management measures to address these risks during implementation.

Supporting Documents

Upload available ESS supporting documents.

Title	Module	Submitted
AMP STP ANNEX 5_SESP-31 08 2022	CEO Endorsement ESS	
Annex 9_ESMF for 3 UNDP AMP National Projects-clean	CEO Endorsement ESS	

	<p>Indicator 4: Local residents trained in different aspects of minigrid development and operation (e.g. sales, distribution, operations, management) disaggregated by gender.</p> <p>Unit of measure: number of people</p>	0 people (Project has not started)	Female: 10 [people] Male: 10 [people] Total: 20 [people]	Female: 20 [people] Male: 20 [people] Total: 40 [people]
Project Component 1	Policy and Regulation			
<p>Outcome 1. Stakeholder ownership in a national minigrid delivery model is advanced, and appropriate policies and regulations are adopted to facilitate investment in low-carbon minigrids.</p>	<p>Indicator 5: A minigrid delivery model to enable minigrid development is endorsed/adopted by the national government through a consultative process involving key stakeholders (e.g. relevant ministries, local authorities, rural populations, private sector, media, etc.)</p> <p>Unit of measure: binary (1/0)</p>	0 (Project has not started)	0 (Multi-stakeholder, national dialogue platform on minigrid delivery models established and active.)	1 (At least one minigrid delivery model is identified and endorsed by the government through the work of the multi-stakeholder platform and dialogue.)

	<p>Indicator 6: Number of policy derisking instruments for minigrid investments - whose development has been supported by the project - are endorsed/adopted by the national government</p> <p>Unit of measure: Number of policy derisking instruments</p>	<p>0 (no rural/off-grid electrification policy in place)</p>	<p>3 policy derisking instrument(s) adopted</p> <p>(1) policy and strategy for rural/underserved population; (2) regulation for minigrids and community basic services; (3) definition of business model and cost/tariff proposal.</p>	<p>6 policy derisking instrument(s) adopted</p> <p>(1) policy and strategy for rural/underserved population; (2) regulation for minigrids and community basic services; (3) definition of business model and cost/tariff proposal; (4) adoption of technical standards for equipment and installation; (5) definition and establishment of guarantees for MG investors; (6) definition and establishment of incentives for investors and customers.</p>
<p>Outputs to achieve Outcome 1</p>	<p>Output 1.1. An inclusive national dialogue to identify minigrid delivery models is facilitated, clarifying priority interventions for an integrated approach to off-grid electrification.</p> <p>Output 1.2. DREI techno-economic analyses carried out to propose most cost-effective basket of policy and financial de-risking instruments and contribute to AMP Flagship Report on Cost Reduction.</p> <p>Output 1.3. A mini-grid regulatory framework, including tariff model, tax regime, and settlement model for electricity transaction, is developed in close coordination with the authorities concerned and other development partners.</p> <p>Output 1.4. Preparatory studies conducted for selected mini-grid sites to enhance sector planning and decision-making on a delivery model for minigrid development.</p> <p>Output 1.5. Domestication of quality standards for solar mini-grid components, and institutional capacity of national standards organizations/bureau strengthened.</p> <p>Output 1.6. Support provided to establish the environmental and social policies and plans to ensure mini-grid risks are properly handled.</p> <p>Output 1.7. Public programmes (apprenticeships, certificates, university programs) to develop competitive, skilled labor market in mini-grids.</p>			
<p>Project Component 2</p>	<p>Business model innovation with private sector.</p>			

Outcome 2. Innovative business models based on cost reduction operationalized, with strengthened private sector participation in low-carbon/renewable energy minigrid development	Indicator 7: Minigrid pilots implemented that demonstrate a delivery model, cost-reduction measure(s) and/or productive use of electricity Unit of measure: binary (1/0)	0 (Project has not started)	1 Minigrid Pilot Plan for advancing the minigrid pilots is developed, and cleared by UNDP and the Project Board. (1) Any project tendering process, as applicable, for minigrid pilots is launched. (1)	1 The Minigrid Pilot Plan has been successfully executed and the pilots are delivered, operational, and being monitored. (1)
	Indicator 8: Capacity of minigrid developers and/or operators is enhanced to implement innovative business models and incorporate cost-reduction levers in minigrid projects. Unit of measure: binary (1/0)	0 (The Project shall assess the baseline in Year 1)	1 Planned capacity building activities for year 1 and 2 are implemented. (1) The capacity of targeted recipients is assessed by survey towards the end of year 2. On a scale of 1 to 5, an average score of at least 2 is achieved. - 1 represents a low level of capacity - 5 represents a strong capacity to understand relevant issues and apply knowledge and skills to find effective solutions. (1)	1 Planned capacity building activities for year 3 and 4 are implemented. (1) The capacity of targeted recipients is assessed by survey towards the end of the project. On a scale of 1 to 5, an average score of at least 4 is achieved. - 1 represents a low level of capacity - 5 represents a strong capacity to understand relevant issues and apply knowledge and skills to find effective solutions. (1)
Outputs to achieve Outcome 2	Output 2.1. Minigrids pilot proposals prepared, evaluated and selected through a competitive process, leading to cost-reduction in mini-grids. Output 2.2. Capacity of private sector and end-user groups strengthened for developing innovative, resilient minigrid business models. Output 2.3. Minigrids pilots fully designed, constructed and monitored, including productive uses and modular hardware and system design (INV).			
Project Component 3	Scaled-up financing			

<p>Outcome 3. Financial sector actors are ready to invest in a pipeline of low-carbon minigrids and concessional financial mechanisms are in place to incentivize scaled-up investment.</p>	<p>Indicator 9: Capacity of financial institutions is enhanced through training, knowledge sharing, and/or awareness raising events aimed at increasing the financial sector's capacity to evaluate investments in minigrids.</p> <p>Unit of measure: binary (1/0)</p>	<p>0</p> <p>(The Project shall assess the baseline in Year 1)</p>	<p>1</p> <p>Planned capacity building activities for year 1 and 2 are implemented. (1)</p> <p>The capacity of targeted recipients is assessed by survey towards the end of year 2. On a scale of 1 to 5, an average score of at least 2 is achieved.</p> <p>- 1 represents a low level of capacity - 5 represents a strong capacity to understand relevant issues and apply knowledge and skills to find effective solutions. (1)</p>	<p>1</p> <p>Planned capacity building activities for year 3 and 4 are implemented. (1)</p> <p>The capacity of targeted recipients is assessed by survey towards the end of the project. On a scale of 1 to 5, an average score of at least 4 is achieved.</p> <p>- 1 represents a low level of capacity - 5 represents a strong capacity to understand relevant issues and apply knowledge and skills to find effective solutions. (1)</p>
	<p>Indicator 10: Number of government- or impact investor-supported financing mechanisms offering concessional finance for low-carbon minigrids.</p> <p>Units of measure: binary (1/0)</p>	<p>0</p> <p>(No financing mechanism in place)</p>	<p>1</p> <p>At least one complementary funding instrument is designed and operational. (1)</p>	<p>1</p> <p>At least one complementary funding instrument is designed and operational. (1)</p>
<p>Outputs to achieve Outcome 3</p>	<p>Output 3.1. Design support for a financial facility for minigrids, distributed electricity grids and services. Output 3.2. Domestic financial sector capacity-building on business and financing models for minigrids.</p>			
<p>Project Component 4</p>	<p>Digital and Knowledge Management.</p>			

Outcome 4. Digitalization and data mainstreamed, across stakeholders, into local minigrid market development. Increased knowledge, awareness and network opportunities in the minigrid market and among stakeholders, including benefitting from linkages to international good practice.	Indicator 11: A project digital strategy is prepared and implemented by the PMU to contribute to project implementation and local minigrid market development. Units of measure: binary (1/0)	0 (Project has not started)	1 The project digital strategy is developed and being implemented (1)	1 The project digital strategy is implemented. (1) Recommendations for rolling out digital solutions for minigrids at national level have been shared with key national stakeholders. (1)
	Indicator 12: Number of minigrid pilots sharing data on minigrid performance with the regional project and other stakeholders following best practices and received from the AMP Regional Project. Units of measure: binary (1/0)	0 (Project has not started)	1 The project's Minigrids Digital and Data Management Platform? is procured and operational, ready for data collection from the project's mini-grid pilot(s), and for data sharing with the AMP regional project's digital platform. (1)	1 100% of the planned minigrid pilots, as identified in the project's Minigrid Pilot Plan, are collecting and sharing data with the project's digital platform (1)
Outputs to achieve Outcome 4	Output 4.1. A project digital strategy is developed and implemented, including linkages to and following guidance from the AMP Regional Project. Output 4.2. A Minigrids Digital Platform implemented to track minigrid pilots, and to support minigrids scale-up and cost-reduction. Output 4.3. A Quality Assurance and Monitoring Framework (QAMF) is adopted. Output 4.4. Engage with regional project by participating in Communities of Practice and capturing and sharing of lessons learnt.			
Project Component 5	Monitoring and Evaluation (M&E)			
Outcome 5. Ensuring compliance with all mandatory monitoring and reporting requirements of the GEF.				
Outputs to achieve Outcome 5	Output 5.1. Inception workshop is conducted and M&E plan is implemented. Output 5.2. Project Mid-Term Review is conducted. Output 5.3. GEF Terminal Evaluation is conducted.			

[1] United Nations Development Assistance Frameworks (UNDAF)

[2] Country Programme Document (CPD)

[3] Regional Programme Document (RPD)

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).

Council Member Comment	Response
France	
<p>This program targets the same topic and the same geographical areas as some AFD projects in Burkina Faso, Madagascar, Mali, and Niger.</p> <p>? Coordination with AFD would be necessary in the countries where AFD has projects on this theme (with links to the EU and other donors): Mali, Niger, Burkina Faso (Madagascar: project under preparation).</p> <p>There are some interesting points on data collection and on the capitalization of lessons learnt and practical experience</p>	<p>A key objective of AMP is to align and complement with the support of existing development actors in minigrids. AFD's activities in minigrids are well-noted, and AMP national projects will benefit from lessons learnt in countries where AFD has provided support.</p> <p>Note that in STP no direct involvement of AFD in the electricity sector has been identified.</p>

The proposal covers countries in very different contexts, without an analysis of the specific situation and needs of each country. It is therefore a very wide range of subjects that are proposed to be tackled:

? Technical assistance on regulations, tariffs, risk analysis, geospatial planning, techno-eco modeling, prefeasibility, formulation of rural electricity strategies, issues with subsidies of fossil fuel, derisking instruments, institutional reform, capacity building, quality standards, customs procedures, waste management, digitalization, professional training, design support, market intelligence, etc.

? Investments: Development of pilots (especially on productive uses)

Even if these different points are indeed subjects which require technical assistance and grant financing, the formulation of the project raises some questions: there does not seem to be any will. It would be relevant to analyze the successes and gaps of certain countries, for example the successes of Kenya on its regulations, in order to replicate the approach. It would also be necessary to identify relevant public actors in each country (utility vs rural electricity agency) as the approaches to recommend will be very different depending on the case.

The AMP's PFD includes a menu representing a wide-range of possible outputs that AMP national projects may select from. The early-stage concepts included in the PFD Addendum in turn reflected an initial selection of these outputs.

At the CEO ER stage, the outputs selected in STP reflect further detailed consultations and stakeholder engagement, and are expressly tailored to national objectives, country context and a baseline analysis of the specific barriers and risks. In the AMP country portfolio, STP is an example of "tweaking" the AMP harmonized approach to the local context. Given STP's specific circumstances (see CEO ER ?1-4), the description of outputs and the chosen activities was slightly adjusted, notably as it relates to tendering, scope of digital platform, and delivery model.

As related to investment and national will/ownership, the main challenge in STP proves to be the gap between the current utility model (aiming at 100% on-grid electrification) and the actual situation in the field. Minigrids appear as the technically and financially most viable option.

In STP, as in some other countries, integrating on-grid and off-grid electrification into one national policy, shall be among the topics to be addressed by the national dialogue. We believe therefore that two lines of action of the AMP, i.e. (1) to facilitate this dialogue, and (2) to strengthen the minigrid business model; are key to the problem of national ownership. Engagement with public entities, is essential and addressed in STP project design (with DGRNE, AGER, EMAE).

<p>The funding is focused on a few countries: Benin with MCC and SE4All (total \$ 58M), Zambia (GCF and EU, \$ 53M), Mali (UNDP, SIDA: \$ 2.6M). Elsewhere, funding seems too small to induce the structural changes envisaged.</p> <p>? It seems difficult to imagine that such a program will be effective outside of the 3 countries with the most funding..</p>	<p>International donors and lenders are present in STP including AfDB (ETISP co-financing letter attached), but also World Bank Group and bilateral partners. Instruments including AfDB SEFA target loans. In the absence of a national minigrid policy, there is not yet investment allocated to the minigrid market. There is a latent demand for RE/EE technologies but the supply market is underdeveloped and most investment is currently in electricity generation to supply the main grid.</p> <p>The mentioned National RE/EE Action Plans (PANER/PANEE) developed with UNIDO/GEF support and adopted by GoSTP, aim at boosting a market for EE, rational energy use, distributed RE generation including smart grids. Minigrids, isolated and grid-tied, are aligned with these plans.</p> <p>Meetings with GoSTP, AfDB and WBG during the PPG were encouraging with lenders interested to provide finance to small-scale RE/EE value chains in STP (which include minigrids). In this respect, we believe the AMP STP project can become a catalyst to open such market.</p>
<p>Finally, the added value of UNDP on access to energy in rural areas, through mini-grids, should have been made more explicit in the selection of implementing agency</p>	<p>Each agency's selection as implementation agency is decided by the GEF OFP's. UNDP has a considerable historical track-record in supporting off-grid electrification, and through the AMP is currently GEF implementation agency to 19 countries on solar-battery mini-grids.</p> <p>In STP, GoSTP partnership with UNDP is long-standing. The GEF-5 project "Promotion of Environmentally Sustainable and Climate-Resilient Hydroelectric Electricity through an Integrated Approach in Sao Tome and Principe" (UNDP PIMS 4602) is recalled, which demonstrates UNDP's country experience with decentralized power supply anchored in local communities, both on Sao Tome island and Principe island.</p>
<p>Germany</p>	
<p>Germany approves the following PIF in the work program but asks that the following comments are taken into account:</p> <p>Suggestions for improvements to be made during the drafting of the final project proposal:</p> <p>? In order to avoid duplication of efforts and leverage synergies, Germany strongly recommends (to continue) coordinating with the following local country offices of GIZ during project preparation as well as implementation: Benin, Mali and Zambia.</p>	<p>A key objective of AMP is to align and complement with the support of existing development actors in minigrids. In STP, the PPG team closely engaged with the project coordinator of the UNIDO/GEF project (also hosted by DGRNE) and at institutional level, with IRENA. At implementation level, UNDP, UNIDO and AfDB jointly fund the hybridization of the Santo Amaro power plant.</p> <p>UNDP acknowledges the potential for capacity building through the community of portuguese-speaking countries (PALOP), which is coordinated and financially supported b'y UNIDO.</p>
<p>STAP</p>	

1. The proposal presents an adequate list of stakeholders. However, the diesel generator industry is quite widespread in Africa and the project proponents need to consider how to ensure that they do not hinder project success. The project also need to consider incentives for alternative livelihoods for people involved in diesel generator industry.

2. What are the backups to prevent diesel generators from still being frequently used?

1. As explained in the ProDoc in the baseline there are existing isolated diesel systems in the islands, but they are weak and often does not possess any fuel. There are also existing hybrid/diesel pilots (Scheme 1) that the viability has been assessed in a SWOT amongst the various other renewable delivery models and the hybrid/diesel has many management flaws. A risk table has been also updated and provides mitigation measures to avoid further development of diesel systems for powering of minigrids. Please refer to the risk comment for a further explanation on the status of diesel.

2. In the case of STP, diesel is the main energy source for electricity generation to supply the main grid. It is government policy to reduce thermal (diesel) power and exploit domestic renewable energy sources. Moreover, the country's economy is too weak to pay for a sustained, reliable import of oil products, which has led to the declared energy crisis. (A substantial reduction of global oil commodity prices might alleviate the situation temporarily.)

In the absence of a robust generation and transmission infrastructure, the most likely scenario is therefore that existing large thermal power plants will remain on standby (often in deplorable conditions). The same is likely to happen in the three existing, isolated utility grids in the south of Sao Tome. Whether they remain operational and whether fuel will be available, is a question mark.

The GEF project considers upgrading/replacing of one or more of these minigrids, by a PV/battery generation. Hybridization with existing diesel may be an option to cover peak power. A detailed technical study shall determine the costs of fully phasing out the current diesel. Bottom line for AMP involvement is that these minigrids currently operated part-time by the utility, will become managed according to minigrid quality standards practices and exploited in a financially sustainable manner.

For other minigrids (microgrids around community services; and grid-tied minigrids with investment by end-users), diesel is not a viable option viz-a-viz PV/small battery storage.

Through the national dialogue and in line with government policy, the AMP will push forward for a full decarbonization of STP's power sector, which would be better adapted to STP's scale and physical conditions.

ANNEX C: Status of Utilization of Project Preparation Grant (PPG).
(Provide detailed funding amount of the PPG activities financing status
in the table below:

<i>Project Preparation Activities Implemented</i>	<i>GEF/LDCF/SCCF Amount (\$)</i>		
	<i>Budgeted Amount</i>	<i>Amount Spent To date</i>	<i>Amount Committed</i>
International Consultants	27,500	24,869	2,631
Local Consultants	12,500	7,500	5,000
Travel	3,000	966	2,034
Workshops	7,000	2,637	4,363
Total	50,000	35,972	14,028

ANNEX D: Project Map(s) and Coordinates

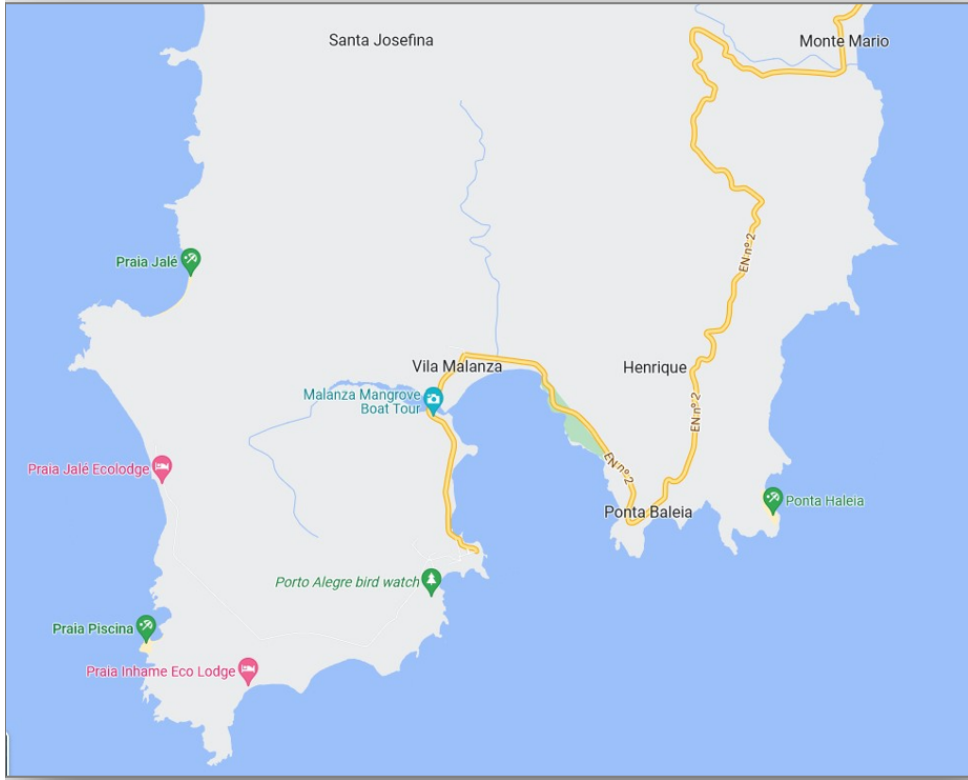
Please attach the geographical location of the project area, if possible.

São Tomé and Príncipe AMP Child Project (PIMS6657) ? Areas of Intervention				
	national territory	Mini Grid Scheme 1 Pilot Area	Mini Grid Scheme 2 Pilot Area	Mini Grid Scheme 3 Pilot Area
Description	whole of São Tomé and Príncipe:	Southern part São Tomé	São Tomé (peri-) urban area	
				0°15'01.5"N 6°42'37.1"E

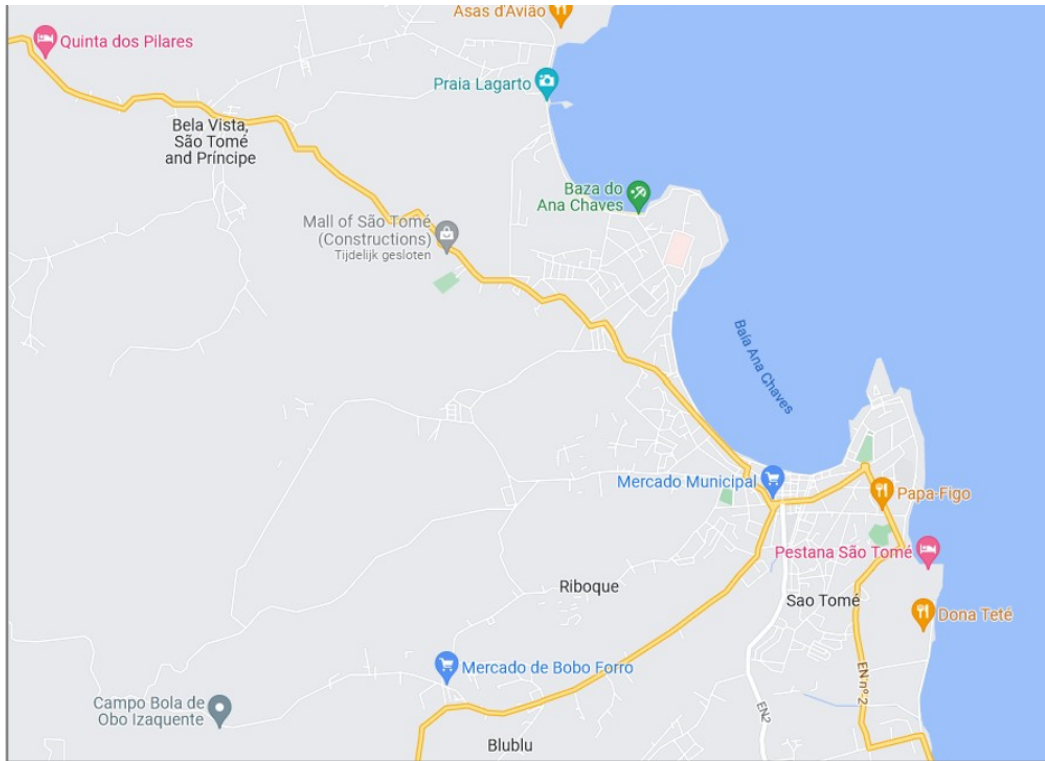
Overall Project Area: Island of Sao Tome



Mini Grid Scheme 1 Area: Southern part, between 0°04'26.2"N 6°30'15.7"E and 0°01'07.4"N 6°34'17.9"E



Mini Grid Scheme 2 Area: Sao Tome (peri-) urban area, between 0°22'28.9"N 6°40'16.5"E and 0°19'06.2"N 6°44'28.9"E



Equipm ent	(1.206k\$) Office equipment for PMU staff.							1,206	1,206	Director ate- General Natural Resourc es and Energy (DGRN E)
Equipm ent	(1k\$) Office equipment for digital system accommodati on.				1,000		1,000		1,000	Director ate- General Natural Resourc es and Energy (DGRN E)
Equipm ent	(1k\$) Office equipment for project consultants.		1,000				1,000		1,000	Director ate- General Natural Resourc es and Energy (DGRN E)
Equipm ent	(2k\$) Office equipment for project consultants.	2,000					2,000		2,000	Director ate- General Natural Resourc es and Energy (DGRN E)
Equipm ent	(740k\$) International procurement of minigrid equipment, ancillary works, support services, and data logger systems, as per technical specifications drafted by the Project team.		740,000				740,000		740,000	Director ate- General Natural Resourc es and Energy (DGRN E)

Equipm ent	(2k\$) 2 Laptops, printer, internet and I communication hardware and software for PMU staff.							2000	2,000	Director ate- General Natural Resourc es and Energy (DGRN E)
Equipm ent	(2k\$) Data communication equipment.		2,000				2,000		2,000	Director ate- General Natural Resourc es and Energy (DGRN E)
Equipm ent	(3k\$) 3 laptops, 2 monitors, printer, 2 digital cameras.	3,000					3,000		3,000	Director ate- General Natural Resourc es and Energy (DGRN E)
Equipm ent	(40k\$) International procurement of minigridd data management and supervision system; (1k\$) Procurement of ancillary devices and software.				41,000		41,000		41,000	Director ate- General Natural Resourc es and Energy (DGRN E)
Equipm ent	(12k\$) Project vehicle operational costs.	12,000					12,000		12,000	Director ate- General Natural Resourc es and Energy (DGRN E)

Equipm ent	(18k\$) Project vehicle operational costs.		18,000				18,000	18,000	Director ate- General Natural Resourc es and Energy (DGRN E)
Equipm ent	(5k\$) Project vehicle operational costs.				5,000		5,000	5,000	Director ate- General Natural Resourc es and Energy (DGRN E)
Sub- contract to executin g partner	(58.339k\$) Direct Project Costs as per LOA GEF- approved.						58,339	58,339	Director ate- General Natural Resourc es and Energy (DGRN E)

<p>Contractual services-Individual</p>	<p>(10k\$) One contract with national consultant as Project Manager (PM) for: (i) engagement with GoSTP stakeholders, market actors and CSOs; (ii) drafting of Terms of Reference for consultancies and procurement of services; (iii) quality assurance and overall supervision of contracted activities; (iv) engagement with AMP Regional Program partners for peer review of proposals, analysis of project approaches, and (v) participation in AMP events in STP and abroad.(10k\$) One contract with national consultant (Project MG / DREI Expert) for: (i) participation in design and implementation of data acquisition system under</p>				<p>20,000</p>	<p>20,000</p>		<p>20,000</p>	<p>Directorate-General Natural Resources and Energy (DGRNE)</p>
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<p>supervision of TA and PE; (ii) participation in functional and technical specification of minigrid data acquisition system; (iii) drafting of TOR and supervision of contracted services; (iv) participation in procurement and supplier selection process; (v) participation in training events on data acquisition system configuration and operation; and (vi) support for operation of system to GoSTP counterparts; and (vii) supervision of products, goods and services delivered by subcontractors.</p>								
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<p>Contractual services-Individual</p>	<p>(25k\$) One contract with national consultant as Project Manager (PM) for: (i) engagement with GoSTP stakeholders, market actors and CSOs; (ii) drafting of Terms of Reference for consultancies and procurement of services; (iii) quality assurance and overall supervision of contracted activities; (iv) engagement with AMP Regional Program partners for peer review of proposals, analysis of project approaches, and (v) participation in AMP events in STP and abroad.</p>			<p>25,000</p>		<p>25,000</p>		<p>25,000</p>	<p>Directorate-General Natural Resources and Energy (DGRNE)</p>
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<p>Contractual services-Individual</p>	<p>(30k\$) One national expert (PM) for (i) engagement with GoSTP stakeholders, market actors and CSOs; (ii) drafting of Terms of Reference for consultancies and procurement of services; (iii) quality assurance and overall supervision of contracted activities; (iv) engagement with AMP Regional Program partners for peer review of proposals, analysis of project approaches, (v) identification and reporting of operational issues and initiation of remedial actions; (vi) identification of opportunities for enhancement and/or upscaling of the pilots; (vii) progress reporting to PSC; and (viii) compilation of proposals</p>		<p>50,000</p>			<p>50,000</p>	<p>0</p>	<p>50,000</p>	<p>Directorate-General Natural Resources and Energy (DGRNE)</p>
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<p>and presentations to stakeholders. (20k\$) One contract with national consultant (Project MG / DREI Expert) for:</p> <ul style="list-style-type: none">(i) participation in technical design of minigrid pilots with TA and PE;(ii) collection of site information for specification of minigrid equipment and systems;(iii) participation in procurement and supplier selection process;(iv) participation in supervision of deliveries and installations;(v) site visits for monitoring of pilots and verification of operational data;(vi) fact-finding for ESMP monitoring and screening;(vii) participation in appraisal of								
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	operational issues; and (vii) identification of opportunities for enhancement and/or upscaling of the pilots.										
Contractual services-Individual	(37.396k\$) Contractual Services: Project Manager for project management activities, as per terms of reference.(28 k\$) Contractual services: Project Finance and Administrative Officer, as per Terms of Reference (3 years, 2/5 part-time).(28k\$) Contractual services: Project Procurement Specialist, as per Terms of Reference (3 years, 2/5 part-time).								93,396	93,396	Directorate-General Natural Resources and Energy (DGRNE)

<p>Contractual services-Individual</p>	<p>(73k\$) One national expert to assume the role of Project Manager (PM) combining technical and project management functions, with responsibilities including: (i) lead consultant to the Executive (MIRN/DGRNE) for minigrid policy dialogue and regulation development; (ii) engagement with GoSTP stakeholders, market actors and CSOs; (iii) drafting of Terms of Reference for consultancies and procurement of services; (iv) quality assurance and overall supervision of contracted activities; (vi) engagement with AMP Regional Program partners for peer review of proposals, analysis of project approaches,</p>	<p>88,000</p>				<p>88,000</p>	<p>0</p>	<p>88,000</p>	<p>Directorate-General Natural Resources and Energy (DGRNE)</p>
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<p>and (vii) participation in AMP events in STP and abroad; and (vii) compilation of proposals and presentations to stakeholders. (15k\$) One contract with national consultant to assume the role of Project MG / DREI Expert. Responsibilities include (i) participation in national DREI process with support of international DREI consultant and TA; (ii) participation in design and appraisal of technical standards; (iii) participation in stakeholder engagement and outreach activities; (iv) review of deliverables provided by contractors; and (v) reporting to TA and PM as requested.</p>								
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Contractual services-Company	(25k\$) One contract with specialized consultancy firm or institution for analysis of financial facility schemes and drafting of proposal for GoSTP and its partners.			25,000			25,000	25,000	Directorate-General Natural Resources and Energy (DGRNE)
Contractual services-Company	(34k\$) One contract with specialized consultancy firm or institution for execution of site-specific studies for minigrid pilot development. (50k\$) One contract with specialized national institution for design and execution of community development programme in communities targeted by minigrid pilots.		84,000				84,000	84,000	Directorate-General Natural Resources and Energy (DGRNE)

<p>Contractual services-Company</p>	<p>(35k\$) One contract with specialized consultancy firm or institution for design of minigrid regulatory instruments and advisory services. (50k\$) One contract with specialized consultancy firm or institution for execution of minigrid baseline studies including socio-economic and environmental surveys.(35k\$) One contract with specialized consultancy firm or institution for development of minigrid technical standards proposal as part of process driven by national stakeholders. (35k\$) One contract with national vocational education institution to implement technical training programme.</p>	<p>155,000</p>				<p>155,000</p>		<p>155,000</p>	<p>Directorate-General Natural Resources and Energy (DGRNE)</p>
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<p>International Consultants</p>	<p>(12k\$) One international M&E expert to support the IP during the Project's inception phase including: (i) detailing Project M&E Plan including indicators and milestones; (ii) update the first annual work plan (AWP) and procurement plan; (iii) provide guidance to IP on roles and responsibilities; (iv) provide continuity for stakeholder engagement; and (v) support IW preparation process.(19.349 k\$) One international Social and Environmental Safeguards Expert for: (i) periodic supervision of ESMF implementation; (ii) periodic SESP rescreening; and (iii) systematization of lessons learnt and recommendat</p>					<p>68,349</p>	<p>68,349</p>	<p>68,349</p>	<p>Directorate-General Natural Resources and Energy (DGRNE)</p>
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<p>International Consultants</p>	<p>(20k\$) International expert as Technical Advisor (TA) for: (i) team leader for design and implementation of data acquisition system and protocols in close coordination with AMP Regional Programme; (ii) drafting of TOR for contracted services; (iii) functional and technical specification of minigridd data acquisition system; (iv) drafting of TOR and supervision of contracted services; (v) participation in procurement and supplier selection process; (vi) supervision and reception of products, goods and services delivered by subcontractors; and (vii) progress reporting to PSC.(10k\$) One international expert to act as Project Engineer</p>				<p>30,000</p>	<p>30,000</p>		<p>30,000</p>	<p>Directorate-General Natural Resources and Energy (DGRNE)</p>
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<p>(PE) for: (i) design and implementation of data acquisition system under supervision of TA; (ii) technical specification of minigridd data acquisition system; (iii) drafting of TOR and supervision of contracted services; (iv) participation in procurement and supplier selection process; (v) participation in training events on data acquisition system configuration and operation; and (vi) supervision of products, goods and services delivered by subcontractors.</p>								
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<p>International Consultants</p>	<p>(20k\$) One international rural electrification as Project Technical Advisor (TA) with responsibilities including: (i) expertise and technical backstopping in minigrid financing models to GoSTP stakeholders; (ii) drafting of Terms of Reference for consultancies and procurement of services; (iii) quality assurance and overall supervision of contracted activities; (iv) engagement with AMP Regional Program partners for peer review of proposals, analysis of project approaches, and (v) participation in AMP events in STP and abroad.</p>			<p>20,000</p>			<p>20,000</p>	<p>20,000</p>	<p>Directorate-General Natural Resources and Energy (DGRNE)</p>
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<p>International Consultants</p>	<p>(50k\$) One international rural electrification expert at P3-level for 3.5 year period to assume the role of Project Technical Advisor (TA) with responsibilities including: (i) support to the Executive (MIRN/DGRNE) for minigrid policy dialogue and regulation development; (ii) expertise for technical standard development; (iii) delivery of expertise on derisking strategies and technical backstopping to GoSTP stakeholders; (iv) drafting of Terms of Reference for consultancies and procurement of services; (v) quality assurance and overall supervision of contracted activities; (vi) engagement with AMP Regional Program partners for</p>	<p>90,000</p>				<p>90,000</p>		<p>90,000</p>	<p>Directorate-General Natural Resources and Energy (DGRNE)</p>
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peer review of proposals, analysis of project approaches, and (vii) participation in AMP events in STP and abroad.(40k\$) One contract with DREI International Consultant as per TOR made available by AMP Regional Program.								
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<p>International Consultants</p>	<p>(75k\$) International expert as Technical Advisor (TA) for: (i) team leader for minigrid pilot design and implementation in collaboration with IP and Project Engineer (PE); (ii) drafting of TOR for contracted services (studies related to feasibility analysis and ESIA); (iii) leading feasibility study process with PE, IP stakeholders and local communities; (iv) technical specification of minigrid equipment and systems; (v) drafting of TOR and supervision of contracted services; (vi) participation in procurement and supplier selection process; (vii) supervision of products, goods and services delivered by subcontractors; (vii) lead</p>	<p>135,000</p>	<p></p>	<p></p>	<p></p>	<p>135,000</p>	<p></p>	<p>135,000</p>	<p>Directorate-General Natural Resources and Energy (DGRNE)</p>
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<p>consultant for monitoring of pilots and analysis of operational data; (vii) responsible for ESMP monitoring and screening; (viii) identification of operational issues and initiation of remedial actions; (ix) identification of opportunities for enhancement and/or upscaling of the pilots; and (x) progress reporting to PSC.(60k\$)</p> <p>One international expert to act as Project Engineer (PE) for: (i) technical design of minigrid pilots under supervision of TA; (ii) technical specification of minigrid equipment and systems; (ii) participation in procurement and supplier selection process; (iii)</p>								
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	<p>supervision of deliveries and installations;</p> <p>(iv) monitoring of pilot and analysis of operational data; (v) fact-finding for ESMP monitoring and screening;</p> <p>(vi) identification of operational issues and initiation of remedial actions; and</p> <p>(vii) identification of opportunities for enhancement and/or upscaling of the pilots.</p>									
Local Consultants	<p>(13k\$) One national gender expert for: (i) periodic supervision of Gender Action Plan implementation; and (ii) identification of issues and recommendations for enhancement.</p>					13,000	13,000		13,000	Directorate-General Natural Resources and Energy (DGRNE)

Training , Workshops, Meetings	(10k\$) Organization of training events and seminars/webinars.	10,000					10,000	10,000	Directorate-General Natural Resources and Energy (DGRNE)
Training , Workshops, Meetings	(10k\$) Organization of training events on digital system operation including webinars for minigrid operators I and other stakeholders.				10,000		10,000	10,000	Directorate-General Natural Resources and Energy (DGRNE)
Training , Workshops, Meetings	(5k\$) Organization of training events and webinars.			5,000			5,000	5,000	Directorate-General Natural Resources and Energy (DGRNE)
Training , Workshops, Meetings	(5k\$) Organization of training events.		5,000				5,000	5,000	Directorate-General Natural Resources and Energy (DGRNE)
Travel	(10k\$) International travel and DSA			10,000	10,000		20,000	20,000	Directorate-General Natural Resources and Energy (DGRNE)

Travel	(2k\$) Costs of domestic travel (land travel, fuel, DSA).							2000	2,000	Directorate-General Natural Resources and Energy (DGRNE)
Travel	(35k\$) International travel and DSA		35,000				35,000		35,000	Directorate-General Natural Resources and Energy (DGRNE)
Travel	(40k\$) International travel and DSA	40,000					40,000		40,000	Directorate-General Natural Resources and Energy (DGRNE)
Travel	(4k\$) International travel and DSA.					4,000	4,000		4,000	Directorate-General Natural Resources and Energy (DGRNE)
Other Operating Costs	(22k\$) Professional services for annual auditing of project financial status, delivered outputs, and financial, asset and human resources management.							22,000	22,000	Directorate-General Natural Resources and Energy (DGRNE)

Other Operating Costs	(10k\$) Media development costs, digital maps, technical design printing costs, project publications.			10,000				10,000	10,000	Directorate-General Natural Resources and Energy (DGRNE)
Other Operating Costs	(1k\$) Media development costs, printing costs, project publications.				1,000			1,000	1,000	Directorate-General Natural Resources and Energy (DGRNE)
Other Operating Costs	(2k\$) Media and printing of manuals and protocols.					2,000		2,000	2,000	Directorate-General Natural Resources and Energy (DGRNE)
Other Operating Costs	(9k\$) Media development costs, digital maps, technical standards printing costs, project publications.		9,000					9,000	9,000	Directorate-General Natural Resources and Energy (DGRNE)
Other Operating Costs	(1k\$) Supplies and communication costs.				1,000			1,000	1,000	Directorate-General Natural Resources and Energy (DGRNE)
Other Operating Costs	(2.059k\$) Supplies, insurances and communication costs.					2,059		2,059	2,059	Directorate-General Natural Resources and Energy (DGRNE)

Other Operating Costs	(3k\$) Supplies and communication costs, insurances.		3,000				3,000		3,000	Directorate-General Natural Resources and Energy (DGRNE)
Other Operating Costs	(4k\$) Supplies and communication costs.	4,000					4,000		4,000	Directorate-General Natural Resources and Energy (DGRNE)
	Total	413,000	1,083,000	87,000	121,059	85,349	1,789,408	178,941	1,968,349	

ANNEX F: (For NGI only) Termsheet

Instructions. Please submit a finalized termsheet in this section. The NGI Program Call for Proposals provided a template in Annex A of the Call for Proposals that can be used by the Agency. Agencies can use their own termsheets but must add sections on Currency Risk, Co-financing Ratio and Financial Additionality as defined in the template provided in Annex A of the Call for proposals. Termsheets submitted at CEO endorsement stage should include final terms and conditions of the financing.

ANNEX G: (For NGI only) Reflows

Instructions. Please submit a reflows table as provided in Annex B of the NGI Program Call for Proposals and the Trustee excel sheet for reflows (as provided by the Secretariat or the Trustee) in the Document Section of the CEO endorsement. The Agency is required to quantify any expected financial return/gains/interests earned on non-grant instruments that will be transferred to the GEF Trust Fund as noted in the Guidelines on the Project and Program Cycle Policy. Partner Agencies will be required to comply with the reflows procedures established in their respective Financial Procedures Agreement with the GEF Trustee. Agencies are welcomed to provide assumptions that explain expected financial reflow schedules.

ANNEX H: (For NGI only) Agency Capacity to generate reflows

Instructions. The GEF Agency submitting the CEO endorsement request is required to respond to any questions raised as part of the PIF review process that required clarifications on the Agency Capacity to manage reflows. This Annex seeks to demonstrate Agencies' capacity and eligibility to administer NGI resources as established in the Guidelines on the Project and Program Cycle Policy, GEF/C.52/Inf.06/Rev.01, June 9, 2017 (Annex 5).